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An exploration of the mechanisms of change following an integrated group intervention for stuttering, as perceived by school-aged children who stutter (CWS)

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An exploration of the mechanisms of change following an integrated group intervention for stuttering, as perceived by school-aged children who stutter (CWS)

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Abstract

Purpose: To explore the process of change and role of resilience following an integrated group intervention for children who stutter (CWS).

Method: Using an exploratory multiple case study design, this research sought to identify the most significant changes perceived by seven participants following therapy, the mechanisms of change, and the role of resilience in the process of change. Quantitative measurements of resilience were combined with qualitative analysis of semi-structured interviews.

Results: Thematic analysis of qualitative data showed that cognitive and emotional change was a key driver for therapeutic change, enabled by the shared experience of the group and a positive therapeutic environment. These changes were generalised into clients' real-world experiences, facilitated by their support network. Quantitative data demonstrated a statistically reliable positive change in overall Resiliency scores for four participants and reduced impact of stuttering scores on OASES-S for all participants, maintained at 12 month follow-up.

Conclusions: This study demonstrates the importance of adopting an integrated approach in therapy for CWS, which incorporates Cognitive Behavioural Therapy (CBT) as a key component, to facilitate change and build resilience. These results are unique to this cohort of CWS and further investigation into the use of CBT and the process of change may be warranted.

Educational Objectives: The reader will be able to (1) describe the integrated intervention used in this study (2) define the most significant change following therapy for the participants involved (3) summarise the key factors that facilitated change during the therapy process (as perceived by the participants).

Keywords: stuttering; children; process of change; client perception; resilience

1. Introduction

Stuttering is a complex problem which is heterogeneous, in terms of causation and presentation, and can impact on individuals and their families in different ways. Within the population of children who stutter (CWS), the overt features of stuttering vary widely and there can be a strong emotional component. Therapy outcomes can vary and the perception of the process of change is unique (Manning, 2010).

Studies have shown that CWS can develop negative attitudes towards their speech from a young age, which has important implications for their emotional wellbeing (Vanryck-eghem, Brutten & Hernandez, 2005). School-aged CWS commonly experience teasing and bullying by their peers (Blood, Boyle & Blood, 2010; Langevin, Packman & Onslow, 2009) and by adolescence and adulthood, there is a high co-occurrence of stuttering and anxiety dis-orders (Blood, Blood, Maloney, Meyer & Qualls, 2007; Kraaimaat, Vanryckeghem & Van Dam-Baggen, 2002). Consequently, stuttering can have a negative impact on children's communicative confidence and quality of life (Yaruss & Quesal, 2006), which may contribute to parents' level of worry and impact on the wider family context (Biggart, Cook & Fry, 2007). Given the increasingly negative reactions from others that CWS may experience as they get older, it is important that they are supported to manage these challenges in school (Healey, 2010), to minimise the impact of stuttering and to increase children's and families' coping and resilience.

Therapy programmes need to be multi-faceted, so that aspects of the client's real-world and overall communication are incorporated into the intervention (Cook & Botterill, 2005; Blomgren, 2013). This may include developing and maintaining social communication skills in a range of increasingly challenging speaking situations, identifying and challenging negative thoughts, assumptions and emotions that may have developed around speaking e.g. using Cognitive Behavioural Therapy (CBT) and building coping skills and confidence, alongside the development of behavioural strategies to manage moments of stuttering with

