Mentalizing and its role as a mediator in the relationship between childhood experiences and adult functioning: exploring the empirical evidence

Heather Beth MacIntosh
School of Social Work, McGill University, Canada

The introduction of the concept of mentalizing into psychoanalytic discourse has provided researchers with an important tool for beginning to understand the mechanisms mediating the relationships between childhood experiences and later psychological functioning. Researchers have made strong statements regarding the strength of this mediational relationship in their movement toward the building of novel and efficacious intervention approaches. The goal of this systematic review was to critically examine the empirical evidence for these statements. Five unique studies were identified that assessed the relationships between the variables of attachment and/or childhood adversity, mentalizing and adult functioning. Some preliminary evidence for the role of mentalizing as an important mediator variable was identified. However, researchers were cautioned to continue to engage in further empirical study to ensure that theoretical explorations do not overstate or move too far beyond the empirical research findings.

Keywords: mediation, mentalizing, attachment, psychotherapy, psychoanalytic

“dysfunctional mentalizing leading to disorders of self-experience occurs in all severe conditions leading to the referral to psychotherapy” (Fonagy, Bateman, & Bateman, 2011)

This is a strong thesis forwarded by Fonagy and colleagues that is echoed in the extensive work of these authors and a growing group of scholars. These scholars are engaged in the exploration of the developmental origins of mentalizing capacity and its role in the development, maintenance and remediation of psychological difficulties. As the literature in a field evolves it is essential that there be periodic critical review to assess the state of the field and examine directions for future researchers. In a recent article examining the expanding scope of mentalizing, Peter Fonagy indicated: “In the current

Corresponding author: heather.macintosh@mcgill.ca
psychotherapy context clinical work has become the primary source of theory building and there has been a break in the relationship between “scientific” theory and practice” (Fonagy, 2003). It is the goal of this critical review to systematically examine the empirical evidence for the theoretical claims made by researchers who argue that mentalizing plays a key mediating role in the relationships between early developmental experiences and psychological difficulties in adulthood.

LITERATURE REVIEW

Context

In a discussion of the state of psychoanalytic research, Fonagy (2003) indicates that there is significantly more support for the theoretical claims of psychoanalysis than there is for the clinical claims of psychoanalysis as a “viable treatment for psychological disorder”. Leichsenring (2005) further, highlights the importance of obtaining empirical evidence for the efficacy of psychoanalytic treatments. However, he also highlights the significant challenges in obtaining said evidence given the nature and course of the majority of psychoanalytic treatments.

Kazdin (2007) posits that effective psychotherapy interventions can only be developed by understanding the relationships between the problem that is of interest to clinicians, and the variables that may play a role in the development and maintenance of this problem. Over the course of the past twenty years, the research on the role of mentalizing capacities in the development of Borderline Personality Disorders (BPD) and has provided a guiding conceptual light in the development of interventions for adults with BPD and children at risk of developing difficulties in the longer term. This literature has proliferated to other disorders of interest and developmental phenomena. The force of a research line that attempts to wed developments in psychoanalytic theory with empirical study may provide the field with a powerful model for empirical psychoanalytic treatment research. It is the objective of this article to critically review the empirical evidence for the assertion of mentalizing as a common mediator variable in the relationship between childhood experiences and adult functioning.

Defining mediation

A mediator can be defined as a mechanism or process that underlies an observed relationship between two variables through the inclusion of a third variable. Mediators have been conceptualized as variables that indirectly influence observed relationships between independent and dependent variables. The mediator variables must be correlated with both the independent and dependent variables of interest. In order for mediation to be established, correlations between initial variables should become insignificant or weaker after a mediator is introduced in the model (Lockhart, MacKinnon, & Ohlrich, 2011).

In psychotherapy research, the relationship between risk factors for the development of psychological problems may be more effectively explained by
mediating variables (MacKinnon, 2008). A number of risk factors may be at play in the development of any psychological problem and identifying mediational variables assists clinical researchers in developing interventions that effectively target the variable that can be seen to cause the problem. However, determining which of these is the source of the risk can be a challenge, for instance when one risk factor acts as a “proxy” for another that is the actual source of the risk (Whiffen & MacIntosh, 2005). A mediating risk factor is one that explains the association between another risk factor and the outcome. For instance, early maternal deprivation and attachment insecurity in their offspring may be linked. One explanation for this may be that early maternal deprivation has an impact on the capacity of mothers to soothe the distress of their infants. However, with the introduction of mentalizing in to the assessment of this relationship, the association of soothing may become a less significant predictor of the impact of maternal deprivation on attachment insecurity in their offspring. In a discussion of mentalizing, then, researchers are attempting to assess whether the relationship between two variables such as early traumatic experiences and later psychological problems can be partially or fully explained by the impact of early traumatic experiences on mentalizing and then, the impact of these mentalizing deficits on later emotional wellbeing.

