This is an Accepted Manuscript of an article published by Taylor & Francis in Attachment and Human Development on 4 Nov 2020 (published online), available at: http://www.tandfonline.com/10.1080/14616734.2020.1844247.

The effectiveness of parenting programs in regard to improving parental reflective functioning: A meta-analysis

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Author Note

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

This work was supported by the Hong Kong Polytechnic University under Start-up Fund for New Recruits.

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Abstract

The literature has paid increasing attention to the mentalizing capacity, which is operationalized as reflective functioning (RF), of parents in regard to their children's mental states. Although parenting interventions aiming to improve parental RF have been developed, there have been conflicting results in regard to intervention effectiveness. This meta-analytic review seeks to synthesize the available evidence that group-based parenting interventions improve parental RF, in order to provide conclusive evidence regarding their effectiveness. A systematic search was performed to retrieve relevant studies published before November 2019. A total of 15 studies met the selection criteria, of which 3 studies were randomized controlled trials (RCTs). The studies yielded a significant intervention effect with a small pooled effect size (Hedge's g = 0.279, p = 0.002) on parental RF. However, the pooled effect size of the 3 RCTs was non-significant (pooled effect size: Hedge's g = 0.189, p = 0.244), indicating that current best evidence is limited. As the heterogeneity test was significant (Q = 32.486, df = 14, p = 0.003), which suggests the presence of heterogeneity among the selected studies, a series of moderator analyses were performed to examine factors that may influence intervention effects. Interventions that involved children in middle childhood had a larger effect size than those involving children in infancy and early childhood.

Keywords: reflective functioning, mentalization-based intervention, mentalizing, parenting programs, meta-analysis

The effectiveness of parenting programs in regard to improving parental reflective functioning: A meta-analysis

Increasing attention has been paid to the relationship-based approach in understanding the underpinnings of parenting and the parent-child relationship (Lawler et al., 2011; Mortensen & Mastergeorge, 2014). One of the emerging lines of research investigates the parental mentalizing underlying parenting behaviors and sensitivity (Slade, 2005). Such mentalizing capacity, operationalized as reflective functioning (RF), is rooted in attachment and psychoanalytic theories (Katznelson, 2014). It was originally developed by Fonagy and colleagues (2002; 1995) to refer to the psychological process underlying one's capacity to perceive and understand oneself and others in terms of mental states, including feelings, beliefs, intentions, and desires, and to interpret one's own and other's behaviors in relation to mental states. Studies have examined different domains of RF, including one's general RF capacity in regard to understanding the mental states of the self and others (Fonagy et al., 1991), RF with respect to trauma (Borelli et al., 2019), and RF regarding attachment relationships (Berthelot et al., 2015). In particular, parental RF, which refers to the capacity of parents to hold their child's mental states in mind, is specific within the parent-child relationship context (Slade, 2005).

Research has observed that parental RF serves as a robust predictor for parental sensitivity and attachment. Specifically, it is suggested that parents with higher levels of RF are better able to provide sensitive care to their children by recognizing and responding appropriately to their children's needs (Riva Crugnola et al., 2018). Greater parental RF also predicts better parent-child relationship quality and a greater likelihood of children developing secure attachment (Rostad & Whitaker, 2016). In addition, it has been suggested that a higher mentalizing capacity in parents is related to a lower risk of children's exposure to sexual abuse (Ensink et al., 2017). Furthermore, higher parental RF may buffer the negative effects of sexual

abuse on children's internalizing difficulties through the way in which parents respond appropriately to their abused children's distress and negative affect (Ensink et al., 2017).

In view of the growing evidence showing the importance of parental RF, particularly its potential protective effects, a reasonable next step is to examine whether or not parental RF can be enhanced through interventions. Although the development of reflective capacity is thought to be closely tied to early experiences in social relationships, particularly interactions with caregivers (Fonagy & Target, 1997), RF is a dynamic rather than a static construct. It is evident that, even in the event of childhood adversity, one's RF capacity can continue to develop through secure therapeutic relationships (Kretchmar et al., 2005) and group-based psychosocial interventions (Pajulo et al., 2012). Among existing group-based interventions targeting parental RF, some show positive evidence supporting the effectiveness of the interventions in terms of improving parental RF (Enav et al., 2019; Huber et al., 2015), whereas other interventions did not yield positive evidence (Bain, 2014; Byrne et al., 2019). These inconsistent findings may be attributed to the variability in RF measurements and study samples across studies. For example, Byrne et al. (2019) found that participants reported in qualitative interviews that they improved in regard to reflective capacity in terms of understanding their children's thinking and feeling, but this improvement was not captured by the quantitative measurement of parental RF. Bain (2014) attempted to replicate a mentalization-based intervention adapted from the UK in a group of homeless women in South Africa, but failed to demonstrate significant improvement in parental RF. A quantitative synthesis of available evidence is hence needed to provide a more accurate evaluation of the intervention effects. Thus far, the most relevant meta-analytic review on this topic was conducted by Letourneau et al. (2015), which examined the effectiveness of parenting programs focusing on enhancing parental RF and maternal sensitivity in promoting secure

parent-child attachments. Although the review included several interventions aiming to improve parental RF, surprisingly, none of the studies examined parental RF as an outcome. The review was also limited by the inclusion of studies in which participants were infants and children under the age of three years; hence, the effects of the interventions on parents of older children are unexplored. A closer examination of how study and intervention characteristics may influence study effectiveness would provide insights into future intervention development.

In view of the inconsistent findings and lack of meta-analytic reviews on this topic, the current study aimed to use a meta-analytic approach to quantitatively synthesize the effectiveness of existing parenting interventions in regard to improving parental RF and to examine potential moderators (intervention and study characteristics) that may influence the intervention effect on parental RF.

