International Journal of Health Sciences
March 2016, Vol. 4, No. 1, pp. 11-20
ISSN: 2372-5060 (Print), 2372-5079 (Online)

Published by American Research Institute for Policy Development
DOI: 10.15640/ijhs.v4n1a2
URL: http://dx.doi.org/10.15640/ijhs.v4n1a2

Speech-Language Pathology and Music Therapy Caregiver Training and Caregiver Levels of Stress: An Interprofessional Pilot Study

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Abstract

The purpose of this article is to present an interprofessional caregiver training program and its impact on caregiver stress levels. Nine caregivers, all with young children with speech-language disorders, were invited to participate in a support and training program developed by a speech-language pathologist and a music therapist that focused on speech-language developmental expectations and communication facilitation strategies. The experimental group (n=4) participated in four weekly training sessions offered concurrent to their children's intervention. The control group (n=9) participated in a single training session that was offered at the end of their children's intervention. Participants completed measures to assess pre-post levels of stress. The measures were compared within and between the groups to evaluate the potential impact of the training on stress. The experimental group demonstrated significant change in stress between the beginning and end of the program. There was also a significant difference in change in caregiver levels of stress between the two groups, suggesting that participation in weekly training sessions contributed to a decrease in stress levels. This pilot study provides feasibility regarding the effectiveness of an interprofessional training program on stress levels of caregivers with young children with speech-language disorders.

Keywords: Music therapy, speech-language pathology, caregiver training, caregiver stress, social support.

1.0 Introduction

It is widely documented that caregivers of children with developmental disabilities experience higher levels of stress in their roles than caregivers of children without disabilities (Baker, Blacher, Crnic, & Edelbrock, 2002; Dyson, 1997; Estes et al., 2009; Rao & Beidel, 2009; Kirby, White, & Baranek, 2005). Factors impacting the experience of caregiver stress include the type and level of services that are provided to the caregivers to empower them to work effectively with their own young children (Ekas, Lickenbrock, & Whitman, 2010; Hassall, Rose, & McDonald, 2005; Plant & Sanders, 2007).

One format that has been shown to be effective for reducing caregiver stress is that of structured programs that focus on skills training and strategies to facilitate the developmental needs of their children (Ekas, Lickenbrock, & Whitman, 2010; Hassall, Rose, & McDonald, 2005; Plant & Sanders, 2007). The content of the caregiver training program in the current study is therefore centered on an evidence-based interprofessional intervention program (i.e. collaboration between speech-language pathology and music therapy) with a focus on training caregivers of young children with speech, language, and/or communication disorders (Bruscia, 1982; Cassity, 1992; Geist et al., 2008; Humpal, 1991; Roberts& Kaiser, 2011).

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The literature has long supported the practice of speech-language pathologists (SLP) and music therapists-board certified (MT-BC) working within an interprofessional model to provide intervention services to individual clients and their families. Within this setting, SLP's and MT-BC's assume various roles when addressing the concerns and priorities of families and their young children with speech, language, and/or communication disorders. Bruscia (1982) described a model in which an SLP and MT-BC developed an interdisciplinary intervention program that addressed the communication needs of a 14 year-old male with intellectual disability and autistic-like behaviors such as echolalia. The results of the study indicated that the subject's echolalia reduced from 95% to less than 10% of his total utterances. Geist et al. (2008) implemented a collaborative model in which experiences, procedures, and communication outcomes of music therapy and speech-language intervention were integrated to provide services to a four year old with bronchopulmonary dysplasia and a receptive/expressive language disorder. Results indicated that a relationship existed between the interdisciplinary music/speech-language intervention model and an increase in the child's involvement and socialization with his peers within his classroom. Several other studies have also demonstrated the successful use of social communication skills by preschool-aged children with speech-language disorders when the children have engaged in group-based music activities with typical peers (Humpal, 1991; Cassity, 1992).The literature consistently supports the collaboration between SLP's and MT-BC's to provide effective, evidence-based practices with children with whom they work.