**Defining Mentalizing**

Peter Fonagy introduced the psychoanalytic concept of mentalizing in a 1991 article entitled “Thinking about thinking” (1991). Mentalizing can be defined as a form of imaginative mental activity involved in the perception and interpretation of human behaviour in terms of intentional mental states. (Fonagy & Target, 2006; Stein & Allen, 2007). It is a process by which we make sense of others and ourselves through understanding both explicit and implicit subjective states and mental processes (Bateman, Fonagy, & Allen, 2009; Cortina & Liotti, 2010). Strong mentalizing capacity allows an individual to flexibly hold and reflect on emotions, cognitions and mental states (Fonagy & Target, 2002; Gergely & Unoka, 2008). Mentalizing evolves from infancy and is critically dependent on interaction with attachment figures (Fonagy & Target, 2006). Mentalizing capacity is fundamental to a person’s ability to navigate the social world. In each developmental stage, the caregiver’s optimal responsiveness allows for the gradual development of mentalizing capacity (Bateman et al., 2009). Contingent mirroring of the caregiver both mirrors the child’s state but, also, “re-presents” the affect state of the child through the caregiver’s subjective experience; changing vocal tone, facial expression, mode of communication and heightening or softening the received emotional state back to the child (Soderstrom & Skarderud, 2009). Thus, the child internalizes themselves as the possessor of their own state and feels understood (Fonagy & Target, 1998; Soderstrom & Skarderud, 2009; Stewart, Dadson, & Fallding, 2011). The misattuned, traumatized or dissociated caregiver communicates to the child, through their incongruent mirroring of their own distressed state, that their
internal world is bad or dangerous and leaves the child feeling disoriented and confused. Under these circumstances the child may internalize an “alien self” based on the misinterpretations of the caregiver (Fonagy & Target, 1998, 2006; Stein & Allen, 2007). Secure attachment is the foundation for the developmental acquisition of mentalizing capacities such as affect regulation, empathy, perspective taking and insight (Allen, Fonagy, & Bateman, 2008). In the absence of threat and fear and in the presence of a caregiver that is able to mentalize their experience, the infant does not need to monitor the environment or the parent and is free to focus on exploring their mind and environment (Bateman et al., 2009; Fonagy & Bateman, 2006). As the caregiver holds the child’s mind in mind, the infant’s inner life can safely emerge and be explored by the child as he/she develops the capacity to represent and regulate their emotions, intentions and desires (Soderstrom & Skarderud, 2009).

**Mentalizing as a mediator in the relationship between childhood adversity and adult functioning**

Mentalizing has been widely considered as a mediator in the relationship between childhood experiences and later functioning. Initial theoretical conceptualizations and empirical study focused on the role of mentalizing in mediating the relationship between childhood trauma and the later development and maintenance of Borderline Personality Disorder (BPD) (Bateman et al., 2009). These conceptualizations formed the basis of the development of Mentalization Based Therapy (MBT) for BPD. In spite of the growing interest in mentalizing as a mediator, there has been far more theoretical and conceptual explorations of this phenomenon than empirical study (Allen, 2012).

Theoretically, mentalization has been conceptualized as a mediator in the relationship between early attachment experiences and later difficulties with affect regulation, attention and self control (Fonagy, 2002)(for a full review see Agrawal, Gunderson, Holmes, & Lyons Ruth, 2004). It is suggested that these capacities may underlie the organization of interpersonal relationships (Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004; Bateman et al., 2009; Fonagy & Bateman, 2006). This is a growing field, and the scope of applications of mentalizing is widening and moving into areas such as eating disorders, first episode psychosis, obsessive compulsive disorders, psychosomatic disorders, panic and depression (Fonagy et al., 2011). However, these discussions are primarily theoretical attempts to establish the primacy of the role of dysfunctional mentalizing in the development and maintenance of these difficulties. Second generation empirical mediational studies assessing relationships between developmental factors, mediators and adverse outcomes have yet to substantially emerge in the literature. However, Allen and Fonagy (2002) go so far as to say: “...mentalizing lies at the core of much psychopathology... psychotherapy has its impact largely through restoring the act of mentalizing”. Is there enough empirical support for the assertion that mentalizing is a key mediator in the
relationship between individual variables and psychopathology to make such a strong claim? To make claims of mediation, first, correlations between the variables of interest must be established. In terms of associations between childhood experiences and adult psychopathology, first generation researchers have amassed a substantial body of evidence to link early adverse experiences to negative outcomes in adulthood. Specifically, childhood trauma has been linked to a number of adverse adult outcomes including anxiety, depression, posttraumatic stress disorder and dissociative disorders, as well as to behavioural difficulties such as self-harm, suicidality, substance abuse and eating disorders (Browne & Finkelhor, 1986; Cloitre et al., 2009; Putnam, 2009; Stovall-McClough & Cloitre, 2006; van der Kolk, 1996; van der Kolk & Courtois, 2005). Additionally, childhood maltreatment has been associated with significant challenges in interpersonal relationships (Davis & Petretic-Jackson, 2000; DiLillo, 2001; MacIntosh & Johnson, 2008; Monson, Fredman, & Dekel, 2010; Rumstein-McKean & Hunsley, 2001; Taft, Watkins, Stafford, Street, & Monson, 2011). These associations are now well established.

The originators of the mentalizing concept developed their insights out of their work with patients diagnosed with BPD who were consistently found to have experienced histories of maltreatment and abuse (Herman, 1992; Herman, Perry & Van der Kolk, 1989; Stein & Allen, 2007). Additionally, patients with BPD have also been found to evidence deficits in mentalizing capacity (Fischer-Kern et al., 2010; Fonagy et al., 1996; Levy, 2005; Patrick, Hobson, Castle, Howard, & et al., 1994).

