Commentary on Guild et al. (2020): The Importance of Well-Designed Intervention Studies for Advancing Attachment Theory and its Clinical Applications

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Children of depressed mothers are at increased risk of insecure attachment and compromised functioning in social-emotional domains of development (Goodman & Gotlib, 1999; Wan & Green, 2009). Insecure attachment is an important but non-specific risk factor for developmental psychopathology (DeKlyen & Greenberg, 2016). It makes sense, therefore, to intervene early with depressed parents to try to ensure a more positive developmental trajectory for their children.

Overall, however, the body of literature linking maternal depression, insecure mother-child attachment and problematic child outcomes presents a mixed and complex story. Further, there is ongoing debate about the extent to which insecure attachment is a risk factor for developmental psychopathology (DeKlyen & Greenberg, 2016; Meins, 2017; Thompson, 2016), and limited empirical evidence demonstrating *how* secure attachment influences later development (Thompson, 2016).

The paper by Guild and colleagues in this issue, together with earlier reports from this group of researchers, provides a compelling body of evidence that an attachment-theory-informed psychotherapeutic intervention for new mothers with depression can increase the likelihood of secure attachment in their children. Importantly, the shift to secure attachment explains better child relational functioning six years later in middle childhood, in the domains of peer relations (Guild et al., 2017) and interactive problem solving with their mothers (the current paper). This work makes a significant contribution to our evolving understanding of developmental processes underpinning social-emotional competence in children of depressed parents, and to several ongoing controversies in the field: 1) the relevance of attachment-theory-informed interventions in the context of maternal depression; 2) the evidence gap regarding the efficacy and effectiveness of attachment-theory-informed interventions,

particularly with respect to sustained benefits; 3) cost-benefits of early interventions; and 4) the need for theory driven research that explains *how* and under what circumstances attachment is related to later child outcomes.

Why Are Attachment-Theory-Informed Interventions Appropriate for Depressed Parents?

Goodman and Gotlib (1999) set out a conceptual model with four pathways through which maternal depression might impact negatively on the child: (1) genetic transmission of vulnerability to mood disorders; (2) a direct physiological impact of maternal stress hormones during pregnancy on the child's developing regulatory systems; (3) the impact of post-birth depression on the mothers' caretaking quality; and (4) indirect effects on the child related to the stressful ecological family context that predisposes to depression in the first place. Empirical evidence for lasting negative effects of maternal depression on offspring is equivocal, however (Wan & Green, 2009). Meta-analyses confirm that maternal depression is associated with insecure child attachment (see Martins & Gaffan,2000; Atkinson et al., 2000) and with child internalizing and externalizing problems (Goodman et al., 2011; Giallo et al., 2018), but effect sizes are small to modest. Child age and gender, parent resources and life history, family poverty, and characteristics of the depression (particularly severity and chronicity) have all been shown to moderate effects on the child.

It is difficult to disaggregate the impact of maternal depression from co-occurring risk factors that contribute to both the onset and maintenance of depression *and* problematic parenting (Cicchetti et al., 1999; Downey & Coyne, 1990). An insecure state of mind regarding attachment predicts likelihood of meeting diagnostic criteria for major depressive disorder in the first postnatal year (McMahon et al., 2006) and persistence of depression into the preschool years (McMahon et al., 2008). Two prospective studies have shown that chronic (not transient) maternal depression in conjunction with attachment vulnerabilities in

the caregiver lead to insecure parent-child attachment. Chronic depression increased the likelihood of insecure attachment in offspring, but only when their mothers had an insecure state of mind regarding attachment (McMahon et al., 2006) or compromised capacity for sensitive caregiving (NICHD, 1999). Across studies, a substantial proportion of children of depressed mothers are securely attached, suggesting some depressed mothers can provide sensitive care (Cicchetti et al., 1999; NICHD, 1999; Wan & Green, 2009).

This body of research supports the use of interventions that target working models (mental representations) of attachment in depressed parents. In addition, there is abundant evidence that targeting depression symptoms alone will not help the parent-child relationship (Forman et al., 2007; Cicchetti et al., 1999; Tsivos et al., 2015). Rather, depressed parents (and potentially their children) benefit from both symptom relief and interventions that focus on the parent-child relationship. Interventions that serve as a "corrective attachment experience" (Toth et al., 2018, p. 299) may be particularly beneficial.

