A family-centred model of care in paediatric speech-language pathology

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Abstract

Developments in paediatric models of care support family-centred practice (FCP); however, there is limited evidence for its use in speech-language pathology. This randomized controlled study examined whether parent satisfaction with FCP (n = 10) was greater than with usual practice (UP; n = 10) over 14 weeks for children with mild–moderate speech and/or language disorders. The FCP included parental goal decision-making; greater parent responsibility for clinic therapy tasks; and two home visits. There was a non-significant trend for the FCP group to have a higher mean score for the “Providing specific information” scale of the Measures of Process of Care. Goals for the FCP and UP groups were respectively targeted towards the Activities and Participation or the Body Function components of the International Classification of Functioning, Disability and Health–Children and Youth. While there were no significant differences between groups for speech/language outcomes post-intervention; it is clinically interesting that more children in the FCP group improved on the Renfrew Action Picture Test than the UP group. This study did not demonstrate a significant benefit for FCP over a relatively short timeframe in a small sample of children. Further research is warranted to determine if there is evidence for the use of FCP in speech-language pathology.

Keywords: Paediatric, speech-language pathology, family, parent, intervention.

Introduction

Families play a vital role in the provision of therapy to the paediatric population with speech-language disorders as, compared to speech-language pathologists (SLPs), parents have a more detailed and specific knowledge of the activity limitations and participation restrictions that their child experiences in their everyday context as a result of a speech-language disorder (McCormack, McLeod, Harrison, & McAllister, 2010). Speech-language pathologists working with paediatric clients utilize a range of therapy techniques according to evidence-based practice, integrating research evidence of effectiveness with clinician expertise and, importantly, the child’s and family’s preferences and values (Threats, 2010). The Contextual Factors (Environmental and Personal) and the Activities and Participation component in the World Health Organization’s International Classification of Functioning, Disability and Health–Children and Youth (ICF-CY) (WHO, 2007) clearly indicate their important role in speech-language therapy for optimum function. The Personal Factors domains encompass the background of a child’s life, such as gender, habits, upbringing, past experience, and social background, and Environmental Factors domains include support, relationships, and attitudes (McCormack et al., 2010; WHO, 2007). Transference of improvement in the child’s speech-language skills from the clinic to their everyday life and environments will only occur effectively if Contextual Factors are addressed during therapy (Howe, 2008). Previous research has demonstrated the value of parents being involved in the assessment, goal development, and intervention provision for their pre-school child (Crais, Poston Roy, & Free, 2006). Family-centred practice (FCP) for children with speech-language disorders is a model of care which addresses components in the ICF-CY Contextual and Functioning and Disability Factors by incorporating respect for the child and their parents and family.

Family involvement in the therapy process occurs on a continuum from the traditional therapist-centred model of intervention to FCP; however, there is limited evidence for the effectiveness of the different models of family involvement in the child’s therapy (Watts Pappas, McLeod, & McAllister, 2009). In the therapist-centred intervention model the SLP assumes the key role in planning and implementing the intervention and the family has limited involvement in the therapy process (Watts Pappas, McLeod, McAllister,
Models of care with parent involvement include the parent-as-therapist aide model, in which parents participate in the provision of home-based activities developed by the clinician but are generally not included in decision-making about their child’s intervention (Watts Pappas et al., 2009). Two previous studies reported improved outcomes when including parents as observers in clinical sessions and supervisors of home practice (parent-as-therapist aide models) for school-aged children receiving speech-language pathology for articulation disorders (Fudala, England, & Ganoung, 1972; Sommers, 1962). The family-friendly model supports parents to be involved in intervention provision and planning and considers the child in the context of their family; however, the clinician is the primary decision-maker and their expertise guides the intervention (Watts Pappas et al., 2009) or is the primary intervention provider (Bowen, & Cupples, 1999). None of these models of care are primarily family-centred in their approach as the SLP is the primary decision-maker and the level of involvement of the family in intervention planning and implementation is less than in FCP.

Family-centred practice is a model of care which involves the family through the continuum of care from the design and development of healthcare services to involvement in the provision of individualized healthcare for their family member. Published definitions of FCP have varied (Watts Pappas et al., 2009). One family-centred framework had three premises: “(1) that parents know their children best and want the best for their children, (2) that families are unique and different, and (3) that optimal child functioning occurs within a supportive family and community context” (King, Teplicky, King, & Rosenbaum, 2004, p. 79). Franck and Callery (2004, p. 266) suggested the concepts of: parental participation in children’s healthcare; partnership and collaboration between the healthcare team and parents in decision-making; family friendly hospital environments that normalize as much as possible family functioning within the healthcare setting; and care of family members as well as of children

The assumptions made in various family-centred models of care have included: the family as the client; positive parent–professional relationships; parental decision-making; parent choice of the level of involvement; individualization of services; and empowering and enabling of families (Watts Pappas et al., 2009). Johnson (1990) defined family-centred care as “care that acknowledges and respects the pivotal role that families play in the care of their children” (p. 236) and described nine elements of family-centred care (p. 237):

- Recognizing that the family is the constant in the child’s life.
- Facilitating parent/professional collaboration.
- Honouring the diversity of families.
- Recognizing family strengths and individuality.
- Sharing with parents complete and unbiased information.
- Encouraging and facilitating family-to-family support.
- Understanding the needs of children and their families and incorporating into healthcare.
- Implementing policies and programs that provide emotional and financial support.
- Designing accessible healthcare that is flexible, culturally competent, and responsive.

