

**Critical Review:
Effectiveness of Parent-Focused Intervention for Children with Expressive Language Delay**

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Abstract

This study reports a critical review and a pilot study exploring the effectiveness of a parent-centered, indirect approach to expressive language intervention in children under four years of age who have an expressive language delay. The critical review includes one non-randomized mixed clinical trial and two randomized controlled trials. The pilot study involved collection and analysis of pre- and post- treatment data for 7 pre-school children with expressive language delays. The children and their parents participated in the Target Word™ Hanen Program® for parents of children who are late talkers. Findings from both the critical reviews as well as the pilot study suggest that parent-focused intervention for pre-school children with expressive language delays is an effective form of treatment.

Introduction

Expressive language delay is a common deficit among toddlers, with an occurrence rate of about 15% in children from 18 to 36 months of age (Desmarais et al., 2010; Horwitz et al., 2003). Expressive language delay can be defined as delayed development of spoken language compared to same-aged peers, unrelated to known cognitive, sensory or developmental cause (Desmarais et al.). Evidence shows that toddlers with expressive language delay are at higher risk for difficulties in a wide range of language-related skills into middle childhood, as well as later difficulties in literacy, academic success, behaviour and social-emotional development (Horwitz et al., 2003; Rescorla, 2002; Snowling et al., 2001). It is integral that early intervention for these children and their families effectively maximize language development, thus minimizing the detrimental long-term effects that an expressive language delay can have on child development and opportunities.

One type of intervention for young children with expressive language delays is parent-centered intervention; a triadic intervention model in which the parent is taught specific language strategies to improve communication interactions with the child, the parent uses the strategies when interacting with the child, and the child's language improves as a result (Klatte & Roulstone, 2016). There is substantial evidence to support the notion that different interaction styles of parents have an effect on their child's language development and communication (Topping, Dekhinet & Zeedyk, 2013). Furthermore, children under four years of age may be less responsive to the unfamiliar clinician versus their familiar caregiver. It may also be most beneficial for the parent to be delivering strategies because they are spending the most time with the child.

Klatte & Roulstone (2016) found that intervention which targets the parent-child interactions is a successful form of service delivery for improving child language outcomes; although it can be dependent on certain outcomes such as parent involvement, availability of resources, and the therapist's skills.

An example of parent-centered intervention is the Hanen® Target Word™ program for parents of late-talking children. Parents of children with expressive language delays meet for 5 parent group therapy sessions in which they are educated on communication-interaction strategies. They also attend 3 individual sessions with the clinician to practice the strategies and get feedback.

Comparisons between the effectiveness of parent-centered therapy to traditional direct, client-focused therapy, in which the clinician works directly with the child, have been inconclusive. Both client-centered and parent-centered approaches have been found to produce positive treatment outcomes, although there is no consensus on which mode of intervention delivery is more effective in toddlers with an expressive language delay (Law et al., 1998).

Objectives

The first objective of this study was to critically review the existing literature addressing the effectiveness of parent-centered, indirect intervention for children under four years of age with expressive language delay, with particular focus on comparisons to direct therapy intervention with the same population.

The second objective was to examine the effectiveness of the Target Word - Hanen Program® in improving the participants' vocabularies and communicative participation.

The final goal of this study was to provide clinical implications and evidence-based recommendations for Speech-Language Pathologists practicing with this population of children.

Study 1: Critical Review

Methods

Search Strategy

Computerized databases including ASHA publications, PubMed and PSYCHINFO were searched using the following search strategy: [(preschool) OR (toddler) AND (Specific expressive language impairment) OR (Expressive vocabulary impairment) OR (Expressive language delay) AND (parent-centered) OR (indirect) AND (Treatment) OR (intervention) OR (therapy)]. Reference lists of included articles were also reviewed.

Selection Criteria

Studies examined included interventions implementing parent-centered therapy for children under four years of age who had expressive language impairments with absence of any known cognitive, sensory or developmental cause.