Methodology

Study Selection

This study covered publications in electronic databases, including PsycInfo, PubMed, Medline, Web of Science, and Embase. Relevant publications were systematically searched in titles, keywords, and abstracts, and using the following keywords: (1) parent, maternal, paternal, mother, father, and caregiver; (2) reflective function, reflective functioning, mentalization, and mentalizing; and (3) intervention, treatment, program, training, and group. Publications published before November 2019 were searched. The titles and abstracts of the retrieved studies were screened based on the inclusion and exclusion criteria. The second author completed the systematic search and screening process, after that, the first author reviewed the selected and non-selected studies and resolved discrepancies about the selection after discussion with the second author. A grey literature search was performed by searching Google Scholar using the

keywords reflective functioning, mentalizing, and intervention. The first 10 pages of the search results were reviewed and no additional publications were identified. Then, the full texts of the articles were reviewed to obtain eligible studies. The reference lists of the selected articles were reviewed to identify additional publications and one additional study (Kohlhoff et al., 2016) meeting the inclusion criteria of this study was obtained. Finally, the reference lists of relevant systematic and meta-analytic reviews on the topics were searched for relevant studies (Camoirano, 2017; Katznelson, 2014; Letourneau et al., 2015; Zeegers et al., 2017) and no additional publications were found.

Inclusion Criteria

Studies were included if they: (1) adopted an experimental or quasi-experimental design of group-based interventions for parents/caregivers' (2) included at least one outcome measure related to reflective functioning/mentalization of participants; and (3) used quantitative methods to evaluate outcome measures, or provided sufficient statistical information to calculate the effect sizes.

Exclusion Criteria

Studies were excluded if they: (1) could not provide quantitative evidence regarding program effects (e.g., focus group interviews, case reports, client satisfaction surveys); (2) provided insufficient data to perform an analysis of the effect sizes, and additional data could not be obtained from the respective authors; (3) were not written in English.

Data Extraction

Relevant data were extracted from the selected studies. A standardized coding sheet was created to extract study characteristics and outcomes. The coding sheet recorded basic publication information (such as the title, author(s), year of publication, and country of origin);

methodological characteristics (including study design, sampling method, sample size, and sample type); the types of measures used to assess RF; intervention characteristics (content, duration, frequency, attrition rate, site, and service provider); participants' characteristics (such as mean age, gender, ethnicity, and socioeconomic status).

Quality Assessment

The quality of each eligible study was assessed based on a methodology checklist. The checklist comprises nine items regarding study design, participant recruitment methods, description of interventions, measurements, statistical methods, and profiles of participants. The checklist items can be found in the Supplementary Material. Possible scores for the study quality assessment range from 0 to 15, with the maximum score indicating that a study meets all the criteria in the checklist. Two reviewers (the second author and a research assistant) coded and evaluated each of the studies independently. The intraclass correlation coefficient (ICC) was calculated to examine the degree of agreement between the two raters' ratings regarding the methodological quality of each study. In this review, the study quality assessment scores ranged from 5 to 14 and there was a high level of agreement between the two raters (ICC = 0.98). Disagreements were resolved by discussing the issues with the first author.

Data Analysis

To examine the effectiveness of the interventions, because of the small sample sizes of some studies, Hedge's *g*, which refers to a standardized difference in means (with corresponding 95% confidence intervals, CIs, calculated for each study) was computed. The formula for Hedges' g estimation is Cohen's *d* x *J (*a correction factor), where $d = \frac{\bar{X}_1 - \bar{X}_2}{S_{within}}$ and $J = 1 - \frac{3}{4\,df - 1}$. For RCTs and non-randomized controlled trials (independent samples), $S_{\text{within}} =$

$\sqrt{\frac{(n_1-1){S_1}^2+(n_2-1){S_2}^2}{n_1+n_2-2}}$. For single group pre-test and post-test study design (dependent samples), $S_{\text{within}} = \frac{S_{diff}}{\sqrt{2(1-r)}}$. If the correlation *r* is not reported, *r* was estimated as 0.5 (Borenstein et al., 2011). The effect size for each study was first computed, then the effect sizes of the individual studies were combined to produce the pooled effect size. The relative weight assigned to each study for computing the pooled effect was determined by the sample size of the study. For studies with more than one measure of RF, multiple effect sizes within the study were combined so that each study only contributed one effect size to the analysis. This computation was performed using the Comprehensive Meta-Analysis Software (Version 3.3) (CMA; Borenstein et al., 2005). Because of the different features of the interventions' contents and participants, a random effects model was used to calculate the pooled effect size. *Q* statistics and I^2 statistics were used to estimate heterogeneity. Subgroup analyses to examine potential moderators that may have influenced program effects were conducted. Studies were categorized into subgroups based on the study characteristics and *Q* statistics were used to examine potential moderating effects. A significant between-group *Q* statistic indicated a significant moderating effect. This study adopted a principle of excluding moderator analyses with one or more sub-sets containing fewer than four studies to avoid arriving at conclusions based on small sample sizes (Bakermans-Kranenburg et al., 2005; Vonderlin et al., 2020). Potential publication bias was estimated with funnel plots by plotting individual studies' effect sizes against the standard error of the effect size. Asymmetry in a funnel plot implies that publication bias is present. All of the above analyses were conducted using CMA (Borenstein et al., 2005). A p-value of < 0.05 was considered to be statistically significant.

Results

Study Characteristics and Participants

As illustrated in Figure 1, a total of 15 studies met all of the inclusion criteria and were thus included in this review. Table 1 depicts the characteristics of the interventions and participants. The selected studies were published between 2008 and 2019. The sample size of each study ranged from 12 to 131, with a total number of 649 participants. The mean age of the participants ranged from 24 to 45.2 years and the mean age of the children ranged from newborn to 12 years. Most studies had female caregivers as participants. The studies were conducted in the UK (k = 5), US (k = 4), Australia (k = 3), Canada (k = 1), South Africa (k = 1), and Finland (k = 1).

INSERT FIGURE 1 about here

INSERT TABLE 1 about here

Methodological Characteristics

Most of the studies used a one-group pre-test and post-test design (k = 9). Three studies used quasi-experimental designs and three studies were randomized controlled trials. The participants were recruited from various settings, such as clinics, child protective services, prisons, and the community. Four studies conducted follow-up evaluations to assess the longer-term effects of the interventions. The selected studies assessed parental RF using either an interview method, including the Parent Development Interview (PDI-R) (Slade et al., 2004), the Pregnancy Interview (Slade et al., 2004), and the Five Minute Speech (FMSS) (Gottschalk & Gleser, 1979), or a self-report method (Parental Reflective Functioning Questionnaire, PRFQ;

Luyten et al., 2009). Two studies (Adkins et al., 2018; Hertzmann et al., 2016) used both interviews and self-report methods.