Evidence for the Effectiveness of Attachment-Theory-Informed Interventions

The positive and sustained outcomes in the study by Guild and colleagues are noteworthy, as evidence for long-term benefits of attachment-theory-informed interventions is limited. The primary objective of these interventions is to promote secure parent-child attachment relationships by improving the relational capacities of parents, with theorized benefits for the child's developmental trajectory. Two key therapeutic goals have been identified: changing caregivers' working models of attachment, and improving caregiver capacity to accurately interpret child cues and sensitively respond to them (van IJzendoorn et al., 1995; Berlin et al., 2016). The therapeutic relationship with the intervener is considered a key process to enable change (Berlin et al., 2016). While most attachment-based interventions target both caregivers' representations and their behavior, they generally have a principal focus on one or the other. They also vary regarding mode of delivery (dyad vs

group), duration (from 4-8 sessions to well over a year), presence/absence of the child, and inclusion/exclusion of explicit skills-based training.

Evidence for the effectiveness of attachment-informed-interventions is currently limited, but some are supported by considerable evidence (Berlin et al., 2016). Notably, the team responsible for the study reported here was responsible for the first evidence that child attachment security could be modified through participation in an attachment-theory-informed intervention (Cicchetti et al., 1999). Nonetheless, extant research reports equivocal findings regarding changes in parenting behavior, parent representations, reflective functioning, and child attachment security and disorganization (for meta-analyses, see Bakermans-Kranenburg, et al., 2003; 2005; Facompré et al., 2017; Letourneau et al., 2015). Reports of "downstream" intervention effects on child capacities and behavior, and parent mental health, are particularly rare.

Interventions Targeting Parent Representations

Attachment-theory-informed interventions that directly target parent representations often follow a psychotherapeutic model. Child Parent Psychotherapy (CPP; Lieberman & Van Horn, 2008), the intervention evaluated by Guild and colleagues, has its origins in infant-parent psychotherapy (IPP; Fraiberg, 1980). CPP combines the psychoanalytic orientation of IPP with contemporary knowledge of the impact of trauma on children's brain development (Toth et al., 2018). Therapy explicitly targets parents' history of care during their own childhood, helping parents recognise how these experiences influence their current relationships with their own child. Therapists model sensitive behavior towards the child during sessions, while working to modify maladaptive perceptions of parent and child, with an overarching focus on supporting the child's mental health (Berlin et al., 2016). CPP is an intensive intervention, involving weekly therapist-dyad sessions for approximately a year, with rigorous training and supervision requirements (Toth, et al., 2018). In addition to the

sample reported here, several randomized controlled trials (RCTs) have evaluated CPP with families at risk, including highly stressed new immigrants, mother-infant dyads from maltreating families, and mothers with children exposed to marital violence.

The study reported here presents compelling evidence. For dyads who completed CPP, the substantial post-intervention improvements in child attachment security (54% changed from insecure to secure classification; Toth et al., 2006) were associated with higher maternal warmth and less child anger and problem behavior at 9 years of age. The current findings combine with those of another recent paper on peer competence at age 9 in this sample (Guild et al., 2017) to indicate that CPP has sustained positive indirect effects on both parents and children as much as six years post-intervention.

There are limitations, however. The high SES sample raises questions about generalizability, and there are null findings regarding the effects of change in attachment classification on maternal hostility, child positive affect and dyadic cohesion. Further, a meta-analysis of parent-infant psychotherapies concluded that while there was evidence supporting the model's positive impact on child attachment in high risk families of infants and toddlers, there were no significant differences in other child and parent outcomes, compared to treatment as usual or control conditions (Barlow, et al., 2015). Additionally, interventions like CPP require long-term parental compliance and service commitment and are costly to implement, limiting their scalability, discussed further below.

Another group of attachment-theory-informed interventions with psychotherapeutic origins are the Circle of Security (COS) interventions (Powell, et al., 2014). While several versions have been developed, COS is predominantly offered as a 20-week intensive intervention utilizing individualized video feedback (COS-I) or as an 8-week DVD-based parenting program (COS-P) using stock video footage. The COS approach shares the CPP focus on changing caregivers' representations, but differs in its group delivery (although,

individual delivery is also supported) and in not including the child in the sessions. Evidence for COS is limited. Studies of the 20-week COS-I version found significant pre-post increases in child attachment security and decreases in child attachment disorganization (Hoffman et al., 2006; Huber et al., 2015a), improvements in mother- and teacher-rated child behavior (Huber et al., 2015b) and in maternal emotional functioning (Huber et al., 2016). Studies of the more scalable COS-P version, including one RCT (Cassidy et al., 2017), indicate that the program improves various aspects of parenting. With the exception of the study by Cassidy et al., however, the evidence for COS programs is limited by study designs; few include control conditions and long-term follow-up (Berlin et al., 2016).