Although these elements highlight the broad nature of FCP and, therefore, the inherent challenges in implementing FCP within the often resource-limited healthcare environment, this clearly described framework by Johnson was used as a basis for the FCP intervention developed in the current study.

Of a large number of published papers relating to FCP, only eight papers had a specific focus on the provision of FCP in outpatient paediatric populations receiving allied health therapies. The sample sizes were small and there was often limited statistical analysis or the data were only preliminary in nature (Clarke, Dunlap, & Vaughan, 1999; Lammi & Law, 2003; Mahoney & Bella, 1998; Rosenbaum, King, Law, King, & Evans, 1998). Only four of the studies were randomized controlled trials (Braga, Da Paz Junior, & Ylvisaker, 2005; Evans, Armstrong, & Kupping, 1996; Schreiber, Efﬁgen, & Palisano, 1995; Wade, Michaud & Brown, 2006), the remainder being single case designs with less than 10 cases (Clarke et al., 1999; Dunlap & Fox, 1999; Lammi & Law, 2003; Romer & Umbreit, 1998). The eight studies focused on populations with more complex/severe diagnoses, such as severe emotional disturbance (Evans et al., 1996), Pervasive Developmental Disorder (Dunlap & Fox, 1999), cerebral palsy (Lammi & Law, 2003), or moderate–severe traumatic brain injury (Braga et al., 2005; Wade et al., 2006).

In keeping with Johnson’s (1990, p. 237) FCP element of “recognizing that the family is the constant in the child’s life”, the reviewed studies included families throughout the continuum of care from the initial assessment to discharge from therapy. Goal-setting is essential for measuring progress and in FCP families are actively involved in the goal-setting process to ensure that the collaborative family–therapist relationship is nurtured (Johnson, 1990). In the study by Lammi and Law (2003) parents identified functional goals performed daily by the child. All of the eight reviewed studies described the family or parent(s) as a key part of the treating team, differentiating them from a therapist-centred model of care.
Dunlap and Fox (1999) included parents in all aspects of the intervention process, including the development and implementation of a multi-faceted treatment plan. Previous studies identified that FCP needs to occur in the home or other environments (Clarke et al., 1999; Dunlap & Fox, 1999; Evans et al., 1996; Lammi & Law, 2003), or needs to strongly facilitate implementation of home-based activities (Braga et al., 2005). None of the eight studies reviewed stated that a blinded assessor was used to measure outcome, a methodological issue of particular importance for randomized controlled trials. The intervention was not clearly described in two of the studies (Clarke et al., 1999; Romer & Umbreit, 1998) and the period of evaluation for participants varied in another (Dunlap & Fox, 1999). The randomized controlled trial by Schreiber et al. (1995) only evaluated compliance to a home program and did not report any therapy outcomes. None of the studies utilized all of the FCP elements described by Johnson (1990) and there were no previous studies of FCP for the provision of paediatric speech-language pathology services.

Paediatric SLPs generally involve the family at some level throughout the intervention process; however, a previous survey of 277 Australian SLPs found that, although there was a reported belief in FCP, actual practice, particularly for decision-making, was more therapist-centred (Watts Pappas et al., 2008). Previous informal consumer feedback on the speech-language pathology practices at the health service where the current study was conducted indicated that some families felt they were not included in the decision-making process for the care of their family member. Similar to the results of the study by Watts Pappas et al. (2008), the SLPs at the health service reported anecdotally that they include aspects of family-centred care; however, in general their practice aligns with the therapist-centred model of care. Intervention is completed within the clinical environment and the SLP is the key decision-maker regarding therapy goals, intervention strategies, and home practice.

Due to the lack of previous research, the current randomized controlled study was conducted to provide preliminary evidence for the effectiveness of FCP for paediatric speech-language pathology for mild-to-moderate speech/language disorders. Based on previous literature and feasibility at the health service, the FCP intervention used in this study incorporated six of the nine FCP elements described by Johnson (1990). The preliminary nature of the study and funding limitations precluded addressing the elements of encouraging family-to-family support and implementing programs to provide emotional and financial support. The third excluded element, healthcare design that is accessible, flexible, and responsive, was not addressed as the study examined a specific model of care rather than a broader healthcare design.

The aim of this study was to examine whether parent/carer satisfaction with FCP was greater than with usual practice (UP). The hypotheses for the project were:

1) Parents will consider FCP to be more family-centred compared to UP, measured by the Measures of Process of Care scale.
2) Goals will be achieved more successfully with FCP compared to UP, measured by the Goal Attainment Scale.
3) Parents will be more satisfied with FCP compared to UP.
4) Family-centred practice will produce similar speech-language outcomes compared to UP immediately post-intervention.