Intervention Characteristics

Among the selected studies, four studies examined mentalizing-based parenting programs for foster parents (Adkins et al., 2018), at-risk parents (Byrne et al., 2019), parents of children with autism spectrum disorder (Enav et al., 2019), and separated parents (Hertzmann et al., 2016). Four studies examined the Circle of Security (Powell et al., 2013) or the Circle of Security – Parenting program (Cooper et al., 2009) for high-risk parents (Huber et al., 2015), low-income caregivers (Rostad, 2014), and general mothers (Kohlhoff et al., 2016; Maupin et al., 2017). Three studies investigated New Beginnings parenting programs (Baradon, 2010) for homeless mothers (Bain, 2014) and mothers in prison (Baradon et al., 2008; Sleed et al., 2013). Two interventions consisted of attachment- or relationship-based groups for mothers of children with attachment related disorder (Ashton et al., 2016) and substance abusing mothers (Pajulo et al., 2012); one intervention used a psychoanalytic parent-toddler group for general mothers (Camino-Rivera et al., 2013); and one intervention consisted of a mother-infant dialectical behavior therapy group (Williams et al., 2018).

The interventions involved various intervention components. A group discussion of parenting and mentalizing was the most common intervention component. Six of the interventions included a psychoeducational component, such as teaching parents about emotion regulation and trauma; six interventions included experiential exercises and skill training; six involved homework assignments; four included video-feedback exercises; and one intervention included roleplay activities as part of the intervention. Apart from the group sessions, two

interventions (Byrne et al., 2019; Pajulo et al., 2012) also provided individual sessions for the study participants.

The durations of the interventions ranged from four weeks to 18 months. Of the included studies, seven interventions were of short duration (two months or less), five were of medium length (more than two months and less than six months), two had long durations (six months or longer), and one intervention did not report the length of its duration. The two interventions with the longest duration involved clinical samples, including substance-abusing mothers in residential units and mothers with borderline personality disorder in inpatient units (Pajulo et al., 2012; Williams et al., 2018). Among the nine studies that reported information on the frequency of group sessions, all were conducted once or twice per week. The interventions were mainly delivered by mental health professionals with relevant clinical experience, including psychologists, therapists, nurses, and social workers. One study (Rostad, 2014) indicated that the intervention was delivered by paraprofessionals. The attrition rates of the interventions ranged from 0% to 62.5% at the post-test assessment. Nearly two-thirds of the interventions (k = 9) obtained an acceptable attrition rate (below 30%) and the attrition rates of the rest of the interventions (k = 6) ranged from 31.03% to 62.5%.

Synthesis of Effect Sizes

Figure 2a depicts the summary effect size of the intervention effect on parental RF. Overall, psychosocial interventions had a small effect on parental RF (pooled effect size: Hedge's g = 0.279, p = 0.002). Figure 2b presents the summary effect size of the three RCTs, which showed non-significant result (pooled effect size: Hedge's g = 0.189, p = 0.244). As only four studies conducted follow-up evaluations of the interventions' effects on parental RF and the follow-up periods varied across studies, a quantitative analysis to examine longer-term effects

were not performed. The heterogeneity test was significant (Q = 32.486, df = 14, p = 0.003), indicating the presence of heterogeneity among the selected studies. In addition, I^2 statistics (I^2 = 56.904) show that 57% of the heterogeneity could be attributed to the variation among the studies. Hedge's g = 0.279, p = 0.002).

INSERT FIGURE 2 about here

Moderator Analyses

Moderator analyses were performed to examine the factors that may have influenced the interventions' effectiveness. These factors include presence of a control group, study sample, participants' gender, and child's development stage. As shown in Table 2, the results reveal that only child's development stage (Q_b = 5.060, df = 1. p = 0.024) had significant between-group Q values, indicating that the children's development stage when the intervention was delivered and intervention duration are the factors moderating the intervention effect on parental RF. Specifically, interventions including children in middle childhood had a significantly larger effect on parental RF than those including children in infancy and early childhood.

INSERT TABLE 2 about here

Publication Bias

Potential publication bias was examined using a funnel plot. Figure 3 shows how the selected studies were distributed around the combined effect size. The symmetrical funnel plot indicates no evidence of publication bias in the meta-analysis.

INSERT FIGURE 3 about here

Discussion

This meta-analytic review is the first to quantitatively synthesize the available evidence on the effectiveness of group-based parenting interventions in regard to improving RF capacity among parents. Based on this study's inclusion criteria, 15 studies were selected. Overall, the studies yielded a significant intervention effect, with a small effect size (pooled effect size: Hedge's $g = 0.279$, $p = 0.002$), on parental RF. While this review provides additional evidence for the notion that parental RF can be modified through group-based parenting programs, the evidence is largely based on quasi-experimental and single-group pre-test and post-test study designs, and only three RCTs. Specifically, meta-analysis of the three RCTs obtained non-significant result (pooled effect size: Hedge's $g = 0.189$, $p = 0.244$), indicating that the current best evidence to inform practice in this area is limited. Researchers are suggested to take into consideration of the effect size estimated by this meta-analysis when determining study sample size for future RCTs. Based on the finding of the three RCTs, it is expected that an effective sample of 694 would be required to achieve 80% statistical power to detect the effect at the .05 significance level. As it would be challenging for a single study to achieve the required sample size, a well-designed consortium approach with multiple research sites is recommended.

Although it is beyond the scope of this study to examine the mechanisms for change in parental RF, it is possible to speculate that intervention ingredients, including intervention content and therapeutic relationships, enabled parents' RF development. Intervention components, including video-feedback exercises, roleplay, and group discussions, may have facilitated parents' awareness of their own mental states, enabling them to explore the thoughts and feelings underlying their children's behavior, how parents' behaviors affect children's

thoughts and feelings, and the past influences that may be present in parenting, which may have encouraged parents to use a reflective stance in understanding their children. As one's reflective capacity is developed within the context of social relationships, group facilitators in the parenting programs may have provided an environment in which the participants could to securely explore their own mental states, as well as those of their children (Grienenberger, 2007). Group facilitators who are able to become attuned to and reflect on parents' experiences with non-judgemental and empathic attitudes may serve as role models for the parents in becoming reflective and empathic toward their own children. Other than the role the group facilitators may have played in the intervention, the group-based format may have provided peer support, group dynamics, and social learning opportunities to facilitate RF development among parents with similar backgrounds.

