# MENTALIZATION AND INTERPERSONAL PROBLEMS IN BORDERLINE PERSONALITY DISORDER (BPD) TRAITS

by

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BSc, University of Toronto, 2015

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF EDUCATION
IN
COUNSELLING

UN IVERSITY OF NORTHERN BRITISH COLUMBIA

NOVEMBER 2020

**Abstract**

Difficulties in mentalization may be a developmentally based foundation for interpersonal problems in Borderline Personality Disorder (BPD). Fonagy and colleagues have developed a theoretical framework whereby relationships between difficulties in mentalization and other core characteristics of BPD (i.e., insecure attachment, intrapersonal emotion dysregulation and identity diffusion) may underlie interpersonal problems. However, most of the published work on these aspects of the framework have been theoretical in nature. The aim of the study was to investigate this framework and extend it by including interpersonal emotion dysregulation. Simple and multiple mediation analyses were performed with a convenience sample of 64 undergraduate students. Results indicated that hypomentalizing mediated the relationship between BPD symptoms and interpersonal problems. No significant mediators were found between insecure attachment and interpersonal problems or between mentalization errors and interpersonal problems. Limitations include the sample size and the lack of a negative emotion induction and recommendations for future research are suggested.

## Table of Contents

**List of Tables**

**List of Figures**

**Acknowledgements**

To my supervisor, Dr. Heath Matheson, thank you for your support in this project and for the flexibility to explore ideas. I would also like to express gratitude to Dr. Annie Duchesne and Dr. Daniel Cox for their insight and presence on my committee. Dr. Linda O'Neill's clinical mentorship has been truly invaluable and I'm thankful for the ways that she's helped me think about personality disorders and attachment disturbances in both research and practice.

I am very appreciative of friends in my cohort who have cheerleaded me on from the very beginning, and a huge thanks goes to Kira, Kieran, Nivetha, and Karen. Much thanks as well to Erin and Whitney for always getting me off the hill for breaks. To my friends back home, I feel especially indebted to Harpreet, Katarina, and Marianthe who have continuously fueled me with their support and many laughs and have kept me grounded. To my family, a big thanks to my sister and aunt for all the listening they've done over the last two years. And my endless gratitude goes to my father for always believing in me and supporting me on my endeavors, and for the many delicious care packages that he has shipped.

Last but not least, I wish to thank the participants in this study for their participation and for the opportunity to learn from them, without whom, this research would not be possible.

## Chapter 1: Introduction

Borderline Personality Disorder (BPD) is a severe and heterogeneous personality disorder in The Diagnostic and Statistical Manual of Mental Disorders (DSM–5) and is characterized by instability across emotional, behavioural, cognitive, and relational domains (Stead et al., 2019). Compared to the general population, BPD is associated with a greater likelihood of completing suicide (Pompili et al., 2005) and approximately 65-80% of individuals cope by using nonsuicidal self-injury (Brickman et al., 2014). Given these types of impulsive and high-risk behaviours, BPD comes at a great cost to the individual, public health care system, and society. The population prevalence rate of BPD is approximately 1% (ten Have et al., 2016); however, the point prevalence is higher in outpatient clinics (approximately 12%) and inpatient clinics (approximately 22%; Ellison et al. 2018).

While there are existing effective treatments that reduce a wide variety of BPD symptomology there are impairments in interpersonal functioning that tend to remain (Wright et al., 2013; Zanarini et al., 2007). Interpersonal problems in BPD are described as "frantic efforts to avoid real or imagined abandonment" and "a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation" (American Psychiatric Association, 2013, p. 663). Interpersonal problems in BPD may be the most discriminative feature of the disorder (Euler et al., 2019) and tends to be characterized by lower relationships satisfaction (Zielinski & Veilleux, 2014), greater problems with interpersonal sensitivity and functioning (Drapeau et al., 2012), and more negative interactions, conflict and criticism (Beeney et al., 2018 ; Lazarus & Cheavens, 2017). Despite interpersonal problems being a core feature of BPD, it has been relatively under researched compared to other symptoms. Given how relational disturbances tend to precede high-risk behaviours in BPD, it is

imperative that we form an understanding of the social cognitive nature of interpersonal problems in BPD.

The concept of mentalization is one promising approach to understanding interpersonal problems in BPD (Fonagy et al, 2017b). Mentalization is defined as a social-cognitive process that refers to an individual's imaginative ability to interpret the behaviours of self and others' in terms of mental states (e.g., feelings, thoughts, desires, and intentions; Choi-Kain & Gunderson, 2008; Sato et al., 2018; Fonagy & Allison, 2012). The term "mentalization" is thought to be first used by Fonagy in 1989 (Bateman & Fonagy, 2010) and this theoretical framework of mentalization was originally developed for BPD (Køster, 2017). Impairments in mentalization are assumed to be fundamental to the maintenance of a wide array of BPD symptoms and has led to mentalization-based treatments (Bateman & Fonagy, 2010). Despite the prevalence of the concept of mentalization and how it's a general focus of most talking therapies, there has been little empirical research that has investigated the framework of mentalization in adults with BPD symptomology.

According to Fonagy et al.'s theoretical framework of mentalization (Fonagy et al., 2017b; Fonagy & Luyten, 2018; Bateman & Fonagy, 2006; Fonagy et al., 2004), insecure attachment patterns are thought to be a critical component that leads to the development of disrupted mentalization and produce a number of BPD symptoms. Insecure attachment patterns reflect early child-caregiver relationships in which caregivers behave in an inconsistent and unpredictable manner. From this, the developmental process of acquiring mentalization abilities is impeded and creates difficulties with intrapersonal emotion dysregulation (i.e., difficulties in the ability to regulate emotions in a way that enables individuals to meet their goals and behave effectively; Chapman, 2019) and identity diffusion (i.e., an incoherent sense of self where mental

states are inconsistent and in flux with difficulties differentiating self from others; Sollberger, 2013). This may help explain some of the interpersonal problems that are characteristic of BPD.

The primary purpose of this study is to explore Fonagy et al.'s theoretical framework and to further understand the relationships between mentalization, attachment, maladaptive behaviours and core characteristics of BPD. Below, I first discuss current challenges in measuring mentalization and the empirical evidence for the mentalizing profile of BPD. Then I provide a more theoretical overview of mentalization and associated concepts. Finally, I review the limited empirical evidence for Fonagy et al.'s framework in more detail and highlight the gaps in the current literature for adults with BPD.

## Chapter 2: Literature Review

### Various Dimensions of Mentalization

Luyten and Fonagy (2015) have proposed that the ability to mentalize is characterized by four socio-cognitive dimensions: (1) automatic (implicit) versus controlled (explicit) mentalization; (2) cognitive versus affective mentalization; (3) self-oriented versus other-oriented mentalization; and (4) internally focused versus externally focused mentalization. A brief overview of these dimensions will clarify the concept.

The first dimension refers to whether the mentalization process is automatic or controlled. Automatic (implicit) mentalization is assumed to be a common course of action and represents the most fundamental dimension (Bateman & Fonagy, 2012). This process is quick, requires little effort, and may occur outside of conscious awareness. It also lacks flexibility and involves biased assumptions about the self and others due to the lack of intentional reflection from the individual. Automatic mentalization is assumed to serve an evolutionary function for survival due to fight/flight responses benefiting from fast processing of the social environment

and may rely on simple heuristics (Luyten & Fonagy, 2015). Conversely, controlled (explicit) mentalization refers to a slower and more reflective (i.e., intentional) processing of information. It may be done in a sequential manner and can help to modify biased assumptions (Luyten & Fonagy, 2015; Fonagy & Luyten, 2009). In situations of high emotional arousal, the switch from automatic mentalization to controlled mentalization may become inflexible.

Second, cognitive mentalization and affective mentalization refers to how the act of mentalization can focus on cognitive or affective content (Choi-Kain & Gunderson, 2008). Cognitive mentalization is characterized by belief-desire reasoning (i.e., the thoughts and motivations that people have), perspective-taking, and involves controlled mentalization. In contrast, affective mentalization involves empathizing processes and mentalized affectivity (e.g., "the feeling and thinking-about-the- feelings"), and involves automatic mentalization; Luyten & Fonagy, 2015, p. 368). Effective mentalization requires the integration of both cognitive and affective mentalization (Fonagy et al., 2002; Fonagy & Luyten, 2009).

Third, the self and other mentalization dimension is related to the object of mentalization. As such, self-oriented mentalization refers to the ways in which an individual directs focus to their own mental internal states while other-oriented mentalization refers to the ways in which an individual focuses on the mental internal states of others (Gagliardini et al., 2018).

Lastly, internally-focused mentalization refers to inferences about mental internal states for self and others that are not directly visible (e.g., emotions and intentions), whereas externally-focused mentalization refers to inferences based on external features (e.g., inferring emotions and intentions from facial expressions, posture, physical gestures, vocal tonality etc.; Bateman et al., 2013; Luyten & Fonagy, 2015). Overall, it is thought that a person's mentalizing capacity can

be characterized by these different dimensions (Liljenfors & Lundh, 2015) and consists of both trait and state aspects (Sato et al., 2018).

Importantly, in this framework, mentalization is considered to be a basic human psychological process although the development of *successful* mentalization is a developmentally learned skill (Fonagy & Allison, 2014). People can temporarily lose the ability to mentalize and their abilities are dynamic over time. Mentalization abilities are context and relationship dependent (Luyten & Fonagy, 2015) and are generally intact unless there is severe emotional arousal or threatening interpersonal contexts (Fonagy & Luyten, 2009). Thus, mentalization is associated with psychopathology in terms of how readily a person can lose and regain one's mentalization abilities, as well as the degree of flexibility and balance in the four dimensions in response to the demands of different contexts (Bateman et al., 2013). For example, switching from automatic to controlled mentalization is highly relevant for understanding BPD, as individuals diagnosed with BPD may demonstrate specific impairments (i.e., unbalanced dimensions) rather than a general impairment in mentalization (i.e., the loss of mentalization capacity; Sato et al., 2018). Specifically, abilities in BPD may be best characterized by a tendency for automatic, external, and affective mentalization, with an instability in self and other mentalization (Fonagy et al., 2017a).

**The Mentalizing Profile of BPD**

Previous empirical studies have shown mixed findings regarding the mentalizing capacity of individuals with BPD. Some studies have shown no differences between BPD and controls (Arntz et al., 2009; Vaskinn et al., 2015; Normann-Eide et al., 2019; Ghiassi et al., 2010), while other studies have shown mentalization difficulties (Preißler et al., 2010; Andreou et al., 2015; Diamond et al., 2014), and superior abilities (Frick et al., 2012 ; Fertuck et al., 2009). In part, this

may be due to issues with the measurement of mentalization in current research. First, mentalization has been used to refer to other concepts that measure different processes (Jańczak, 2018); for example, mentalization is often used interchangeably with concepts such as "Theory of Mind" (ToM; Górska & Marszał, 2014). Mentalization is related to ToM; however, it is considered to be a broader concept (Luyten & Fonagy, 2015; Bo et al., 2017; see Górska & Marszał, 2014 for a discussion on their differences).

Second, studies have used a wide variety of mentalization tasks that differ greatly in complexity, which makes it problematic to amalgamate findings (Petersen et al., 2016). Most studies rely on self-report measures; however, such measures involve an individual's capacity to mentalize in order to answer questions about mentalization abilities (i.e., to judge their own capacity to mentalize; Fonagy et al., 2016). Further, studies that have shown enhanced mentalization abilities have typically used facial emotion recognition tasks, such as the commonly used Reading the Eyes in the Mind Test (RMET). These are passive tasks which predominantly assess the ability to infer emotional states of others using the photographs of the eye region (Harkness et al., 2010; Adams et al., 2009). Paradoxically, superior abilities on these tests are more likely to reflect a hypersensitivity to potential rejection, which may contribute to interpersonal problems (Fertuck et al., 2009). Individuals with BPD tend to demonstrate an enhanced ability to identify negative emotional states in other people (e.g., anger, disgust and fear), as well as a tendency to identify negative states when they are not present (Scott et al., 2011; Meehan et al., 2017). In contrast, studies that have shown impairments in mentalizing abilities between BPD groups and control groups have tended to use more ecological and complex tasks. Such tasks demand a higher order integration of social information (Sharp & Tackett, 2015) and are therefore more ecologically valid.

To meet the need for more ecologically valid measures of mentalization, the Movie for the Assessment of Social Cognition (MASC), a naturalistic and video-based instrument was developed (Dziobek et al., 2016). With the development of the MASC, it has become easier for researchers to characterize three types of impairments in mentalization: hypomentalizing, hypermentalizing and no mentalizing. First, hypomentalizing describes a reduced ability to reflect on complex mental models about other's mental states whereby individuals experience uncertainty about mental states. Second, hypermentalizing involves excessive interpretations about other's mental states without appropriate supporting evidence (Sharp et al., 2019). Third, no mentalizing refers to an absence of mentalization abilities where individuals may explain behaviours by making inferences based upon physical causality instead of other's mental states (Quek et al., 2019). However, empirical research on mentalization has still been limited by the lack of available ecological and complex instruments. The limited use of the MASC is demonstrated by a recent study in 2019, in which 48 papers were examined for the use of social cognitive measures in neuropsychiatric samples, including BPD. The MASC was found to be referenced in at least 10% of sample papers (Eddy, 2019). Further, a recent meta-analysis (Németh et al., 2018) looked at comparing mentalization/ToM between adults with clinical diagnoses of BPD and non-psychiatric samples and identified only 4 studies that used the MASC between 2009-2017.