Interventions Targeting Parent Behavior

Short attachment-theory-informed interventions with a primary focus on promoting sensitive caregiver behavior have been shown to have superior effectiveness to longer interventions targeting representations in an influential meta-analysis (Bakermans-Kranenberg et al., 2003). In behavioral interventions, interaction guidance or coaching techniques are the key strategy: the child is present and the therapist comments on the caregiver's behavioral responses during real-time interaction and/or with video feedback, reinforcing behaviors that align with the child's attachment-related cues. One example of this approach, Attachment and Biobehavioral Catch-Up (ABC; Dozier et al., 2018), has been awarded the highest-available evidence rating by the prominent California Evidence-Based Clearinghouse for Child Welfare (CEBC4CW; https://www.cebc4cw.org)[1]. ABC involves a trained parent coach working with a mother-child dyad over 10 in-home sessions that focus on three parent behavior targets: nurturance, following the child's lead, and reducing frightening behavior (Dozier et al., 2018).

[1] In contrast, CPP evidence is currently rated at the second-highest level, although this rating has not yet been reviewed in light of the most recent evidence.

Four RCTs report promising findings in high-risk samples: infants and toddlers in foster care (two separate studies), infants living with neglectful parents, and infants adopted internationally. While two trials are ongoing, evidence thus far indicates that ABC (in comparison with a well-matched control intervention) is effective in increasing parental sensitive behavior (Bick & Dozier, 2013) and child attachment security (Bernard et al., 2012), and that children in dyads that receive ABC show more normative cortisol production (indicative of healthy physiological regulation) several months after completing the intervention (Bernard, Dozier, et al., 2015), which is sustained at least three years post-intervention (Bernard, Hostinar, et al., 2015).

Video-Feedback Intervention to Promote Positive Parenting (VIPP; Juffer et al., 2008) also targets sensitive caregiving behaviour through reviewing video footage. A therapist works with a caregiver-child dyad over four to six sessions in the home. Findings from multiple RCTs support efficacy of the VIPP interventions, particularly with regard to increasing caregiver sensitivity and various aspects of child behavior, although findings are mixed regarding improvements in child attachment security (Berlin et al., 2016; Juffer et al., 2018).

Beyond these promising findings, evidence for attachment-informed-interventions is relatively scant and many studies are limited by design constraints. Perhaps most importantly, many study designs do not enable conclusions to be drawn about underlying mechanisms of change, and whether, or to what extent, changes in one outcome caused or resulted from changes in another. The study in this issue stands above these limitations, with its randomized design, impressive 6-year follow-up, and findings regarding mediation.

Cost-Benefit Analyses of Attachment Theory Interventions

Guild and colleagues' research findings are relevant to two areas of current debate: whether the longitudinal empirical evidence for attachment and its sequelae justifies the

current influence of attachment theory on service development (Meins, 2017); and the costs and scalability of different approaches. Leading attachment researchers concede that claims about the critical importance of the child's early experience may be exaggerated by policy makers in an effort to secure scarce public money for early interventions, however they maintain that the evidence is solid (van IJzendoorn et al., 2017). Nevertheless, there is ongoing debate around the optimal intervention timing, format, primary target (parent behavior or representations), and dosage required to effectively improve attachment (Bakermans-Kranenburg, et al., 2003; 2005; Facompré et al., 2017; Letourneau et al., 2015).

Clearly, short, low-intensity programs requiring minimal training and supervision are less costly and more scalable than longer and more intense programs. However, programs are only cost-effective if they achieve the desired outcomes. The meta-analytic finding that short interventions (as few as five sessions, no more than 16) targeting parent sensitive behavior seem to be the most effective at increasing child attachment security (Bakermans-Kranenburg, et al., 2003) indicates that this is possible, as does evidence for the ABC (10 sessions) and VIPP interventions. But processes as complex as attachment relationships and child development are unlikely to be best served by a one-size-fits-all approach. It is most likely that different people in different circumstances will need different interventions.

Offering CPP to families represents a significant investment, in: (1) cost of service provision and intensive supervision (weekly individual and group supervision, in this case); (2) training of therapists to Masters level; and (3) time commitment from the participating parents (weekly sessions for close to a year). Parental commitment to completing such a lengthy and challenging intervention suggests substantial internal resources and a willingness to change, which may not apply to a higher-risk population. (The substantial 30% attrition rate for the treatment group between Time 1 and Time 2 suggests that intervention completion may have been a challenge even in this educated and SES-protected sample.)