Over the past two decades, multiple studies have also been conducted that have investigated whether SLP and/or MT-BC directed caregiver training is an effective intervention to target communication and socialization skills of children with speech and language disorders (Roberts& Kaiser, 2011). Many of these studies have demonstrated the positive impact of caregiver training on a range of speech, language and communication skills. A recent meta-analysis investigated studies that addressed caregiver-implemented speech and language interventions; results indicated that programs that addressed a variety of communication goals through caregiver training resulted in strong positive effects on the receptive and expressive language skills of children with language disorders (Roberts & Kaiswer, 2011). Of the 18 studies analyzed, successful programs included those in which the caregivers were taught skills and strategies to implement with their own children (Kaiser, Hancock, & Nietfeld, 2000; Charlop-Christy & Carpenter, 2000; Moes & Frea, 2002; Woods, Kashinath, & Goldstein, 2004; Ingersoll & Gergans, 2007). Other noted benefits of caregiver participation in family-based and caregiver-focused training programswere identified as increased awareness and understanding of their own child's abilities, increased personal awareness, opportunities for caregivers to learn educational activities that they can use with their children, and decreased levels of stress perceived by the caregivers(Algood, 2005; Standley, Walworth, & Nguyen, 2009).

Although the literature clearly supports the use of caregiver training by both SLP's and MT-BC's as either the primary or supplemental service provided with young children with speech, language, and/or communication disorders, there is a dearth of literature that supports true interprofessional collaboration between the two professions when providing caregiver-directed training. The question therefore remains: Will an interprofessional training program that focuses on speech-language and music development and facilitation strategies for caregivers of children with speech, language, and/or communication disorders have a positive impact on the caregivers? Specifically, what is the relationship between participation by caregivers in this training program and change in the caregivers' levels of stress?

Caregivers who are raising young children with developmental disabilities are faced with a multitude of challenges on a daily basis. It is generally accepted that caring for a child who has any type of developmental disability can involve significant amounts of energy and time engaged in interventions and therapies for prolonged periods of time (Seltzer & Heller, 1997; Shultz & Quittner, 1998). As a result of these increased demands, it seems reasonable to assume that caregivers of children with developmental disabilities are at increased risk for higher levels of personal stress, particularly as it relates to raising their children. Researchers have frequently reported that caregivers of children with disabilities experience higher levels of caregiver-related stress than caregivers of typically developing children (Boyd, 2002; Seltzer & Heller, 1997; Shultz & Quittner, 1998). Sanders and Morgan (1997) examined levels of stress of 54 parents of families with a child with autism spectrum disorder (ASD), those with a child with Down syndrome, and those with only neurotypical children. Parents of children with ASD generally reported more family stress than parents of children with Down syndrome; in turn, families with children with Down syndrome reported more stress than parents of neurotypical children. Dyson (1997) compared 30 pairs of parents who had school-aged children with disabilities and 32 pairs of parents of children without disabilities and reported that caregivers of children with disabilities experience a disproportionately greater level of stress relating to their children than those who had children without disabilities.

When examining the predictors of caregiver stress in families of preschool-aged children with developmental disabilities Plant and Sanders (2007) found that 105 mothers indicated that completing specific caregiving tasks, behavior issues associated with these everyday tasks, and the level of the child's disability were all significant predictors of level of caregiver stress.