Method

Research design

A randomized controlled study was conducted using both quantitative and qualitative outcome measures. Children were matched by age (within 6 months) and one member of the pair was randomly assigned either to the FCP intervention group (experimental group) or the UP group (standard treatment group), the second member of the pair being assigned to the alternate group. The randomization schedule was determined, using a random numbers table, by one of the researchers (BP) who was not involved in participant recruitment or the interventions. Sealed envelopes for each pair of participants were provided to the project researcher (KM). The study was approved by the Ballarat Health Services and St John of God Healthcare Human Research Ethics Committee.

Participants

Participants were recruited from the speech-language pathology waiting list at Ballarat Health Services, a regional health service in Victoria, Australia. The standard waiting list procedure is that referred children are placed on a waiting list for a speech-language pathology assessment and assigned a referral indicator. Children on the waiting list who were aged between 3;0–6;0 years (consistent with referral patterns for the speech-language pathology department) and assigned a referral indicator of speech and/or language were identified by the project researcher (KM). An SLP not involved in the study design or implementation distributed the participant information sheet and informed consent form to parents/carers of potential participants. Three consecutive recruitment and intervention phases (with eight, four, and eight participants, respectively) were conducted over an 8-month period.

The inclusion criteria were: aged 3–6 years; presence of an identified speech sound and/or language
disorder; normal hearing and vision (with or without correction); and parent/carer availability for each assessment and treatment session. To exclude children with disorders requiring different therapeutic techniques than those presenting with mild–moderate speech and/or language disorders, the exclusion criteria were: parent-reported neuromuscular, cognitive, or untreated behavioural disorders; oro-facial/oro-motor abnormality; signs consistent with childhood apraxia of speech; and other communication disorders such as abnormal fluency, voice, or pragmatic language.

Once the parent/carer signed the informed consent form for their child to participate in the study, a number of assessments used in typical practice at the health service were completed to determine the child’s eligibility:

1) A brief case history, completed with the child’s parent/carer, including medical, family, developmental, educational, and speech and language history. Hearing, vision, cognitive, or behavioural concerns, as well as difficulties relating to other areas of communication skills, such as fluency, voice, and social use of language, were identified, based on both parent/carer reporting and the SLP’s clinical judgement during the assessment.

2) *Diagnostic Screen of the Diagnostic Evaluation of Articulation and Phonology* (DEAP; Dodd, Hua, Crosbie, Holm, & Ozanne, 2002), to determine the presence of a speech disorder and to determine which DEAP sub-test (articulation or phonology) to complete next.

3) Oro-motor Assessment sub-test of the DEAP, to identify signs of childhood apraxia of speech.

4) Oral-Peripheral Examination, to assist in identifying any structural anomalies.


6) *Renfrew Action Picture Test* (RAPT; Renfrew, 1997), to identify any expressive language delay or disorder.

The numbers of participants recruited and analysed are shown in Figure 1, 10 participants being randomized to each intervention group. The participants’ characteristics and the intervention type are summarized in Table I. Fourteen (70%) participants were male, six in the FCP group and eight in the UP group. The mean age was 51.1 months (SD = 3.4, range = 45–55 months) for the FCP group and 50.1 months (SD = 5.7, range = 39–58 months) for the UP group. The majority of participants in both the FCP and UP groups (80% and 60%, respectively) presented with a diagnosis of speech delay/disorder and expressive language delay/disorder. The FCP and UP groups were equivalent at baseline for the speech and language outcomes pre-intervention (p = .227–.699).

Two participants in both the UP and the FCP groups missed one individual therapy session. One participant in the UP group received only the first half of the intervention phase, as the SLP identified at the review session (week 10) that the participant’s speech sound issues had resolved to an age-appropriate level and, in line with usual practice, therapy was discontinued. Another participant from the UP
Family-centred paediatric speech pathology

However, the SLP providing the UP intervention was blind to the study hypotheses and to the content of the UP intervention. To protect this blinding, the amount and type of parent/carer and family involvement in the UP and FCP interventions were not recorded. The participants and their parents/carers could not be blinded as to which intervention they were receiving as ethical guidelines required that the participant information sheet included the possibility that home visits might be conducted. Both FCP and UP interventions were designed to provide a similar amount and frequency of therapy to that typically offered by the speech-language pathology department at the health service (see Table II).

The UP intervention (Table II) was based on the “usual” speech-language pathology practice in the outpatient speech-language pathology clinic at the health service. The first component was a 45-minute parent/carer group education session. A Powerpoint™ presentation was used to describe the structure of the therapy sessions and program; the SLP’s role; the requirements of the parent/carer in therapy; attendance procedures; grievance policy and procedures; and expectations of practice to be completed at home.

