A Meta-Analytic Examination of the Effectiveness of Cognitive and Cognitive-Behavioral Interventions in the Promotion of Integral Social Competence in Children with High-Functioning Autism

Karin Messika

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Abstract

Children with high-functioning Autism are characterized by multi-dimensional social difficulties, including ones in social-cognitive processes and social behaviors and interactions (Bauminger-Zviely, 2013b). Cognitively speaking, Children with high-functioning Autism show a flawed and poor understanding of social rules, norms and structures (Loveland, Pearson, Tunali-Kotoski, Ortegon, & Gibbs, 2001); find it hard to attribute mental states to others and predict their behavior accordingly – "The Theory of Mind" (Yirmiya, Erel, Shaked, Solomonica-Levi, 1998); are characterized by an absence and mishandling of executive functions (Channon, Charman, Heap, Crawford, & Rios, 2001); and experience difficulties in emotional understanding (Golan, Baron-Cohen, & Golan, 2008). Behaviorally speaking, these individuals experience significant difficulties in discourse and play skills (Humprey & Symes, 2011; Paul & Landa, 2008); show distinctive disabilities in social behaviors such as low rates of social initiative and high rates of passive behavior (Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011); are characterized by low social involvement in everyday social interactions with their peers (Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011); and find themselves only in peripheral positions in their class' social network (Kasari et al., 2011; Rotheram-Fuller, Kasari, Chamberlain, & Locke, 2010).

The social difficulties of these individuals have their roots in early childhood and become more pronounced with the years, as peer interactions get more and more complex (Chamberlain, Kasari & Rotheram-Fuller, 2007). Such difficulties may turn them into victims of mockery, bullying and rejection among their peers, and may result in feelings of loneliness and alienation, as well as low self-esteem, depression and

anxiety (Bauminger & Kasari, 2000; Cappadocia, Weiss, & Pepler, 2012; Chamberrlain et al., 2007; Howlin, 2000; Krasny, Williams, Provencal, & Ozonoff, 2003).

These social difficulties of such individuals necessitate intervention programs to assist them in developing social capabilities which will enable more adaptive social functioning and easier integration into their community. Whereas in the past, social intervention programs for individuals with high-functioning Autism were characterized by mere behavioral focus, the literature has shifted to more holistic intervention programs. Those include work on social cognitive and emotional skills alongside behavioral ones, whereby better adapted to the various aspects of the social disability typical of this population (Bierman & Welsh, 2000; Spence, 2003).

The present study aims at synthesizing research published between 1995-2012 in the area of cognitive and cognitive behavioral intervention programs designed to improve the social functioning of children and teenagers with high-functioning Autism. It uses meta-analytic procedures as a systematic instrument to statistically summarize the research findings, in a manner enabling to depict the big picture and draw conclusions regarding the efficacy of such programs.

Using meta-analytic research, we intend to answer four major questions:

1. Are cognitive and cognitive-behavioral interventions effective in improving the social skills of children and teenagers with high-functioning Autism, and are they effective also in comparison to control groups which did not receive any intervention? We assume that such interventions will be found effective in improving the social functioning of individuals with high-functioning Autism both upon comparison of the participants' pre-post outcomes as well as comparison to a control group which received no intervention whatsoever.

2. Is there any difference between the efficacy of cognitive interventions and cognitive-behavioral ones? Our assumption is that cognitive-behavioral intervention programs could be found more effective than mere cognitive ones in improving the social skills of individuals with high-functioning Autism.

3. Is there significant heterogeneity in the effect sizes of the various studies and are there any moderating variables which could account for the heterogeneity? We expected to find significant heterogeneity in the effect sizes of the studies. Regarding the moderating variables, we assume:

   a. greater improvement in the cognitive outcomes than in the behavioral ones.

   b. interventions implemented in the child's natural environment may lead to greater improvement than those taking place in a clinic.

   c. interventions involving social agents from the child's everyday life may result in greater improvement that those without the involvement of natural social agents.

4. Are the effects of the interventions long-lasting? This question remains open due to the relatively small number of studies evaluating the effectiveness of intervention programs over time.

To answer these research questions, a systematic search procedure targeted 26 articles. The studies were generalized through meta-analytic procedures according to strict theoretically-based rules and criteria. The studies were then codified according to main features, based on scientific literature in the area, and were statistically analyzed to calculate the effect sizes.

The research findings confirm the hypothesis that participation in social cognitive or cognitive-behavioral intervention programs will significantly improve the social skills of children and teenagers with high-functioning Autism. The intervention

programs are found effective even when compared to control groups which did not receive any intervention. It is important to note that cognitive-behavioral intervention programs are found to bring about greater improvement than mere cognitive intervention programs (still upon comparison to the no-intervention control groups). Such findings, too, are compatible with the research hypothesis. In addition, the findings demonstrate significant moderate to high heterogeneity in the effect sizes, and two moderating variables were found to have influence on the effect sizes – the type of outcome measure (cognitive/ behavioral) and the use of a modeling technique. Regarding the type of outcome measure, the results confirm the hypothesis that the improvement in the measures of social cognition is significantly greater than that of the measures of social behavior. This finding recurs even when comparing the intervention groups to the no-intervention control groups. Regarding modeling, it is surprisingly found that studies including modeling show less successful results than those without this technique. Finally, according to the findings, the effects of the intervention programs were found long-lasting, and the participants did not show any progression or regression in any point of time between the end of intervention and follow-up.

This research assists in understanding the big picture depicted by the professional literature in the field of social intervention programs for children and teenagers with high-functioning Autism, and thereby enriches the existing knowledge in this area. It is recommended that educators and professionals in the field consider the results of this study while planning and implementing social interventions among this population, in order to assist these children to reach their full potential and thus, gain optimal social integration