In terms of associations between childhood adversity and difficulties in mentalizing, there is a substantial body of clinical evidence that suggests that adverse childhood experiences are associated with deficits in mentalizing capacity (Beeghly & Cicchetti, 1996; Fonagy & Bateman, 2008; Fonagy & Target, 2006). In terms of empirical evidence, this is more challenging to identify. Stein and Allen (2007) discuss theoretical support for the relationship between childhood trauma and adult deficits in mentalizing capacity, and present a case study focused on an intervention framework utilizing a mentalizing informed approach to treatment of complex trauma symptoms (Stein & Allen, 2007). An early study examined attachment, mentalization and psychopathology in a large sample. The sample consisted of 82 participants with a psychiatric diagnosis and 85 non-clinical controls, individuals diagnosed with Borderline Personality Disorder (BPD) (N=38)(Fonagy et al., 1996). The BPD participants reported high rates of abuse in childhood and evidenced low levels of mentalizing. This study will be examined in greater detail in the review.

All of these findings, combined, suggest that strong empirical evidence is beginning to emerge that establishes significant relationships between the variables of interest; mentalizing, attachment and childhood adversity, and difficulties in functioning in adulthood. From here, mediational relationships
can begin to be explored. Some initial second generation studies have begun to test the mediational relationships between childhood adversity, mentalizing and adult outcomes. It is to these studies that we will direct our attention in a systematic review of the empirical evidence for mentalizing as a mediator in the relationship between childhood experiences and adult functioning. While our goal was to review empirical studies directly assessing the role of mentalizing as a mediator in the relationship between childhood experiences and adult functioning, it was quickly apparent that this was too restrictive a strategy. Studies that contained empirical data and assessed the relationships between attachment, adult psychopathology and mentalizing and directly tested mediation were included.

**Methodology**

*Sample.* To explore the empirical support for the assertion that mentalizing acts as a mediator between early negative experiences and later adult difficulties, a comprehensive and systematic review of the literature was undertaken. Empirical articles between 1991, when an initial discussion of the role of mentalizing in adult psychopathology was introduced to the literature (Fonagy, 1991), and the present, 2012, were eligible for inclusion.

*Search Strategy.* Consistent with the recommended methodology for systematic literature reviews, (Higgins & Green, 2011), a two step search strategy was utilized. First, electronic databases were searched: ProQuest Central, OVID, PsychInfo, PubMed, Science Direct, and Medline. Each database was searched individually. The search terms “mentalize” “mentalizing” “mentalization” “empirical” “mediate” and “mediation” were integrated into database-specific search strings. Many hits were repetitive across databases. All identified titles and abstracts were screened and then assessed for the quality and eligibility of the studies. Inclusion criteria, for the first search, were that the article contain empirical data on the mediational relationship of mentalizing in the relationship between childhood adversity (including insecure attachment and reports of traumatic experiences) and adult functioning (Fonagy, Moran, & Target, 1993).

Second, reference lists taken from existing reviews on mentalizing and mentalizing based therapies, including those identified by the first step, were reviewed, in an effort to locate references that were not found through the database-specific search. Following this screening, articles that empirically tested a mediational hypothesis in the relationship between adverse experiences and later functioning were retained.

This search strategy yielded a very small sample (N=3). Given the stability of attachment from childhood to adulthood and the high incidence of history of childhood adversity in those with insecure attachment, it was determined that articles that explored associations between these variables would add to the discussion of mentalizing as a potential mediator (Fonagy et al., 1993; George, Kaplan, & Main, 1985; Hazan & Shaver, 1994). Therefore studies that contained empirical data and assessed the relationships between attachment, adult psychopathology and mentalizing and directly tested mediation would be included. Therefore, the search strategy employed above was reproduced to search for further studies that met the new inclusion criteria. This added a further two studies to the sample (N=2). A number of studies were identified that assessed the role of insecure attachment in the development of adult functioning and mentalizing but did not assess mentalizing as a mediator. These studies were not included in the analysis.

In total, five relevant studies were found amongst the database search and by examining the existing reviews. Please see Table One for a full list of the included articles.
Table 1. *Articles Reviewed*

<table>
<thead>
<tr>
<th>Author and publication date</th>
<th>Title</th>
<th>Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fonagy et al., 1996</td>
<td>The Relation of Attachment Status, Psychiatric Classification, and Response to Psychotherapy</td>
<td>Journal of Consulting and Clinical Psychology</td>
</tr>
<tr>
<td>Stein et al., 2004</td>
<td>Does Mentalizing Capacity Mediate the Relationship Between Developmental Adversity and Adult Social Functioning?</td>
<td>Journal of the American Psychoanalytic Association</td>
</tr>
<tr>
<td>Bouchard et al., 2008</td>
<td>Mentalization in Adult Attachment Narratives: Reflective Functioning, Mental States, and Affect Elaboration Compared</td>
<td>Psychoanalytic Psychology</td>
</tr>
<tr>
<td>Fossati et al., 2009</td>
<td>Alexithymia and attachment insecurities in impulsive aggression</td>
<td>Attachment &amp; Human Development</td>
</tr>
<tr>
<td>Fossati et al., 2011</td>
<td>Does mindfulness mediate the association between attachment dimensions and Borderline Personality Disorder features? A study of Italian non-clinical adults</td>
<td>Attachment &amp; Human Development</td>
</tr>
</tbody>
</table>