more control. All of these components are incorporated in Cook and Botterill's (2005) therapy model and are framed within the context of the child's environment (see *Figure 1).*
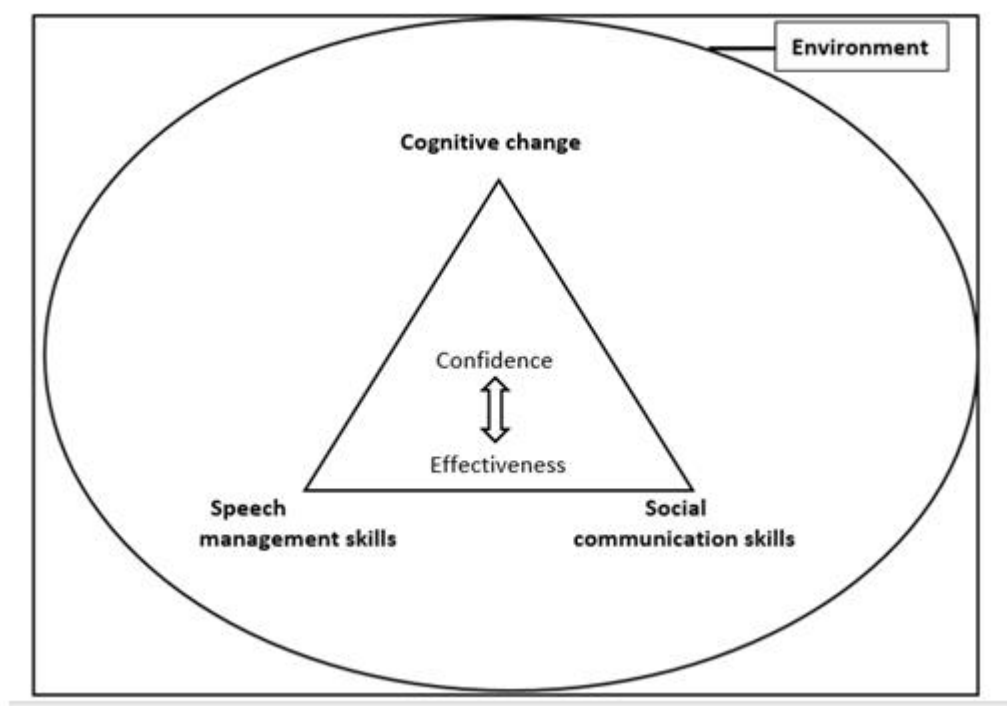
Figure 1: Integrated components of therapy (Cook & Botterill, 2005)

There has been little research carried out to determine which of the above core components of Cook and Botterill's (2005) therapy model may be most instrumental in the mechanism of change, for individual CWS. Each component of this model will be explored below and the rationale for the current study presented.

1.1 Cognitive Change (using CBT and developing resilience with CWS)

CBT is a therapeutic and educational approach commonly used with adults, and increasingly used with children and young people, to address psychological problems (Fuggle, Dunsmuir & Curry, 2013). People who stutter may develop negative patterns of thinking and experience increased levels of anxiety in speaking situations (Blood, Blood, Bennett, Simpson & Susman, 1994; Blumgart, Tran & Craig, 2010; Ezrati-Vinacour & Levin, 2004) and heightened fear of negative evaluation by others (Iverach & Rapee, 2014). This can often

lead to the use of safety behaviours (such as avoidance), consistent with Clark and Wells' (1995) model of social anxiety, applied within CBT. This model postulates that CWS need to identify their negative automatic thoughts before, during, and after speaking situations in order to challenge their negative assumptions and predictions. There is evidence from a developmental perspective that children are able to engage in CBT (Grave & Blisset, 2004) and that it can be effective in bringing about cognitive change in a range of disorders (Bailey, 2001). Growing evidence in the literature supports the innovative and successful use of CBT as part of an integrated intervention for adolescents and adults who stutter (Murphy, Yaruss, & Quesal, 2007; Menzies et al., 2008; Fry, Millard, & Botterill, 2014). The use of CBT is an emergent approach in the field of stuttering in school-aged children, and is not typically a standard component of interventions offered. Cognitive restructuring may be supported through methods such as: reviewing the evidence; considering alternative explanations and considering the helpfulness or the accuracy of cognitions, for example using behavioural experiments, to gather empirical and meaningful evidence in the child's everyday environment, to support more adaptive thoughts and beliefs (Kelman & Wheeler, 2015). By developing emotional regulation, flexible thinking, helpful self-talk and problem-solving skills, using a CBT approach, protective factors associated with emotional resilience can be enhanced during therapy. This more holistic focus may then lead to better resilience, improved regulation of emotions and cognitive reactions, better overall mental health and improved quality of life (Plexico, Manning, & Levitt, 2009). Research into resilience in children and adolescents has been a focus of investigation in psychological research over many years. Resilience is a complex, multifaceted construct which can be described as a "dynamic process encompassing positive adaptation within the context of significant adversity" (Luthar, Cicchetti & Becker, 2000, p.543) and the ability "to bounce back from a negative experience" (Prince-Embury, 2006, p.1). Factors that predict resilience in adolescents include: having one or more supportive parents, cognitive and problem-solving skills, positive self-efficacy and worth, hopeful-

ness, prosocial friends and effective school and community environments (Masten, 2004). Masten (2004) also describes the regulatory processes implicated in the neurodevelopment of resilience, which include executive functioning, emotional regulation, relationships with adults and peers and opportunities for capacity building. Risk factors associated with low resilience include low socio-economic status, parental mental health difficulties, low birth weight, parental divorce, maltreatment or violence, or a combination of risks which are cumulative (Masten, 2001). However, a common critique of resilience research relates to the challenge faced by researchers in measuring and comparing the level of adversity or 'risk' experienced by individuals (Luthar et al., 2000). In addition, given the heterogeneous nature of resilience, factors which may present as 'risks' for one child, may not have the same detrimental impact on another. The factors which predict resilience may be relatively stable (e.g. a person's personality) whilst other factors are likely to vary as life events change and a person's internal resources and coping skills change (Bonanno & Diminich, 2013). Resilience may therefore fluctuate over time and across domains.