More research is needed to further illuminate what works for whom, to enable judicious allocation of effective programs. In addition, attachment intervention studies provide a unique opportunity to explore causal pathways, with potential to expand our understanding of attachment and its role in development (Facompré & Waters, 2017; Toth et al., 2008; van IJzendoorn et al., 1995).

How Do Attachment-Theory-Informed Interventions Change Developmental Pathways?

Attachment theory provides a developmental framework for understanding how the parent-child relationship forms the underpinnings of child relational functioning, emotion regulation and behaviour dysregulation or developmental psychopathology (De Klyen & Greenberg, 2016). There is, however, limited empirical support for these dynamic theoretical models. While meta-analyses do show modest main effects for attachment security in relation to predicting child internalising and externalising problems and peer relationships (Groh et al., 2017) results in many studies are equivocal (De Klyen & Greenberg, 2008), and/or limited to concurrent associations and follow-ups of children under five years of age (Meins, 2017). Further, meta-analyses do not elucidate explanatory processes (Thompson, 2016). De Klyen and Greenberg (2016) urge attachment researchers to move beyond seeking main effects of secure or insecure attachment as the "holy grail" to explain psychopathology (p. 640), arguing that secure attachment is not an end in itself, but is better viewed as an indicator of a changing caregiving environment. Thompson (2016) identifies several key limitations to longitudinal research on attachment that remain to be addressed: an over-reliance on the notion of internal working models as explanations with inadequate empirical support, the very broad range of outcome measures that have been linked to secure attachment without solid theoretical rationale, and a failure to test third variables - mediators and moderators in longitudinal studies. Intervention studies have unique potential to extend our knowledge; they may be the closest thing possible to an experimental manipulation. In

the study in this issue, a change to attachment security mediated developmental outcomes in middle childhood, but questions remain.

Working Models of Attachment

What role do working models of attachment (in mother and child) play in explaining these positive outcomes? Did CPP result in change to working models of attachment in the mothers? Were there related changes in caregiving representations and reflective capacity? If so, was this change sustained over time? Were child working models of attachment related to attachment security and indices of social-emotional development? This team of researchers have shown that a related psychotherapy intervention (similar to CPP) can improve representations of self and caregivers in maltreated children in the pre-school years (Toth et al., 2002). It would be most interesting to explore whether sustained improvements in mother and child attachment representations could explain improved child functioning in middle childhood, but no such data exist to our knowledge.

Choosing Appropriate Outcome Measures

A strength of the research from this team is the choice of theoretically aligned outcome measures in middle childhood: teacher rated peer competence (Guild et al., 2017), and child anger management and maternal warmth in a conflict simulation (this volume). Competence in peer relationships is perhaps the best fit with key propositions of attachment theory. The theory proposes that securely attached children have experienced positive interactions with their caregivers, particularly when stressed or threatened, and that these positive experiences become templates or expectations for later close relationships. Guild and colleagues (2017) offer several possible explanations: CPP fostered a secure attachment state of mind in mothers, which, in turn led to positive caregiving behavior, and that led to positive social expectations in the child. As recipients of responsive caregiving, they argue, the children would have learned the fundamentals of social reciprocity; they would also be likely

to think of themselves as worthy and positive. This is a theoretically plausible explanation, but empirical gaps remain, as noted above.

In the study in this issue, results show that in the group who received CPP, *mothers* showed more warmth, and their children showed less anger and problem behaviour during a conflict task at 9 years, and both effects were mediated by secure attachment. Again, measures are well aligned with predictions of attachment theory in relation to emotion regulation. It is proposed that when parents are responsive to and supportive of their child's negative affect states, the child internalises a capacity for emotion regulation. Maternal warmth (as reported in this study) could be considered an "explanatory" rather than an outcome variable (and it may concurrently explain the better child behavior). The authors suggest that the intervention fostered positive maternal behavior that improved attachment security and was *stable over time.* Thompson argues that evidence overall is still not strong for several key links in this explanatory model, which is at the heart of attachment theory: that when sensitivity improves, children can shift from insecure to secure attachment, that changes in caregiving behavior are *sustained*, and that they *explain* child behaviour and emotion regulation. Further investigation of this model remains a task for future research.

Summary Comments

The paper by Guild and colleagues in this issue presents the most compelling evidence to date for the effectiveness of CPP in improving child attachment, which, in turn leads to better social-emotional functioning in middle childhood. These findings contribute not only to the evidence base for attachment-theory-informed interventions, but also illuminate developmental sequelae of secure attachment, informing theory development. While questions remain about the generalizability of these findings, and about the developmental pathways involved, this paper makes a significant contribution to theory and clinical practice.

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