Data Collection

This literature search generated three articles pertaining to parent-centered intervention for children under four years of age with expressive language delays including two level 1 randomized controlled trials (Buschmann et al., 2009; Girolametto & Pearce, 1996), and one level 2a nonrandomized clinical trial (Baxendale & Hesketh, 2003). Levels of evidence were based on Archibald (2015).

Results

Baxendale and Hesketh (2003) conducted a nonrandomized mixed clinical trial to compare child and parent outcomes, as well as treatment effectiveness and efficiencies between the parent-focused Hanen® Parent Program and clinic-based direct intervention. Participants were 37 (30-42 month) children with a diagnosis of language impairment (expressive only or expressive and receptive) with normal non-verbal development and no profound sensorineural hearing loss. Allocation to intervention groups was based on geographical location. Both therapy sessions ran for 8 weeks and the participants' language was assessed using the PLS-3 (UK version) and from an analysis of audio-taped parent and child interaction before the intervention, 6 months after, and 12 months after the intervention. Parent outcome measures in turn-taking and in language-modelling

techniques were also assessed. The study found that there were no significant differences between the mean language scores of the treatment groups at any of the three assessment periods, or in measurements of parent outcomes.

Strengths of this study included comparison of two different types of therapy, rather than comparing one type of therapy to a no treatment control group. This way findings can be attributed to the type of therapy rather than just presence or absence of therapy; however, the lack of control group for comparison makes it difficult to attribute improvements in language outcome measures to the intervention. To compensate for this the authors compared the assessment scores to normative data of same-aged peers. The authors established well-defined inclusion and exclusion criteria for selection of the participants which were verified using standardized assessment measures. However, there were also some weaknesses in the characteristics of the groups. The groups were assigned on a geographical basis and by the preference of the parents, which could have affected the results of the study. Many parents expressed a preference for individual therapy and refused to participate in group therapy, so that could have had an effect on the results as well. The authors performed statistical analyses to compare the groups prior to therapy and found that the mean age in months for the Hanen® group was lower than that of the direct therapy group, which also could have affected the outcomes. Aside from that characteristic no pre-treatment differences were found between the groups. Another weakness of the study was that it was not done blindly. The administrators of the assessments knew which group the participants belonged to, and although parents did not know the nature of the study they knew that their child would be taking part in either individual or group therapy, which may have biased the results. Another aspect to note is that children who had a receptive language delay as well as an expressive language delay were included in the study, but these individuals were matched across the treatment groups.

The authors used appropriate assessment measurements to test for child language outcomes and parent interaction outcomes (proportional number of utterances of parent and child and parent language-modelling techniques), which demonstrates construct validity in the study. Mean length of utterance scores and the parent interactions measurements were taken from a 10-minute sample of audio-taped parent-child interaction. Intra- and inter-rater reliability were not considered, which weakens the reliability of the study. Appropriate methods and data analysis were employed

and revealed no significant differences between the outcome measures of the participants' language scores or the parents' interactions. Lastly, although the researchers compared the time and money put into each intervention program, the outcomes of the study would have been more reliable if these factors had been controlled for. The last thing to consider in this study is that along with the independent variable of mode of service delivery, the location and environment in which the treatment is administered varies between the two groups. This has to do with the nature of the two models of service delivery, but it may also have had an effect on the results of the study.

Overall, this study is suggestive that both direct and indirect intervention for children under four years of age who have an expressive language impairment are effective in improving child language and parent interaction outcomes.

