

The effectiveness of Dyadic Developmental Psychotherapy (DDP) and Attachment Biobehavioural Catch up (ABC) for children experiencing early maltreatment or disruptions in care: Literature Review of RCT studies

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Abstract

Many children, who have been repeatedly exposed to traumatic experiences and entered into adoption and foster care services, have to be adequately assessed to help families encounter any existing mental health issues. In this respect, Reactive Attachment Disorder (RAD) is still regarded as a relatively under-researched psychiatric diagnosis for a subgroup of children with the most prominent and detrimental insecure attachments. However, due to limited evidence-based studies, clinical diagnostic standards and treatment approaches are controversial and unclear. Raising awareness and implementing early interventions are indispensable to obtain a deeper insight into these children and improve their chances of success as adults. This literature review was intended to assess the effectiveness of the psychologically-based dyadic caregiver–infant/child interventions, such as the Dyadic Developmental Psychotherapy (DDP) and the Attachment Biobehavioural Catch-up (ABC) synthesizing prior evidence from Randomised Control Trials (RCTs). According to this review, researchers have been hesitant to confirm the DDP effectiveness, stressing the imperative need for RCTs and further investigation. On the other hand, ABC could be considered an efficacious and evidence-based intervention for children with disorganised attachments. It is hoped that there will be more evidence in the years to come.

Key words: Reactive Attachment Disorder, Effective Interventions for children with RAD, Dyadic Developmental Psychotherapy, Attachment and Biobehavioural Catch-up.

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Introduction

Many children, who have been repeatedly exposed to traumatic experiences and entered into adoption and foster care services, have to be adequately assessed to help families encounter any existing mental health issues [1]. In this respect, Reactive Attachment Disorder (RAD) is still regarded as a relatively under-researched inordinate psychiatric diagnosis for a subgroup of children with the most prominent and detrimental insecure attachments [2]. Accordingly, these children with a maltreatment record, including neglect, physical, psychological, emotional trauma and/or sexual abuse at vulnerable stages, are in danger of developing severe clinical conditions [3, 4].

The World Health Organization's International Statistical Classification of Diseases and Related Health Problems (ICD-11) [5] as well as the revised fifth edition of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-V) [6], classified RAD as a trauma-and stressor-related condition present in the early childhood period [7]. This condition is identified as a consistent pattern of noticeably disturbed and developmentally improper attachment demeanours [8], in which a child infrequently or minimally turns to an attachment figure for nurturance, affection, comfort, protection and support [9]. The salient characteristic of RAD, however, is the absence or underdevelopment of attachment between a child and an adult caregiver [10]. Children experiencing such a disorder typically evolve selective attachments, which are not effectively manifested due to limited opportunities during fundamental periods of their development [4]. This subsequently leads to the children's minimal response to their caregivers' attempts to comfort them [10], which is also reflected on their lack of positive emotions [8]. Consequently, their mood fluctuates erratically while they are exhibiting unexplained symptoms of irritability, sadness or fear [11].

Comprehensively, children with RAD display personal, social and behavioural developmental problems, such as impulsiveness, aggression, withdrawal as well as other socially inappropriate behaviours [4]. Chronic maltreatment and the imminent complex trauma permanently alter their

brain maturation, formation and structure [12], leading to the impairment of several vital functioning domains of a child, including behavioural-control deficits, emotion-regulation insufficiency, self-concept disturbances as well as diminished cognitive and executive functions [11]. This, however, has been evident when growing up in substitutional or maltreating environments, signifying that RAD is ultimately related to a child's reaction to specific contexts, in which it is raised and thus can stem from various circumstances [13, 14]. Namely, neglect or abuse, prolonged separation from or death of a primary caregiver, elongated hospitalization, multiple out-of-home placements and living in substitute environments [4]. Last but not least, RAD should not be applied to children younger than 9 months while the symptoms usually arise by the age of 5 [6], having lifelong consequences and a high risk of developing mental health repercussions [15]. That is, behavioural health disorders, social disorders, posttraumatic stress disorder, substance abuse disorder or criminal behaviour [16].

Due to limited evidence-based studies, clinical diagnostic standards are controversial and unclear [10] and as such, RAD has been misconceived and underdiagnosed since its inceptive suggestion [17]. Hence, it is difficult to precisely diagnose RAD, because there are no accepted or validate procedures for evaluating it [18]. Furthermore, many health-care professionals are not familiar with RAD due to the fact that it exhibits many symptoms in common with other disorders in the childhood [19]. In this review, since there are vague diagnostic standards to accurately define this condition, RAD will be termed to as a means of describing such development difficulties. Raising awareness and implementing early interventions are indispensable to obtain a deeper insight into these children and improve their chances of success as adults [4].