As previously described, CWS are at increased risk of developing social anxiety in adolescence and adulthood and report high levels of teasing and bullying as a result of stuttering. However, their capacity to cope or 'bounce back' is not routinely measured or explored. Some CWS may have built resilience to adversity over time, in response to their experiences of stuttering, as described by Rutter (2013): "Resilience may stem from the effects of repeated brief exposure to negative experiences in circumstances that allow the individual to cope successfully with the experience" (p. 477). However, others may not have the necessary coping skills or environmental protective factors that build resilience in the face of potential adversity. An important aspect of research with this client group therefore is to try to determine the factors associated with positive outcomes following therapy and to explore the process by which CWS experience positive change. Whilst there are generic programmes available for children, focusing on building self-esteem, resilience and well-being, using CBT (Stallard &

Buck, 2013), to date there has been no research exploring the construct of resilience, or its use in therapy, in school-aged CWS.

1.2. Speech Management Skills

Developing increased control over moments of stuttering and increased overall fluency are often the main goals for CWS, and their parents (Berquez, Hertsberg, Hollister, Zebrowski, & Millard, 2015). Children and adolescents frequently report feeling helpless or frustrated by the lack of predictability of their stuttering and limited knowledge of what can support fluency. Strategies typically used in therapy are fluency shaping techniques (Hearne, Packman, Onslow & O'Brien, 2008) to achieve complete control and eliminate stuttering, and speech modification (Van Riper, 1973) where the focus is on reducing sensitivity towards stuttering, reducing negative thoughts, feelings and reactions to stuttering and increasing feelings of control, openness and acceptance. The integration of these two approaches (Guitar, 2013), offers a viable option for CWS, which empowers them to make choices about preferred ways to manage their stuttering in different environments.

1.3. Social Communication Skills

Stuttering can be variable and unpredictable, and social communication skills and communicative confidence can be affected by stuttering to varying degrees. For example, stuttering can interfere with the speaker's ability to demonstrate effective use of verbal and non-verbal communication skills, due to the effect of increased anxiety or reduced confidence during some social situations (Rustin & Khur, 1999). Some adolescents who stutter have higher levels of communication apprehension and poorer self-perception of communicative competence, compared to those who do not stutter; and higher levels of speaking-related anxiety, correlated with stuttering severity (Blood, Blood, Tellis, & Gabel, 2001). It is therefore important that communication skills are developed and enhanced, in a series of graded steps

(i.e. graded exposure of least to most anxiety provoking) in increasingly difficult social situations (Spence, Donovan, & Brechman-Toussaint, 2000), to enable CWS to communicate successfully, regardless of speech fluency.

1.4. Environmental factors

Children's support networks are a fundamental component to building resilience. A key component of therapy, to ensure that therapeutic gains are supported and maintained in the child's real world, is the consideration and involvement of the 'system' in the intervention process i.e. the child's family and school environments (Fuggle et al., 2013). Parental involvement in therapy for CWS is fundamental (Jones et al., 2005; Kelman & Nicholas, 2008). As parents' own cognitions, emotions and behaviour are closely interwoven with their child's, their own beliefs and assumptions will influence how they respond and consequently inform how the child construes a situation, which may impact on their own behaviour (Biggart et al., 2007). Teachers also play a vital role in supporting children to develop their skills and learning in school. Studies exploring the reactions of teachers towards stuttering highlight some negative emotions (such as discomfort) around stuttering and teachers' lack of confidence in how to manage it (Plexico, Plumb & Beacham, 2013). The impact of teachers' emotional and behavioural response to stuttering, alongside the anxiety commonly experienced by CWS during speaking tasks in class, may lead to teachers inadvertently reinforcing children's avoidance by reducing their expectations of the child. It is therefore important that teachers play a positive role in supporting CWS in class (Berquez, Cook, Millard, & Jarvis, 2011). A further crucial social support for children in schools is the development of a positive peer group and close friendships. Asher and McDonald (2010) describe the role of self-disclosure within adolescent friendships, which can strengthen the closeness of the relationship and further develop the social-emotional bond between friends. The effects of peer sup-

port are also important in 'protecting' adolescents against emotional vulnerability and in providing a positive support network in the school environment (Naylor & Cowie, 1999).