Buschmann et al. (2009) conducted a randomized controlled trial to examine the effectiveness of a parent-based language intervention group programme for two-year-old children with an expressive language delay. 58 children with expressive language delays were allocated randomly to either an intervention group (N = 29) or a delayed intervention group (N = 29), which received intervention after the study was completed. There was also a language-normal group that was matched in age, sex, birth order, and maternal school education for comparison. Mothers of children in the intervention group took part in the three-month Heidelberg parent-based interactive language intervention. Participants in both groups were reassessed 6 and 12 months after the initial assessment using the ELFRA-2 (the German version of the MacArthur Communicative Development Inventories) and the SETK-2 (developmental language test for two-year-old German speaking children). Intervention group made greater gains than the children in the waiting group in parent reported vocabulary, morphology and syntax with medium to very large effect sizes at the post-test assessment. Significant group differences were also found between the groups in vocabulary and morphology at the 12-month follow-up comparison. Also, at follow-up 75% of the children in the intervention group caught up to their same-aged peers without a language delay, as opposed to only 44% of children in the delayed-intervention group. Overall, results suggested that implementation of the Heidelberg parent-based interactive language intervention was more effective than no therapy in improving language scores on standardized tests and on parent reports.

A major strength in this study was the nature of the design: the randomized controlled trial design with within-group and between-group measurements gives a strong basis by which to attribute cause and effect to the

results. The study is further strengthened by the inclusion of three groups: the treatment group, the delayed treatment group, and the control group of age-matched peers without a language delay. The main weakness in the study in terms of addressing the efficacy of parent-directed therapy is the lack of a control group receiving a different type of therapy, so the only comparison we are able to make is to no therapy. The authors utilized a power calculation for a single-sided t-test to determine the necessary sample size and designed the study accordingly, consequently obtaining data from 61 patients. They also established well-defined inclusion and exclusion criteria for participants and tested for these using standardized assessments to rule out any major demographic differences aside from the independent variable. Post-test and follow-up diagnostics were carried out by different assessors who were blinded to previous results and group allocation. The assessment methods used in the study include both parent report as well as standardized assessment measures, which strengthens the findings by increasing the construct validity. One weakness of the study is the number of participants who did not complete the program, although the number of drop outs is similar across the two groups (treatment condition = 10; delayed treatment = 12). This may have impacted the results of the study.

Appropriate tests of statistical analysis were employed to ensure homogeneity between the intervention groups at pre-intervention and to compare the results of the groups across the three time periods.

Overall, this study gives compelling evidence that parent-focused indirect therapy is more effective in improving expressive language outcomes, compared to no treatment in two-year-old children with a specific expressive language delay.

Girolametto & Pearce (1996) conducted a randomized clinical controlled study exploring the effects of a parent-focused intervention program incorporating focused stimulation. Participants were twenty-five toddlers, 23-33 months of age, with expressive vocabulary delays, and their mothers. Families were randomly assigned to an immediate treatment experimental group or a delayed-treatment control group involving 11-week Hanen Program for Parents. Analysis of pre-test and post-test assessment results examined interactions of mothers, as well as language outcome measures for the children. Results indicated that parents who took part in the intervention program were more likely to use language-modelling techniques encouraged by the Hanen program, and that children in the treatment group demonstrated increased scores in areas of vocabulary, multiword phrases, and

grammatical complexity that were significantly higher than the children in the control group.

Strengths of the study included the randomized controlled trial design, which helps to attribute changes in the dependent variable to the independent variable and not external factors. The authors also provide a good rationale for administration of the study including evidence from a number of previous studies done on similar topics. Analysis of treatment and control groups is another strength. The authors performed a number of statistical tests to ensure that there were no significant differences between the experimental and control groups for any demographic variables, or in dependent measures of the children's language scores. There was no attrition of participants from either group. There were also assessments done to ensure that there were no comorbid sensory or cognitive difficulties within either of the groups. The speech-language pathologists conducting the assessments were blind to the treatment status of the families. The study implemented relevant standardized assessment and a range of other language assessment tools including parent checklists, increasing the construct validity. Analyses were performed to determine inter-rater reliability of videotape transcription which produced good measurements of inter-rater reliability.

A weakness of this study is the relatively small sample size taken from a single geographical area, as well as the shared characteristic of all participants to voluntarily participate in intervention, decreasing generalizability of findings.