**Results**

Working chronologically, the first empirical study examining the associations between childhood adversity, psychiatric disorder, and mentalizing identified significant interaction effects between variables (Fonagy et al., 1996). While the goal of this study was to assess response to psychotherapy, preliminary analyses of the variables of interest in clinical participants are relevant to our review. Nonpsychotic psychiatric inpatients (N=82) and case-matched controls (N=85) were administered a measure of attachment, mentalizing and psychiatric classification. These included the Adult Attachment Interview (AAI, George, Kaplan, & Main, 1985), the Reflective Self Functioning Scale, which is a method of scoring the AAI to rate mentalizing capacity, (Fonagy, Moran, Steele, Steele, & Higgitt, 1991) and a series of self-report questionnaires to identify Axis I and II disorders. Abuse history was identified through the AAI narratives of participants. Patients diagnosed with BPD were more likely to report a history of abuse than controls, although these were not statistically significant correlations. Additionally, these patients were statistically significantly more likely to be rated as lower on mentalizing and higher on unresolved loss. Hierarchical linear analyses identified interactions that suggested that patients reporting abuse, who evidenced low levels of mentalizing capacity, were more likely to be diagnosed with BPD, whereas those who evidenced high levels of mentalizing capacity had lower levels of this diagnosis (p.004). The authors suggest that mentalizing is a “buffer” in the development of BPD (Fonagy et al., 1996). While this study did not specifically test for mediation, likely due to the insignificant relationship between the history of abuse and the diagnosis of BPD, these findings are suggestive of the role of mentalizing as a potential mediator in the relationship between childhood adversity and adult psychopathology.
One preliminary study, (Stein, Fonagy, Wheat, Kipp, & Gerber, 2004) has explored the role of mentalizing as a mediator in the relationship between childhood maltreatment and later social functioning, including couple relationships. This study drew data from three samples of participants who made up a large group of former participants in a day treatment programme for childhood emotional distress (N=77), a control group (N=48) and a comparison group of psychiatric inpatients (N=25). Mentalizing was measured using the Reflective Functioning scale, and childhood adversity was measured with a retrospective interview measure. Significant relationships were identified between childhood trauma and adverse outcomes on a measure of adult social functioning in romantic relationships and social assertiveness. The researchers utilized structural equation modeling, and when mentalizing was added to the model, the associations between childhood trauma and difficulties in one dimension of adult romantic relationships were accounted for by mentalizing (Stein et al., 2004).

While this study did find some preliminary support for the hypothesis that mentalizing may mediate the relationship between childhood adversity and adult functioning, there were significant methodological problems. These included the fact that the authors did not report the validity of measurement instruments for the small sample, various types of childhood trauma were grouped together without controlling for the source and severity of trauma, and they did not report how much of the variance in their mediational model was explained in the relationship between childhood trauma and romantic relationships.

Expanding the concept of mentalizing as an explanatory developmental pathway from infancy to adult functioning, Bouchard et al. (2008) examined the role of mentalizing in a sample of clinical participants (N=73)(both Axis I and II diagnoses) and non-clinical controls, utilizing three different measures of mentalization. One of the main goals of this study was to assess the relationship between different measures of mentalizing and attachment and psychopathology. These measures included the Reflective Functioning Scale and the Mental States Measure (MSRS), both methods of scoring AAI transcripts for mentalizing functioning, and the Grille de L'Elaboration Verbale de L'Affect (GEVA) as a measure of affect mentalization. Participants in the clinical sample were screened with the Structured Clinical Interview for DSM-III-R (Spitzer, Williams, Gibbon, & First, 1992) while participants in the non-clinical sample were assessed utilizing a general measure of anxiety, depressive and somatic symptoms. Findings relevant for our review suggest that for the RF Scale only, significant correlations demonstrated that mentalizing capacity predicted attachment status. Positive correlations between mentalizing and Axis I and II psychopathology were found on the RF scale and one scale of the GEVA. Lower levels of mentalization were associated with higher degrees of severity of both Axis I and II psychopathology. Hierarchical multiple regressions were then computed between mentalizing, psychopathology and attachment variables. In these analyses, increases in some aspects of mentalizing were associated with
decreases in the number of Axis II diagnoses over and above attachment and Axis I disorders.

Broadening the scope beyond childhood developmental processes, researchers are beginning to bring the concept of mentalizing beyond studies of BPD patients. For example, Fossati et al. (2009) explored the relationship between insecure attachment styles and impulsive aggression in a sample of 637 non-clinical participants. These researchers hypothesized that deficits in what they defined, as “affect mentalizing” as measured by an alexithymia scale would be linked with impulsive aggression. They suggested that this would be as a result of deficits in reading the affects and motivations of others, and in representing their own mental states symbolically when emotionally aroused. Researchers linked this phenomenon to attachment through the developmental role that attachment plays in facilitating either affect regulation through secure attachment, or, a failure in mentalizing through insecure attachment. Using Baron and Kenny’s (1986) approach to assessing mediation, these researchers found positive significant correlations between insecure attachment styles and impulsive aggression which became less significant with the addition of affect mentalizing in the path coefficient. However, this was suggestive of partial rather than full mediation, as the associations did not disappear, but rather diminished.