Finally, the therapeutic environment and the relationship that CWS develop with the clinician during the therapy process is also a key dynamic which requires exploration and consideration. The therapeutic relationship is an area of extensive investigation, with a research base stemming from psychotherapy and counselling psychology research (Duncan, Miller, Wampold & Hubble, 2010). The 'common factors model' (Imel & Wampold, 2008) seeks to identify the elements that contribute to treatment effectiveness and the relative weighting of each, including the therapeutic alliance: 30%; extra-therapeutic factors: 40%; therapy technique: 15%; and expectancy: 15%. This suggests that the therapeutic relationship accounts for more than the therapy intervention itself, and that client's and therapists' hope (i.e. a belief that change is possible), also play an important role in client responsiveness to change. Factors that contribute to a successful alliance with clients who stutter (from the clients' perspective) have been reported to include: therapists' competence and understanding of the clients' experience of stuttering; showing a passion for supporting them; the willingness of clinicians to listen; and the focus on client's goals and strengths (Plexico, Manning, & DiLollo, 2010). The development of an effective and trusting relationship is particularly important in anxiety-focused interventions due to the challenging nature of some therapy tasks (e.g. exploring difficult emotions and tolerating anxiety during exposure tasks). It is therefore key that the client experiences the relationship with the therapist as meaningful and supportive (Duncan et al., 2010).

1.5. Process of change

The 'common factors model' (Imel & Wampold, 2008) highlights the importance of the therapy relationship in promoting change, alongside extra-therapeutic change (i.e. client and family factors, including their skills, resources, beliefs and attitudes, social support and

potential for change). The change process in therapy may be gradual and influenced by a number of factors. The clients' 'stage of change' may be one of these influential factors i.e. the clients' readiness to contemplate, prepare for and commit to action, in order to make a change. This process was originally presented by Prochaska & DiClemente (1986) in their seminal model of the process of change using a transtheoretical approach. This model has been applied to people who stutter, to consider the varying stages of change that clients may experience, in relation to seeking and pursuing support to manage their speech (Floyd, Zebrowski, & Flamme, 2007).

Manning (2010) proposes that the clients' stage of change, their support system and their potential for use of more effective cognitive, emotional and behavioural coping styles, may all influence the process of change in therapy for stuttering. Clients' sense of increased control and coping alongside positive shifts in mood are likely to have a beneficial impact on their fluency. Therefore, small changes in one area can influence important changes in other domains and are likely to be closely inter-linked.

There is emerging quantitative evidence for the effectiveness of the integrated therapy approach presented in *Figure 1*, particularly in intensive group therapy with children and adolescents who stutter (Millard, 2011; Fry et al., 2014). Whilst some studies have used a phenomenological approach to explore clients' perspectives (Plexico, Manning & DiLollo, 2005; Plexico et al., 2010), the use of CBT and the role of resilience in the process of change have not been previously evaluated and both quantitative and qualitative research in this area is scarce.

The aims of this study were to explore the perceptions of seven CWS regarding the changes they made following intensive group therapy for stuttering; to identify their most significant change as a result of therapy; and to explore the mechanism of change in relation to the key components of the therapy model (i.e. communication skills; fluency management; cognitive and emotional change; systemic support and therapeutic alliance).

This study places importance on user involvement and listening to the client's voice (Tait & Lester, 2005; Stewart & Richardson, 2010), in order to explore individual experiences of therapy and its effectiveness. These 'missing voices' in research are important in reflecting clients' own life experiences and generalising findings to real-life settings (Kovarsky, 2008). This level of detailed outcome analysis of combined therapy has not previously been carried out and therefore provides a unique and distinctive contribution to this field.

2. Method

2.1. Participants

Children who attended an intensive group therapy programme at the Michael Palin Centre (MPC), were invited to participate in the study. Seven children opted into the study (4 boys, 3 girls, M=12.4 years, range=10.4-14.11 years), with parental consent (see *Table 1* for summary of participants).