Given the potential impact of increased caregiver stress on both caregiver and child outcomes, it is no surprise that there is a range of literature that has examined the impact of participation in caregiver training on caregiver stress with these families. Two studies have suggested that a significant relationship between caregiver training opportunities and a decrease in stress levels exists for families with children with disabilities(O'Neill, Palisano, & Westcott, 2001; van Schie, Siebes, Ketelaar, & Vermeer, 2004). Keen, Couzens, Muspratt, and Rodger (2010)also suggested that programs that offer access to knowledge on the range of evidence-based strategies for supporting their child/ren may specifically alleviate some of the stress that caregivers experience. There has also been an indication that programs that focus on enhancing the quality of the caregiver-child relationship and that target the knowledge and use of new skills by the caregiver in their own environments with their children have demonstrated the largest effects on both child and caregiving behaviors and skills, ultimately impacting these caregivers' levels of stress (Kaminski, Valle, File, & Boyle, 2008; Keen, Couzens, Muspratt, & Rodger, 2010). Gross, Fogg, and Tucker (1995) demonstrated that a behavioral parent training (BPT) intervention was effective for improving maternal stress. When one of the researchers of this study conducted a follow-up study of the 46 parents of toddlers who had participated in the initial study, the results demonstrated that the BPT led to enduring positive changes in parenting stress (Tucker, 1998). Pisterman et al. (1992) investigated the effects of behavioral caregiver training groups on caregiver stress with 91 families with children who had Attention Deficit Hyperactivity Disorder (ADHD). The results of this study suggested that caregiver group interventions that provided support and specific knowledge and skills to help caregivers cope more effectively with their child's specific difficulties may be conducive to decreasing caregiver stress levels. Compared to those who were awaiting the training, caregivers in this study who had participated in the program reported less caregiver stress following the training (Pisterman et al., 1992). Sanders and Woolley (2005) have also reported that caregiver-training programs can reduce caregiver stress while potentially supporting the well-being and development of both caregiver and child.

There is a growing research base to support the impact of caregiver training on caregiver stress when the focus of training is on empowering caregivers by providing them with knowledge and strategies to address their children's needs (Algood, 2005; Sanders & Woolley, 2005; Kaminski, Valle, Filene, & Boyle, 2008; Keen, Couzens, Muspratt, & Rodger, 2010). The results of this research suggested that caregiver group interventions that provide support, specific knowledge, and strategies to target skills to help caregivers work with their child's specific needs may be especially conducive to fostering a decreased sense of stress when caregivers are facilitating their children's development. The findings in the literature all support the inclusion of caregiver training when working with families of young children who have developmental disabilities.

Purpose of the study

The purpose of this study was to determine whether providing an interprofessional training program, presented by an SLP and an MT-BC for caregivers of children with speech, language, and/or communication disabilities had an impact on caregiver stress levels. Specifically, the authors set out to determine whether caregiver participation in a multiple-session structured support and training program combining speech/language and music developmental expectations and facilitation strategies had an impact on caregivers' levels of stress.

Methodology

This small scale preliminary study made use of a quasi-experimental, between subjects, pretest-posttest design to examine the feasibility of a collaborative SLP/MT-BC directed training and support program, with a focus on speech, language, communication, and music development as well as facilitation strategies on the stress levels of caregivers with young children who have been diagnosed with speech/language and/or communication disorders. The participants in the wait-list experimental group (n=4) were provided with four, one-hour training sessions during the six weeks of the PLL program; the participants in the control group (n=5) attended one, three-hour training session at the conclusion of the six-week PLL program.

The impact of the support and training program was evaluated using the Parental Stress Scale (Berry & Jones, 1995). Detailed information on participants, the content and structure of the caregiver support and training program, and measurement is provided in the sections that follow.

Participants

Nine caregivers (of a potential pool of 10) participated in the pilot study. Four caregivers (legal guardians to six children enrolled in the PLL) participated in the experimental group. The participants in the experimental group had children who ranged in age from 3.0 to 5.4 years. Their diagnoses included the following: mild articulation disorder, moderate-severe phonological disorder, moderate expressive language disorder, and severe receptive-expressive language disorder (with cognitive impairment). Five participants (legal guardians to six children enrolled in the PLL) engaged in the control group. The control group participants' children ranged in age from 2.6 to 5.3 years. Their diagnoses included the following: moderate phonological disorder, moderate expressive language disorder (with repaired cleft palate), and severe receptive-expressive language disorder (with sensory processing impairment), and mild fluency and phonological disorder. Refer to Table 1 for detailed information regarding participants' demographics.