With these characterizations, a number of findings can be summarized from the research literature. Adolescents with BPD have more consistently shown an association with hypermentalizing (Somma et al., 2019), whereas hypomentalizing with infrequent hypermentalizing is thought to be associated with BPD in adults (Fonagy et al., 2016). Empirical research with adults has shown mentalization errors characterized mostly by hypomentalizing

(Euler et al., 2019), as well as by hypermentalizing (Andreou et al., 2015) and no mentalizing (Somma et al., 2019; Fossati et al., 2018). Difficulties in mentalization may be related to symptom severity and vulnerabilities in personality functioning (Nazzaro et al., 2017) rather than BPD features specifically (Normann-Eide et al., 2019). Overall, the mentalization profile of BPD has yielded mixed findings for many reasons. Further research with more ecologically valid measures of mentalization is needed to examine relationships in Fonagy et al.'s theoretical of framework of mentalization in the context of interpersonal problems in BPD.

**Interpersonal Problems**

Interpersonal problems are considered a major feature of BPD (Euler et al., 2019). From a mentalizing perspective, interpersonal problems can be understood as communication failures (Fonagy et al., 2017b). If mentalization promotes the ability to create "hypotheses" about another person's mental states, then mentalization can act as a buffer in the sense that it deters impulsive conclusions about another's mental states, when someone behaves in an unanticipated manner. This is particularly relevant to assumptions that others are being intentionally harmful (Fonagy, 2000). BPD typically show hypersensitivity and emotional reactivity in the context of interpersonal interactions (Gunderson, & Lyons-Ruth., 2008; Dixon-Gordon et al., 2017) and negative cognitive biases in BPD may contribute to impairments in mentalization (Sato et al.,2018). Thus, difficulties with identifying different possible explanations for people's behaviours and their underlying motivations may contribute to the rigid interpersonal schema seen in BPD (Fonagy, 2000). For individuals who have experienced attachment disturbances there may be an even greater tendency toward negative interpretations of other people's mental states (Fonagy, 2000). Indeed, interpersonal situations require individuals to have flexibility in their interactions and social decision-making processes. Given how people express a wide range

of complex and subtle mental states, difficulties in mentalization may make it difficult for individuals to be attuned to others, modify their behaviour, and engage in effective social interactions.

**Development & Outcomes of Mentalization**

There are a number of additional constructs that may help characterize the relationship between mentalization and BPD. To fully develop the mentalization framework, it is necessary to investigate the ways in which these constructs help us understand mentalization as a source of interpersonal problems in BDP.

**From Attachment to Mentalization**

Attachment theory is central to the mentalization framework. Secure attachment is considered to be an important developmental basis for mentalization but it is one component of many different social learning processes that enable mentalization capacities to develop (Fonagy et al., 2017b). A primary goal of the attachment system is for the child to develop a relationship with their caregiver that enables them to feel safe and protected. To a great extent, the quality of attachment is contingent on how the caregiver responds to the child when they are in distress (i.e., the child's attachment system becomes activated; Benoit, 2004).

In broad terms, attachment patterns can be conceptualized as insecure or secure. Insecure attachment is made up of two dimensions: attachment anxiety and attachment avoidance. First, attachment anxiety refers to hypervigilance towards potential threats, separations, and betrayals in relationships (Mikulincer et al., 2003). Individuals tend to believe that they are unworthy of love and support and make negative attributions about their close relationships (Johnson et al., 2015). Second, attachment avoidance refers to a fear of closeness in relationships. Individuals

tend to deny their own attachment needs and minimize proximity to others in an attempt to reduce distress (e.g., fears of rejection; Read et al., 2018).

According to some theorists, early attachment experiences lead to the development of internal working models, internal representations that influence an individual's behaviour in future social relationships, and leads to beliefs about the self, relationships, and the world (McConnell & Moss, 2011). Infant attachment is thought to set the foundation for how relationships develop throughout adulthood and are related to various interpersonal problems (Smith & South, 2020; Hayden et al., 2017). While attachment patterns are moderately stable across the lifespan, they can be malleable with new relationships and life experiences (Lee & Hankin, 2009). Retrospective and longitudinal studies have shown that attachment disturbances in infancy predicts BPD symptoms in adulthood (Carlson et al., 2009; Bezirganian et al., 1993; Levy et al., 2005).

For a secure attachment relationship, the caregiver needs to engage in two mirroring processes in order for the child to develop the ability to understand and regulate their emotions: affect mirroring needs to be both contingent and marked (Fonagy & Allison, 2011; Choi-Kain & Gunderson, 2008). First, contingent affect mirroring refers to a caregiver's ability to reflect the child's mental states (e.g., sadness is mirrored by sadness and not fear) to the child with sufficient accuracy. Second, marked affect mirroring refers to a caregiver's ability to reflect the imagined mental state of the child in an exaggerated way while at the same time, conveying to the child that this mental state belongs to the child and not to them (Luyten & Fonagy, 2015; Bo & Kongerslev, 2017; Fonagy & Luyten, 2009). These processes enable the individual to develop (1) the awareness that they possess an independent mind with mental states that can be both

perceived and shared by others and, (2) develop an understanding of how self and other's mental states and behaviours are connected (Wallin, 2015; Bo & Kongerslev, 2017; Öner, 2010).

Problematic dyadic regulatory interactions are thought to interrupt these processes in BPD. Individuals with insecure attachment may have internal working models that hinder their ability to reflect on the mental states of others without becoming emotionally overwhelmed (Sharp et al., 2009). From the caregiver's difficulties to mentalize about the child's internal mental experiences in a consistent and accurate manner, the child becomes more likely to have an insecure attachment, which hinders the development of their mentalization abilities (Fonagy & Bateman, 2008).

**Intrapersonal Emotion Dysregulation**

Intrapersonal emotion dysregulation is a core features of BPD (Santangelo et al., 2014). These problematic mirroring processes abilities may play an important developmental role in intrapersonal emotional dysregulation processes (Fonagy & Luyten, 2018). More specifically, mentalization and intrapersonal emotional dysregulation are assumed to be interacting difficulties in BPD (Sharp et al., 2011) and may have the following cyclical relationship: impairments in mentalization produces intrapersonal emotion dysregulation which further compromises mentalization. This generates interpersonal problems as individuals may misinterpret social cues and struggle to process the meaning of social experiences and their own emotional reactions. In turn, this may result in greater emotional arousal with accompanying mentalization impairments (Fonagy et al., 2017b). As BPD is typically described as having difficulties in utilizing cognitive resources during mentalization, this may make emotion regulation processes more difficult, due to an over-reliance on automatic and emotion-based reasoning (Badoud et al., 2018).

**Identity Diffusion**

Identity disturbances are a central diagnostic feature of BPD (American Psychiatric Association, 2013) whereby the self and other mentalization dimension may be implicated (Fonagy & Luyten, 2015). The ability to mentalize about both self and other mental states is thought to be essential to the development of identity. More specifically, the ability to mentalize about other's mental states as being different from one's own states enables clearer boundaries between the self and others to exist (De Meulemeester et al., 2017). Additionally, individuals with BPD can be overly affected by other's emotional states which may result in emotion contagion. Individuals may feel like those emotional states are their own. They may be at risk for losing their sense of separateness and the experience of oneself as being unique, within interpersonal situations (Fonagy & Luyten, 2009; Fonagy et al., 2015). This is thought to lead to more inflexible and controlling behaviour within relationships in order to maintain a sense of self coherence, to avoid becoming overwhelmed by other's mental states (Fonagy et al., 2017a). Difficulties in being able to mentalize about other people's perceptions of oneself may also makes it more likely for identity problems (Livesley & Larstone et al., 2018). Indeed, individuals form their self-concept based on how they believe others to see them (Jones, 2015) and individuals with BPD may demonstrate greater negative self-attributes. As such, interpersonal problems may develop as individuals struggle within social interactions to differentiate themselves from other people and may confuse the mental states of self and others.

**Interpersonal Emotion Dysregulation**

Interpersonal emotion dysregulation is not explicitly mentioned in this framework of mentalization, but I argue it has clear relevance to it. Dixon- Gordon and team members (2018) operationalized interpersonal emotion dysregulation to include strategies of excessive

reassurance seeking and venting. This is a form of intrinsic interpersonal emotion dysregulation as individual's attempt to regulate their own emotions through social interactions (Hofmann, 2014). These maladaptive strategies provide individuals with short-term relief but may produce interpersonal problems and distress in the long-term (Dixon-Gordon et al., 2018). Most research has been conducted on intrapersonal emotion dysregulation whereas interpersonal emotional dysregulation has been relatively neglected in BPD. Given that it may be more efficient for individuals to regulate their emotions with the assistance of others as opposed to doing so alone (Barthel et al., 2018) and how challenging interpersonal contexts tend to precipitate high-risk behaviours in BPD, further investigation of these two strategies seem deserving of attention.

First, excessive reassurance seeking (i.e., to repeatedly seek reassurance from others) may be related to difficulties in mentalization. Individuals with BPD may find it challenging to infer other's mental states during social interactions; for example, they may have trouble differentiating between someone being annoyed at them or being bored in the conversation. As such, excessive reassurance seeking in BPD may function as a maladaptive means to cope with insecurities related to self and others and may also emerge from attachment anxiety as a means to cope with fears of abandonment and rejection (Mason et al., 2016). Due to these negative interpersonal factors that produce distress, there may be greater motivation to engage in attempts to understand others' mental states and to seek reassurance (Hudson et al., 2018). Further, when seeking reassurance from others, difficulties in mentalization may hinder an individual's ability to interpret the other person's response as being truthful (i.e., to believe their reassurances), which leads to further reassurance seeking (Hudson et al., 2018). This may lead to interpersonal problems as the recipient may become emotionally affected when their attempts to reassure are not accepted and become overtaxed (Eberhart & Hammen, 2009).

Second, venting emotions refers to a tendency to focus on experiences of distress and to express those feelings as a means to cope with distress; however, venting contributes to further negative emotions (Stanisławski, 2019). BPD has been related to venting emotions (Torres-Soto et al., 2019; Dixon-Gordon et al., 2018) and may be relevant due to the difficulties that individuals face with controlling negative affect such as anger (Kogan-Goloborodko et al., 2016). Due to difficulties with mentalization, individuals may become overwhelmed by affective mentalization at the expense of cognitive capacity. Feelings may not be understood in a greater context, there may be problems with gaining a greater understanding of the distressing situation, and discriminating between feelings and reality (Bateman & Fonagy, 2006; Bateman & Fonagy, 2016). This may produce venting as a maladaptive way to cope. Consequently, venting emotions may minimize social support and increase social isolation (Dixon Gordon et al., 2018).Overall, interpersonal emotion regulation is thought to depend on the ability to perceive other's mental states as this influences the decision to disclose personal experiences to other people (Williams et al.,2018). Difficulties in mentalization may lead to both of these maladaptive strategies as individuals may find it difficulties to effectively interpret social cues and may use these strategies when it is inappropriate to do so.

In sum, the mentalization framework suggests that the ability to mentalize depends on the quality of dyadic interactions between the caregiver (s) and the child, in the context of problematic affect mirroring and insecure attachment (Choi-Kain & Gunderson, 2008). During childhood, one learns how to make sense of self and other's mental states, which then allows them to label and make sense of their own experiences. This is thought to be foundational to the capacity for intrapersonal emotion regulation and the ability to experience a distinct and coherent sense of self (Fonagy & Target, 1997; Fonagy, 2000; Fonagy & Luyten, 2018). As such,

difficulties in mentalization may be a developmental basis for vulnerabilities to interpersonal problems in BPD (Fonagy et al., 2013; Somma et al., 2019).

**Empirical Evidence in BPD**

While a considerable amount of empirical research on mentalization has focused on attachment patterns, there is limited empirical research on the role of mentalization in other characteristics of BPD. Table 1 provides an overview of some of the key empirical studies on (1) insecure attachment, identity diffusion, intra and interpersonal emotion dysregulation (i.e., excessive reassurance-seeking and venting), and interpersonal problems and (2) the role of mentalization in these core characteristics of BPD. The empirical studies have been listed in the chronological order that they appear in this literature review.