In terms of RAD treatment, multifaceted approaches integrating parent psychoeducation [20] and trauma-focused therapy [21] are essential in mitigating this condition. The purpose of this literature review is to evaluate the utility of psychologically-based dyadic caregiver-infant/child interventions to address disruptive attachments behaviours and

provide clinically sound treatment. Specifically, this paper is intended to assess the effectiveness of the Dyadic Developmental Psychotherapy (DDP) [22, 23] and the Attachment Biobehavioural Catch-up (ABC) [24, 25] synthesizing prior evidence from Randomised Control Trials (RCTs).

Method

This paper was intended to review the existing research articles on the potency of suggested treatment interventions for maltreated children with disrupted and disorganised attachments. For this purpose, the databases that were searched included PsycINFO, CINAHL, ELSEVIER, PsycARTICLES™, PubMed and Cochrane Library. These databases were employed based on key words such as “*Reactive Attachment Disorder*”, “*Effective Interventions for children with RAD*”, “*Dyadic Developmental Psychotherapy*”, “*Attachment and Biobehavioural Catch-up*”. However, specific criteria were set to select the most eligible articles for this literature review. Specifically, there were 84 articles searched that were published within the last 15 years, a period of time during which RAD was initially introduced [2].

Additionally, 6 of them were used in this paper because they fulfilled the set criteria; they are RCT-oriented studies which put emphasis on treatment interventions for maltreated children with disordered attachment while elaborating on approaches that merge parent psychoeducation and trauma-focused therapy, which are considered more effective according to recent studies [26, 27].

Contrastingly, excluded articles were articles which were not written in English, qualitative studies, book reviews or other published work descriptions and papers which did not primarily focus on attachment treatment intervention for maltreated children. Finally, an endeavour was made to choose an equivalent number of RCTs per intervention. However, DDP empirical evidence are limited since it is regarded as a recent under-researched intervention. All articles were reviewed according to the Critical Appraisal Skills Programme (CASP) UK (n.d.) to guarantee the literature quality and adequacy, which would hopefully lead to safer conclusions.

Dyadic Developmental Psychotherapy (DDP)

DDP is an attachment-oriented therapy in a family setting, developed by Dan Hughes [22, 23]. Attachment theory, intersubjectivity theory [28] and interpersonal behaviour neurobiology are the underpinning foundations of DDP [23], as preliminary attachment experiences may have a tremendous impact on brain development and consequently on behaviour. This approach is based on two central techniques, the one is called PACE which stands for “*Playful, Accepting, Curious, and Empathic*” while the second is called PLACE indicating “*Playful, Loving, Acceptance, Curious, and Empathic*” [23] (see Figure 1). These two core principles help to dyadically develop and sustain an attuned intersubjective relationship helping the child to be healed through collaborative communication, experience, affect reciprocation and coregulation, thus developing greater reflective abilities and finally constructing a coherent autobiographical narrative [29]. In comparison with other therapy interventions, such as cognitive-behavioural approaches, psychotherapy or structural family therapy interventions, DDP is centring on the self, although it still integrates many principal ideas of such clinical approaches [26].

According to Becker-Weidman’s [30] RCT-oriented study, DDP has been proven to be an effective treatment for

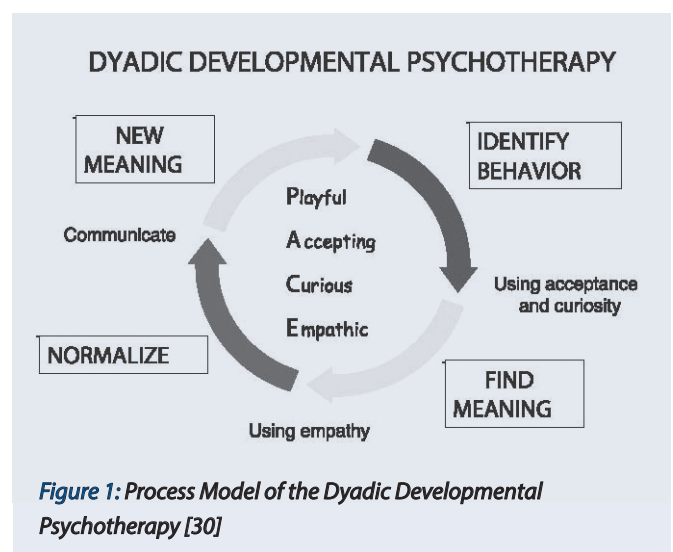


Figure 1: Process Model of the Dyadic Developmental Psychotherapy [30]