All participants were invited from a pool of caregivers who had enrolled a child or children in a six-week summer speech and language intervention program (the Preschool Language Lab (PLL)) through the Communication Sciences and Disorders program at a mid-sized state university in southwestern Virginia. To be included in the study, in addition to having a child enrolled in the summer PLL program, the participants had to be identified as the legal guardian of the child, had to commit to attending all six weeks of the program unless they were unable due to illness or injury, and had to be willing to attend either four, one-hour training sessions during the six weeks or be willing to attend one, three hour training session at the conclusion of the six-week program.

Participants were made aware of the PLL summer program through early intervention service providers in the area, through school-based preschool programs, through medical providers, and through word of mouth. This program typically generates considerable interest in the area and there is often a wait-list of children who are eligible to enroll in the program; therefore, children were selected on a first-come-first-served basis. The PLL serves preschool aged children with a variety of diagnosed speech, language, and/or communication disorders and the children must have an identified speech and language disorder to be eligible to participate in the program. Upon calling to enroll a child or children, potential participants were informed that a research study would be taking place during the six-week session. Participants were informed that they were not required to participate in the research and that they were eligible to enroll a child in the program even if they decided they did not want to engage in the research study. After caregivers had enrolled a child or children, they were invited to participate in the study. If they agreed, the enrollment administrator for the PLL, who was not a researcher or an interventionist, randomized the caregivers using a simple randomization procedure of placing names in an envelope and alternating the assignment of participants into either an experimental or a waitlist control group. The Institutional Review Board of the university approved the research protocol for this project and informed written consent was obtained from each of the participants.

Materials

Participants were asked to complete a demographic survey and a single measure for this study. The measure was chosen to provide insight into caregivers' perceived levels of stress regarding caregiving concerns and daily stressors.

The Parental Stress Scale (PSS)(Berry & Jones, 1995)is an 18-item measure of caregiver stress using a 5-point response format anchored with a 1 indicating that the caregiver strongly disagrees with a statement and a 5 indicating that the caregiver strongly agrees with a statement (p. 466). This tool was "designed to measure the level of stress [caregivers] experience as a result of having children" (Lessenberry & Rehfeldt, 2004, p. 235) and separates caregiving stress from other life stressors such those that arise due to marital or financial concerns. Reliability coefficients for the total sample were 0.83, and test-retest correlation was 0 .81 over a period of six weeks (Berry & Jones, 1995, p. 466). Of important consideration when choosing this measure was that the validity was evaluated against the Perceived Stress Scale for caregivers of children that were receiving services in school or outpatient psychiatric clinics for emotional and or behavioral problems (p. 467). The correlation between the Perceived Stress Scale and the PSS for these caregivers was .51. Even though that is not high, it implies a moderate correlation which is sufficient for this project.

During reliability studies differences between the mothers in a non-clinical sample were compared to responses from mothers in a clinical sample. Results indicated that the PSS was able to significantly differentiate between mothers of children who were receiving treatment for behavioral problems as compared to mothers of children who were not in treatment (p. 467), indicating that this measure "appears to be an effective tool for assessing the level of stress that can be attributed to the caregiving role" (Lessenberry and Rehfeldt, 2004, p. 235). The measure was adapted to say "caregiver/caregivers" as not all participants were parents, but all participants were legal guardians. No other changes were made to the PSS.

Procedures

The PLL program is capable of providing services for up to 12 children (two groups of six) and serves as both a speech/language and communication intervention clinic as well as a training program for graduate level speech language pathology students and undergraduate and graduate level music therapy students. The setting for the PLL was a clinic-type setting consisting of two rooms, including one treatment room and one observation room with one-way mirrored glass. The clinic room was outfitted with video and audio equipment, providing observers with clear audio of the interventions in the treatment room and allowing for all sessions to be videotaped for further review.