**Table 1**

*Overview of the Empirical Studies Reported in the Literature Review. X Indicates Constructs that were Measured in Each Study*

| | BPD | Insecure Attachment | Mentalization | Intrapersonal Emotion Regulation | Venting | Excessive Reassurance Seeking | Identity Diffusion | Interpersonal Problems |
|---|---|---|---|---|---|---|---|---|
| Scott et al., 2009 | X | X | | | | | | |
| Badoud et al., 2018 | X | X | X | | | | | |
| Beeney et al., 2015 | X | X | X | | | | X | |
| Camoirano, 2017 | | X | X | | | | | |
| Zeegers et al., 2017 | | X | X | | | | | |
| Kaurin et al., 2019 | X | X | | | | | | X |
| Minzenberg et al., 2006 | X | X | | | | | | X |
| Hayden et al., 2019 | | X | X | | | | | X |
| Herr et al., 2013 | X | | | X | | | | |
| Stepp et al., 2014 | X | | | X | | | | |
| Sharp et al., 2011 | X | | X | X | | | | |
| Euler et al., 2019 | X | | X | X | | | | |
| Fossati et al., 2018 | X | X | X | X | | | | X |
| Normann-Eide et al., 2019 | X | | X | | | | | X |
| Leichsenring et al., 2003 | X | | | | | | X | X |
| Dammann et al., 2016 | X | | | | | | X | X |

**Table 1 (Continued)**

*Overview of the Empirical Studies Reported in the Literature Review. X Indicates Constructs that were Measured*

| | BPD | Insecure Attachment | Mentalization | Intrapersonal Emotion Regulation | Venting | Excessive Reassurance Seeking | Identity Diffusion | Interpersonal Problems |
|---|---|---|---|---|---|---|---|---|
| Fonagy et al., 2016 | X | X | X | | | | X | X |
| De Meulemeester et al., 2017 | X | | X | | | | X | X |
| Hudson et al., 2018 | | | X | | X | X | | X |

Most of the empirical research on mentalization in BPD has focused on insecure attachment experiences. Attachment anxiety and BPD have been related in numerous studies whereas the relationship between attachment avoidance and BPD has been less consistent (Scott et al., 2009). Insecure attachment has also been linked with difficulties in mentalization in BPD (Badoud et al., 2018; Beeney et al., 2015). Current research provides preliminary support for Fonagy's framework in two main areas: (1) greater parental mentalization may impact a child's attachment security and mentalization abilities (Camoirano, 2017; Zeegers et al., 2017) and, (2) conceptually related variables (e.g., alexithymia) may mediate the relationship between insecure attachment and BPD symptoms, and highlights the need for research to examine mentalization (Badoud et al., 2018). However, this area of research has been limited due to difficulties assessing mentalization abilities when the attachment system is activated. The combined use of the Adult Attachment Interview (AAI; George et al., 1996) and the Reflective Functioning Scale (RF; Fonagy et al., 1998) is considered to be the gold standard for measuring mentalization (Antonsen et al., 2016). Although, its practical application is limited as it's a time-consuming measure that requires extensive training to code the interviews.

Despite the well-established empirical links between attachment patterns and interpersonal problems and negativity (Kaurin et al., 2019; Minzenberg et al., 2006), the potential underlying mechanism of mentalization has received little to no attention. One recent study demonstrated that difficulties in mentalization mediated the relationship between both dimensions of attachment and interpersonal distress. Symptom severity was a strong confounding factor (Hayden et al., 2019). However, these findings may not be generalizable to BPD as this study used a diverse clinical sample. Furthermore, authors used the Mentalization Questionnaire (MZQ; Hausberg et al., 2012), which was developed from patient's case studies in

the existing literature on mentalization and psychopathology. The MZQ been regularly used in BPD samples and was developed to measure the change in mentalization abilities from psychotherapy. Unlike the MASC, this measure doesn't provide insight into the types of mentalization errors that individuals experience. It's also possible that the self-report measure is capturing attitudes towards mentalization as opposed to mentalization abilities (Hausberg et al., 2012).

There is also preliminary evidence to suggest that mentalization plays a role in intrapersonal emotion dysregulation and identity diffusion; however, there is a relative dearth of empirical studies that have looked at these concepts together, let alone with interpersonal problems. First, intrapersonal emotion dysregulation influences interpersonal problems (Herr et al., 2013; Stepp et al., 2014). Further, preliminary evidence suggests that hypermentalizing (Sharp et al., 2011), hypomentalizing (Euler et al., 2019), and no mentalizing (Fossati et al., 2018) may be related to intrapersonal emotion dysregulation. The relationship between no mentalizing and intrapersonal emotion dysregulation was explained by the symptom severity of BPD (Fossati et al., 2018).To the best of my knowledge, there is only one study that looked at intrapersonal emotion dysregulation, mentalization, and interpersonal problems simultaneously in adults with BPD. Euler and colleagues (2019) used the Reflective Functioning Questionnaire (RFQ-54; Fonagy et al., 2016) to measure mentalization abilities and conducted different path models. Findings demonstrated that hypomentalizing predicted interpersonal problems due in part to intrapersonal emotion dysregulation and attentional impulsiveness. Due to potential problems with the validity of the RFQ's hypermentalizing scale (Euler et al.,2019), it's uncertain as to whether a similar relationship with hypermentalizing exists. Another study demonstrated a

moderate relationship between hypermentalizing and interpersonal problems in BPD when the MASC was used to assess mentalization (Normann-Eide et al., 2019).

Second, identity diffusion has been empirically related to interpersonal problems (Leichsenring et al., 2003; Dammann et al., 2016). Three studies have shown a relationship between difficulties in mentalization and identity diffusion (Fonagy et al., 2016; Beeney et al., 2015). In a sample of BPD patients, a mediational analysis demonstrated that hypomentalizing may influence identity diffusion and in turn, identity diffusion may produce interpersonal problems (De Meulemeester et al., 2017). Beeney and colleagues (2015) examined a range of BPD symptoms whereas the other two studies looked specifically at clinically significant BPD symptoms. Due to the small body of research, it is unclear as to the relevance and nature of these relationships in different degrees of BPD symptom severity.

Lastly, there are empirical associations between excessive reassurance- seeking, venting, and greater interpersonal problems and stress in an undergraduate sample with BPD features (Dixon-Gordon et al., 2018). However, there is a dearth of research on mentalization and interpersonal emotion dysregulation (i.e., venting and excessive reassurance-seeking). One study by Hudson and team members (2018) used the RMET with participants who have a clinical diagnosis of a depressive disorder. Findings demonstrated that difficulties in decoding and reasoning about other's mental states were related to excessive reassurance-seeking and in turn, this was related to interpersonal stress. Given the different quality of interpersonal stress and problems in BPD, further research on interpersonal emotion dysregulation (i.e., venting and excessive reassurance-seeking) and mentalization is warranted. To the best of my knowledge, there are no studies that have looked at mentalization and interpersonal emotion dysregulation in BPD.

In sum, preliminary empirical research has been consistent with Fonagy et al.'s theoretical framework to the extent that insecure attachment give rise to difficulties in mentalization and difficulties in mentalization gives rise to both intrapersonal emotional dysregulation and identity diffusion. Each of the constructs, as well as difficulties in mentalization, have been empirically associated with interpersonal problems. Nonetheless, very few studies have looked at the relationships between mentalization and these relevant constructs, and how they might underlie interpersonal problems. Due to the frequent use of self-report measures in mentalization research and their associated problems, there is the need for research to examine these relationships using an ecologically valid measure of mentalization, such as the MASC.

## Chapter 3: Methods

The primary purpose of this research study was to address gaps in the current literature and examine the relationships between mentalization, attachment, core characteristics of BPD and maladaptive behaviours that may underlie interpersonal problems. This study used a dimensional approach to BPD and examined the degree of BPD symptomology in a sample of university students. The dimensional model of personality disorder diagnoses views personality features as existing along a continuum (Gøtzsche-Astrup & Moskowitz, 2015). Extensive research has supported a dimensional model of BPD and has shown that the construct of BPD can be explained by dimensions of personality traits and functioning (Hopwood et al., 2018).

### Aims of the Study

Based on the research reviewed here, I investigated three relationships that are understudied but critical for understanding the mentalization framework. I hypothesized that BPD symptoms will mediate the relationship between mentalization errors (hypomentalizing,

hypermentalizing and/or no mentalizing) and interpersonal problems (H1). Further, I hypothesized that mentalization errors (hypomentalizing, hypermentalizing and/or no mentalizing) will mediate the relationship between attachment anxiety and interpersonal problems (H2). Lastly, I conducted an exploratory mediation analysis to examine multiple potential mediators (i.e., venting, excessive reassurance seeking, intrapersonal emotion dysregulation, and identity diffusion) for the process by which hypomentalizing, hypermentalizing and/or no mentalizing may influence interpersonal problems in BPD . As such, I also proposed a novel relationship whereby mentalization errors influences interpersonal problems through venting and excessive reassurance seeking.

**Participants and Recruitment**

This study used convenience sampling and included 64 participants from the SONA subject pool[1] at the University of Northern British Columbia (UNBC). SONA is an online platform that allows students enrolled in psychology courses to participate in psychological research being conducted at UNBC. Participants ranged in age from 18 to 34 years and the majority of participants identified as female (76.6%). The rest of the participants identified as male (21.9%) and gender variant/ non-binary (1.6%). Participants' reported ethnicities were mostly white European (34.4%) and white North American (31.3%). In terms of participant's BPD symptom severity, the majority of participants had mild symptoms (75.4%) and the remaining participants had high symptoms (14.75%) and no or low symptoms (9.84%; see below for measurement). Please see Table 2 for more detailed demographic data.

[1] Our initial sample size target was 200 participants, but due to the onset of the Covid-19 pandemic, data collection was interrupted and interfered with in the spring and summer of 2020.

**Table 2**

*Sample Demographics and Descriptive Statistics*

| Characteristic | *n* (%) |
|---|---|
| **Age (years)** | |
| 18-24 | 57 (89.1) |
| 25-34 | 7 (10.9) |
| **Gender** | |
| Female | 49 (76.6) |
| Male | 14 (21.9) |
| Gender Variant/Non-binary | 1 (1.6) |
| **Total Household Income** | |
| $20,000 - $34,999 | 12 (18.8) |
| $35,000 - $49,999 | 4 (6.3) |
| $50,000 - $74,999 | 8 (12.5) |
| $75,000 - $99,999 | 9 (14.1) |
| > $100,000 | 12 (18.8) |
| Prefer not to answer | 4 (6.3) |
| **Highest Degree of Education that Parents Completed** | |
| Did not complete High School | 1 (1.6) |
| Completed High School | 18 (28.1) |
| Some College/University | 31 (48.4) |
| Completed Undergraduate Degree | 8 (12.5) |
| Completed Graduate Degree | 4 (6.3) |
| Prefer not to answer | 2 (3.1) |

## Measures

**Demographic Questionnaire.** A questionnaire was administered assessing common demographic variables such as age, gender, and ethnicity.

**BPD Symptoms.** The Borderline Symptom List – 23 (BSL-23; Bohus et al., 2009) is a 23-item self-report questionnaire that measures BPD symptomology. This measure has been used in non-clinical BPD samples with good reliability and validity (Skutch et al., 2019) and has been used to assess BPD symptoms in undergraduate samples (Meaney et al., 2016; Fitzpatrick et al., 2018). The BSL-23 items are based on diagnostic criteria from (1) the DSM- 5 (e.g., dissociative symptoms, affective instability, suicidal behaviours and non-suicidal self-injury), (2) the revised version of the Diagnostic Interview for BPD (3) borderline-typical empirical findings (e.g., proneness to shame and self-disgust and problems with trust) and, (4) the experiences of clinical experts and individuals with BPD (Kleindienst et al., 2020).

Items are rated on a Likert scale from 0 (not at all) to 4 (very strong). As per the authors recommendation, if participants did not answer at least 21 of the items, the data for the participant was not analyzed. To examine the global score, mean scores were calculated, and higher scores indicated more severe BPD symptoms. The degree of symptom severity for BPD is represented by the following mean scores : none or low : 0-0.3 ; mild: 0.3–0.7; moderate: 0.7–1.7; high: 1.7–2.7; very high: 2.7–3.5; and extremely high: 3.5–4. The authors of the BSL-23 established six categories of symptom severity and validated their classification cut offs with other established assessments of BPD and functioning (Kleindienst et al., 2020). Internal consistency for the BSL-23 is excellent as Cronbach's α ranges from .94 to .97; Bohus et al., 2009). For the BSL-23 and for each subsequent measure, the internal consistency was calculated in SPSS using the reliability analysis. Internal consistency reflects the inter-relatedness of the test

items and the extent to which the items in the measure are assessing the same construct (Tavakol & Dennick, 2011). In the current sample, the internal consistency for the BSL-23 was excellent with Cronbach's α = .92.

**Interpersonal Problems.** The Inventory of Interpersonal Problems-32. (IIP-32; Horowitz et al., 2000) is a 32-item self-report questionnaire that measures the extent to which individuals experience difficulty with various interpersonal problems. Participants are asked to rate distressing interpersonal behaviour as "hard to do" (i.e., behavioural inhibition) or "does too much" (i.e., behavioural excess; Carter et al., 2012; Haggerty et al., 2013). Items are rated on a Likert scale from 0 (not at all) to 4 (extremely). The global score is a sum of the 32 individual items. Higher global scores reflect greater levels of interpersonal difficulties and distress. The global score was used in this study as BPD does not show any consistent circumplex profile or specific theme which may reflect the heterogeneous nature of their interpersonal problems (Wright et al., 2013; Girard et al., 2017). The internal consistency for the IIP-32 has a Cronbach's α that range from .68 to .93 and in the current study, the measure had good internal consistency, Cronbach's α =.86.

**Mentalization.** The Movie for the Assessment of Social Cognition (MASC; Dziobek et al., 2006) is a 51-item video-based questionnaire. It measures the participant's ability to infer the mental states of others (i.e., to mentalize) in social situations that are meant to approximate typical social interactions. Participants are instructed that they are about to watch a 15-minute video about 4 characters who are meeting for dinner, that the video will be stopped multiple times, and they will be asked questions about the character's thoughts and feelings. Before watching the video, participants are familiarized with the characters and shown photographs of the character's faces and names. The audio is originally in German but has been dubbed in

English and has been commonly used in English research studies. Dubbing has not been reported by participants as being problematic (Dziobek et al., 2006).