One limitation of this study in relation to our review of the literature was the failure of the researchers to assess for adverse childhood experiences. Insecure attachment is one indicator of the potential for adverse childhood experiences, but is by no means a definitive marker. Additionally, using the Baron and Kenny (1986) approach to the statistical assessment of mediation has been criticized for producing low statistical power and high error, especially in cross-sectional designs (Preacher & Hayes, 2008). Studies examining the impact of early experiences on later functioning often rely upon cross-sectional methodologies which are unlikely to yield an accurate estimate of causality, rely upon retrospective measures which may be biased, and fail to capture the temporal relationships between variables (Cole & Maxwell, 2003).

Directly assessing the mediational role of mentalizing in the relationship between attachment and BPD, Fossati, Feeney, Maffei, and Borroni (2011) explored the hypothesis that a dimension of mentalizing would mediate the relationship between attachment and BPD. A sample of 501 high-school students was administered the Attachment Style Questionnaire (ASQ), the Mindful Attention Awareness Scale; a measure of a dimension of mentalizing, and the Personality Diagnostic Questionnaire–4 (PDQ). These authors argued that mindfulness can be considered to be a component of the mentalizing process (Choi-Kain & Gunderson, 2008). Correlations were calculated between all variables and separate stepwise and linear regressions were performed to identify significant associations between specific variables in preparation for the mediation analyses. Mediational analyses were carried out on variables whose associations remained significant which included the relationship between the Need for Approval scale of the ASQ and the Borderline Personality Disorder
Scale of the Personality Diagnostic Questionnaire. With the addition of the mindfulness variable in the hierarchical regression, the correlation between the attachment dimension and BPD became insignificant with approximately 47% of the effect of attachment on BPD being accounted for by the mediating impact of the mentalizing variable.

While this study did utilize the Baron and Kenny (1986) recommendations for the assessment of mediation, which have been criticized as discussed above, researchers added bootstrapping strategies as per the recommendations of (Preacher & Hayes, 2008) to increase statistical power and compensate for some of the limitations related to cross sectional design. Interestingly, this study assessed the mediational role of mentalizing in the relationship between attachment and BPD in a non-clinical sample and while levels of pathology would be thought to be limited, in this sample, results were consistent with the hypothesis that mentalizing acts as a mediator in the relationship between attachment and BPD.

DISCUSSION

Overall, only five unique studies were identified that empirically examined the role of mentalizing as a mediator in the relationship between childhood adversity and adult outcomes (N=5). Within that sample, only three directly assessed trauma while two others considered the role of insecure attachment, which can be seen to be related to suboptimal childhood experiences. While the majority of these studies did appear to be methodologically sound, there were significant differences in populations, measurements, conceptual frameworks and statistical analytic approaches. This limited number of studies makes it very difficult to compare and make any overarching statements or conclusions.

Measurement

A significant challenge to making any statements from these studies, about the role of mentalizing as a mediator between childhood adversity and adult functioning is related to the measurement of adverse childhood experiences. For instance, Fonagy et al. (1996) drew their conclusions about the nature of childhood traumatic experiences from AAI narratives, Stein et al. (2004) utilized a measure called the Childhood Experiences in Care, which is a retrospective self report measure. All other authors did not explicitly ask about childhood adverse experiences although one of these studies did utilize the AAI and did not report on trauma narratives (Bouchard et al., 2008). These studies were included in the review because they did measure attachment and consider the mediational role of mentalizing in later adult functioning, which may have implicated early experiences in the later outcomes. None of the authors assessed whether there appeared to be any long-term distress in relation to childhood adverse experiences through the use of a measure of traumatic symptomatology. While there is substantial evidence to suggest that insecure attachment is stable, developmentally (Hazan & Zeifman, 1994), and that insecure attachment is
related to adverse childhood experiences, the range of the experiences may be from the benign; failure of a good fit between infant and mother, to the malignant; sexual or physical trauma at the hands of an attachment figure.

The measurement of mentalizing also presents a challenge when attempting to make comparisons between studies. Three of the five studies utilized the RF scale for scoring the AAI, and one utilized the RF in combination with two other measures. The RF scale is, currently, the most accepted means of assessing mentalizing (Choi-Kain & Gunderson, 2008; Fonagy et al., 1991). However, other authors attempted to utilize a measure of alexithymic symptoms (Fossati et al., 2009), affect elaboration (Bouchard et al., 2008) and mindfulness (Bouchard et al., 2008; Fossati et al., 2011). In using three measures of mentalizing, Bouchard and colleagues (2008) did find some convergence and divergence between measures reinforcing the belief that mentalizing is a multi-dimensional construct that may be assessed in a number of different ways (Choi-Kain & Gunderson, 2008). Fossati et al. (2011), discussing the issue of measurement of mentalizing, refers to psychometric discussions of the measurement of latent variables, indicating that “a construct may be said to exist only when it can be measured using different instruments based on different methods” (Fossati et al., 2011 p.565). (See Table Two).