At the beginning of the six-week PLL program, all of the participants signed informed consent both for themselves and for the participating child or children. Participants also completed the demographic survey and the pretest measure evaluating their levels of stress. At the end of the six-week PLL program, all participants completed the post test measure that evaluated their level of stress. These measures were collected for participants in both the experimental and the waitlist control group.

The caregiver training program was not offered during the first week of the PLL program. Participants were verbally encouraged, however, to observe the children through the two-way mirror in the observation room as they engaged in the PLL program and were invited and encouraged to ask questions of the SLP or MT-BC supervisors during each of the two intervention sessions. Participants were also encouraged to interact with other caregivers who were in the observation room.

During the second week of the program the experimental and waitlist control groups were once again invited to observe the PLL sessions; at this time, the experimental group began the caregiver training program sessions. The training program took place in a conference room in the same building as the PLL. Childcare was provided for the children in the PLL during the caregiver training program workshops and no therapeutic interventions were offered at that time. The SLP supervisor and the MT-BC supervisor provided a collaborative, didactic training on speech/language and musical development of children birth-five years of age. At this workshop, the participants were provided with a bag of developmentally appropriate percussion instruments and a children's storybook that they could take and offer during playtime at home. The MT-BC demonstrated the use of the instruments and provided an opportunity for caregivers to explore each instrument. The SLP and MT-BC presented strategies for how to utilize both the instruments and the books to promote and encourage their children's speech, language, and communication into the home environment in the upcoming week. Participants were also provided with a packet of information that included all of the PowerPoint slides and training materials. The instruments that were provided to the caregivers were also being used with the children during the PLL sessions, thus providing opportunities for participants to observe their child or children engaging in intervention to target speech, language, and communication goals with the use of the instruments.

In the second week of the program, the caregiver training program included a didactic presentation on facilitating speech/language and musical development with children and included strategies to incorporate children's storybooks into speech, language, and music interactions. Participants were encouraged to ask global questions about child development as well as more specific questions about her/his child. Participants were also encouraged to discuss issues and concerns with other participants in the group. The training session at the third week included a didactic presentation on the development of play and social interaction skills as an important and integral aspect of child development.

This training session included a more in-depth discussion of how the SLP and MT interventions in the sessions were designed to encourage different levels of play and social interactions as stepping-stones for more advanced music and communication skills. Again, participants were encouraged to share their own successes and challenges with the other participants in the group. The fourth week of the caregiver training program was designed to provide opportunities for participants to discuss any issues or concerns that continued to remain around developmental milestones and to discuss the speech/language and music interventions that were being offered in the home, including successes and challenges. The participants and the SLP and MT-BC supervisors collaborated to troubleshoot and modify in-home activities to encourage success for both the children and the participants.

There was no caregiver support group and training program session on the fifth week, due to a holiday, and the concluding session was conducted on week six. During this session, participants completed the posttest measures. The sixth and final week of the PLL program also included an opportunity for the wait-list control group to complete the posttest measures prior to participating in a three-hour caregiver support group and training program session. Childcare was provided during this session and included the clients of the PLL as well as siblings in order to make the training more accessible for the caregivers. This training session included all of the didactic information that was offered to the experimental group, in a more condensed format, and was led by the SLP students and an MT student under the supervision of the SLP and MT-BC supervisors. Participants in this group were provided with the bag of instruments, the children's book, and the caregiver-training packet. All participants were encouraged to ask global questions about child development and the interventions or more specific questions about her/his own child.

Results

Of the nine participants included in the pilot study, two participants did not complete all items of the PSS (one in the experimental group and one in the control group). Therefore, seven participants' responses are included and reported in the statistical analysis that follows.

Change in Stress by Participants in Experimental Group

A paired t-test was performed to determine if there was a change in stress by participants in the experimental group. The mean change (M=-9, SD=1, n=3) among participants in the experimental group was significantly lower than zero, t(2)=15.59, two-tail p=0.0004, providing evidence that participation in the four-week caregiver support and training program concurrent to the PLL correlates to a decrease in caregiver stress.