The video has 46 segments, after each video segment, participants will be asked multiple choice questions that use the format of "What is Sandra feeling?" or "What is Michael thinking?" or "What is Betty's intention?" (Dziobek et.al, 2006, p. 627). For the purpose of this study, I assessed (1) hypermentalizing[2]; e.g., "hates Michael and wants him to leave"; (2) no mentalizing; e.g., "five cups of cream would be too much for the sauce"; and (3) hypomentalizing; e.g., "astonished that Michael knows she likes cream". To control for memory and general understanding, participants were also asked 6 control questions that ask participants to make non-social inferences (e.g., "what kind of pasta sauce are the four characters preparing?"; Dziobek et al., 2006). For the global score of each of the three subscales, one point was added per response and summed (Sharp et al., 2016) and used in the analysis. In a clinical BPD sample, the total scale of the measure had good internal consistency with a Cronbach's alpha of .86 (Preißler, et al., 2010). In this study, the internal consistency of the MASC was also good with Cronbach's $\alpha = .73$[3].

**Attachment Anxiety.** The Experiences in Close Relationships-Revised Questionnaire. (ECR-R; Fraley et al., 2000) is a 36-item self-report questionnaire that measures attachment-related anxiety and avoidance in emotionally intimate relationships. In this study, only attachment anxiety was examined[4]. Items are rated on a Likert scale from 1 (strongly disagree) to 7 (strongly agree). The scale showed excellent internal reliability with Cronbach's alpha = .95

[2] While the MASC uses the ToM terminology, this paper is adopting the mentalization terminology, whereby hypermentalizing reflects the MASC subscale of "excessive ToM", an absence of mentalization reflects the subscale of "no ToM" and hypomentalizing reflects the subscale of "less ToM".
[3] Originally, I also measured mentalization with the Reflective Functioning Questionnaire (RFQ-8; Fonagy et al., 2016) but decided not to use it as it lacks ecological validity.
[4] Originally, I also included attachment avoidance; however, I decided not to use it as BPD is less consistently associated with attachment avoidance compared to attachment anxiety.

(Sibley & Liu,2004). In the current sample, attachment-related anxiety had excellent internal reliability, with Cronbach's α = .90.

**Intrapersonal Emotion Dysregulation.** Difficulties in Emotional Regulation Strategies. (DERS; Gratz & Roemer, 2004) is a 36-item self-report questionnaire that measures 6 factors: (1) Non acceptance of Emotional Responses; (2) Engaging in Goal Directed Behaviours; (3) Impulse Control Difficulties; (4) Lack of Emotional Awareness; (5) Limited Access to Emotion Regulation Strategies; and (6) Lack of Emotional Clarity (i.e., the ability to understand the origins of your emotions). Items are rated on a Likert scale from 1 (almost never) to 5 (almost always). The total DERS score was used in the current study and higher scores indicate greater emotion dysregulation. This measure has excellent internal consistency, with Cronbach's α = .93; Gratz & Roemer, 2004) and in the current sample, the internal consistency was also excellent, with Cronbach's α = .95.

**Identity Diffusion.** Identity diffusion Subscale of the Inventory of Personality Organization. (IPO; Lenzenweger et al., 2001) is a 21-item self-report questionnaire that measures the degree to which an individual is able to develop a distinct and coherent identity. Items are rated on a Likert scale from 1 (never true) to 5 (always true). The total score was used in this study and higher scores reflect a higher degree of identity diffusion. This measure's Cronbach's α ranges from to .84 to .90 (Dagnall et al., 2018). In the current study, the measure had good internal consistency with Cronbach's α =.87.

**Interpersonal Emotion Dysregulation.** Difficulties in Interpersonal Regulation of Emotions (DIRE; Dixon-Gordon et al., 2018) is a 21-item self-report questionnaire. It measures the likelihood of individuals using certain interpersonal strategies to regulate their emotions and has 4 subscales that measure excessive reassurance seeking, venting, avoidance and acceptance.

The current study only used the excessive reassurance seeking and venting subscales : excessive reassurance seeking (e.g., "keep contacting (texting, calling, etc.) friends and loved ones") and venting emotions (e.g., "complain to friends or acquaintances about your significant other"). Items are rated on a Likert scale from 1 (very unlikely) to 5 (very likely). Higher scores for each subscale indicate greater interpersonal emotion dysregulation. Both scales had good internal consistency with excessive reassurance seeking: Cronbach's $\alpha = .82$ and with venting: Cronbach's $\alpha = .78$ (Dixon-Gordon et al., 2018). In the current sample, internal consistency for venting was acceptable, with Cronbach's $\alpha = .67$, and was good for excessive reassurance seeking, with Cronbach's $\alpha = .82$.

**Procedure**

Through SONA, participants were directed to Survey Monkey (an external survey platform) and in order to participate in the study, participants had to be fluent English speakers and have access to a computer with internet service. There were no exclusion criteria for this study. Participants received a 1% course credit for their participation. The Research Ethics Board of the University of Northern British Columbia approved this study.

Questionnaires were administered online through Survey Monkey. Prior to the questionnaires, participants were informed about the study through a short description. They were instructed to complete the study in a single sitting and to turn off any electronic devices and instant messaging apps that would interfere with their concentration. On the consent form, participants were required to respond correctly to three multiple choice questions in order to continue their participation. After obtaining consent, participants completed demographic questions, including age, gender, ethnicity, and parent's level of education, and proceeded to a number of online measures. Based on best practice recommendations for data screening

(Desimone and Desimone, 2014), three attention checks were dispersed throughout the questionnaires. The questions were: (1) Who is the current president of the United States: George W. Bush, Kim Jong-un, Donald Trump or Justin Trudeau?; (2) Is grass green: Yes or No?; and (3) What colour are pandas: Black, Black and Blue, Blue, or Black and White? Participants needed to answer all three questions correctly for their data to be included. Once the tasks were completed, participants were thanked for their participation and directed to the debriefing form. This form gave access to a list of regional mental health telephone and chat lines resources for emotional support. Participants were also provided with an online activity that was intended to provide a step-by-step exercise in self-care. The study took approximately one hour to complete.

**Data Analytic Plan**

Four outlier responses were identified through the use of Z-scores (more than three standard deviations from the mean) and a review of each outlier did not indicate invalid responding from the participants. After removing those participants from the analysis, the remaining data was visually inspected for normality through histograms, and kurtosis and skewness statistics were also checked for normality. All scales were normally distributed. Next, I tested the assumption of homoscedasticity with the use of scatter plots. The assumption was met as the standardized residuals and the standardized predicted values did not have any obvious pattern. A visual inspection of the residuals in the P-P plot showed a normal distribution.

In the first step of the analysis, I conducted Pearson correlation coefficients of all the variables in the study. Before testing for mediation, I assessed multicollinearity for the independent variables by examining the variance inflation factor (VIF). Multicollinearity is present when the VIF is higher than 5 to 10 (Kim, 2019) and in this study, the value of the VIF

was 1, which indicates that there was no significant correlation between the 3 mentalization errors.

Next, I conducted single and multiple mediation models to test my hypotheses and exploratory research question. Ordinary Least Squares (OLS) regression was conducted with Preacher and Haye's PROCESS macro within SPSS, model 4, to compute the different mediation analyses. These models estimate: (1) the relationship between the independent variables and the mediators, *a*-path; (2) the relationship between the mediators and the dependent variables when holding the effects of the independent variable constant, *b*-path; (3) the direct effects (i.e., the effect of the independent variable on the dependent variable, holding the effects of the mediators constant), *c'*-path ; (4) the total effects (i.e., the relationship between the independent variable and the dependent variable), *c*-path; (5) the indirect effects (i.e., the mediation effects) are the relationships between the independent variables on the dependent variable through the mediators, by multiplying the above *a* and *b* coefficients (a*b; Loeys et al., 2015; Meule, 2019; Fairchild & McDaniel, 2017).

Originally, I conducted a series of exploratory multiple mediation models with age, gender and BPD symptoms as covariates. However, due to the small sample size, I conducted separate mediation models to test my hypotheses, with each mentalization error analyzed separately. I performed a total of 9 mediation models to test my hypotheses and examine my exploratory research question: 6 models were single mediation models and 3 of them were multiple mediation models.

PROCESS utilizes bootstrapping in mediation analyses to estimate confidence intervals. The bootstrapped confidence intervals in this study were based on the default PROCESS option of 5,000 re-samples. When the upper and lower confidence intervals do not contain a zero than

the indirect effect (i.e., the mediation effects) is different than zero and is therefore statistically significant (Turnes & Ernst, 2015). The means, standard deviations, and Pearson correlations coefficients are shown below in Table 3. For all analyses, an alpha level of .05 was used and unstandardized regression coefficients were reported in this study in order to facilitate interpretation.

## Chapter 4: Results

### Pearson Correlation Coefficients

BPD symptoms showed a significant positive relationship with hypomentalizing as measured by the MASC, $r$ (60) = .28, $p$ = .03, and showed a significant positive relationship with intrapersonal emotion dysregulation, $r$ (61) = .32, $p$ = .01, identity diffusion, $r$ (61) = .51, $p$ < .001, and interpersonal problems, $r$ (61) = .48, $p$ <. 001.

Attachment anxiety showed a significant positive relationship with BPD, $r$ (61) = .43 $p$ <. 001, and a significant positive relationship with interpersonal problems, $r$ (62) = .51, $p$ < .001, $r$ (62) = .32, $p$ = .01. Attachment anxiety did not show any significant relationship with any of the three mentalization errors.

With regards to the relationship between mentalization errors and characteristics of BPD, only no mentalizing showed a significant positive relationship with identity diffusion, $r$ (61) = .29, $p$ = .02. None of the three mentalization errors showed a significant relationship with interpersonal problems. Interpersonal problems showed a significant positive relationship with venting, $r$ (63) = .27, $p$ = .03, intrapersonal emotion dysregulation, $r$ (63) = .43, $p$ < .001, identity diffusion, $r$ (63) = .67, $p$ < .001.

**Table 3**

*Pearson Correlation Coefficients and Descriptive Statistics*

| Measure | Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MASC | 1. Hypermentalization | - | | | | | | | | | |
| MASC | 2. Hypomentalization | -.11 | - | | | | | | | | |
| MASC | 3. No mentalization | -.03 | .11 | - | | | | | | | |
| BSL-23 | 4. BPD Symptoms | .04 | **.28*** | .21 | - | | | | | | |
| DIRE | 5. Excessive Reassurance Seeking | -.13 | -.05 | -.10 | -.03 | - | | | | | |
| DIRE | 6. Venting | -.18 | -.03 | .15 | -.06 | **.47**$^{**}$ | - | | | | |
| DERS | 7. Intrapersonal Emotion Regulation | .17 | -.12 | .11 | **.32**$^{**}$ | -.15 | .19 | - | | | |
| ECR | 8. Attachment Anxiety | -.11 | .10 | .18 | **.43**$^{**}$ | -.04 | **.28**$^{*}$ | **.47**$^{**}$ | - | | |
| IPO | 9. Identity Diffusion | -.05 | .16 | **.29*** | **.51**$^{**}$ | -.06 | **.28**$^{*}$ | **.57**$^{**}$ | **.61**$^{**}$ | - | |
| IIP | 10. Interpersonal Problems | .03 | .18 | .20 | **.48**$^{**}$ | -.13 | **.27*** | **.43**$^{**}$ | **.51**$^{**}$ | **.67**** | - |
| | M | 6.72 | 3.32 | 3.63 | 1.06 | 18.16 | 13.97 | 30.03 | 3.67 | 56.58 | 46.66 |
| | SD | 2.87 | 2.51 | 1.51 | .61 | 5.46 | 4.44 | 8.16 | 1.00 | 11.20 | 15.05 |

*Note*. MASC = Movie for the Assessment of Social Cognition. BSL-23= Borderline Symptom List. DIRE = Difficulties in Interpersonal Regulation of Emotions. DERS = Difficulties in Emotion Regulation Strategies. ECR= Experiences in Close Relationships. IPO = Inventory of Personality Organization. IIP = Inventory of Interpersonal Problems. Correlations and descriptive statistics are based on untransformed scores. *p < .05, **p <.01. Significant correlations are bolded.