The entry criteria for the children's intensive course includes: the child's age (10.0-14.11 years), a diagnosis of stuttering (assessed by a specialist speech and language therapist) and adequate cognitive and language skills that allow participants to access the course content. Participants in this study presented with an outward stutter of varying severity, ranging from mild to severe on the Stuttering Severity Instrument (SSI-4, Riley, 2009) and self-rated the overall impact of stuttering as moderate to severe on the Overall Assessment of the Speaker's Experience of Stuttering-School Aged (OASES-S, Yarrus and Quesal, 2006).

Table 1: Participant Summary Table: showing basic background information for each participant

Case	Age in years	Gender	Co-existing diagnoses	Language skills	Family history of stuttering
A	10.11	M	None	Average	Yes
B	14.1	M	ADHD	Pragmatic difficulties	Yes
C	10.4	F	None	Average	Yes
D	13.8	M	None	Below average	No
E	13.9	F	None	Average	Yes
F	11.10	F	None	Above average	Yes
G	13.6	M	ADHD Dyspraxia Mild learning difficulties	Average	No

2.2. Design

A mixed methods design (analysis of both qualitative and quantitative data) was used to address the research aims proposed above. This study is embedded within an ongoing larger longitudinal study investigating clinical effectiveness of a group intervention for 10-14 year old CWS. The qualitative component of this study used an exploratory multiple case study replicated design (Yin, 2014), selected due to its strength in investigating complex constructs and theories and understanding the process and dynamics of change (Simons, 2009). Case studies also provide a vivid insight into participants' unique experiences and perspec-

tives. Multiple cases were used to reflect the heterogeneous nature of stuttering and the complex construct of resilience being explored in this study. Therefore cases are not literal replications and contrasting findings across cases may be predicted. By following a multiple case study design and using semi-structured interviewing and qualitative analysis, stronger explanations and broader comparisons may be made. The aim of the study was to provide theoretical insights into the process of change, by exploring the perceptions of CWS. The findings drawn from the data were tested against theoretical propositions, in order that analytic generalisations could be made (Yin, 2014), which may be applicable to the wider population of children who stutter. Quantitative data was also collected at a number of time points pre and post-therapy and analysed using the Reliable Change Index (Jacobson & Truax, 1991).

2.3. Procedure

The intervention investigated in this study is a year-long therapy programme, involving a two-week therapy course, which children and their parents attend daily (for 4.5 hours per day), in separate concurrent groups. This is followed by four follow-up therapy groups over a 12 month period, in order to ensure that long-term therapy gains are maintained. This evidence-based course (Millard, 2011) uses an integrated approach following Cook and Botterill's (2005) therapy model. Outcome measures are used routinely at a number of time points throughout this intervention, to measure the overt and covert aspects of stuttering. The results of these measures are not explored in detail as part of this study.

Ethical approval for this study was gained and then written consent obtained from all seven participating children and their parents. Participants were given the right to opt out of the study at any stage of the process.

2.3.1. Quantitative measures

In addition to the measures of stuttering (OASES; SSI-4) each participant completed the *Resiliency Scales for children and adolescents* questionnaire (Prince-Embury, 2006) at seven time points: one month prior to the course (baseline measure); immediately pre and post the two-week intervention and at four subsequent time points across the remainder of the one-year period. This measure was selected due to its robust construct validity (Prince-Embury, 2008), and the age range on which the scales have been normed (9-18 years). The areas assessed are therefore relevant to the age group of the participants, such as attachment and relationship to peers, independent problem-solving and consideration of self-harm. The questionnaire is comprised of three parts and takes approximately 10-15 minutes to complete.

2.3.2. Qualitative measures

In addition to the quantitative data collected, children took part in individual semi-structured interviews nine months post-therapy (see *Appendix 1).* Semi-structured interviewing was used to explore the perceptions and real-life experiences of the participants in this study, as part of the exploratory design. This type of interviewing enables rich and illuminating data to be explored (Robson, 2002), using open-ended and prompt questions. The questionnaire was designed under four key areas: participants' reflections of the previous nine months (since starting the intervention); their perception of the mechanism by which change has occurred; the most significant change made and future change desired. The *Most Significant Change* technique (Davies & Dart, 2005) is a dialogical, qualitative technique, involving the collection and analysis of significant change stories, initially developed to monitor and evaluate outcomes of international development programs. It captures people's perception of both positive and negative change and supports participants to identify the most significant change arising from an intervention. Aspects of this technique were therefore used in this study, due to its effectiveness as a tool for exploring the impact of interventions on people's

lives, in order to understand the participants' experiences of therapy and their perception of the importance of change (Davies & Dart, 2005). This information was used to enhance the qualitative data collected.