<table>
<thead>
<tr>
<th>Article</th>
<th>Mentalizing</th>
<th>Attachment</th>
<th>Psychological Functioning</th>
<th>Trauma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fonagy et al., 1996</td>
<td>Reflective Functioning</td>
<td>Adult Attachment Interview</td>
<td>The Symptom Checklist–90-R Beck Depression Inventory The State-Trait Anxiety Inventory The Eysenck Personality Questionnaire</td>
<td>Adult Attachment Interview</td>
</tr>
<tr>
<td>Stein et al., 2004</td>
<td>Reflective Functioning</td>
<td>Adult Attachment Interview</td>
<td>Adult Personality Functioning Interpersonal Domains</td>
<td>Childhood Experiences in Care</td>
</tr>
<tr>
<td>Bouchard et al., 2008</td>
<td>Reflective Functioning Mindful Attention Awareness Scale Affect Elaboration</td>
<td>Adult Attachment Interview</td>
<td>Structured Clinical Interview for DSM Disorders</td>
<td>None</td>
</tr>
<tr>
<td>Fossati et al., 2009</td>
<td>Alexithymia</td>
<td>Attachment Style Questionnaire</td>
<td>Barratt Impulsiveness Scale Impulsivity &amp; Aggression subscales</td>
<td>None</td>
</tr>
<tr>
<td>Fossati et al., 2011</td>
<td>Mindful Attention Awareness Scale</td>
<td>Attachment Style Questionnaire</td>
<td>Personality Disorder and BPD scale</td>
<td>None</td>
</tr>
</tbody>
</table>
The issue of whether mentalizing can be validly assessed via self report and questionnaires has been a topic of recent discussion in the literature (Choi-Kain & Gunderson, 2008). However, the use of the RF scale can be a challenge to researchers given the extensive time required to train in the use of the measure as well as administer, transcribe and score the transcripts. This has likely limited the growth of the potential for the study of mentalizing capacity in developmental and psychotherapy contexts (Choi-Kain & Gunderson, 2008). European researchers, Dimitrijevic and Hanak (2012) are currently attempting to address this challenge through the completion of a self report measure of mentalizing. The Mentalizing Questionnaire (Dimitrijevic & Hanak, 2012) has shown promising inter-rater reliability and convergent and discriminant validity in early non-clinical psychometric trails. Researchers have found more challenges with validity in an initial clinical trial, and future research will continue to assess this measure as a potential resource to researchers seeking a more time and cost efficient method of measuring mentalizing capacity (Dimitrijevic & Hanak, 2012).

More contemporaneously, researchers have suggested the use of the RF scale as a measure of treatment change (Clarkin, Levy, Lenzenweger, & Kernberg, 2007; Levy et al., 2006). Findings of a study examining correlations between RF, the severity of Axis and II disorders and levels of personality organization, suggested that RF should be considered as a possible outcome measure in psychotherapy outcome studies (Clarkin et al., 2007).

There was no consistency between studies for the measurement of psychological functioning. However, the objectives of each of these studies was different and so, measurements targeted different areas of psychological functioning from personality organization (N=4) to impulsivity (N=1), interpersonal functioning (N=1), mood (N=2) to personality disorders (N=3).

**Sampling Strategies**

In general, sample sizes were adequate for the data analytic strategies employed. Four of the studies utilized clinical samples and two of these studies employed matched control groups (Fonagy et al., 1996; Stein et al., 2004), which adds to the validity of the strength of associations between variables of interest. One of these was a mixed sample drawn from randomly selected clinical and non-clinical participants from six separate studies (Bouchard et al., 2008). Two of the studies utilized large non-clinical student populations (Fossati et al., 2009; Fossati et al., 2011). This expands the diversity and veracity of the accumulated body of research in mentalizing which, initially, focused on individuals with diagnosed psychiatric disorders, BPD. These studies found many of the same associations between variables and were able to complete large-scale mediational analyses with the large sample sizes and strong discrimination between groups.

Studies examining the impact of early experiences on later functioning often rely upon cross-sectional methodologies which are unlikely to yield an accurate estimate of causality, rely upon retrospective measures which may be biased, and fail to capture the temporal relationships between variables (Cole & Maxwell, 2003). To further understand the relationships between early...
adverse experiences, mentalizing and adult functioning, future studies might actively recruit clinical and non-clinical participants with a documented history of trauma. A longitudinal, prospective study of children who have documented histories of trauma and whose functioning in terms of attachment, mentalizing and psychological wellbeing, including traumatic symptomatology, would be the ideal methodology for fully assessing the mediating role of mentalizing capacity in the relationship between childhood adversity and adult functioning (Fonagy et al., 1996). (See Table Three)