**Single Mediation Model**

***Hypothesis 1***

First, I ran three single mediation models to examine the associations between hypomentalizing, hypermentalizing, and no mentalizing errors and interpersonal problems, through BPD symptoms, see Table 4

**Table 4**

*Unstandardized Coefficients for Single Mediation Models Examining Associations Between Mentalization Errors on Interpersonal Problems*

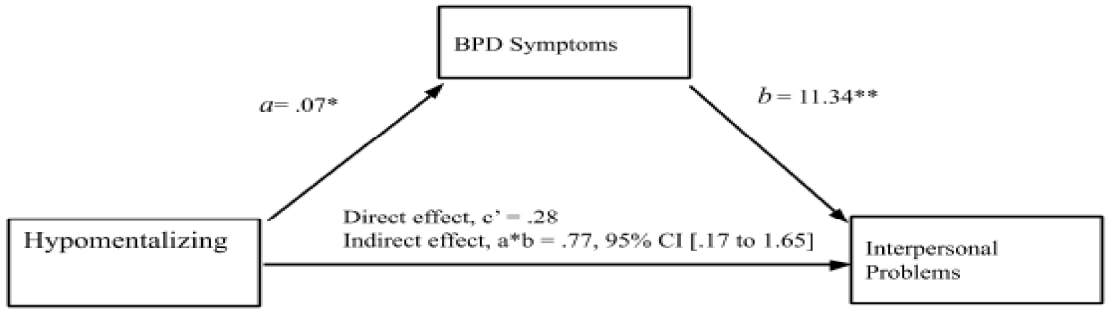
| Independent Variable (IV) | Mediator (M) | Effect of IV on M (a) | Effect of M on DV (b) | Direct effect (c') | Indirect effect (a x b) | Indirect effect 95% CI | Total effect (c) |
|---|---|---|---|---|---|---|---|
| Hypo-mentalizing | BPD Symptoms | .07* | 11.34** | .28 | **.77** | **.17 to 1.65** | 1.06 |
| Hyper-mentalizing | BPD Symptoms | .01 | 11.73** | .15 | .09 | -.63 to .67 | .24 |
| No-mentalizing | BPD Symptoms | .08 | 10.76** | 1.35 | .90 | -.18 to 2.60 | 2.25 |

*Note*. IV = hypomentalizing, hypermentalizing, and no mentalizing; DV = interpersonal problems; bolded confidence intervals do not include a zero, indicating a significant indirect effect. *p < .05. **p <.01.

Consistent with hypothesis 1, there was a significant indirect effect of hypomentalizing on interpersonal problems through BPD symptoms, *b* = .77, 95% BCa CI [.17, 1.65], see Figure 1.

**Figure 1**

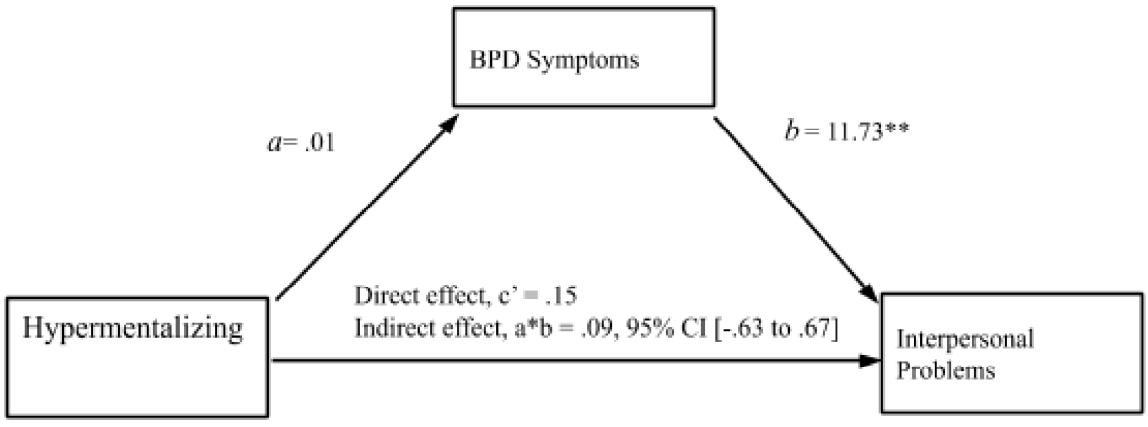
*Simple Mediation Model (Unstandardized Path Coefficients) of Hypomentalizing as a Predictor of Interpersonal Problems, Mediated by BPD Symptoms. *p < .05. **p <.01.*




Inconsistent with hypothesis 1, there was a non-significant indirect effect of hypermentalizing on interpersonal problems through BPD symptoms, *b* = .09, 95% BCa CI [-.63, .67], see Figure 2.

**Figure 2**

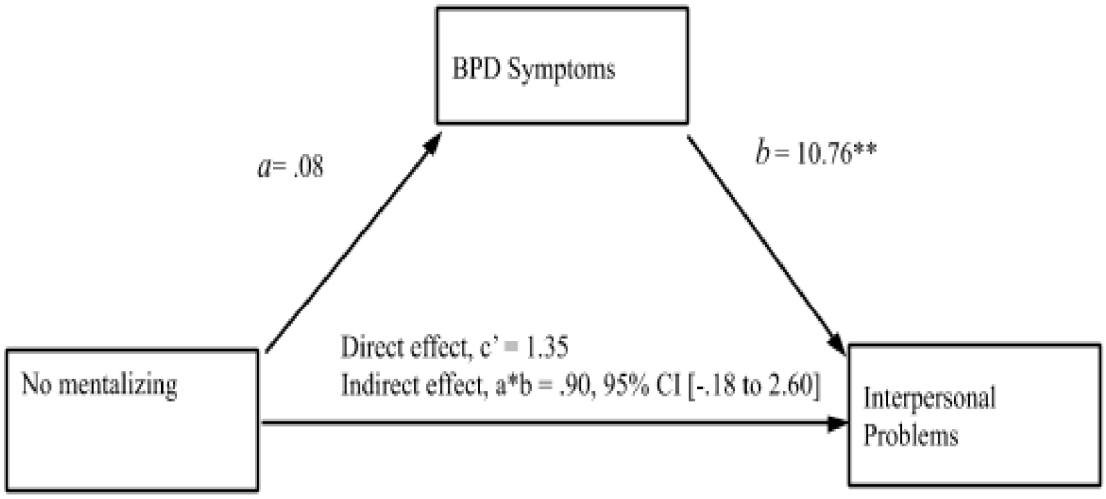
*Simple Mediation Model (Unstandardized Path Coefficients) of Hypermentalizing as a Predictor of Interpersonal Problems, Mediated by BPD Symptoms. *p < .05. **p <.01.*



Inconsistent with hypothesis 1, there was a non-significant indirect effect of no mentalizing on interpersonal problems through BPD symptoms, *b* = .09, 95% BCa CI [-.18, 2.60], see Figure 3.

**Figure 3**

*Simple Mediation Model (Unstandardized Path Coefficients) of No Mentalizing as a Predictor of Interpersonal Problems, Mediated by BPD symptoms. *p < .05. **p <.01*



**Hypothesis 2**

Next, I ran three single mediation analyses to examine the associations between hypomentalizing, hypermentalizing, and no mentalizing and interpersonal problems through attachment anxiety, see Table 5.

**Table 5**

*Unstandardized Coefficients for Single Mediation Models Examining Associations Between Attachment Anxiety on Interpersonal Problems*

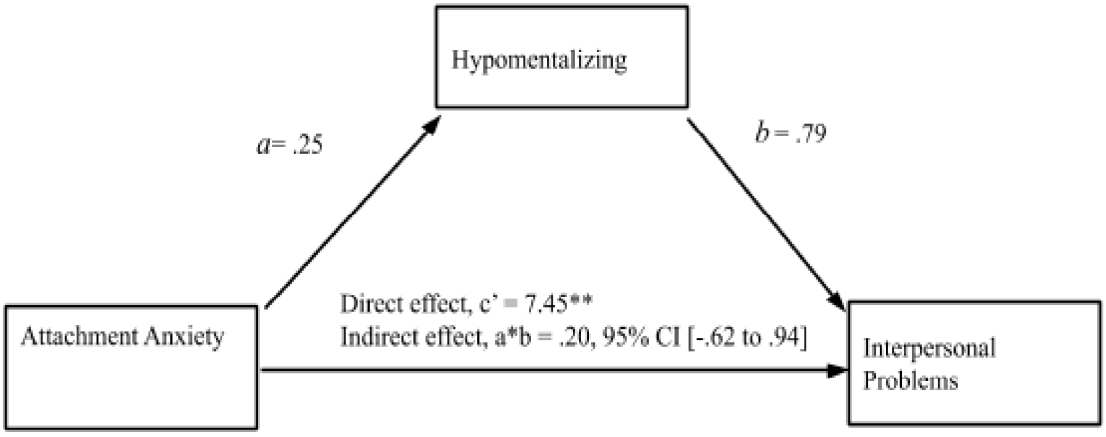
| Independent Variable (IV) | Mediator (M) | Effect of IV on M (a) | Effect of M on DV (b) | Direct effect (c') | Indirect effect (a x b) | Indirect effect 95% CI | Total effect (c) |
|---|---|---|---|---|---|---|---|
| Attachment Anxiety | Hypo-mentalizing | .25 | .79 | 7.45** | .20 | -.62 to .94 | 7.65** |
| | Hyper-mentalizing | -.30 | .45 | 7.79** | -.14 | -1.28 to .41 | 7.65** |
| | No mentalizing | .26 | 1.11 | 7.25** | .29 | -.17 to 1.01 | 7.55** |

*Note*. IV = attachment anxiety; DV = interpersonal problems; bolded confidence intervals do not include a zero, indicating a significant indirect effect. *p < .05. **p <.01.

Inconsistent with hypothesis 2, there was a non-significant indirect effect of attachment anxiety on interpersonal problems through hypomentalizing, $b$ = .20, 95% BCa CI [-.62, .94], see Figure 4.

**Figure 4**

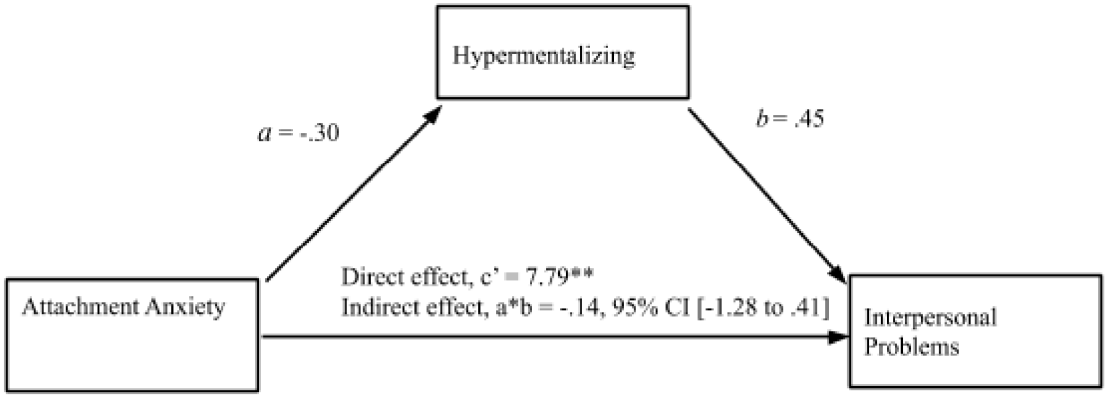
*Simple Mediation Model (Unstandardized Path Coefficients) of Attachment Anxiety as a Predictor of Interpersonal Problems, Mediated by Hypomentalizing. *p < .05. **p <.01.*




Inconsistent with hypothesis 2, there was a non-significant indirect effect of attachment anxiety on interpersonal problems through hypermentalizing, $b$ = -.14, 95% BCa CI [-1.28, .41], see Figure 5.

**Figure 5**

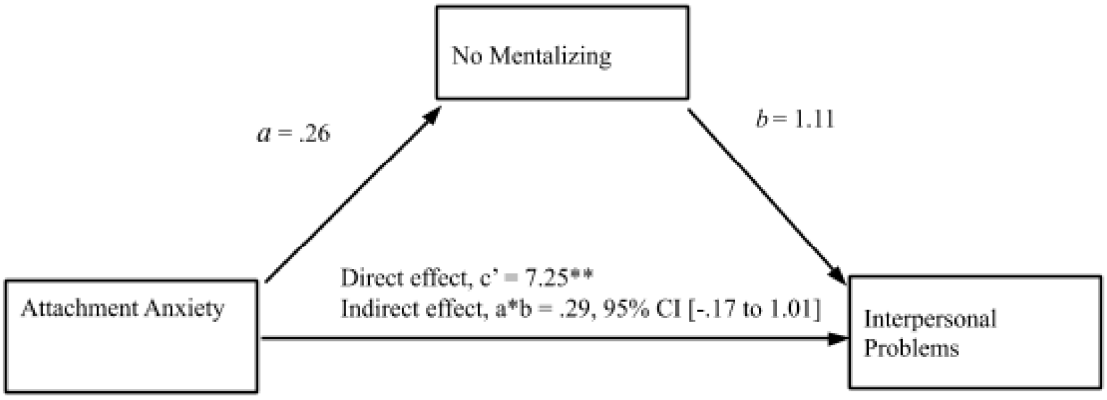
*Simple Mediation Model (Unstandardized Path Coefficients) of Attachment Anxiety as a Predictor of Interpersonal Problems, Mediated by Hypermentalizing. *p < .05. **p <.01.*



Inconsistent with hypothesis 2, there was a non-significant indirect effect of attachment anxiety on interpersonal problems through no mentalizing, $b$ = .29, 95% BCa CI [-.17, 1.01], see Figure 6.

**Figure 6**

*Simple Mediation Model (Unstandardized Path Coefficients) of Attachment Anxiety as a Predictor of Interpersonal problems, Mediated by No Mentalizing. *p < .05. **p <.01.*




**Multiple Mediation Models**

***Exploratory Research Question***

Lastly, I ran three separate multiple mediation models to examine how intrapersonal emotion dysregulation, excessive reassurance seeking, and venting mediate the relationship between mentalization errors and interpersonal problems, see Table 6. Due to issues of multicollinearity between identity diffusion and intrapersonal emotion dysregulation, I examined intrapersonal emotion dysregulation alone, as intrapersonal emotion dysregulation has been more extensively associated with interpersonal problems than identity diffusion.