The interview schedule was trialled and amendments were made accordingly, thus strengthening the construct validity of the study (Yin, 2014, p. 67). Questions included in the interview were theoretically driven (i.e. deductive), drawing on research into the different components of Cook and Botterill's (2005) therapy model (see *Figure 1),* alongside the theory of the process of change and resilience. Interviews were video-recorded and transcribed by the researcher, who was not involved in delivering the clinical intervention.

2.5.1 Quantitative Data Analysis

In order to determine whether changes in participants' pre- and post-intervention scores on standardised measures (Resiliency Scales, OASES-S and SSI-4) were reliable and significant, the Reliable Change Index (RCI; Jacobson & Truax, 1991) was used. The RCI is calculated using the difference in the individuals' baseline and post-intervention scores, divided by the standard error of the difference of the test (RCI = XEP – XBL/Sdiff; Jacobson & Truax, 1991), in order to establish whether the degree of change following the intervention is statistically reliable. Change scores greater than 1.96 are considered to be statistically significant.

2.5.2. Qualitative Data Analysis

All seven semi-structured interviews were transcribed (mean length of interview = 22.34 minutes; range = 13.34-29.38 minutes) and analysed using Thematic Analysis (TA). TA has the capacity to provide "a rich and detailed, yet complex account of data" (Braun & Clarke, 2006, p. 78) and to reflect the participants' real-life experiences and the meanings they attribute to changes they have made following therapy. Braun and Clarke's (2006)

guidelines on using this method of analysis were followed. Initial codes were generated for each case and codes were subsequently reviewed and refined across the entire data set. Codes were then organised into themes which were further explored using the computer software programme, ATLAS.ti (Muhr, 2004). Relationships between themes and across cases were identified and explored, following a deductive process. However the process of analysis was flexible, in order to identify codes and themes that were inconsistent (as well as consistent) with the theoretical propositions tested and to consider rival explanations and influences (Yin, 2014). All analysis and refinement of codes was recorded using an audit trail, for validity and evidence of the evolvement of ideas.

As part of the detailed TA, quantitative investigations were also undertaken, such as the calculation of the *code frequencies* across the data (i.e. the frequency with which each code was reported) and the exploration of *code co-occurrences* (i.e. the frequency with which pairs of codes occur together) using ATLAS.ti (Muhr, 2004), in order to identify general patterns of these themes within the data (Guest, MacQueen & Namey, 2012). To ensure the authenticity and accuracy of the intended meaning of data, the relationships between the themes were explored based on numeric analysis as well as repeatedly returning to the original transcripts. Due to participants being asked the same core questions during individual interviews, codes can be counted (within each proposition) with the knowledge that participants were responding to the same questions and prompts, enabling the accurate quantification of the qualitative data (Guest et al., 2012). Data was therefore interpreted using both the quantitative information extrapolated from code frequencies, alongside exploration of the *importance* of a given theme (using participants' reported *most significant change* response) and the relationships between themes (considering code co-occurrences). This dual deductive-inductive method of interpreting themes ensures a high quality analysis (Joffe, 2011).

2.6. Credibility

In order to ensure trustworthiness and credibility of the data collected, several methods were used, consistent with recommended qualitative research and TA procedures. These included credibility checking (member-checking and peer de-briefing) and confirmability (repeatedly transferring back to original transcripts during data analysis and themes being cross-checked to original transcripts by a peer-reviewer, independent of the research (Majcher & Daniluk, 2009). Interview transcripts were member-checked (Shenton, 2004) with each participant in the study and validated in terms of common themes and accuracy of meaning. No disagreements or additions were made. In addition, two full transcripts (29% of the data set) were independently coded by an additional researcher, to locate quotes within themes, in order to ensure objectivity and level of agreement in the analysis of data. The two coded data sets (for Cases B and E) were compared and each agreement and disagreement was identified. A 92.6% agreement level was found.

2.7. Theoretical propositions

The theoretical propositions outlined below, were based on relevant theory and tested against individual cases, to address the research question posed regarding the mechanisms by which change is reported to occur. These proposals were then validated or invalidated based on the data collected, and explanations were considered within a pre-determined theoretical framework (Cook & Botterill, 2005).

Participants report the following factors to be instrumental in their process of change:

Proposition 1: communication skills; ***Proposition 2:*** fluency management; ***Proposition 3:*** cognitive and emotional factors; ***Proposition 4****:* systemic support, involving parents, peers, or teachers; ***Proposition 5:*** the therapeutic relationship.