Change in Stress by Participants in Waitlist Control Group

A paired t-test was performed to determine if there was a change in stress by participants in the control group. The mean change (M=1.5, SD=5.07, n=4) was not significantly different than zero, t(3)=-0.59, two-tail p=0.6, indicating that there was no change in caregiver stress in those participants who did not participate in the four-week caregiver support and training program concurrent to the PLL.

Comparison of Change in Stress between Two Groups

Among the caregivers who participated in the current study, there was a statistically significant difference between the two groups, those who were assigned to the experimental group and participated in the four-week caregiver training program while their children were enrolled in the PLL (M=-9, SD=1, n=3) and those who were assigned to the control group and did not participate in a caregiver training program until the commencement of the PLL (M=1.5, SD=5.07, n=4), t(6)=-3.49, p=0.02. These results indicate that there is a difference in change in stress between the experimental group and the control group.

Effect Size Calculation of Stress Between Groups

Effect sizes were calculated to determine if there were any correlations between groups on the PSS. This calculation indicated that there was a large effect on caregiver stress in connection with participation in the caregiver training intervention (d = 2.9) in favor of reduced levels of stress for those in the experimental group. This effect far exceeds Cohen's (1988) convention for a large effect (d = 0.80).

Discussion

The main finding from this pilot study is that a four-week interprofessional training program that focuses on speech-language and music development and facilitation strategies for caregivers of children with speech, language, and/or communication disorders does appear to be effective in reducing caregiver stress.

A significant change in stress levels was documented by the participants who engaged in the four one-hour weekly training sessions between the beginning and end of the program as evidenced by statistically significant decreases in scores on the PSS. No significant changes were evidenced by those participants in the control group who did not engage in the weekly training program. Furthermore, there was a significant difference in the change between pre-post PSS scores between the two groups of participants, suggesting that participation in the weekly training sessions that were offered concurrent to the PLL contributed to a greater change in stress levels of caregivers in the weekly program than in stress levels of those caregivers who did not participate in the weekly program.

Results of this pilot study add to the body of research regarding the relationship between caregiver training and caregiver stress of those caregivers who have children with developmental disabilities and suggest that additional studies are merited. Previous studies have demonstrated that providing caregivers with evidence-based strategies for supporting their children may alleviate some of the stress that caregivers experience (Kaminski, Valle, File, & Boyle, 2008; Keen, Couzens, Muspratt, & Rodger, 2010; O'Neill, Palisano, & Westcott, 2001). Over the course of four-weekly training sessions in the current study, didactic and interactive training focused on facilitating speech/language and musical development with children, including both knowledge regarding developmental expectations and developmentally appropriate strategies to incorporate children's storybooks into speech, language, and music interactions. The intent of each session was to empower the caregivers to utilize their new knowledge and skills with their children in their own environments. Based on their own perceptions, caregivers in the current study who were provided with these strategies and skills to work with their children presented with decreased levels of stress. Thus, this study provides evidence that this unique interprofessional training program, provided by both an SLP and a MT-BC, can have a positive impact on caregiver stress for those who have children with speech, language, and/or communication disabilities.

One variable that is worth considering that was not examined directly in the current study is that of social support for caregivers of children with developmental disabilities. Gottlieb (1983) defined social support as "verbal and non-verbal information or advice, tangible aid, or action that is proffered by social intimates or inferred by their presence and has beneficial emotional or behavioral effects on the recipients" (p. 28).Lazarun and Folkman (1984) determined that stress levels of caregivers may be influenced by coping resources, including sources of support from family, friends, and other caregivers who are in similar situations. Several studies have shown that caregivers, in particular mothers, first turn to their spouses, then to their immediate family members, and finally to other caregivers of children with disabilities to seek out social support (Boyd, 2002).