**Table 6**

*Unstandardized Coefficients for Multiple Mediation Models Examining Associations Between Mentalization Errors on Interpersonal Problems*

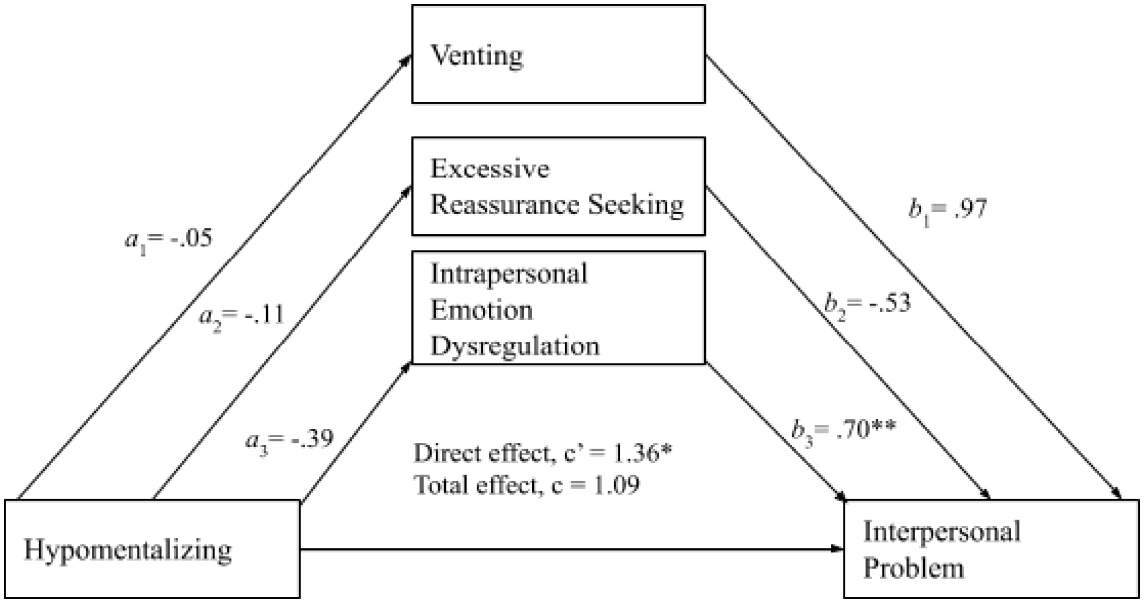
| Independent Variables (IV) | Mediator (M) | Effect of IV on M (a) | Effect of M on DV (b) | Direct effect (c') | Indirect effect (a x b) | Indirect effect 95% CI | Total effect (c) |
|---|---|---|---|---|---|---|---|
| Hypo-mentalizing | Venting | -.05 | .97 | 1.36* | -.05 | -.72 to .45 | 1.09 |
| | Excessive Reassurance Seeking | -.11 | -.53 | | .06 | -.24 to .57 | |
| | Emotion Dysregulation | -.39 | .70** | | -.27 | -.97 to .23 | |
| Hyper-mentalizing | Venting | -.27 | 1.03* | -.01 | -.28 | -.90 to .12 | .17 |
| | Excessive Reassurance Seeking | -.25 | -.59 | | .15 | -.23 to .47 | |
| | Emotion Dysregulation | .48 | .64** | | .30 | -.10 to .99 | |
| No mentalizing | Venting | .44 | .92 | .99 | .40 | -.36 to 1.40 | 1.95 |
| | Excessive Reassurance Seeking | -.36 | -.53 | | .19 | -.35 to 1.00 | |
| | Emotion Dysregulation | .60 | .62** | | .37 | -.49 to 1.49 | |

*Note.* IV = hypermentalizing, hypomentalizing, and no mentalizing. DV = interpersonal problems; bolded confidence intervals do not include a zero, indicating a significant indirect effect. *p < .05. **p <.01.

In terms of the mediation effects, venting did not mediate the relationship between hypomentalizing and interpersonal problems, *b* = - .05, 95% BCa CI [-.72, .45], excessive reassurance seeking did not mediate the relationship between hypomentalizing and interpersonal problems, *b* = .06, 95% BCa CI [-.24, .57], and intrapersonal emotion dysregulation did not mediate the relationship between hypomentalizing and interpersonal problems, *b* = -.27, 95% BCa CI [-.97, .23], see Figure 7.

**Figure 7**

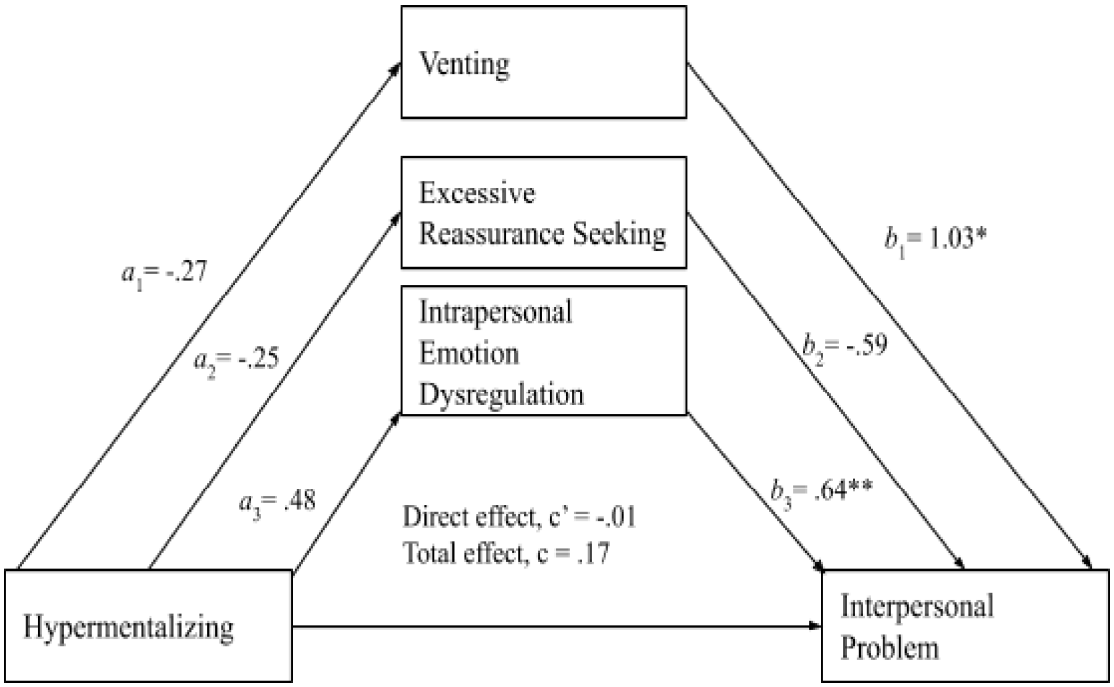
*Multiple Mediation Model (Unstandardized Path Coefficients) of Hypomentalizing as a Predictor of Interpersonal Problems, Mediated Venting, Excessive Reassurance Seeking, and Intrapersonal Emotion Dysregulation. *p < .05. **p <.01.*



Next, venting did not mediate the relationship between hypermentalizing and interpersonal problems, $b$ = - .28, 95% BCa CI [-.90, .12], excessive reassurance seeking did not mediate the relationship between hypermentalizing and interpersonal problems, $b$ = .15, 95% BCa CI [-.23, .47], and intrapersonal emotion dysregulation did not did not mediate the relationship between hypermentalizing and interpersonal problems, $b$ = .30, 95% BCa CI [-.10, .99], see Figure 8.

**Figure 8**

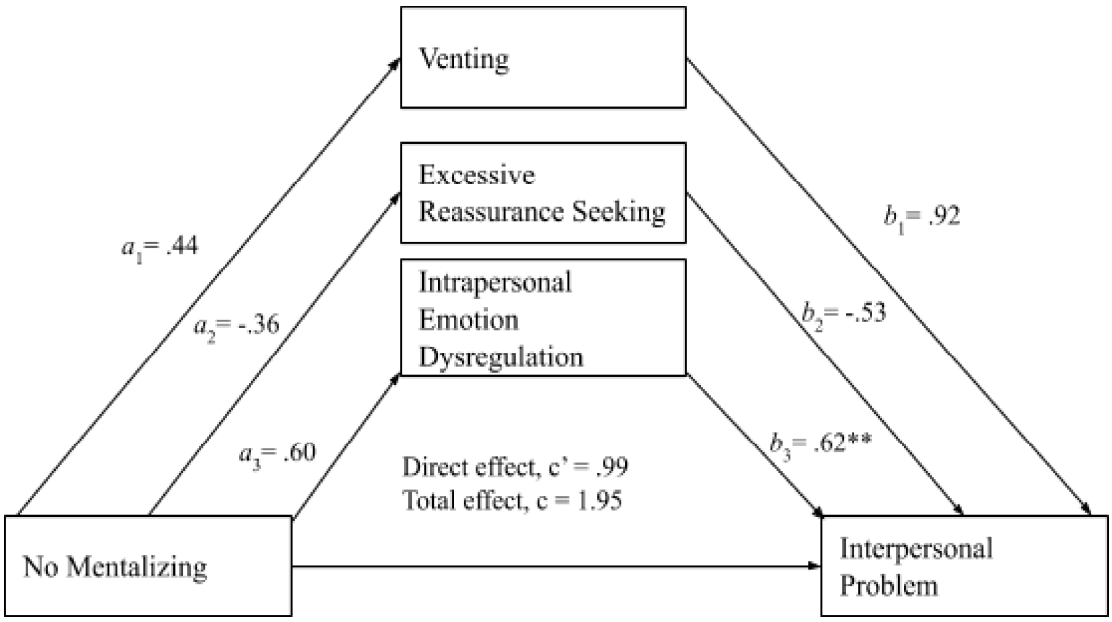
*Multiple Mediation Model (Unstandardized Path Coefficients) of Hypermentalizing as a Predictor of Interpersonal Problems, Mediated by Venting, Excessive Reassurance Seeking, and Intrapersonal Emotion Dysregulation. *p < .05. **p <.01.*



Lastly, venting did not mediate the relationship between no mentalizing and interpersonal problems, $b$ = .40, 95% BCa CI [-.36, 1.40], excessive reassurance seeking did not mediate the relationship between no mentalizing and interpersonal problems, $b$ = .19, 95% BCa CI [-.35, 1.00], and intrapersonal emotion dysregulation did not did not mediate the relationship between no mentalizing and interpersonal problems, $b$ = .37, 95% BCa CI [-.49, 1.49], see Figure 9.

**Figure 9**

*Multiple Mediation Model (Unstandardized Path Coefficients) of No Mentalizing as a Predictor of Interpersonal Problems, Mediated by Venting, Excessive Reassurance Seeking, and Intrapersonal Emotion Dysregulation. *p < .05. **p <.01.*



## Chapter 5: Discussion

This study examined theoretical claims made by Fonagy et al.'s framework of mentalization (Fonagy et al., 2017b; Fonagy & Luyten, 2018; Bateman & Fonagy, 2006; Fonagy et al., 2004) by looking at how mentalization predicts BPD symptoms, insecure attachment predicts mentalization, and how mentalization may predict core characteristics of BPD. The current study builds on the limited literature by examining the framework in the context of interpersonal problems and further expands it by exploring the novel relationship between mentalization and interpersonal emotion dysregulation in BPD. Below, I will discuss the results for each hypothesis and outline the limitations and recommendations for further research.

### Hypothesis 1: BPD Symptoms will Mediate the Relationship Between Mentalization Errors (Hypomentalizing, Hypermentalizing and/or No Mentalizing) and Interpersonal Problems.

Theoretically, mentalization errors are thought to play a primary role in the prediction and maintenance of BPD symptoms. For hypothesis 1, results indicated that the only mentalization error associated with BPD was hypomentalizing, which is consistent with previous research in adults with BPD (Euler et al., 2019). However, other studies have shown associations with hypermentalizing (Andreou et al., 2015) and no mentalizing (Somma et al., 2019; Fossati et al., 2018). Currently, it is unknown as to what contributes to different types of mentalization errors. However, it's important to understand the type of mentalization error that adults with BPD traits may experience more frequently, as hypomentalizing reflects a deficit whereas hypermentalizing reflects a more altered style of mentalizing. Different mentalization errors may require a different therapeutic approach; however, the clinical implications of these errors are not well understood (Kvarstein et al., 2020). More specifically, BPD symptoms emerged as a significant mediator between hypomentalizing and interpersonal problems and provides

empirical evidence for Fonagy's theoretical framework of mentalization. While casual relationships cannot be assumed because of the cross-sectional nature of this study, results suggest that the reduced ability to mentalize about other people's mental states is related to BPD symptoms, which in turn, may be related to greater interpersonal problems. These findings suggest that restoring the capacity to mentalize may reduce BPD symptoms and improve interpersonal functioning. However, BPD symptoms only explained 19.71% of the variance in interpersonal problems, which indicates that other factors related to interpersonal problems in BPD (e.g., attentional mechanisms and emotional reactivity) needs to be investigated to explain more of the variance. These findings may have practical implications as they suggest that a focus on reducing hypomentalizing, regardless of the theoretical approach that underlies treatment, may have a beneficial impact on interpersonal problems.