3. Results

3.1. Quantitative Data

Using the RCI (Jacobson & Truax, 1991) to measure statistically reliable change between baseline and final follow-up (12 months post intervention) scores on the *Resiliency Scales* questionnaire, four participants (A, B, C and G; 57%) demonstrated a reliable improvement in their *resourcefulness* over time and six participants (all except case E; 85.7%) showed a reliable reduction in their *vulnerability* scores i.e. a positive change in their resilience profile (see *Table 2* for results).

Table 2. Reliable Change Index for baseline and post-intervention Resiliency Scales scores: shows overall *Resourcefulness* and *Vulnerability* scores from Resiliency Scales for each participant. An increase in resourcefulness and a reduction in vulnerability demonstrate a positive trend. Statistically reliable change is indicated for each participant, comparing pre-course (baseline) and post-course (12 month follow-up) data points (Clark et al., 2009).

Case	Resilience component	Pre-course (baseline)	Post course (final follow-up)	Reliable Change Index (RCI)	Degree of change
A	Resourcefulness	Below Average	High	5.30*	Reliable improvement
	Vulnerability	High	Low	-6.1*	Reliable improvement
B	Resourcefulness	Low	Above average	8.02*	Reliable improvement
	Vulnerability	High	Below average	-6.8*	Reliable improvement
C	Resourcefulness	Low	Average	3.22*	Reliable improvement
	Vulnerability	Average	Below average	-2.46*	Reliable improvement
D	Resourcefulness	Average	Average	1.00	No reliable change
	Vulnerability	Average	Below Average	-2.12*	Reliable improvement
E	Resourcefulness	Low	Low	-2.57*	Reliable deterioration
	Vulnerability	High	High	5.95*	Reliable deterioration
F	Resourcefulness	Above Average	Above average	0.74	No reliable change
	Vulnerability	Average	Below average	-1.96*	Reliable improvement
G	Resourcefulness	Average	Above average	3.14*	Reliable improvement
	Vulnerability	Below Average	Low	-1.98*	Reliable improvement

*RCI $\geq$ 1.96 = statistically significant change (Jacobson & Truax, 1991).
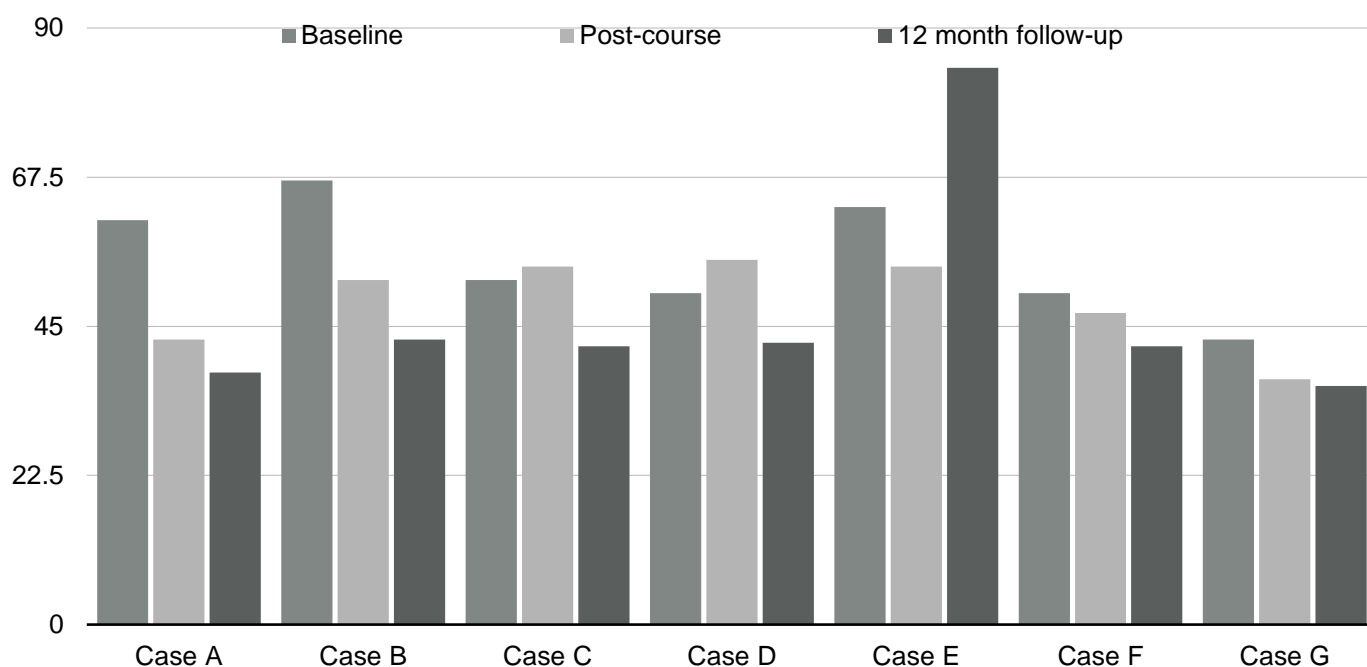
Figure 2. **Resiliency Scale Scores**