children with RAD. This study was carried out at two time-points within a year, during which children were assessed for meeting the DSM-IV criteria of RAD diagnosis with clinically significantly increased scores on the Child Behaviour Checklist (CBCL). These children aged 5 to 16 shared physical or psychological neglect, physical, or sexual abuse and institutional care histories while experiencing Complex Post Traumatic Stress Disorder. In this trial, children were divided into the treatment group receiving 23 DDP sessions over 11 months ($n=34$), and the control group ($n=30$) of which the 53% was still receiving Treatment-As-Usual (TAU). Additionally, almost a year after the treatment completion, post-test measures were applied through mailed questionnaires. These measures were further completed with a three-session evaluation including various psychometric tests, a detailed review of all previous histories and evaluations while two of the sessions involved the primary caregivers and the third one involved only the child. The results of the DDP in this case revealed statistically and clinically significant reductions in symptoms of attachment disorder, anxiety, depression, social problems and aggressive behaviours based on the Randolph Attachment Disorder Questionnaire [31] and the Child Behavior Checklist (CBCL) [32]. Contrastingly, children in the control group, of which 53% received TAU such as individual therapy, play therapy, family therapy and residential treatment, did not display any statistically and clinically significant changes in their behaviour.

In a second RCT-oriented study conducted by Becker-Weidman [30], the same group of 64 children with RAD, meeting the DSM-IV criteria were examined and the intervention outcome was measured 4 years after its completion through the CBCL. Accordingly, there were significant reductions regarding withdrawal, aggressive and delinquent demeanours, anxiety, depression and attention problems or attachment disorders among the DDP group. The control group, however, did not display any improvement while their scores became significantly worse on several of the CBCL scales, when re-tested 3.3 years later. Finally, the fact that DDP is consistent with the principles of *“safety, self-regulation, self-reflective information processing, traumatic experience integration, relational engagement and positive affect*

enhancement” proves its effectiveness for children with trauma-attachment problems [33].

Overall, many reviews and case studies demonstrate that DDP is an effective and appropriate treatment congruent with attachment theory for children with RAD [28-30, 33-36]. Craven & Lee’s [34] systematic research synthesis based on Becker-Weidman’s work [30] suggested that DDP is a *“supported and efficacious”* treatment belonging to Category 2 according to the Guidelines for Treatment for Child Physical and Sexual Abuse [35].

Conversely, Mercer et al. [36-38] re-examined the previous studies as well as DDP literature and disputed this categorisation, propounding that DDP should be classified under Categories 5 *“novel and experimental treatments”* or 6 *“concerning treatment”*. In particular, they came to this conclusion based on two existing RCT-oriented studies by Becker-Weidman [30], which supported the DDP effectiveness. In this case, Mercer et al. [36-38] advocated that both studies fell short of scientific evidence, as they made use of the same participants’ original group, meaning that the second study by Becker-Weidman [30] was not a replication of the first one. Additionally, these studies [30] had the same statistical and design flaws with other DDP papers. Consequently, these studies cannot be considered a valid RCT, since they did not randomly assign children to the treatment and control conditions while employing flawed and weak measurements (e.g., Randolph Attachment Disorder Questionnaire) [37-39]. Mercer [38] further suggested that DDP is not a research-supported intervention but rather comprises a *“Woozle”*, meaning that an intervention like DDP is presented as accepted through mere repetition and republication rather than cross-examination.

The current review advocates that early optimism for DDP including debriefing was misguided, stressing the imperative need for RCTs and further investigation. Hence, it is more appropriate to accentuate that DDP is an *“evidence-informed”* rather than an *“evidence-based”* intervention, hoping that evidence will expand over the next few years. Hence, Becker-Weidman’s work [30] could be considered as a starting-point for developing appropriate research-supported interventions for children facing attachment difficulties.