**Hypothesis 2: Mentalization Errors (Hypomentalizing, Hypermentalizing and/or No Mentalizing) will Mediate the Relationship Between Attachment Anxiety and Interpersonal Problems.**

While attachment anxiety was significantly correlated with interpersonal problems, it did not show a significant relationship with difficulties in mentalization, which is inconsistent with previous research (Hayden et al., 2019; Beeney et al., 2015). Once again, this may be due to past studies using a variety of mentalization measures, which may tap into different aspects of the mentalization process. There was also a surprising lack of mediation effects for mentalization errors explaining the relationship between attachment anxiety and interpersonal problems. Regardless, of Fonagy et al.'s (2017a) more recent considerations of how other factors (e.g., epistemic trust) beyond insecure attachment may produce difficulties in mentalization, insecure attachment is still assumed to play a crucial role in producing mentalization errors. However, it's

possible that the lack of significant mediation effects is due to the study being underpowered. Attachment patterns play an essential role in interpersonal problems and may impact the therapeutic relationship and therapy outcomes (Taylor et al., 2014; Levy et al., 2018). Thus, it is important to understand how the therapeutic relationship can be put at risk because of how mentalization abilities may interact with the hyperactivation or deactivation of the attachment system (i.e., to seek proximity and support in an extreme manner or to avoid closeness and dismiss attachment needs; Mikulincer, & Shaver, 2012).

**Exploratory Research Question: Does Venting, Excessive Reassurance Seeking, and Intrapersonal Emotion Dysregulation Mediate the Relationship Between Mentalization Errors and Interpersonal Problems?**

There have been extensive theoretical claims about mentalization being a predictor of intrapersonal emotion dysregulation. Results supported the relationship between intrapersonal emotion dysregulation and interpersonal problems which was consistent with past research (Herr et al., 2013; Stepp et al., 2014). However, intrapersonal emotion dysregulation was not a significant mediator and did not show a significant relationship with any mentalization error. While there has been a dearth of empirical research on both phenomena, intrapersonal emotion dysregulation and mentalization have received greater empirical attention, and has typically been demonstrated in adolescent samples with BPD (Sharp et al., 2011; Sharp et al., 2016; Kalpakci et al., 2016). Adolescence is characterized by psychosocial, emotional, and cognitive development whereby judgment and reasoning are relatively limited compared to abilities for emotional processing (Ibraheim et al., 2017; Sanders, 2013). Hence, adolescents may have greater difficulties regulating their emotions than adults (Ibraheim et al., 2017). For this reason, the relationship between mentalization and intrapersonal emotional dysregulation may be more

readily observed in adolescents compared to adults. It is also possible that difficulties in mentalization may be associated with specific dimensions of intrapersonal emotion dysregulation. With the DERS measure, Gratz & Roemer (2004) conceptualized intrapersonal emotion dysregulation as a multidimensional construct and only a global score of intrapersonal emotion dysregulation was used in the current study. Indeed, in a non-clinical adolescent sample, only nonacceptance of emotional responses and lack of emotional clarity showed a relationship with mentalization (Marszał & Jańczak, 2018). Given the theoretical centrality of mentalization to intrapersonal emotion dysregulation, further research on this relationship appears to be important as a means of exploring potential treatment targets for therapeutic interventions in BPD.

Lastly, venting and excessive reassurance seeking were not significant mediators in the relationship between mentalization errors and interpersonal problems. Only venting showed a significant correlation to interpersonal problems although it was a weak relationship. Previous research has demonstrated a relationship between BPD and excessive reassurance seeking whereas BPD and venting has rarely been examined. Further research is needed to determine the relevance of venting to BPD. It's also possible that different relationships would have emerged with a higher degree of BPD symptom severity due to the high level of negative affect that often precedes these maladaptive coping strategies.

**Limitations and Future Directions**

There are a number of limitations that may help explain the current findings and inform future research. One potential explanation for the lack of mediation effects found in the study may be due to the small sample size and the relatively high degree of participant homogeneity (i.e., age, gender, ethnicity, symptom severity). The study would benefit from having a larger

sample size, including participants from the general population with moderate and high BPD features, to increase variance and statistical power.

In terms of external validity, the study's participants demonstrated little variation in gender identities, so the discussion here may be more applicable to females with BPD traits. While it is mostly females that are diagnosed with BPD (Skodol & Bender, 2003), there is a need to include other gender identities, as gender differences may exist with mentalization abilities (Marszał & Jańczak, 2018). Most participants also identified as White North American or White European (65.7 %) and as such, generalizations to other cultures and genders must be made with caution. It is also unclear as to whether there are cross cultural differences in how people interpret and attribute mental states to others (Bradford et al., 2018; Karmakar, & Dogra, 2019) and further research is needed to determine if MASC is a valid tool of assessment across different cultures.

In addition, difficulties in mentalization may only become apparent under heightened emotional arousal or when there is attachment- related stress (Fonagy & Luyten, 2009). While the MASC's depiction of romantic and friendship interactions may be particularly relevant to BPD due to the nature of their interpersonal stressors (Roepke et al., 2013), there may need to be more personally-relevant stressors or relational stressors in mentalizations tasks for a breakdown of abilities to occur. For example, higher levels of stress or arousal may be needed for individuals to lose the capacity to have a balance between controlled and automatic mentalization, and for automatic mentalization to take over. Indeed, there may need to be specific conditions for individuals to make automatic and unreflective appraisals about mental states (Fonagy & Luyten, 2018), such as interpersonal conflict and distress in close relationships. It is possible that our study did not allow mentalization errors to sufficiently emerge. Within

mentalization research, there is an overall need for more behavioural and experimental tasks to be used alongside self-reports, and to involve attachment-related mood inductions. Given the potential ethical considerations that may limit this possibility, future research may benefit from having participants rate their state of emotional arousal before, during, and after a mentalization task (e.g., the Positive and Negative Affect Schedule (PANAS); Watson, Clark, & Tellegen, 1988).

There are additional limitations regarding the assessment of mentalization in this study. The MASC is thought to assess the cognitive/emotional, implicit/explicit, and other dimensions of mentalization. Further research is needed to determine how adequately the MASC assesses the automatic/controlled aspect of mentalization (Fossati et al., 2018). Indeed, past research has shown that individuals with BPD tend to make more negative attributions to other's intentions when time is limited (Schilling et al., 2012). Similar to Fuchs & Taubner's (2016) research, future studies may benefit from administering the MASC with a brief time-limit to each question, to further increase ecological validity.

Regardless of the explorative nature of this study and its associated limitations, this preliminary research lays the groundwork for future studies to examine and expand on Fonagy et al.'s theoretical framework of mentalization. This study contributes to the existing literature by using a more ecologically valid measure of mentalization, which is scarce in the existing research, and by using a dimensional approach to BPD. As non-clinical samples represent a broader range of personality functioning than clinical samples, a dimensional approach can offer a powerful way to test the empirical relationships in this study, as it can examine a fuller range of the relevant factors. As such, replication studies with bigger samples are needed with comparison groups to confirm or question the present findings. There may also be different existing

relationships than what Fonagy et al.'s theoretical framework indicates. Given the cross-sectional design of this study, longitudinal and experimental studies are also needed, especially as mentalization abilities and the internal working models of attachment are dynamic over the lifetime.

In sum, providing empirical support for the theoretical relationships outlined in the framework is of great value given its potential clinical implications. This is especially important when considering how mentalization may act as a common factor for different therapeutic interventions for BPD (Byrne & Elgan, 2018) and it's transdiagnostic relevance to psychopathology in general (Chapman & Dixon-Gordon, 2015). Future research may benefit from examining this framework in terms of the relationship between mentalization and relevant characteristics and behaviours of BPD, as a means to target interpersonal relationships in treatment. Interpersonal problems are one of the more persistent symptoms in BPD and a more developed understanding of interpersonal problems in BPD may help to reduce other symptoms and improve the well-being and lives of those who are suffering.

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## Appendix A: Demographic Questionnaire

Demographic Questionnaire

For each question, please select the option that best describes you.

1. Which of the following categories best describes your age?
    - o 18-24 years
    - o 25-34 years
    - o 35-44 years
    - o 45-54 years
    - o 55-64 years
    - o 65 years or older
    - o Prefer Not to Answer

2. What gender do you identify with?
    - o Female
    - o Male
    - o Transgender
    - o Gender Variant/ Non-binary
    - o Prefer Not to Answer

3. How would you best describe your ethnicity?
    - o South Asian
    - o South East Asian
    - o White European
    - o Mixed Background
    - o East Asian
    - o Indo-Caribbean
    - o South Asian
    - o South East Asian
    - o Black North American
    - o White North American
    - o Black African
    - o Black Caribbean
    - o Indigenous/ First Nations
    - o Latin American
    - o Middle Eastern
    - o Other
    - o Prefer Not to Answer

4. What is your total household income?
    - o Less than $20,000
    - o $20,000 to $34,999
    - o $35,000 to $49,999
    - o $50,000 to $74,999
    - o $75,000 to $99,999

o Over $100,000
o Prefer Not to Answer

5. Are you fluent in English?
   o Yes
   o No

6. What is the highest level of education that your parents have completed?
   - Did not complete High School
   - Completed High School
   - Some College/University
   - Completed Undergraduate Degree
   - Completed Graduate Degree
   - Prefer not to answer

## Appendix B: Borderline Symptom List

Borderline Symptom List (BSL; Bohus et al., 2009)

Please follow these instructions when answering the questionnaire: in the following table you will find a set of difficulties and problems which possibly describe you. Please work through the questionnaire and decide how much you suffered from each problem in the course of the last week. In case you have no feelings at all at the present moment, please answer according to how you *think you might have felt*. Please answer honestly. **All questions refer to the last week. If you felt different ways at different times in the week, give a rating for how things were for you on average.**

Please be sure to answer each question.

| **In the course of last week...** | | not at all | a little | rather | much | very strong |
|---|---|---|---|---|---|---|
| 1 | It was hard for me to concentrate | **0** | **1** | **2** | **3** | **4** |
| 2 | I felt helpless | **0** | **1** | **2** | **3** | **4** |
| 3 | I was absent-minded and unable to remember what I was actually Doing | **0** | **1** | **2** | **3** | **4** |
| 4 | I felt disgust | **0** | **1** | **2** | **3** | **4** |
| 5 | I thought of hurting myself | **0** | **1** | **2** | **3** | **4** |
| 6 | I didn't trust other people | **0** | **1** | **2** | **3** | **4** |
| 7 | I didn't believe in my right to live | **0** | **1** | **2** | **3** | **4** |
| 8 | I was lonely | **0** | **1** | **2** | **3** | **4** |
| 9 | I experienced stressful inner tension | **0** | **1** | **2** | **3** | **4** |
| 10 | I had images that I was very much afraid of | **0** | **1** | **2** | **3** | **4** |
| 11 | I hated myself | **0** | **1** | **2** | **3** | **4** |
| 12 | I wanted to punish myself | **0** | **1** | **2** | **3** | **4** |
| 13 | I suffered from shame | **0** | **1** | **2** | **3** | **4** |
| 14 | My mood rapidly cycled in terms of anxiety, anger, and depression | **0** | **1** | **2** | **3** | **4** |

| | | | | | | |
|---|---|---|---|---|---|---|
| 15 | I suffered from voices and noises from inside or outside my head | **0** | **1** | **2** | **3** | **4** |
| 16 | Criticism had a devastating effect on me | **0** | **1** | **2** | **3** | **4** |
| 17 | I felt vulnerable | **0** | **1** | **2** | **3** | **4** |
| 18 | The idea of death had a certain fascination for me | **0** | **1** | **2** | **3** | **4** |
| 19 | Everything seemed senseless to me | **0** | **1** | **2** | **3** | **4** |
| 20 | I was afraid of losing control | **0** | **1** | **2** | **3** | **4** |
| 21 | I felt disgusted by myself | **0** | **1** | **2** | **3** | **4** |
| 22 | I felt as if I was far away from myself | **0** | **1** | **2** | **3** | **4** |
| 23 | I felt worthless | **0** | **1** | **2** | **3** | **4** |

## Appendix C: Difficulties in Emotion Regulation Scale

Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer, 2004).

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| almost never (0-10%) | sometimes (11-35%) | about half the time (36-65%) | most of the time ( 66-90%) | almost always (91-100%) |

_____ 1) I am clear about my feelings.
_____ 2) I pay attention to how I feel.
_____ 3) I experience my emotions as overwhelming and out of control.
_____ 4) I have no idea how I am feeling.
_____ 5) I have difficulty making sense out of my feelings.
_____ 6) I am attentive to my feelings.
_____ 7) I know exactly how I am feeling.
_____ 8) I care about what I am feeling.
_____ 9) I am confused about how I feel.
_____ 10) When I'm upset, I acknowledge my emotions.
_____ 11) When I'm upset, I become angry with myself for feeling that way.
_____ 12) When I'm upset, I become embarrassed for feeling that way.
_____ 13) When I'm upset, I have difficulty getting work done.
_____ 14) When I'm upset, I become out of control.
_____ 15) When I'm upset, I believe that I will remain that way for a long time.
_____ 16) When I'm upset, I believe that I will end up feeling very depressed.
_____ 17) When I'm upset, I believe that my feelings are valid and important.
_____ 18) When I'm upset, I have difficulty focusing on other things.
_____ 19) When I'm upset, I feel out of control.
_____ 20) When I'm upset, I can still get things done.
_____ 21) When I'm upset, I feel ashamed at myself for feeling that way.
_____ 22) When I'm upset, I know that I can find a way to eventually feel better.
_____ 23) When I'm upset, I feel like I am weak.
_____ 24) When I'm upset, I feel like I can remain in control of my behaviors.
_____ 25) When I'm upset, I feel guilty for feeling that way.
_____ 26) When I'm upset, I have difficulty concentrating.
_____ 27) When I'm upset, I have difficulty controlling my behaviors.
_____ 28) When I'm upset, I believe there is nothing I can do to make myself feel better.