In contrast to the robust evidence suggesting that families and children experience more benefits if interventions are implemented earlier during the children's developmental years (Brooks-Gunn et al., 2000; Heckman, 2006), the moderator analyses of this study found that interventions provided for parents with children in middle childhood (six to 12 years of age) had a larger effect on the improvement of parental RF, compared to those targeting infancy and early childhood stages. One possible explanation for this finding is that, as parents become more experienced with their children, they may have a better sense of the thoughts, feelings, intentions, and desires underlying their children's overt behaviors – hence, a higher level of parental RF (Sadler et al., 2013). Parents of children in middle childhood may be better able to understand parenting programs that intervene with parents' RF toward their children in middle childhood; these interventions may therefore yield larger effects than those targeting infancy and early childhood.

The other moderator analyses for subgroup differences indicate that there are no statistically significant subgroup effects for the presence of a control group, study sample, and participants' gender, suggesting that these factors did not modify the effect of intervention This finding may be explained by the fact that this meta-analysis has a small number of studies and some studies with small sample sizes, which may not provide sufficient statistical power to detect a difference.

Limitations

Given that there are some limitations of this review, one should be cautious when interpreting the study's findings. Firstly, this study's ability to inform recommendations for clinical practice is limited by the small number of studies, the small number of cumulative participants, as well as the methodological limitations of some of the included studies. In particular, the study's findings are largely based on studies of quasi-experimental and single-group pre-test and post-test study designs, and a very small number of RCTs. The lack of comparison groups and randomization in some studies may undermine the quality of evidence produced by this study. Secondly, in light of the small number of studies included in this review, some of the moderator analyses inevitably have a small number of studies and small number of participants, which may have resulted in inadequate power to detect subgroup differences. Moreover, as this study focused primarily on group-based programs, findings based on studies with other intervention modalities such as home visitation programs like Minding the Baby (Slade et al., 2005; Sadler et al., 2013) and individual or family interventions (e.g., Sealy & Glovinsky (2016)) were not examined in this meta-analysis. Another limitation of this study is that this review only focused on English-language publications and the study's findings are based on evidence generated from research predominantly from the US and the UK. It is

uncertain whether or not the study's findings can be generalized to other cultural contexts. Despite the study's limitations, this study provides some directions for future investigation and development of interventions to improve parental RF, such as studies to look into intervention effect interventions that target infancy and early childhood periods, and to gather additional evidence on the potential influence of intervention duration on intervention effect.

Implications

In terms of research, this study points to future intervention studies using rigorous study designs (i.e., RCT) for more robust evidence to demonstrate effectiveness of interventions in improving parental RF. Although success in facilitating parental RF is thought to be fundamental to changes in parental behaviors and parent-child relationships (Slade, 2007), it is unknown whether or not such improvements in parental RF through interventions will subsequently contribute to changes in parental behaviors, parenting attitudes, parent-child relationships, and children's outcomes. Longer-term follow ups with the intervention participants are needed to examine these potential effects and whether or not the changes in parental RF can be maintained. Furthermore, as therapeutic relationship is an important factor that influences clients' reflective capacity, additional studies that capture therapists' and group facilitators' characteristics and therapeutic relationships, and take into consideration these factors when examining intervention effects are warranted. Given that there is a lack of evidence regarding interventions' effects on parental RF in different cultures, and that factors such as language, cultural values, and parenting characteristics may influence mentalizing profiles between individualistic and collectivist cultures (Aival-Naveh et al., 2019), there is an urgent need for cross-cultural intervention studies to confirm the findings of this study. Although it is speculated that the intervention content and therapeutic process contributed to the intervention participants' growth in regard to RF, this

study is unable to examine the process underlying the success of the interventions. Further studies examining the active intervention ingredients for parental RF are needed.

In terms of clinical practice, practitioners working with parents are encouraged to design interventions to help parents develop a reflective stance in regard to understanding the elements underlying children's behavior and parent-child relationships. Increasing parents' capacity to think about children's mental states and curiosity in understanding them will make parenting more pleasurable and manageable for parents. Although this review shows that interventions targeting parents of children in middle childhood appeared to be more effective than those targeting parents of children in infancy and early childhood, it should not be interpreted that parents of younger children do not benefit from interventions. Instead, practitioners working with parents of infants and younger children are recommended to tailor interventions that address the specific needs of this group of parents, as understanding infants' and young children's mental states may be particularly challenging for new parents. While considering the evidence generated from empirical studies, clinicians' clinical experience in making judgements in regard to intervention design is equally important. The accumulation of clinical experience in regard to mentalization-based parenting interventions will provide feedback on the existing literature and help to improve our understanding of this topic. Finally, it should be noted that psychosocial interventions are likely to be only one of the ways to enhance parental RF. Practitioners' capacity in regard to providing a secure and nurturing therapeutic relationship is crucial in helping parents to develop RF.

Conclusion

This review shows that interventions aiming at improving parental RF is at an early stage of development. Drawing on the findings from 15 independent studies of predominantly non-

randomized controlled and single group pre-test and post-test study deigns, this review provides additional evidence supporting the notion that group-based programs have positive effect on parental RF. The programs that target parents of children in middle childhood obtained larger intervention effects on parental RF. The findings of this study should be interpreted in the light of its methodological limitations, including the small number of studies, the limited RCTs, and the small number of studies in some moderator analyses. Additional research using an RCT design will help shed light on this topic.

References

*Adkins, T., Luyten, P., & Fonagy, P. (2018). Development and preliminary evaluation of Family Minds: A mentalization-based psychoeducation program for foster parents. *Journal of Child and Family Studies*, *27*(8), 2519-2532. https://doi.org/10.1007/s10826-018-1080-x

Aival-Naveh, E., Rothschild-Yakar, L., & Kurman, J. (2019). Keeping culture in mind: A systematic review and initial conceptualization of mentalizing from a cross-cultural perspective. *Clinical Psychology: Science and Practice, 26*(4), e12300. https://doi.org/10.1111/cpsp.12300

*Ashton, C. K., O'Brien-Langer, A., & Silverstone, P. H. (2016). The CASA Trauma and Attachment Group (TAG) Program for children who have attachment issues following early developmental trauma. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 25*(1), 35-42.