Appropriate statistical analyses (multivariate analyses of covariance with repeated measures) were used to evaluate the treatment effects. Overall, the study presents compelling evidence that a parent-focused, indirect intervention can affect parents' interaction styles, and that this in turn positively affects the expressive language measures of children between 23 and 33 months of age with expressive vocabulary delays. This study also has a particular emphasis on the focused stimulation approach to parent-directed intervention. Given the success of this study, follow-up research should be done to determine the effectiveness of this approach compared to other modes of treatment, and to determine effects in the long term.

This study gives further evidence that parent-directed therapy is an effective model of therapy delivery and should be considered when choosing an appropriate model of therapy for this population of children.

Discussion

To summarize, the results of the three reviewed studies provide evidence that parent-centered therapy is an

effective treatment to improve expressive language in children under four years of age with an expressive language delay. Clearly, further evidence is warranted.

Study 2: Pilot Study

The following study aimed to examine the effectiveness of the Target Word™ - The Hanen Program® for parents of children with expressive language delays over a three-month intervention period.

Methods

Participants

A total of seven toddlers (six males; 20-29 months) with expressive language delays and their parents participated in the study. The children met the criteria of participating in a Target Word Program™ including limited expressive vocabulary (fewer than 24 words produced at 18-20 months, fewer than 40 words at 21-24 months, or fewer than 100 words between 24 and 30 months of age) and relatively good skills in other areas of development. All participants were referred for clinical services due to concerns about their language development.

Procedures

All participants completed the Target Word Program™: an 11-week program consisting of five interactive sessions with small groups of parents and three individual consultation appointments with the parent and the child. During the interactive group sessions parents are taught strategies to maximize communication interactions with their child during routines and every day activities. The individual consultation appointments involve videotaping of parent-child interactions and collaborative reviewing of the tapes with feedback about strategy use.

Out of the seven families in the study, three participated in 8/8 sessions, one participated in 7/8 sessions, and three participated in 6/8 sessions.

Measures

The study utilized a single-group repeated measures design in which participants were assessed at pre- and post- intervention consultations. Assessments used were the FOCUS© (Focus on the Outcomes of Communication Under Six) and the MacArthur-Bates CDI Words & Gestures. The FOCUS is a clinical tool used to evaluate treatment change in communication participation of children under six years of age and is proven to be reliable, valid, and responsive to clinically meaningful treatment changes. It measures pre- and post- intervention changes by taking the difference between the two scores. A difference greater than 16

indicates a significant clinical change over the course of intervention (Thomas-Stonell et al., 2010). The MacArthur-Bates CDI Words & Gestures is a commonly used tool for measurement of vocabulary in children (Fenson et al., 1993). Both measurement tools are completed by parent report.

Results

The pre- and post- FOCUS scores are shown in Figure 1. Results of a Wilcoxon signed rank test revealed significantly higher scores at post than pre-intervention, $Z = -2.371$, $p < .05$. As well, all participant scores reached the cutoff of a 16-point increase to signal significant positive clinical change.

The pre- and post- MacArthur-Bates CDI Words & Gestures scores are shown in figure 2. Results of a Wilcoxon signed rank test revealed significantly higher scores at post than pre intervention, $Z = -2.207$, $p < .05$.