<table>
<thead>
<tr>
<th>Article</th>
<th>N</th>
<th>Population</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fonagy et al., 1996</td>
<td>N=82</td>
<td>Clinical: psychiatric inpatients</td>
<td>85 case matched controls</td>
</tr>
<tr>
<td>Stein et al., 2004</td>
<td>N=77</td>
<td>Clinical: former preschool for psychopathology</td>
<td>48 matched controls, 25 psychiatric inpatients</td>
</tr>
<tr>
<td>Bouchard et al., 2008</td>
<td>N=73</td>
<td>Clinical and Non-Clinical Random selection from six different samples</td>
<td>None</td>
</tr>
<tr>
<td>Fossati et al., 2009</td>
<td>N=637</td>
<td>Non-clinical: undergraduates</td>
<td>None</td>
</tr>
<tr>
<td>Fossati et al., 2011</td>
<td>N=501</td>
<td>Non-clinical: high school students</td>
<td>None</td>
</tr>
</tbody>
</table>

**Data Analytic Strategies**

The primary hypotheses of the majority of these studies were not to test the mediational role of mentalizing in the relationship between adverse experiences in childhood and adult functioning. Only the Stein et al. (2004) study set out, explicitly, to explore these relationships using a Structural Equation Modeling approach. Unfortunately, this study had many methodological flaws unrelated to the data analytic strategy, which limited the generalizability of these findings. Fonagy et al. (1996) did assess for history of childhood trauma and found many correlational associations between variables and an important and interesting interaction between a diagnosis of BPD and mentalizing functioning. High mentalizers with a history of trauma were identified to have lower incidence of BPD than low mentalizers with a similar history. Unfortunately, as there was no significant association identified between a history of childhood trauma and BPD, no mediational analyses could be carried out, as the basic preconditions for such an analysis had not been met.

These findings identify some contradictions. Fonagy et al (1996) found significant correlations between BPD and mentalizing which does not concur with the findings of two other studies. Fischer et al. (2010) did not find significant correlations between BPD and mentalizing and Levy et al. (2006) found that mentalizing was not significantly associated with unresolved loss and trauma in BPD patients. These contradictions suggest the need for well-controlled replication studies to more fully explore these relationships.

Fossati et al. (2009, 2011) directly assessed mediation using the methodology recommended by Baron and Kenny (1986). Until recently,
the majority of studies in the social sciences assessing mediation utilized the methodological approach to the assessment of mediation laid out by Baron and Kenny in their seminal article (1986; MacKinnon, 2008). Baron and Kenny’s methodological approach to mediation outline four steps (1986). These include: 1) establishing the correlational relationship between an independent variable and dependent variable such as a history of childhood maltreatment and adverse outcomes in adult mental health; 2) establishing the correlational relationship between the independent variable and the mediator such as the correlation between childhood maltreatment and deficits in mentalizing capacity; 3) establishing the relationship between the mediator and the dependent variable such as between mentalizing and adverse outcomes in adult mental health and; 4) establishing that the mediator mediates the relationship between the independent and dependent variable by demonstrating the diminished effect of the independent variable on the dependent variable while controlling for the mediator. Statistically, stepwise multiple regression has been the primary approach to assessing these relationships. However, recent critics have argued that this approach may produce low statistical power and high error, especially in cross-sectional designs (Preacher & Hayes, 2008). In the second study, Fossati et al. (2011) did add bootstrapping strategies to their analyses to adjust for the potential for high error in their cross sectional design (Preacher & Hayes, 2008). (See Table Four).

Table 4. Data Analytic Strategies

<table>
<thead>
<tr>
<th>Article</th>
<th>Preliminary</th>
<th>Mediation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fonagy et al., 1996</td>
<td>Correlations</td>
<td>None (did not meet requirements)</td>
</tr>
<tr>
<td></td>
<td>log linear</td>
<td></td>
</tr>
<tr>
<td>Stein et al., 2004</td>
<td>Chi-square test</td>
<td>Structural equation modeling</td>
</tr>
<tr>
<td></td>
<td>associations</td>
<td></td>
</tr>
<tr>
<td>Bouchard et al.,</td>
<td>Correlations</td>
<td>Regression analyses (hierarchical</td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td>logistic and multiple regression)</td>
</tr>
<tr>
<td>Fossati et al., 2009</td>
<td>Correlations</td>
<td>Baron &amp; Kenny stepwise regressions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&amp; Bootstrapping</td>
</tr>
<tr>
<td>Fossati et al., 2011</td>
<td>Correlations</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions and future directions
To develop effective strategies for treatment, it is necessary to understand the pathways between risk factors and adverse outcomes (Kazdin, 2007). Kazdin’s (2004, 2007) methodology for developing psychotherapy interventions outlines two important stages. The first stage focuses on identifying and understanding the “pathology” of interest, which includes establishing the relationships between the identified problem, and on mediational variables as a first step in identifying targets for treatment interventions. Thus, it is essential to establish the pathways in the relationship between childhood adversity and adult difficulties to identify mechanisms to target in interventions. Fonagy and Target (2002) identify a number of risk factors for the development of insecure
attachment that are also associated with later risk for behavioural difficulties. They indicate that an understanding of these risk factors does not facilitate the identification of effective interventions, as it is the mediators underlying the risk factors that fully elucidate the mechanism of transmission.