At the first individual clinic-based therapy session, goals were developed for each participant with their parent/carer, under direction from the SLP. The Goal-Attainment Scale (GAS; Kiresuk, Smith, & Cardillo, 1994) was used as a framework to identify appropriate goals for the participant. The SLP also discussed the pre-assessment results with the parent/carer to inform them about their child’s speech and language skills. The participant and their parent/carer attended weekly therapy sessions of 45 minutes duration. The initial block of clinic-based therapy was for 5 weeks, followed by a 3-week break, and then a further 4-week block of therapy. Within each session, ∼30 minutes was spent on speech- and/or language-specific tasks. The SLP and participant worked together on tasks selected by the SLP, the

### Table I. Participant characteristics.

<table>
<thead>
<tr>
<th>Pair</th>
<th>Sex</th>
<th>Age at pre-assessment (months)</th>
<th>Diagnosis</th>
<th>Intervention group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>54</td>
<td>S/EL</td>
<td>FCP</td>
</tr>
<tr>
<td>M</td>
<td>54</td>
<td>S/EL</td>
<td>UP</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>46</td>
<td>S/EL</td>
<td>UP</td>
</tr>
<tr>
<td>M</td>
<td>48</td>
<td>S/EL</td>
<td>FCP</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>45</td>
<td>S/EL</td>
<td>UP</td>
</tr>
<tr>
<td>M</td>
<td>39</td>
<td>S/EL</td>
<td>UP</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>M</td>
<td>48</td>
<td>S/EL</td>
<td>FCP</td>
</tr>
<tr>
<td>F</td>
<td>51</td>
<td>S/EL</td>
<td>UP</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>55</td>
<td>S/EL</td>
<td>UP</td>
</tr>
<tr>
<td>M</td>
<td>55</td>
<td>S/EL</td>
<td>FCP</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>55</td>
<td>S/EL</td>
<td>FCP</td>
</tr>
<tr>
<td>M</td>
<td>58</td>
<td>S/EL</td>
<td>UP</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>49</td>
<td>S</td>
<td>UP</td>
</tr>
<tr>
<td>M</td>
<td>51</td>
<td>S/EL</td>
<td>FCP</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>F</td>
<td>47</td>
<td>S/EL</td>
<td>FCP</td>
</tr>
<tr>
<td>M</td>
<td>46</td>
<td>S</td>
<td>UP</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>51</td>
<td>S</td>
<td>UP</td>
</tr>
<tr>
<td>M</td>
<td>52</td>
<td>S/EL</td>
<td>FCP</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>M</td>
<td>53</td>
<td>S/EL</td>
<td>FCP</td>
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<tr>
<td>M</td>
<td>55</td>
<td>S</td>
<td>UP</td>
<td></td>
</tr>
</tbody>
</table>

F = female; M = male; S/EL = Speech & Expressive Language; S = Speech; S/E/RL = Speech, Expressive & Receptive Language; FCP = Family-Centred Practice; UP = Usual Practice.

### Table II. Intervention schedule.

<table>
<thead>
<tr>
<th>Week</th>
<th>Parent group education session</th>
<th>Family-centred practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Parent group education session</td>
<td>Parent group education session</td>
</tr>
<tr>
<td></td>
<td>Individual goal-setting session</td>
<td>Individual goal-setting session</td>
</tr>
<tr>
<td>2–6</td>
<td>Individual clinic-based therapy</td>
<td>Individual clinic-based therapy</td>
</tr>
<tr>
<td></td>
<td>1 session/week</td>
<td>1 session/week</td>
</tr>
<tr>
<td></td>
<td>Home program</td>
<td>Home program</td>
</tr>
<tr>
<td></td>
<td>Home visit by SLP in week 4</td>
<td></td>
</tr>
<tr>
<td>7–9</td>
<td>Home program</td>
<td>Home program</td>
</tr>
<tr>
<td>10</td>
<td>Review session to discuss progress</td>
<td>Review session to discuss progress</td>
</tr>
<tr>
<td>11–14</td>
<td>Individual clinic-based therapy</td>
<td>Individual clinic-based therapy</td>
</tr>
<tr>
<td></td>
<td>1 session/week</td>
<td>1 session/week</td>
</tr>
<tr>
<td></td>
<td>Home program</td>
<td>Home program</td>
</tr>
<tr>
<td></td>
<td>Home visit by SLP in Week 11</td>
<td></td>
</tr>
</tbody>
</table>

SLP = speech-language pathologist.
SLP modelling strategies/techniques, whilst encouraging the parent/carer to participate as much as they preferred. Approximately 15 minutes was spent discussing home practice and any other issues.

At the completion of the initial individual clinic-based therapy block, there was a 3-week break from therapy for skill consolidation. Activities to be completed by the participant during this time were discussed and documented by the SLP and generally focused on structured home practice of specific sounds, words, and phrases. The parent/carer was encouraged to document activities completed and strategies used during this period away from the clinic environment.

Following the 3-week break the participant and their parent/carer attended a 45-minute review session. During this session the SLP and parent discussed the participant’s progress, satisfaction with the previous block of therapy, and success of the home program, reviewing the participant’s progress towards the goals developed at the commencement of therapy. This enabled the SLP to make adjustments to the structure of therapy sessions and techniques being trialed.

The FCP intervention was of the same length and intensity as the UP intervention (Table II). The parent/carer was encouraged to involve other important people in their child’s life, including family and friends, in the child’s therapy. There were additional intervention elements included for the FCP group. As for the UP intervention, parent/carer education was provided, using a modified Powerpoint™ presentation. This included the core components of FCP, involvement of the parent/carer as the key therapist in sessions, inclusion of other family members in home practice, and the provision of home visits.