Figure 1. Pre- and Post- FOCUS© scores

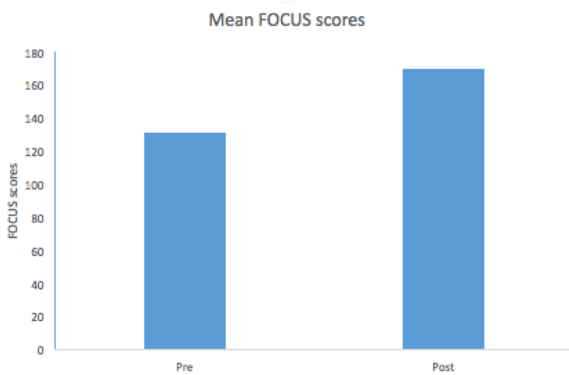
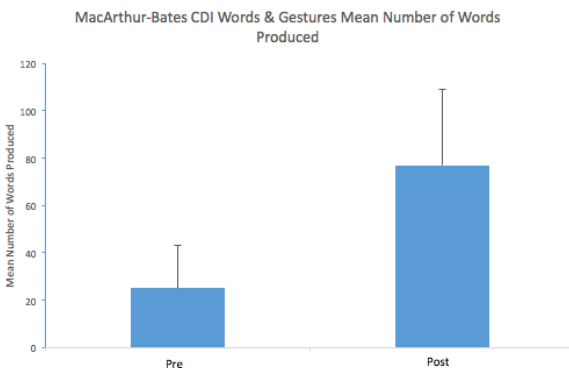


Figure 2. MacArthur-Bates CDI Words & Gestures Pre- and Post- Vocabulary Scores



Discussion

The results of the pilot study are consistent with a treatment effect of improving both vocabulary and functional communication in young children with

expressive language delay who have completed the Target Word Program™.

Major shortcomings of the pilot study include the lack of a control group or a comparison group, the absence of normative data when considering the results of the pre-and post-intervention MacArthur-Bates CDI scores, the small number of participants in the study, and the use of parent report measures only.

General Discussion

A critical analysis of the existing literature and pilot study suggested that indirect, or parent-focused intervention led to improvements in child language and in parent-child interaction outcomes in children under four years of age with an expressive language delay. Studies that compared parent-focused intervention to a control group (Buschmann et al., 2009; Girolametto & Pearce, 1996) revealed that gains in expressive language outcome measures made by children who took part in the indirect intervention were significantly higher than for children in the control group who received no therapy. Only one of the three articles compared indirect, parent-focused intervention to clinic-based, direct therapy. No significant differences between the two types of therapy were found in outcome measures of language gains or parent interaction.

These findings were supported by the pilot study, which also indicated that parent-centered therapy was effective in improving the vocabulary and functional communication of toddlers with an expressive language delay.

A shortcoming of both the critical analysis and the pilot study was the lack of comparison of parent-centered therapy to other types of therapy. The one article that compared parent-centered therapy to direct, client-based therapy had some weaknesses. First, there were discrepancies between the two therapy groups prior to intervention. Second, this was not a blind study. Both of these external factors could have influenced the independent variable of the study (treatment outcome measures). More research needs to be done to compare treatment effects of indirect, parent-centered therapy to direct, client-centered therapy so that we can advise clients of the best evidence-based form of service delivery.

It should be considered that the success of the client in a parent-centered intervention program is very dependent on the family. This includes factors such as the family's engagement, understanding, ability to reflect, and the therapist's skills (Klatte & Roulstone,

2016). Success is also dependent on the family's availability to attend sessions and use the strategies at home with the child. Many families may also have difficulty committing to attend 8-12 sessions.

To summarize, evidence from the literature reviews and the pilot study gives highly suggestive evidence that indirect, parent-focused intervention for children under four years of age who have an expressive language delay significantly improves outcome measures in parent interaction and child language and communication participation. These findings indicate that parent-focused intervention is an effective form of therapy for this population of children.

Clinical Implications

Speech-language pathologists working with children under four years of age with an expressive language delay can use these findings when making decisions about which type of therapy they will provide. Clinicians can feel confident in parent-centered intervention as an effective method of service delivery. Factors such as cost effectiveness and accessibility to families can be considered because both parent-centered and client-centered therapy are shown to produce beneficial outcomes.

The results of this study are also important to consider when advising families of this population of children regarding intervention. According to the data, parents can be advised that parent-centered intervention is an effective approach to intervention. Due to the lack of evidence for one form of service delivery over the other, clinicians should consider the family's individual situation and advise accordingly.

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