*Bain, K. (2014). "New Beginnings" in South African Shelters for the homeless: Piloting of a group psychotherapy intervention for high-risk mother-infant dyads. *Infant Mental Health Journal, 35*(6), 591-603. https://doi.org/10.1002/imhj.21457

Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., & Bradley, R. H. (2005). Those who have, receive: The Matthew effect in early childhood intervention in the home environment. *Review of Educational Research*, *75*(1), 1-26. https://doi.org/10.3102/00346543075001001

Baradon, T. (2010). *The New Beginnings Programme.* Unpublished manual. Anna Freud Centre.

*Baradon, T., Fonagy, P., Bland, K., Lénárd, K., & Sleed, M. (2008). New Beginnings: An experience-based programme addressing the attachment relationship between mothers

and their babies in prisons. *Journal of Child Psychotherapy, 34*(2), 240-258. https://doi.org/10.1080/00754170802208065

Berthelot, N., Ensink, K., Bernazzani, O., Normandin, L., Luyten, P., & Fonagy, P. (2015). Intergenerational transmission of attachment in abused and neglected mothers: The role of trauma-specific reflective functioning. *Infant Mental Health Journal, 36*(2), 200-212. https://doi.org/10.1002/imhj.21499

Borelli, J. L., Cohen, C., Pettit, C., Normandin, L., Target, M., Fonagy, P., & Ensink, K. (2019). Maternal and child sexual abuse history: An intergenerational exploration of children's adjustment and maternal trauma-reflective functioning. *Frontiers in Psychology, 10,* 1062. https://doi.org/10.3389/fpsyg.2019.01062

Borenstein, M., Rothstein, H., & Cohen, J. (2005). *Comprehensive meta-analysis: A computer program for research synthesis.* Biostat, Inc.

Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2011). *Introduction to meta-analysis*. John Wiley & Sons.

Brooks-Gunn, J., Berlin, L. J., & Fuligni, A. S. (2000). Early childhood intervention programs: What about the family? In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention, 2nd ed.* (pp. 549-588). Cambridge University Press.

*Byrne, G., Sleed, M., Midgley, N., Fearon, P., Mein, C., Bateman, A., & Fonagy, P. (2019). Lighthouse Parenting Programme: Description and pilot evaluation of mentalization-based treatment to address child maltreatment. *Clinical Child Psychology and Psychiatry, 24*(4), 680-693. https://doi.org/10.1177/1359104518807741

*Camino Rivera, C., Asquith, K., & Prützel-Thomas, A. (2013). Thinking about my toddler: Can a psychoanalytic toddler group enhance reflective functioning capacities in parents? In

M. Zaphiriou Woods & I.-M. Pretorius (Eds.), *Parents and toddlers in groups: A psychoanalytic developmental approach*. Routledge.

Camoirano, A. (2017). Mentalizing makes parenting work: A review about parental reflective functioning and clinical interventions to improve it. *Frontiers in Psychology, 8*, 14. https://doi.org/10.3389/fpsyg.2017.00014

Cooper, G., Hoffman, K., & Powell, B. (2009). *Circle of Security: COS-P facilitator DVD manual 5.0*. Circle of Security International.

*Enav, Y., Erhard-Weiss, D., Kopelman, M., Samson, A. C., Mehta, S., Gross, J. J., & Hardan, A. Y. (2019). A non randomized mentalization intervention for parents of children with autism. *Autism Research, 12*(7), 1077-1086. https://doi.org/10.1002/aur.2108

Ensink, K., Bégin, M., Normandin, L., & Fonagy, P. (2017). Parental reflective functioning as a moderator of child internalizing difficulties in the context of child sexual abuse. *Psychiatry Research, 257,* 361-366. https://doi.org/10.1016/j.psychres.2017.07.051

Ensink, K., Leroux, A., Normandin, L., Biberdzic, M., & Fonagy, P. (2017). Assessing reflective parenting in interaction with school-aged children. *Journal of Personality Assessment, 99*(6), 585-595. https://doi.org/10.1080/00223891.2016.1270289

Fonagy, P., Gergely, G., Jurist, E. J., & Target, M. (2002). *Affect regulation, mentalization and the development of the self*. Other Press.

Fonagy, P., Steele, M., Steele, H., Moran, G. S., & Higgitt, A. C. (1991). The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. *Infant Mental Health Journal, 12*(3), 201-218. https://doi.org/10.1002/1097-0355(199123)12:3<201::AID-IMHJ2280120307>3.0.CO;2-7

Fonagy, P., Steele, H., Steele, M., Leigh, T., Kennedy, R., Mattoon, G., & Target, M. (1995). Attachment, the reflective self, and borderline states: The predictive specificity of the Adult Attachment Interview and pathological emotional development. In S. Goldberg, R. Muir, & J. Kerr (Eds.), *Attachment theory: Social, developmental, and clinical perspectives* (pp. 233-278). Analytic Press.

Fonagy, P., & Target, M. (1997). Attachment and reflective function: Their role in self-organization. *Development and Psychopathology, 9*(4), 679-700.

Gottschalk, L. A., & Gleser, G. C. (1979). *The measurement of psychological states through the content analysis of verbal behavior*. University of California Press.

Grienenberger, J. F. (2007). Group process as a holding environment facilitating the development of the parental reflective function: Commentary on the article by Arietta Slade. *Psychoanalytic Inquiry, 26*(4), 668-675. https://doi.org/10.1080/07351690701310714

Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science, 312*(5782), 1900-1902. https://doi.org/10.1126/science.1128898

*Hertzmann, L., Target, M., Hewison, D., Casey, P., Fearon, P., & Lassri, D. (2016). Mentalization-based therapy for parents in entrenched conflict: A random allocation feasibility study. *Psychotherapy, 53*(4), 388-401. https://doi.org/10.1037/pst0000092

*Huber, A., McMahon, C. A., & Sweller, N. (2015). Efficacy of the 20-week Circle of Security intervention: Changes in caregiver reflective functioning, representations, and child attachment in an Australian clinical sample. *Infant Mental Health Journal, 36*(6), 556-574. https://doi.org/10.1002/imhj.21540

Katznelson, H. (2014). Reflective functioning: A review. *Clinical Psychology Review, 34*(2), 107-117. https://doi.org/10.1016/j.cpr.2013.12.003

*Kohlhoff, J., Stein, M., Ha, M., & Mejaha, K. (2016). The circle of security parenting (COS-P) intervention: Pilot evaluation. *Australian Journal of Child and Family Health Nursing, 13*(1), 3-7.