Although the authors of the current study did not examine social support directly, it is possible that the stress of the participants in the experimental group may have been alleviated in part by social connections that this group made with one another and with the interventionists. Participants in the experimental group interacted with others in their group, all of whom shared similar situations and frequently discussed developmental expectations and the nature of their children's disorders. The participants in the experimental group were consistently encouraged to engage with the others in their group, as well as prompted to discuss issues and concerns, in addition to successes and challenges, with other participants during the four caregiver training sessions. As the caregiver training sessions progressed, these participants interacted with one another more freely in both the training sessions and the observation room, often sharing anecdotes about their children, asking for each other's advice regarding behavioral and developmental concerns, and sharing snack and craft ideas with which they had previous success when interacting with their own children. By the end of the program, several of the participants had independently arranged for and/or set up play dates between their families. Conversely, the control group did not appear to form the same type of social bonds as evidenced in the experimental group. In the current study, therefore, it is possible to assume, although not statistically confirm, that the social support that developed between the participants in the experimental group had a positive impact on the change in the participants' stress levels between the beginning and end of the program; conversely, the participants in the control group, who did not present with any change in level of social support, demonstrated no changed in stress levels between the beginning and end of the program. The variable of social support and the relationship between social support and caregiver stress is certainly worth examining further in a future study.

Limitations

This pilot study has a number of limitations to consider. First, caution is needed in interpreting the results of this study due to the limited sample size. Due to the nature of the clinical program and the fact that this was intended as a pilot study, a limited number of children and, therefore, caregivers were involved. Furthermore, recruitment of families from a relatively small geographic area limits the generalizability of our findings. Additional data should be gathered in future programs in order to add to the sample size and subsequently permit a wider range of analyses of the data to be conducted. In addition, this analysis was limited by the primary reliance on a single caregiver report measure for the variable of interest (level of stress). Future studies might incorporate observational measures or additional caregiver stress measures to further examine associations between the constructs.

Summary and Recommendations

The current pilot study provides initial evidence of the effectiveness of a support and training program in the reduction of stress in those caregivers who have children with speech, language, and/or communication disorders. Recommendations for future research, therefore, include expansion of the sample size of both children and caregivers and increasing the amount of time that caregivers are engaged in the interprofessional training program. While this pilot study addressed the caregiver stress levels immediately following the intervention program, a future study might also measure level of caregiver stress at three months and/or six months post-intervention to assess the ongoing impact of the implementation of the training.

Additionally, focus group interviews for both experimental and control group participants should be considered in order to gain a greater understanding of perceived benefits and challenges for each group. Based on the observed findings related to the potential relationship between social support and level of caregiver stress in the pilot study, additional research is needed to investigate the relationship between the establishment of a formal caregiver support group and level of caregiver stress. The level of social bonding among caregivers who have children in a speech, language, and/or communication-based intervention program and its relationship with caregiver stress should be assessed further. This strand of research might also address the role of both formal and informal formation of social bonds for caregivers who have children with developmental disabilities.

The results of this pilot study add to the feasibility and need for research regarding families who have children with developmental disabilities, specifically in the arena of speech, language, and communication disorders. The findings of this pilot study also indicate that there is a need for additional research regarding interprofessional collaboration between SLP's and MT-BC's to provide evidence-based services to support the caregivers of children with special needs. The results of this pilot study support the need to further determine the potential benefits of a structured training program, based on the interprofessional collaboration between a SLP and a MT-BC, to provide support and training to the caregivers of children with special needs.

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Table 1: Demographic information of all participants

	Experimental group (*n* =4)	**Control group (*n* = 5)**
Age (in years)	25 -50	31-45
Gender	3 females (2 biological mothers; 1 biological aunt); 1 male (biological grandfather)	4 females (all biological mothers); 1 male (biological father)
Ethnicity	4 Caucasian	5 Caucasian
Level of education	Some college-earned bachelor's degr	Some college-earned master's degree
Employment status	3 stayed at home full-time; 1 worked part-time outside of home	3 stayed at home full-time; 2 worked part-time outside of home
Household income	$10,000 - 40,000 per year	$20,000 - > 60,000 per year
Marital status	3 married; 1 single (never been married)	5 married
Number of children in the home	1-2	2-3