Attachment Biobehavioural Catch-up (ABC)

Attachment Biobehavioural Catch-up is a home-based intervention introduced by Dozier [24, 25] to help young children experienced early adversities, advance their regulatory abilities. ABC provides caregivers with a supportive environment to this end; it also helps them overcome their issues interfering with nurture care and reinterpret children's behaviour separation [25] (see Figure 2). This intervention was primarily designed to be relatively brief and accomplished in 10 weekly 60-min sessions, as proposed by Bakersman-Kranenburg's [40] meta-analysis. This indicated that *"attachment-based interventions comprising a small or moderate number of sessions, were more effective compared to longer interventions (>16 sessions)"*. In addition, the ABC process was manualised with a particular emphasis on each session. Treatment manualization in interventions targeting disorganised attachment behaviours, is deemed as an essential aspect for the assurance of its integrity and efficiency [25]. ABC has been recognised as a Level 1 evidence-based intervention by the California Evidence-Based Clearinghouse for Child Welfare [41], indicating that ABC is well-supported in comparison with other rated interventions.

A neurobiological approach focusing on the stress functioning system could provide complementary evidence in terms of ABC efficacy for addressing children with disorganised attachment behaviours. This review takes Dozier's RCT

study [24] into consideration, evaluating the ABC efficacy with regards to Hypothalamus–Pituitary–Adrenal cortex functioning. In this study, the ABC intervention was applied to 46 foster children with insecure attachment behaviour while the Developmental Education for Families (DEF) was employed in the control group consisting of 47 children exhibiting the same features. Additionally, there was another comparison group of 48 children not receiving such interventions and no springing from a foster care system. All participants aged 18-24 months were assessed according to the Strange Situation procedure [42], an infants' attachment quality evaluation. Both the ABC-oriented group and the comparison group of children exhibited lower initial cortisol values in contrast with the children in the control group. These results ultimately indicated that ABC could effectively help children regulate biology through the enhancement of attachment security, their regulatory capabilities and consequently, behaviour. Although children were randomly allocated to the two intervention groups, some differences were highlighted in terms of gender synthesis.

Likewise, Bernard's study [43] examined the ABC effectiveness through RCT design, including 120 maltreated children aged 11.7-31.9 months with a history of child neglect, parental substance use, violence and homelessness. In this trial, 60 children randomly received the ABC while the DEF was applied to the remaining children. Both interventions were of the same frequency (weekly) and duration (10-hr-long sessions). However, all participants were evaluated through The Strange Situation laboratory procedure [42], an assessment of infants' attachment quality. Those children meeting the threshold for disorganised behaviour displayed contradictory behaviours, misdirected attachment disorganisation or disorientation cues and signs. According to the trial's outcome, children receiving the ABC showed meagre rates of disorganized attachment (32%) and higher rates of secure attachment (52%) in comparison with the control group (57% and 33%, accordingly). These findings demonstrated the ABC effectiveness regarding the attachment quality among maltreated children with disordered attachment. However, a specific limitation should be considered in order to accurately interpret this study findings.

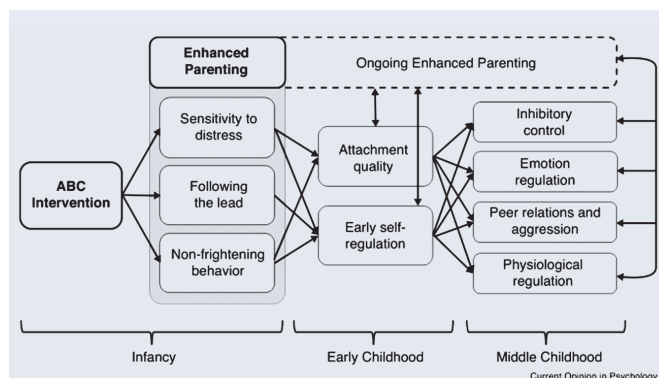


Figure 2. Conceptual model for anticipated effects of ABC on key outcomes in early childhood and middle childhood [25]

The employment of the Strange Situation Procedure [42] to evaluate attachment behaviour was extended beyond the predetermined age range for which the process has been approved [42]. Namely, although this procedure has been validated for the use among children aged 12 to 18 months, the assessment also included children aged 24 months.

Additionally, Bernard's preschool-age RCT follow-up [44] further suggested that children aged 36 months with disrupted care histories, received the ABC (n=24) and had significantly higher scores on the receptive vocabulary test and insecure attachment assessment in comparison with the children in the control group (n=28). However, in this study, several limitations should be underlined. Firstly, the sample size was considered smaller compared to the initial study. The main reason for the sample reduction was attrition due to the fact that children shifted placements. Therefore, in a more representative sample of children experiencing multiple placements in foster care, this effect may not be generalised. Secondly, children placement characteristics differ regarding some children no longer living with the caregiver, who participated in the ABC group. Although the study utilized a contractual intent-to-treat approach, it is significant to interpret the ABC effectiveness with caution.