Kretchmar, M. D., Worsham, N. L., & Swenson, N. (2005). Anna's story: A qualitative analysis of an at-risk mother's experience in an attachment-based foster care program. *Attachment & Human Development, 7*(1), 31-49. https://doi.org/10.1080/14616730500048102

Lawler, M. J., Shaver, P. R., & Goodman, G. S. (2011). Toward relationship-based child welfare services. *Children and Youth Services Review, 33*(3), 473-480. https://doi.org/10.1016/j.childyouth.2010.06.018

Letourneau, N., Tryphonopoulos, P., Giesbrecht, G., Dennis, C.-L., Bhogal, S., & Watson, B. (2015). Narrative and meta-analytic review of interventions aiming to improve maternal–child attachment security. *Infant Mental Health Journal, 36*(4), 366-387. https://doi.org/10.1002/imhj.21525

Luyten, P., Mayes, L., Sadler, L., Fonagy, P., Nicholls, S., Crowley, M., & Slade, A. (2009). *The Parental Reflective Functioning Questionnaire-1 (PRFQ-1).* University of Leuven.

*Maupin, A., Samuel, E., Nappi, S., Heath, J., & Smith, M. (2017). Disseminating a parenting intervention in the community: Experiences from a multi-site evaluation. *Journal of Child and Family Studies, 26*(11), 3079-3092. https://doi.org/10.1007/s10826-017-0804-7

Mortensen, J. A., & Mastergeorge, A. M. (2014). A meta-analytic review of relationship-based interventions for low-income families with infants and toddlers: Facilitating supportive

parent-child interactions. *Infant Mental Health Journal, 35*(4), 336-353. https://doi.org/10.1002/imhj.21451

*Pajulo, M., Pyykkönen, N., Kalland, M., Sinkkonen, J., Helenius, H., Punamäki, R.-L., & Suchman, N. (2012a). Substance-abusing mothers in residential treatment with their babies: Importance of pre- and postnatal maternal reflective functioning. *Infant Mental Health Journal, 33*(1), 70-81. https://doi.org/10.1002/imhj.20342

Powell, B., Cooper, G., Hoffman, K., & Marvin, B. (2013). *The Circle of Security Intervention: Enhancing attachment in early parent-child relationships*. Guilford Press.

Riva Crugnola, C., Ierardi, E., & Canevini, M. P. (2018). Reflective functioning, maternal attachment, mind-mindedness, and emotional availability in adolescent and adult mothers at infant 3 months. *Attachment & Human Development, 20*(1), 84-106. https://doi.org/10.1080/14616734.2017.1379546

*Rostad, W. (2014). Examining the effectiveness of the circle of security parenting DVD program [Doctoral dissertation, The University of Montana]. https://scholarworks.umt.edu/etd/10783

Rostad, W. L., & Whitaker, D. J. (2016). The association between reflective functioning and parent–child relationship quality. *Journal of Child and Family Studies, 25*(7), 2164-2177. https://doi.org/10.1007/s10826-016-0388-7

Sadler, L. S., Slade, A., Close, N., Webb, D. L., Simpson, T., Fennie, K., & Mayes, L. C. (2013). Minding the baby: Enhancing reflectiveness to improve early health and relationship outcomes in an interdisciplinary home-visiting program. *Infant Mental Health Journal, 34*(5), 391-405. https://doi.org/10.1002/imhj.21406

Sealy, J., & Glovinsky, I. P. (2016). Strengthening the reflective functioning capacities of parents who have a child with a neurodevelopmental disability through a brief, relationship-focused intervention. *Infant Mental Health Journal, 37*(2), 115-124. https://doi.org/10.1002/imhj.21557

Slade, A., Sadler, L., De Dios-Kenn, C., Webb, D., Currier-Ezepchick, J., & Mayes, L. (2005). Minding the baby: A reflective parenting program. *The Psychoanalytic Study of The Child, 60*(1), 74-100. https://doi.org/10.1080/00797308.2005.11800747

Slade, A. (2005). Parental reflective functioning: An introduction. *Attachment & Human Development, 7*(3), 269-281. https://doi.org/10.1080/14616730500245906

Slade, A. (2007). Reflective parenting programs: Theory and development. *Psychoanalytic Inquiry, 26*(4), 640-657. https://doi.org/10.1080/07351690701310698

Slade, A., Aber, J., Bresgi, I., Berger, B., & Kaplan, M. (2004). *The Parent Development Interview–Revised.* Unpublished protocol.

Slade, A., Bernbach, E., Grienenberger, J., Levy, D., & Locker, A. (2004). *The parent development interview and the pregnancy interview: Manuals for scoring*. City College of New York and Yale Child Study Center.

*Sleed, M., Baradon, T., & Fonagy, P. (2013). New beginnings for mothers and babies in prison: A cluster randomized controlled trial. *Attachment & Human Development, 15*(4), 349-367. https://doi.org/10.1080/14616734.2013.782651

Vonderlin, R., Biermann, M., Bohus, M., & Lyssenko, L. (2020). Mindfulness-based programs in the workplace: A meta-analysis of randomized controlled trials. *Mindfulness, 11,* 1579–1598. https://doi.org/10.1007/s12671-020-01328-3

*Williams, A. E. S., Yelland, C., Hollamby, S., Wigley, M., & Aylward, P. (2018). A new therapeutic group to help women with borderline personality disorder and their infants. *Journal of Psychiatric Practice, 24*(5), 331-340. https://doi.org/10.1097/PRA.0000000000000330

Zeegers, M. A. J., Colonnesi, C., Stams, G.-J. J. M., & Meins, E. (2017). Mind matters: A meta-analysis on parental mentalization and sensitivity as predictors of infant–parent attachment. *Psychological Bulletin, 143*(12), 1245-1272. https://doi.org/10.1037/bul0000114

* Indicates publications included in the meta-analysis.