As for the UP intervention, the GAS (Kiresuk et al., 1994) was used as a framework to assist identification of appropriate goals for the participant; however, the parent/carer was encouraged to be the key goal setter, in consultation with the SLP (Lammi & Law, 2003; Wade et al., 2006). There was a specific emphasis on the current family situation, including an exploration of parent/carer concerns most critical to their child’s wellbeing. As for the UP intervention, the SLP discussed the pre-assessment results with the family to fully inform them about their child’s speech and language skills and needs (Evans et al., 1996). A “Getting to know your child” questionnaire, encompassing the Contextual Factors of the ICF-CY (WHO, 2007), was developed to provide the SLP with an understanding of the participant and family situation, the preferred activities of the participant, and the factors which may be impacting on the family at the time of the intervention (Clarke et al., 1999).

Within the FCP intervention, each of the individual clinic-based sessions was divided into three distinct components to allow for the inclusion of a number of the family-centred principles (Johnson, 1990), particularly facilitating collaboration between the parent/carer and the SLP, recognizing the family’s strengths and individuality, sharing complete information with the parent/carer, and incorporating the participant’s and family’s needs and goals into the intervention. The first component was an initial discussion with the parent/carer about the previous therapy session and the implementation of activities in the home environment. The SLP and parent/carer also explored new concerns, successes, and barriers to the implementation of therapy in the participant’s natural environments. For the direct therapy component, with feedback from the SLP, the parent/carer systematically assumed increasing responsibility for the therapy tasks completed with their child within the clinic setting and selected which therapy tasks to undertake. The SLP modelled new techniques where necessary for the parent/carer to learn. The SLP developed resources specific to the participant’s needs and, as requested by the parent/carer, such as incorporating key words specific to the participant and family into resources, including games with which the family was already familiar. The parent/carer was encouraged to keep a record of words or concepts with which their child was having difficulty. This enabled the development of more specific resources, allowing tasks to be more functional for the participant and family, and encouraged other key people to be involved in therapy.

The final component of the session was spent discussing activities (formal and informal) that the family felt could be completed during the week at home and in other environments (e.g., childcare and time with grandparents). These tasks/activities were documented and a copy provided to the family, examples including structured games with parents, highlighting words throughout the day and a list on the refrigerator of words to work on. The aim of each individual clinic-based session was for the parent/carer to ultimately be the key person directing therapy, with the SLP as facilitator.

Two home visits were completed as part of the FCP intervention, providing information essential to adapting therapy tasks to fit with everyday social and other routines of the family (Braga et al., 2005; Schreiber et al., 1995). The home visits assisted the SLP and family in translating the home program into simple activities that could easily be performed with materials available within the household. Most importantly the home visit enabled the SLP to have a clear sense of the challenges and successes experienced by each individual family.

As for the UP intervention, activities and strategies to be implemented by the family during the break from clinic-based therapy were discussed and documented; however, for the FCP intervention the parent/carer was the key decision-maker. These tasks and strategies were also influenced by observations made during the home visits. The review session after the 3-week break from therapy was conducted as for the UP intervention.
Outcome measures

Measures to evaluate the model of care and speech and language outcomes were completed with all participants immediately prior to and following the intervention phase by an independent SLP, blinded to both the project aims and group allocation.

Three model of care measures were used. The GAS (Kiresuk et al., 1994) was used to document goal development and achievement. Following the completion of the post-intervention assessment, the treating SLP, in discussion with the parent/carer, documented the level to which goals were achieved. The GAS was then scored by the project researcher (KM) and the difference between the two intervention groups in goals achieved was analysed using an average scale score. The second and third model of care measures were completed by the parent/carer whilst still in the clinic at the completion of the post-intervention assessment and were returned to the assessing SLP in the envelope provided. The Measures of Processes of Care (MPOC; King, Rosenbaum, & King, 1995) is a reliable and valid self-report measure of a parent’s perceptions of the extent to which the health services they and their child receive are family-centred. There are five scales within the 56-item questionnaire, and an average score for items within each scale is calculated. The parent/carer completed the MPOC in relation to their and their child’s experiences of the intervention they received. The third model of care measure was a satisfaction survey (developed for the study) which asked questions relating to the level of satisfaction of the parent/carer with the intervention their child received and what the parent/carer liked or disliked about the type of therapy their child received.

Speech and language outcome measures included the Articulation and/or Phonology Assessments of the DEAP (Dodd et al., 2002), depending on the results provided by the Diagnostic Screen of the DEAP. The percentage of phonemes correct (PPC) was calculated separately for the Articulation and Phonology assessment (Dodd et al., 2002). Previous research established that DEAP repeated test scores (over a 2-week period) were significantly correlated with each other and the content and concurrent validity have been evaluated and raw scores of the DEAP can be used to measure change in response to treatment (Dodd et al., 2002). In addition, both the Information and Grammar scores of the RAPT (Renfrew, 1997) were completed. The RAPT has previously been demonstrated to be sensitive to change over time in 4-year-old children (Bishop & Edmundson, 1987).