The most recent longitudinal RCT conducted by Zajac et al. [27] further confirmed the ABC efficacy among children developing insecure and disorganised attachments. In this study, 129 families with a maltreatment high risk, referring to Child protective services randomly received the ABC and DEF. Both interventions, however, shared the same frequency (weekly), duration (10-hr-long sessions) and setting (families' homes). All children aged 9 were initially assessed through the Kern Security Scale [45] which evaluated the children's perceived attachment security to a particular parent. According to the results, children, who received ABC, displayed higher rates of perceived attachment security than those in the control group. This shows that ABC can diminish children's articulation of negative affect and enhance physiological regulation, executive functioning and receptive vocabulary. On the whole, this study included some strong points such as the 9-year longitudinal design

and the RCT design employment to evaluate the ABC effectiveness as well as the reliable measurements use of perceived attachment security.

Overall, ABC could be considered an efficacious and evidence-based intervention for maltreated children with disorganised attachments. Reducing the incidence of disorganised and disordered attachment behaviours in childhood could feasibly decrease the incidence of future psychopathology and deviant behaviour in later life [4], although there are still causal links to be identified.

Discussion

This literature review was intended to assess the relative effectiveness of the two psychologically-based dyadic caregiver–infant/child interventions DDP and ABC, synthesizing prior evidence from RCTs, so as to address disruptive attachments behaviours. Both DDP and ABC were founded upon the attachment and stress neurobiology principles [22-25]. Explicitly, they are intended to teach caregivers how to provide nurturing care and develop an attuned relationship with their children who had experienced early maltreatment or disruptions in care [23, 24]. This further leads to children's healthy brain development, maturation, formation and structure [12]. Additionally, DDP and ABC were designed to be relatively brief and accomplished in 10-11 weekly sessions. Bakersman & Kranenburg's [40] analysis correspondingly suggested that *"attachment-based interventions comprising a small or moderate number of sessions, were more effective compared to longer interventions (>16 sessions)"*. However, researchers have been hesitant to confirm the DDP effectiveness, as the evidence for its validity has been limited and inconclusive [28]. DDP is not appropriately assessed for its effectiveness, and its reliability has also been doubted [37-39]. On the other hand, ABC could be considered an efficacious and evidence-based intervention with long-term attachment quality improvements towards maltreated children. ABC process was manualised with a particular emphasis on each session contrary to the DDP procedure, which is slightly vague. According to Dozier & Bernard [25], treatment manualization in interventions targeting disorganised

attachment behaviours is regarded as an essential aspect for the assurance of its integrity and efficiency.

Additionally, RCT studies examined in this paper made use of different diagnostic psychometric tools, such as the Strange Situation Procedure [42], the Randolph Attachment Disorders Questionnaire [31] and Kern Security Scale [45] to evaluate children's attachment quality. Consequently, these instruments defined attachment quality differently, which shows that their respective results cannot be successfully compared and contrasted, so as to come to safer conclusions. All things considered, since RAD has not been adequately assessed and defined due to the lack of standardised measures and assessment criteria, professionals find it challenging to examine the interventions of such mental health conditions [46, 47]. This review, however, considered RAD as a means of describing such development difficulties, even though it disapproves the term RAD as a disorder but defines it as an underlying condition, which may facilitate the development of a potential future mental health disorder. Applying appropriate evidence-based treatment tailored to children with disruptive attachments is crucial, as the reduction of these behaviour incidences in childhood could feasibly decrease the incidence of future psychopathology and deviant behaviour [4]. However, it is hoped that there will be more evidence in the years to come.

Overall, this review may not be conclusive because the assessment of the DDP effectiveness is based only on two existing studies and limited literature. Additionally, only RCT-oriented studies were researched to assess the appropriateness of DDP and ABC. Nevertheless, there are some methodological limitations to RCT itself that should be pondered. This is because complex interventions cannot be adequately assessed just through the use of RCTs and especially when these trials are inappropriately designed [30]. That is why it is essential to appropriately define a problem and facilitate both intervention and assessment [48]. Last but not least, the enormous mental health and social service costs have been a limiting factor for employing such interventions. Especially bearing in mind, that appropriate training of mental health professionals is also crucial [49 - 51].

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