



Review article

Parent inclusion in early intensive behavior interventions for young children with ASD: A synthesis of meta-analyses from 2009 to 2011



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ABSTRACT

This paper presents a comprehensive synthesis of six meta-analyses of early intensive behavioral interventions (EIBI) for young children with autism spectrum disorders published from 2009 to 2011. Analysis was conducted in three steps to account for different formats of treatment delivery and the extent to which parents took part in treatment. The three components of the synthesis were (a) descriptive analysis, (b) effect size analysis, and (c) mediator analysis via partial correlation and linear regressions. We completed the analysis by obtaining standardized mean difference effect sizes for 13 comparative studies ordered by comparison study type and 22 mean change effect sizes ordered by treatment delivery type. Results suggest that EIBI leads generally to positive medium-to-large effects for three available outcome measures: intellectual functioning, language skills and adaptive behaviors. Although favorable effects were apparent across comparative studies, analysis by type of delivery format revealed that EIBI programs that include parents in treatment provision are more effective. Mediator analyses suggest that treatment variables and child characteristics impact program effectiveness when accounting for the extent of parent inclusion. Clinical implications toward individualized treatment tailoring are discussed.

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1. Introduction

Autism is a neurodevelopmental disability specifically identified as an autistic disorder and is one of the five categories of pervasive developmental disorders (PDDs) classified in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000). Autism is characterized by qualitative deficits in social interaction and communication and restricted, repetitive and stereotyped behaviors, interests and activities. Children with an autistic disorder have more profound difficulties, and are more likely to have associated speech and intellectual disability than those with other diagnoses within the PDDs (Volkmar, Lord, Bailey, Schultz, & Klin, 2004). Over the past two decades, there has been increasing interest in developing effective interventions for young children with autism spectrum disorder. Researchers have generally accepted that early intensive behavioral interventions (EIBI) are effective (Eikeseth, 2009; Makrygianni & Reed, 2010; Peters-Scheffer, Didden, Korzilius, & Sturmey, 2011; Peters-Scheffer, Didden, Korzilius, & Matson, 2012; Viruès-Ortega, 2010). Although EIBI programs vary slightly in their approaches, all programs are characterized by the following essential features (Peters-Scheffer et al., 2012): (1) based on ABA principles, (2) comprehensiveness, (3) systematic skill-building with transition to natural environments, (4) individualized treatment planning, (5) scientific evaluation of effectiveness, (6) beginning treatment early, (7) a low child–staff ratio, and (8) caregiver involvement and training.

There is a growing body of empirical evidence that EIBI treatment is effective for both the deficit features of autism and the expressed behavioral features (Lord et al., 2005; Makrygianni & Reed, 2010; Matson and Smith, 2008; Rogers & Vismara, 2008; Spreckley & Boyd, 2009; Zachor, Ben-Itzhak, Rabinovich, & Lahat, 2007). In particular, intervention outcome studies found EIBI to be superior to an eclectic treatment approach in improving cognitive abilities, language skills and adaptive behaviors (Eikeseth, Smith, Jahr, & Eldevik, 2002, 2007; Eldevik, Eikeseth, Jahr, & Smith, 2006; Perry et al., 2008; Reed, Osborne, & Corness, 2007a; Smith, Groen, & Wynn, 2000), and in lessening autism severity (Zachor & Ben-Itzhak, 2010; Zachor et al., 2007).

However, since the first empirical results of the effects of EIBI (Lovaas, 1987) and its various replications (Anderson, Avery, DiPietro, Edwards, & Christian, 1987; Birnbrauer & Leach, 1993; Cohen, Amerine-Dickens, & Smith, 2006; McEachin, Smith, & Lovaas, 1993; Sallows & Graupner, 2005; Smith, Buch, & Gamby, 2000; Smith, Groen, et al., 2000) raised a debate on the great variability in outcome within and between studies. Gains were not universal, with some children making rapid progress, while others made only modest progress or showed little or no change (Eikeseth, 2009; Peters-Scheffer et al., 2011; Reichow & Wolery, 2009).

In his overview on meta-analyses existing on EIBI interventions for young children with autism spectrum disorders (ADs), Reichow (2011) analyzed five meta-analyses that have been published between 2009 and 2010 in peer-reviewed journals (Eldevik et al., 2009; Makrygianni & Reed, 2010; Reichow & Wolery, 2009; Spreckley & Boyd, 2009; Viruès-Ortega, 2010), and highlighted key differences and potential confounds—ranging from effect size calculations, small sample sizes, lack of reference to control groups, randomization issues, participant versus professional data, and standardized group comparison methodology—that might have led to discrepant findings across these meta-analyses. The crucial question in EIBI research has since shifted from general effectiveness toward understanding why outcomes vary across different children and for which children is EIBI most and least effective. Following this, many studies are now analyzing the different factors, to see which enhance or detract from treatment effectiveness. It has been established that mainly child factors (e.g., age at treatment intake; autism symptom severity; pretreatment IQ, language and adaptive functioning; co-morbid conditions) and treatment characteristics (e.g., treatment intensity; treatment duration; treatment quality; staff training; supervision) contribute to these differences in outcome (Ben-Itzhak & Zachor, 2007; Davis, Smith, & Donahoe, 2002; Eldevik et al., 2006; Granpeesheh, Dixon, Tarbox, Kaplan, & Wilke, 2009; Lovaas, 1987; Peters-Scheffer et al., 2010; Smith, Groen, et al., 2000). Unfortunately, because studies focus on the analysis of group differences, existing research provides only limited information on the outcome for individual children and few data on moderators or mediators of therapy (Lord et al., 2005; Kasari, 2002). It is also difficult to draw reliable conclusions about possible child, family, or environmental variables associated with outcome because most studies involve relatively small numbers of participants. One way to approach this issue is to accumulate sample size in meta-analyses. Three of the five meta-analyses included in the Reichow overview (2011) achieved enough statistical power to conduct such moderator analyses (Makrygianni & Reed, 2010; Reichow & Wolery, 2009; Viruès-Ortega, 2010). In brief, Makrygianni and Reed (2010) found large relations based on partial correlations suggesting larger gains (a) in IQ and adaptive behaviors by higher treatment intensity, (b) in adaptive behaviors

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