Statistical analysis

Comparison between the FCP and UP groups pre-intervention was performed using t-tests. Independent t-tests were used for between-group analysis of the GAS average score and the scores for the MPOC scales post-intervention. Results of the satisfaction survey were analysed descriptively and common themes were identified manually. Within-group analysis pre- and post-intervention for the raw scores for the speech and language outcome measures was performed using paired t-tests. Change scores were calculated by subtracting the pre-intervention raw score from the post-intervention raw score. Four one-way between-group analyses of covariance (ANCOVAs) were conducted, the independent variable “group” for all ANCOVAs including two levels, FCP and UP. The dependent variable was post-treatment raw scores on either the DEAP Articulation or Phonology, or the RAPT Information or Grammar tests and the covariate was the associated pre-treatment raw scores. Preliminary analyses for the post-treatment ANCOVAs supported the homogeneity-of-slopes assumption. Because of the small sample size and number of measures, the level of significance for all analyses was set at .01. Intention-to-treat analysis was performed as there were two participants in the UP group who received only half of the intervention (Cohen, Hodson, O’Hare, Boyle, Durrani, McCarty et al., 2005). The SPSS statistical package (v. 17.0) was used for all analyses.

Results

Between-group comparison of GAS and MPOC

The number of respondents included in each scale for the MPOC was not consistent due to the test’s criteria for the number of responses required to calculate a score for each scale. There were no significant differences between the two groups for either the GAS or MPOC scales post-intervention (Table III). For the “Providing Specific Information about the Child” scale of the MPOC, there was a non-significant trend (p = .55) than for the UP group (5.44, SD = .71).

There were differences between the UP and FCP groups for the goals developed. The goals for the UP group participants were more specifically targeted to functional speech and language issues as classified in the Body Function component of the ICF-CY, the focus being on the participant producing a sound or language target correctly at a specified level, for example:

- Will produce initial /s/ correctly at word level (at specified level of achievement).
- Will produce “is verb-ing” sentence structure accurately.

The goals for the FCP group participants, as decided by the parent/carer, were more focused towards the Activities and Participation
component of the ICF-CY, along with specific speech and language goals. The FCP group participant’s goals often focused on the participant being understood or being more confident within specific settings or with particular family members, for example:

- Other friends and family will understand the child better.
- His mother, father and brother will understand the child more easily in long stories.
- Parents will be able to correct the child’s speech and the child will feel comfortable to have a go.

**Parent/carer satisfaction**

All of the parents/carers were either satisfied or extremely satisfied with the therapy their child received. Nine of the 10 parents/carers in each of the FCP and UP groups correctly identified which intervention their child received. All parents/carers indicated that they would be happy for their child to participate in a similar type of therapy in the future.

For the FCP group, half \((n = 5)\) of the parents/carers highlighted the functional aspect of the therapy and how it fitted into their child’s everyday life. Comments included:

- Good for the therapist to get a sense of the child at home so activities were structured more to suit the child’s home lifestyle.
- Fitted in with everyday things at home.

Three of the parents/carers highlighted the concept of parent involvement in the FCP model of care and the home visits:

- I felt very involved.
- I liked the amount to which the family was involved in working to help with his speech.
- I felt very involved with the process and it was good having a couple of home visits.

Three parents in the UP group indicated that they liked one-on-one therapy and appreciated the structure and routine of therapy. Two comments highlighted the information provided in the UP group:

- Everything was explained really well and a lot of different therapy practices were used.
- Very helpful with lots of info for me as parent.

Only a small number of dislikes were expressed by parents/carers in either group, these generally relating to distance travelled, time constraints, and other barriers preventing families from attending therapy sessions or completing tasks at home (e.g., illness, siblings as a distraction). Minimal changes to either intervention were suggested by parents/carers, although two parents from the FCP group highlighted that more home visits would perhaps be beneficial.

**Within-group speech and language outcomes**

There was a significant improvement in both groups for the PPC for the DEAP Phonology sub-test, the mean change score post-intervention being 5.5 \((p = .008)\) in the FCP group and 6.2 \((p = .008)\) in the UP group (Table IV).

**Between-group comparison of speech and language outcomes**

Using ANCOVAs there were no statistically significant differences between the groups for the speech and language outcomes post-intervention (Table V). There were more participants in the UP group who deteriorated or did not change on the RAPT Information \((n = 6)\) and Grammar \((n = 5)\) tests
post-intervention than in the FCP group \((n = 1 \text{ and } 3, \text{ respectively})\); Figure 2).

**Discussion**

The results of this study comparing FCP to UP in a group of participants with mild-to-moderate speech and/or language disorders demonstrated that there were no significant differences between the groups for the MPOC scales, therefore rejecting hypothesis 1. However, there was a non-significant trend for the FCP group to have a higher score for the “Providing Specific Information” scale of the MPOC, which includes five items about the degree to which the SLP explained or provided information on assessment results, therapy, and progress their child was making. Parents in the FCP group may have felt more informed about these areas relating to their child compared to those in the UP group. There was also no significant difference between the groups for the average GAS score post-intervention, therefore rejecting hypothesis 2. However, the goals for the FCP group were generally more targeted towards the Activities and Participation component of the ICF-CY, whereas the goals for the UP group were mostly targeted toward the Body Function component.