Table 1

Characteristics of the Selected Studies

Year	Author	Country	Study design	Intervention component	Sample size (IG)	Sample size (CG)	Sample type	Duration	Age (mean)	Age range	Female %	Child age (mean/ age range)	Name of RF measurement(s)
2018	Adkins, T., Luyten, P., & Fonagy, P.	US	Non-randomized controlled	Psychoeducation	54	48	Non-clinical	4 to 6 weeks	44.27 years	24-71 years	62.75%	6.5 yrs	1. Parental Reflective Functioning Questionnaire (PRFQ) 2. Five-Minute Speech Sample (FMSS)
2016	Ashton, C. K., O'Brien-Langer, A., & Silverstone, P. H.	Canada	Pre-test and post-test	Discussion	40 dyads	N/A	Clinical	4 months	N/A	N/A	51%	63% 8-12 years; 38% 5-7 years	Parental Reflective Functioning Questionnaire (PRFQ)
2014	Bain, K.	South Africa	Randomized controlled trial	Experiential exercise	16 dyads	6 dyads	Clinical	12 weeks	N/A	18-43 years	100%	18.38 months	Parent Development Interview (PDI)
2008	Baradon, T., Fonagy, P., Bland, K., Lénárd, K., & Sleed, M.	UK	Pre-test and post-test	Homework	15 dyads	N/A	Clinical	4 weeks	27 years	19-40 years	100%	15 weeks	Parent Development Interview (PDI)
2019	Byrne, G., Sleed, M., Midgley, N., Fearon, P., Mein, C., Bateman, A., & Fonagy, P.	UK	Pre-test and post-test	Psychoeducation	16 dyads	N/A	Clinical	20 weeks	N/A	N/A	N/A	0-2 years	Parent Development Interview (PDI)
2011	Camino-Rivera, C., Asquith, K., & Prützel-Thomas, A.	UK	Pre-test and post-test	Roleplay	12	N/A	Non-clinical	Not reported	34.1 years	29-39	100%	19.92 months (entry); 34.5 months (exit)	Parent Development Interview (PDI)
2019	Enav, Y., Erhard-Weiss, D., Kopelman, M., Samson, A. C., Mehta, S., Gross, J. J., & Hardan, A. Y.	US	Non-randomized controlled	Experiential exercise	36	28	Non-clinical	4 weeks	45.2 years	31-64	81.20%	9.93 years	Parent Development Interview (PDI)

2016	Hertzmann, L., Target, M., Hewison, D., Casey, P., Fearon, P., & Lassri, D.	UK	Randomized controlled trial	Homework	16	14	Non-clinical	6 to 12 weeks	N/A	N/A	N/A	8.7 yrs	1. Parental Reflective Functioning Questionnaire (PRFQ) 2. Parent Development Interview (PDI) – at follow up only
2015	Huber, A., McMahon, C. A., & Sweller, N.	Australia	Pre-test and post-test	Discussion	83	N/A	Clinical	20 weeks	N/A	N/A	90%	47.8 months	Parent Development Interview-Revised (PDI-R)
2016	Kohlhoff, J., Stein, M., Ha, M., & Mejaha, K.	Australia	Pre-test and post-test	Discussion	15 dyads	N/A	Non-clinical	8 weeks	31.6 years	24-40	100%	0-2 years	Parental Reflective Functioning Questionnaire (PRFQ)
2017	Maupin, A. N., Samuel, E. E., Nappi, S. M., Heath, J. M., & Smith, M. V.	US	Pre-test and post-test	Homework	131	N/A	Non-clinical	8 weeks	24 years	15-42	100%	4.11 years	Parental Reflective Functioning Questionnaire (PRFQ)
2012	Pajulo, M., Pyykkönen, N., Kalland, M., Sinkkonen, J., Helenius, H., Punamäki, R. L., & Suchman, N.	Finland	Pre-test and post-test	Psychoeducation	34 dyads	N/A	Clinical	3-18 months	25.1 years	16-38	100%	Newborn	1. Parent Development Interview-Revised (PDI-R) 2. Pregnancy Interview (PI)
2015	Rostad, W. L.	US	Quasi-randomized controlled trial	Discussion	24	13	Non-clinical	7 weeks	32.45 years	Not reported	81.60%	3.57 years	Parental Reflective Functioning Questionnaire (PRFQ)
2013	Sleed, M., Baradon, T., & Fonagy, P.	UK	Cluster randomized controlled trial	Individual therapy session	19	8	Clinical	4 weeks	26.84 years	18-24	100%	4.67 months	Parent Development Interview (PDI)
2018	Williams, A. E. S., Yelland, C., Hollamby, S., Wigley, M., & Aylward, P.	Australia	Pre-test and post-test	Discussion	21	N/A	Clinical	24 weeks	31.97 years	N/A	100%	15.1 months	Parental Reflective Functioning Questionnaire (PRFQ)

Table 2

Moderator Analyses

Moderator	Subgroup	*k*	*g* [95% CI]	Q_b	*df(Q)*	*p*
Presence of a control group	Presence of a control group	6	0.285 [-0.030, 0.601]	0.001	1	0.970
	No control group	9	0.278 [0.055, 0.500]			
Study sample	Clinical	8	0.288 [0.095, 0.480]	0.004	1	0.962
	Non-clinical	7	0.300 [0.122, 0.459]			
Participants' gender	Female only	8	0.188 [-0.044, 0.419]	2.087	1	0.149
	Mixed gender	6	0.432 [0.195, 0.669]			
Children's developmental stage	Infancy and early childhood	11	0.193 [0.003, 0.382]	5.060	1	0.024*
	Middle childhood	4	0.557 [0.302, 0.812]			

Note. *k* = number of studies; *g* = effect size, CI = confidence interval; Hedge's *g*; Q_b = between-group Q statistic; RCT = randomized controlled trial; * $p < 0.05$.