Researchers have provided a very strong conceptual and theoretical rationale for the consideration of mentalizing as a mediator in the transmission of parent to child attachment and in the relationships between childhood adversity and adult psychopathology. First generation empirical researchers have demonstrated significant support for the associations between childhood adversity and later adverse mental health and interpersonal outcomes. Weaker support has been identified for demonstrating the associations between these variables and mentalizing function, as is required for the demonstration of mediation. Second generation researchers have begun to examine specific mediational relationships, and have provided some initial validation for these hypotheses. However, these findings have not been reliably and consistently replicated in the published literature.

Looking to the future it is important that more time efficient and cost effective methods of measuring attachment and mentalizing be identified (Choi-Kain & Gunderson, 2008). Given the significant cost and time required to measure the variables of interest in a sample large enough to have sufficient statistical power, researchers may be deterred from taking on these important studies. Alternative means of assessing mentalizing through shorter interviews or computerized text analysis are beginning to appear in the literature (Fertuk, Mergenthaler, Target, Levy, & Clarkin, 2012; Rutimann & Meehan, 2012). Some movement is being made in this area as researchers continue to work on validating self report measures of attachment and mentalizing (Dimitrijevic & Hanak, 2012). Additionally, collaborations between research teams and different universities may be a way of obtaining large enough samples of participants, funding and resources to allow for the ongoing development of this line of research.

Why is this important? It is important because there is substantial evidence that early maltreatment may lead to adult psychopathology and interpersonal challenges while interventions continue to address problems after they have developed. These top down symptom management approaches fail to target the very mechanisms that facilitate the development and maintenance of these difficulties at their origins leaving trauma survivors to suffer long term distress. It is important because to develop interventions for traumatized individuals to improve the emotional and interpersonal wellbeing, we need to know the pathways of transmission from initial adversity to later pathology (Kazdin, 2004).

This review has a number of limitations that bear discussion. While this reviewer attempted to examine all empirical studies assessing mentalizing as a mediator variable, some studies may have been, inadvertently, left out of the review. All identified studies examining mentalizing as mediator variable were reviewed. Additional studies were added, given the small sample size, which included measurement of associations between relevant variables; attachment
and or childhood adversity, mentalizing and adult psychological problems. Given the small number of studies identified (N=5) it is difficult to adequately compare studies and critique methodological approaches to the tests of mediation.

Early studies assessing the relationships between childhood adversity and later functioning studied severely distressed clinical populations. In fact, as the concept of mentalizing was furthered in relation to the challenges faced by patients diagnosed with BPD, the majority of empirical research into these associations was carried out with this population. This significantly distressed group of participants may not be representative of the majority of individuals who experience diverse traumas in childhood. However, a positive trend has been identified as more recent studies engaged non-clinical populations in assessing these important variables in addition to the continued study of BPD. It is important that future studies assessing the relationships between childhood trauma, adult functioning, and mentalizing as a mediator variable, include clinical and non-clinical samples to identify the specific variables implicated in the pathway from adversity to distress. Additionally, it is important that these studies use standardized psychometrically valid measures of traumatic experiences and trauma symptom severity rather than simply asking about a history of trauma. Trauma symptom severity, rather than diagnostic status, has been identified as the more reliable measure of trauma in terms of outcomes in adulthood (Monson et al., 2008).

The literature on the role of mentalizing is rapidly proliferating. Twenty years of exploration has led to a strong conceptual foundation for identifying mentalizing as an important variable in the development of healthy cognitive, emotional and interpersonal functioning. These strong theoretical foundations have not been sufficiently supported by empirical research. There is some preliminary evidence for the importance of mentalizing as a mediator variable in the relationship between childhood adversity and later functioning. However, these studies have not been replicated consistently or designed in such a way as to allow for easy replication by other researchers. It behooves researchers in this field to work towards collaborative partnerships and the development of psychometrically sound time and cost efficient measures of mentalizing and attachment, to facilitate more empirical research in the field.

Currently, while there is significant evidence for positive outcomes from studies assessing mentalizing based treatments (Bales et al., 2012; Bateman & Fonagy, 2008; Bateman et al., 2009), there is a risk that conceptual advances and treatment outcome studies will outstrip empirical support for these psychoanalytic concepts. This poses the potential risk that the field will become further alienated from empirical research and the bases for positive outcomes in treatment studies will be inconclusive. Mentalizing research is a strong model in the psychoanalytic field. It has provided a model of theory making, empirical study and intervention research mirroring one another and developing in synchrony. This critical review suggests that this potential is being only partially achieved such that while there is strong preliminary evidence for the mediating role of mentalizing, theory may be advancing beyond the evidence. This creates
a potential for the decoupling of theory making, empirical examination of underlying mechanisms and clinical research. The goal of connecting empirical exploration more closely to theory building is vital for psychoanalytic concepts such as mentalizing to have a rich and fertile future (Fonagy, 2003).

REFERENCES


Allen, J.G. (July 10, 2012). Personal Communication. jallen@menninger.edu


Cortina, M., & Liotti, G. (2010). Attachment is about safety and protection, intersubjectivity is about sharing and social understanding: The relationships between attachment and intersubjectivity. Psychoanalytic Psychology, 27(4), 410–441. doi: http://dx.doi.org/10.1037/a0019510


understanding psychopathology and treatment (pp. 179–208). Washington, DC: American Psychological Association; US.