The current study is the first study to investigate the effect of FCP in children with only mild-to-moderate disorders, previous studies of FCP having included participants with more complex disorders (Braga et al., 2005; Clarke et al., 1999; Evans et al., 1996). There may potentially be a more apparent difference in the family’s perception of processes of

**Table IV.** Within-group speech and language outcomes pre- and post-intervention.

<table>
<thead>
<tr>
<th></th>
<th>Pre, M (SD)</th>
<th>Post, M (SD)</th>
<th>Post–Pre change score, M (SD)</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family-centred practice</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEAP Articulation (PPC), (n = 8)</td>
<td>79.04 (9.11)</td>
<td>84.53 (9.40)</td>
<td>3.84 (6.67)</td>
<td>−1.74, 9.42</td>
<td>.148</td>
</tr>
<tr>
<td>DEAP Phonology (PPC), (n = 10)</td>
<td>77.82 (9.57)</td>
<td>83.36 (10.64)</td>
<td>5.54 (5.21)</td>
<td>1.81, 9.27</td>
<td>.008</td>
</tr>
<tr>
<td>RAPT Information, (n = 10)</td>
<td>22.80 (4.20)</td>
<td>25.40 (3.98)</td>
<td>2.60 (3.94)</td>
<td>−0.21, 5.41</td>
<td>.066</td>
</tr>
<tr>
<td>RAPT Grammar, (n = 10)</td>
<td>10.10 (5.09)</td>
<td>12.80 (5.81)</td>
<td>2.70 (4.47)</td>
<td>−0.50, 5.90</td>
<td>.089</td>
</tr>
<tr>
<td><strong>Usual practice</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEAP Articulation (PPC), (n = 8)</td>
<td>77.22 (9.25)</td>
<td>80.99 (9.82)</td>
<td>4.21 (5.11)</td>
<td>−0.06, 8.49</td>
<td>.505</td>
</tr>
<tr>
<td>DEAP Phonology (PPC), (n = 10)</td>
<td>73.14 (6.87)</td>
<td>82.22 (11.43)</td>
<td>6.17 (4.73)</td>
<td>2.23, 10.13</td>
<td>.008</td>
</tr>
<tr>
<td>RAPT Information, (n = 10)</td>
<td>23.85 (4.20)</td>
<td>25.05 (3.17)</td>
<td>1.20 (3.70)</td>
<td>−1.45, 3.85</td>
<td>.332</td>
</tr>
<tr>
<td>RAPT Grammar, (n = 10)</td>
<td>12.70 (4.16)</td>
<td>14.40 (5.48)</td>
<td>1.70 (5.68)</td>
<td>−2.36, 5.76</td>
<td>.368</td>
</tr>
</tbody>
</table>

*Significant \(p < .01\); DEAP = Diagnostic Evaluation of Articulation and Phonology; PPC = percentage phonemes correct; RAPT = Renfrew Action Picture Test.

**Table V.** Analysis of covariance for between-group comparisons of speech and language outcomes.

<table>
<thead>
<tr>
<th></th>
<th>Difference between means’ (\text{(SE)})</th>
<th>95% CI</th>
<th>F (df)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEAP Articulation, (n = 16)</td>
<td>.17 (3.05)</td>
<td>−6.43, 6.77</td>
<td>.003 (1, 14)</td>
<td>.956</td>
</tr>
<tr>
<td>DEAP Phonology, (n = 18)</td>
<td>1.18 (2.50)</td>
<td>−4.15, 6.52</td>
<td>.224 (1, 16)</td>
<td>.643</td>
</tr>
<tr>
<td>RAPT Information, (n = 20)</td>
<td>−.83 (1.42)</td>
<td>−3.81, 2.16</td>
<td>.341 (1, 18)</td>
<td>.567</td>
</tr>
<tr>
<td>RAPT Grammar, (n = 20)</td>
<td>−.05 (2.31)</td>
<td>−4.92, 4.83</td>
<td>&lt;.001 (1, 18)</td>
<td>.984</td>
</tr>
</tbody>
</table>

*Adjusted means using pre-intervention score as covariate; DEAP = Diagnostic Evaluation of Articulation and Phonology; RAPT = Renfrew Action Picture Test.

Figure 2. Frequency of change in Renfrew Action Picture Test (RAPT) Information and Grammar scores post-intervention.
care and goal attainment for children with more severe disorders. A more homogenous sample in the current study may have led to finding a significant benefit of FCP; however, the sample recruited reflected the cohort of children commonly referred to the speech-language pathology department where the study was conducted. In addition, the small sample size of the current study will have increased the likelihood of not finding a significant between-group difference (type II error). Using the data from the current study, a total sample of 40 participants would be needed for statistically significant results for the MPOC “Providing General Information” and “Providing Specific Information” scales.