_____ 29) When I'm upset, I become irritated at myself for feeling that way.
_____ 30) When I'm upset, I start to feel very bad about myself.
_____ 31) When I'm upset, I believe that wallowing in it is all I can do.
_____ 32) When I'm upset, I lose control over my behavior.
_____ 33) When I'm upset, I have difficulty thinking about anything else.
_____ 34) When I'm upset I take time to figure out what I'm really feeling.
_____ 35) When I'm upset, it takes me a long time to feel better.
_____ 36) When I'm upset, my emotions feel overwhelming.

## Appendix D: Difficulties in Interpersonal Emotion Regulation

Difficulties in Interpersonal Emotion Regulation (DIRE; Dixon-Gordon, Haliczer, Conkey, & Whalen, 2018.

A series of scenarios are presented below. First please tell us how you would respond to each scenario. Then, please indicate on a scale from 1(very unlikely) to 5 (very likely) the likelihood that you would respond in each of the ways listed. Please provide an answer to each response.

**1) You are feeling upset by a project you need to complete for school or work. The deadline is tomorrow and you're worried that there is no way that you will be able to get all the work finished.**

B. In order to feel better, how likely is it that you would: [5]

a. Raise your voice or complain to the person in charge

1 2 3 4 5
very unlikely very likely

c. Complain to your coworkers or classmates about how it is unfair the situation is

1 2 3 4 5
very unlikely very likely

f. Keep contacting (texting, calling, etc.) friends and loved ones

1 2 3 4 5
very unlikely very likely

g. Keep asking for reassurance

1 2 3 4 5
very unlikely very likely

**2) You and your significant other have been fighting a lot. You really care about the relationship and want things to work out. You just had another fight.**

B. In order to feel better, how likely is it that you would:

a. Raise your voice or criticize your significant other to express how you feel

1 2 3 4 5
very unlikely very likely

c. Complain to friends or acquaintances about your significant other

1 2 3 4 5
very unlikely very likely

f. Keep contacting (texting, calling, etc.) friends and loved ones

[5] Only the questions that measure excessive reassurance seeking and venting are included here.

1 2 3 4 5
very unlikely very likely

g. Keep asking for reassurance
1 2 3 4 5
very unlikely very likely

**3) You feel like your friends have been avoiding you. Every time you call one of them, they are busy. You want to have a social life and be liked. One day you hear that a bunch of your friends went out to dinner without you.**

B. In order to feel better, how likely is it that you would:

a. Raise your voice or criticize your friends to express how you feel
1 2 3 4 5
very unlikely very likely

c. Complain to mutual acquaintances about your friends
1 2 3 4 5
very unlikely very likely

f. Keep contacting (texting, calling, etc.) friends and loved ones
1 2 3 4 5
very unlikely very likely

g. Keep asking for reassurance
1 2 3 4 5
very unlikely very likely

## Appendix E: The Experiences in Close Relationships-Revised Questionnaire

The Experiences in Close Relationships-Revised Questionnaire (ECR-R; Fraley, Waller, & Brennan, 2000)

**The statements below concern how you feel in emotionally intimate relationships.** We are interested in how you *generally* experience relationships, not just in what is happening in a current relationship. Respond to each statement by clicking a circle to indicate how much you agree or disagree with the statement

1=Strongly Disagree……7=Strong Agree

1. I'm afraid that I will lose my partner's love. 1 2 3 4 5 6 7
2. I often worry that my partner will not want to stay with me. 1 2 3 4 5 6 7
3. I often worry that my partner doesn't really love me. 1 2 3 4 5 6 7
4. I worry that romantic partner won't care about me as much as I care about them. 1 2 3 4 5 6 7
5. I often wish that other people's feelings for me were as strong as my feelings for them. 1 2 3 4 5 6 7
6. I worry a lot about my relationships. 1 2 3 4 5 6 7
7. When my partner is out of sight, I worry that they might become interested in someone else. 1 2 3 4 5 6 7
8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me. 1 2 3 4 5 6 7
9. I rarely worry about my partner leaving me. 1 2 3 4 5 6 7
10. My romantic partners make me doubt myself. 1 2 3 4 5 6 7
11. I do not often worry about being abandoned. 1 2 3 4 5 6 7
12. I find that my partner (s) don't want to get as close as I would like. 1 2 3 4 5 6 7
13. Sometimes romantic partners change their feelings about me for no apparent reason. 1 2 3 4 5 6 7
14. My desire to be very close sometimes scares people away. 1 2 3 4 5 6 7
15. I'm afraid that once a romantic partner gets to know me, they won't like who I really am. 1 2 3 4 5 6 7
16. It makes me mad that I don't get the affection and support I need from my partner 1 2 3 4 5 6 7
17. I worry that I won't measure up to other people. 1 2 3 4 5 6 7
18. My partner only seem to notice me when I'm angry. 1 2 3 4 5 6 7

## Appendix F: The Inventory of Personality Organization, Identity Diffusion Subscale

The Inventory of Personality Organization, Identity Diffusion Subscale (IPO; Clarkin, Foelsch, & Kernberg, 2001)

Instructions: The following pages contain statements that people use to describe themselves. Try to be as honest and serious as you can in marking the statements that accurately describe your feelings and attitudes.

Read each statement and decide how it applies to you in your everyday activities, feelings, thoughts and relationships. Then circle the number that best applies to you. If the statement does not apply to you in any way, circle " l " for "Never True." If the statement applies to you in every way, circle "5" for "Always True." If the statement is not "Always" or "Never" true for you, use the "2", "3", and "4" rating to indicate the relative frequency or intensity the statement does apply to you. Some questions may ask you about two things; answer strongly only if both parts of the question apply to you.

There is no time limit for completing the questionnaire, but it is best to work as rapidly as is comfortable for you. It would be best to put the first answer that occurs to you. Please answer all the questions.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Never True | Rarely True | Sometimes True | Often True | Always True |

1. I feel like a fake or impostor, as though others see me as quite different from the way I really am. 1 2 3 4 5
2. I feel I'm a different person at home as compared to how I am at work or at school. 1 2 3 4 5
3. I feel that my tastes and opinions are not really my own, but have been borrowed from other people. 1 2 3 4 5
4. Some of my friends would be surprised if they knew how differently I behave in different situations. 1 2 3 4 5
5. I fluctuate between being warm and giving at some times, and being cold and indifferent at other times. 1 2 3 4 5
6. People tell me I provoke or mislead them so as to get my

way. 1 2 3 4 5

7. I can't explain the changes in my behavior. 1 2 3 4 5

8. I do things on impulse that I think are socially unacceptable. 1 2 3 4 5

9. I get into relationships with people I don't really like because it's hard for me to say no. 1 2 3 4 5

10. My life, if it were a book, seems to me more like a series of short stories written by different authors than like one long novel. 1 2 3 4 5

11. I pick up hobbies and interests and then drop them. 1 2 3 4 5

12. When others see me as having succeeded, I'm elated and, when they see me as failing, I feel devastated. 1 2 3 4 5

13. I am afraid that people who become important to me will suddenly change in their feelings towards me. 1 2 3 4 5

14. It is hard for me to be sure about what others think of me, even people who have known me very well. 1 2 3 4 5

15. Being alone is difficult for me. 1 2 3 4 5

16. I see myself in different ways at different times. 1 2 3 4 5

17. In the course of an intimate relationship, I'm afraid of losing a sense of myself. 1 2 3 4 5

18. My life goals change frequently from year to year. 1 2 3 4 5

19. My goals keep changing. 1 2 3 4 5

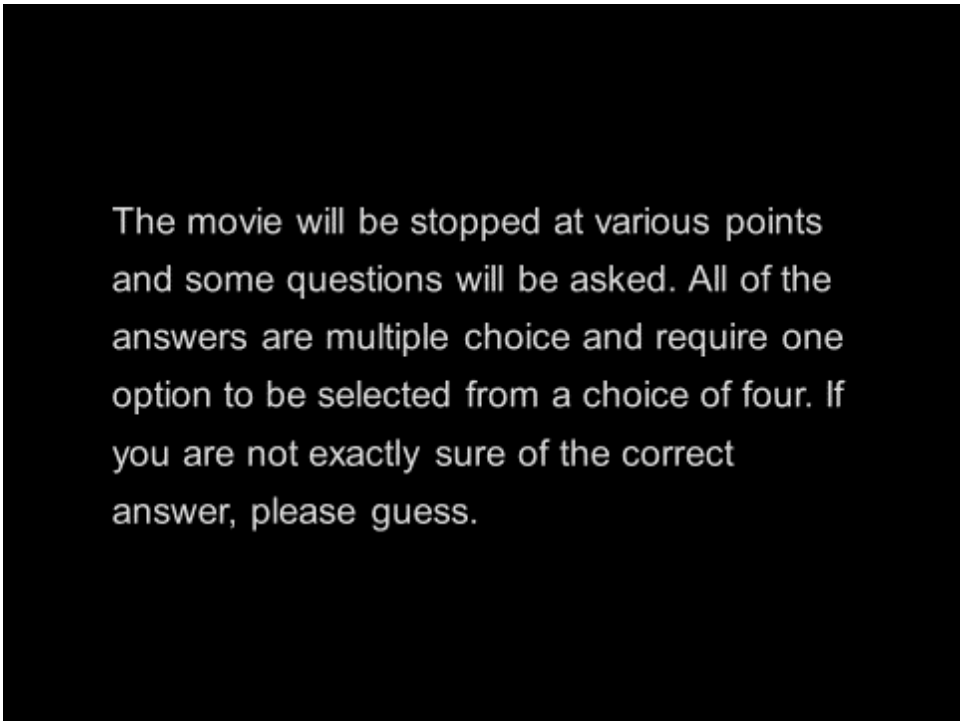
20. After becoming involved with people, I am surprised to find out what they are really like. 1 2 3 4 5

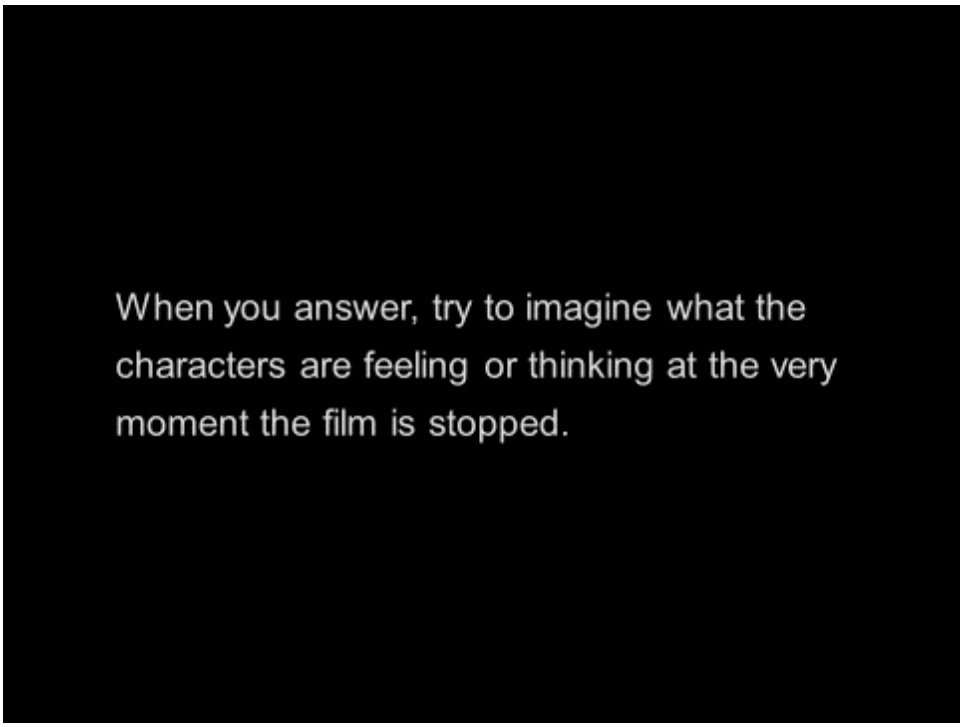
21. Even people who know me well cannot guess how I'm going to behave. 1 2 3 4 5

## Appendix G: A Movie for the Assessment of Social Cognition

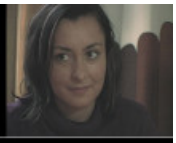
A Movie for the Assessment of Social Cognition (MASC;Dziobek et al., 2006).

Sample Items



1. What is Sandra feeling?



a. her hair does not look that nice

b. she is pleased about his compliment

c. she is exasperated about Michael coming on too strong

d. she is flattered but somewhat taken by surprise

2.

6. What does Michael think Cliff is laughing about?

a. Michael's funny comment

b. Cliff will go to the art exhibit

c. Michael is a womanizer

d. the empty frame

7.