Figure 1

Study Selection Flow Chart

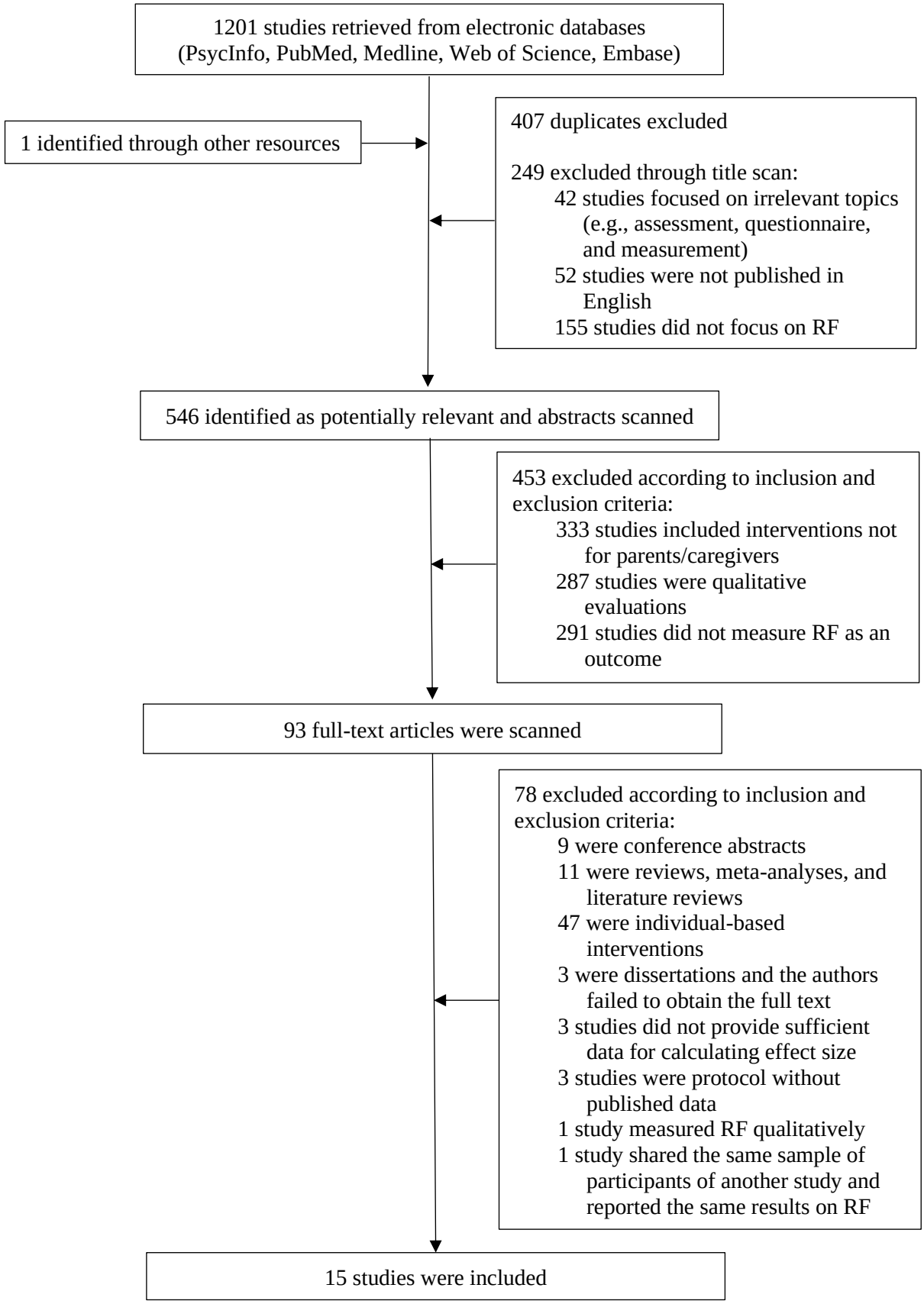
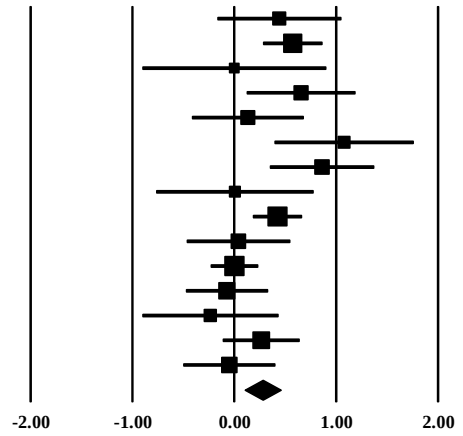


Figure 2a

Forrest Plot of the Effect Sizes of All Interventions

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Adkins et al. (2018)	0.442	0.310	0.096	-0.165	1.049	1.427	0.154
Ashton et al. (2016)	0.574	0.148	0.022	0.283	0.865	3.870	0.000
Bain (2014)	0.000	0.460	0.212	-0.902	0.902	0.000	1.000
Baradon et al. (2008)	0.656	0.272	0.074	0.123	1.189	2.412	0.016
Byrne et al. (2019)	0.133	0.279	0.078	-0.414	0.680	0.476	0.634
Camino-Rivera et al. (2011)	1.078	0.348	0.121	0.396	1.760	3.099	0.002
Enav et al. (2019)	0.861	0.261	0.068	0.350	1.372	3.302	0.001
Hertzmann et al. (2016)	0.006	0.394	0.155	-0.766	0.778	0.015	0.988
Huber et al. (2015)	0.424	0.122	0.015	0.184	0.664	3.462	0.001
Kohlhoff et al. (2016)	0.041	0.259	0.067	-0.466	0.548	0.158	0.874
Maupin et al. (2017)	0.002	0.118	0.014	-0.230	0.234	0.017	0.987
Pajulo et al. (2012)	-0.072	0.205	0.042	-0.474	0.330	-0.351	0.725
Rostad (2015)	-0.235	0.341	0.116	-0.903	0.433	-0.690	0.490
Sleed et al. (2013)	0.265	0.192	0.037	-0.112	0.642	1.378	0.168
Williams et al. (2018)	-0.049	0.230	0.053	-0.500	0.402	-0.213	0.831
	0.279	0.090	0.008	0.103	0.455	3.104	0.002



Meta Analysis

Figure 2b

Forrest Plot of the Effect Sizes of the Randomized Controlled Trials

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Bain (2014)	0.000	0.460	0.212	-0.902	0.902	0.000	1.000
Hertzmann et al. (2016)	0.006	0.394	0.155	-0.766	0.778	0.015	0.988
Sleed et al. (2013)	0.265	0.192	0.037	-0.112	0.642	1.378	0.168
	0.189	0.162	0.026	-0.129	0.506	1.165	0.244

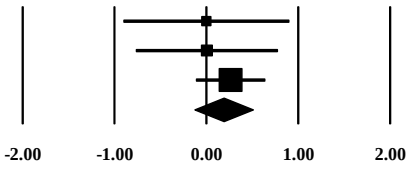


Figure 3

Funnel Plot Showing Distribution of the Included Studies