The FCP intervention in the current study was consistent with previous studies in its inclusion of the family (Braga et al., 2005; Clarke et al., 1999); in particular the parent/carer was a core member of the treating team and a key decision-maker throughout the intervention period. The amount of parent/carer involvement in the individual therapy sessions or the family involvement in home practice was not specifically recorded so that the SLP providing the UP intervention was not indirectly biased towards providing a more FCP focused intervention. Speech-language pathologists generally consider that greater parental involvement in the intervention leads to better outcomes for the child (Watts Pappas et al., 2008), and with young children it is difficult not to involve the parent/carer in some way. However, a previous survey of 277 Australian SLPs (Watts Pappas et al., 2008) found that the majority used a therapist-centred model of intervention. It is possible that outcomes for the UP group in the current study may have been influenced by the amount and type of involvement by the parents which was encouraged by the SLP, leading to a similarity in GAS and MPOC scores for both groups. It is acknowledged that the SLP providing the UP intervention had less experience as a paediatric SLP than the SLP providing the FCP intervention. Although the SLP providing the FCP intervention had only recent experience with FCP principles and practice, there was a potential for bias between groups as this SLP had been involved in the research design and was therefore aware of the study hypotheses. Resource limitations at the health service precluded the use of a different SLP for the FCP group.

All of the parents/carers were satisfied with the therapy their child received, thereby rejecting hypothesis 3; however, the families had no previous experience with speech-language pathology for comparison. It is also possible that parents would be satisfied with any type of intervention offered due to the length of time (up to 12 months) they had been told that their child could be on the speech-language pathology department waiting list at the time of referral. It is acknowledged that some of the participants may have received intervention earlier than they might have according to their place on the waiting list and that this may be a confounder when evaluating the level of satisfaction by parents/carers.

Family-centred practice encompasses a number of elements (Johnson, 1990), highlighting the flexibility in implementation for different families presenting with individual strengths and needs. In the current study a certain structure in the FCP intervention was included to ensure a level of consistency across participants and across individual participant sessions in the FCP group. The current study was consistent with previous studies implementing FCP outside of the clinical environment (Clarke et al., 1999; Dunlap & Fox, 1999), providing two home visits for each participant in the FCP group, thereby enabling the SLP to better understand the participant and family in their own environment and to appropriately target therapy activities. Four parents/carers in the FCP group identified the home visits as a positive aspect of the therapy. Due to the extra time required for travelling for home visits, it would not be feasible to implement a speech-language pathology intervention entirely away from the clinic environment. Additional specific support could be provided to the parent/carer in the implementation of more functional activities in the home environment to further facilitate their child’s development in speech and language skills, leading to a positive impact on the Activities and Participation component of the ICF-CY.

The results of this study demonstrated a similar improvement in speech and language outcomes in both groups, thus hypothesis 4 was accepted. It is noted that two of the participants in the UP group had a shorter duration of treatment than the rest of the participants, one because they no longer required therapy, the other being unavailable; however, it is considered that the small number of variations did not introduce a bias into the results. Specific evidence-based speech and language interventions were provided to both groups and the potential for spontaneous improvement would also apply to both groups. There was a significant improvement in the DEAP Phonology scores for both groups and there were more participants in the FCP group who improved in the RAPT scores than in the UP group. It is possible that the greater involvement of the family in their child’s intervention in the FCP group may have led to an increased facilitation of the child’s language development in general. There are no previous studies of FCP for paediatric speech and language disorders for comparison with the results of the current study.

The current study measured speech and language outcomes immediately after the completion of the intervention phase of 14 weeks, further follow-up assessments not being conducted due to funding constraints. Participants in both groups are likely to have made ongoing improvements in their speech and language skills. As the parent/carer of participants in the UP group attended the therapy sessions, it is
likely that they would become more knowledgeable about their child’s difficulties and how to facilitate ongoing improvement. However, the nature of the FCP intervention, during which the parent/carer had a greater responsibility for therapy tasks both during clinic sessions and at home, would potentially lead to greater gains over the longer term. It is recommended that future studies of FCP for paediatric speech and language disorders include outcome assessments at 6 and 12 months post-intervention (Cohen et al., 2005; Washington, Warr-Leeper, & Thomas-Stonell, 2011). It is acknowledged that the speech-language outcome measures used in the current study evaluated specific communication functions that are not reflective of children’s activities and participation. However, as noted by previous researchers, inclusion of measures that capture the effects of interventions on domains in the Activities and Participation component of the ICF-CY would be more appropriate to capturing these types of changes (Thomas-Stonell, Oddson, Robertson, & Rosenbaum, 2010). Considering that the treatment goals in the FCP group were more generally targeted to children’s Activities and Participation, use of measures that were more sensitive to these changes would have been advantageous in capturing possible between-group differences for FCP and UP.

Conclusions

There has been limited research investigating a family-centred model of care in the outpatient allied health setting and more specifically for paediatric speech-language pathology. The results of the current study did not demonstrate a significant benefit for a family-centred model of care compared to usual practice in a small sample of children with mild–moderate speech and/or language disorders. Further research with larger sample sizes, longer-term follow-up, and utilizing a more comprehensive assessment of activities and participation is warranted to provide evidence for the use of a more family-centred approach for speech-language pathology interventions.

Acknowledgements

The authors would like to thank Laura Voigt and Janae Olden, speech-language pathologists at Ballarat Health Services, who provided the UP intervention or performed the assessments in this study. One of the researchers, Kate McKean, was the recipient of the 2009 Nadia Verrall Memorial Research Grant from Speech Pathology Australia which supported this study. Additional funding support was provided by the speech-language pathology department at Ballarat Health Services. Parts of this study were presented at the 2010 Speech Pathology Australia National Conference in Melbourne, Australia.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

References