Resiliency Scales: Resourcefulness Scores
Desired trend in Resourcefulness scores = upward direction
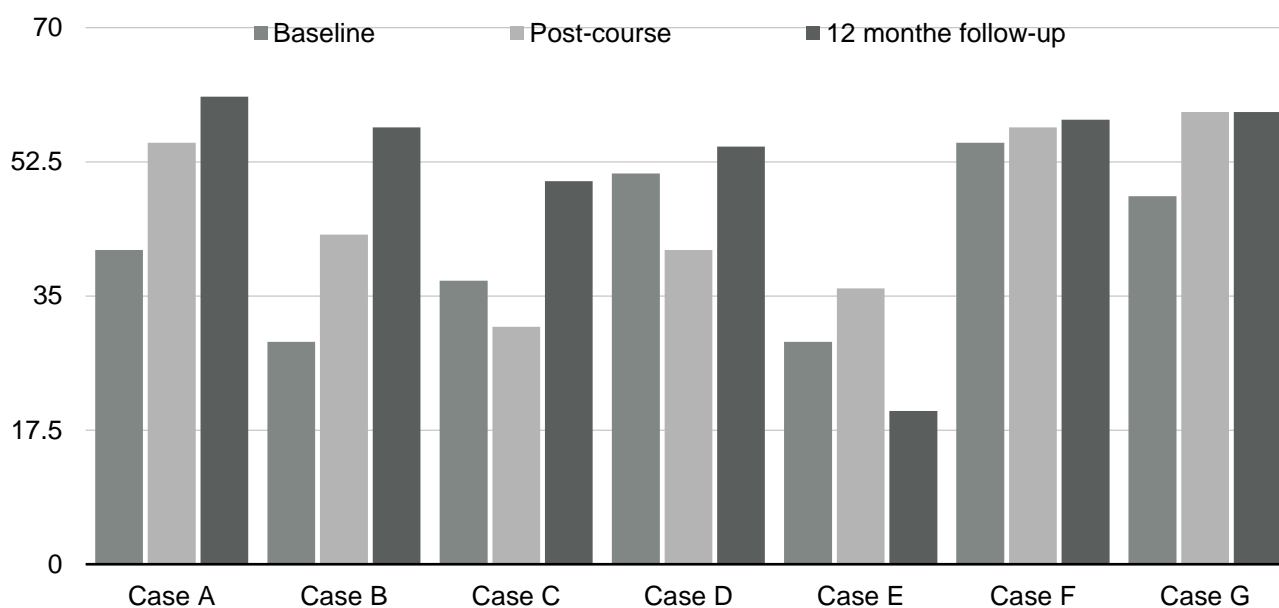
Resiliency Scales: Vulnerability Scores
Desired trend in Vulnerability scores = downward direction

Scores of 60 and above = high;
56-59 = above average;
46-55 = average;
41-45 = below average;
40 and below = low.

Cases D and F showed improvement in vulnerability scores over the 12 month period, but no reliable change in resourcefulness. Case E showed a reliable deterioration over time and had low resilience scores at each data collection point, which may have been attributed to a number of external factors including a family crisis and difficulties with emotional wellbeing. Individual resilience profiles (including pre- and post-course and 12 month follow-up scores) are shown in *Figure 2*.

All seven participants showed a statistically reliable and clinically meaningful improvement in OASES-S scores, suggesting a reduced negative impact of stuttering on their daily lives, which was maintained at 12 months post-course. Three out of the seven participants showed a reliable improvement on SSI-4 scores at 12 months post-course (see *Table 3*).

Table 3. Reliable Change Index for SSI-4 and OASES-S: shows baseline and post-intervention scores for SSI-4 and OASES-S assessments (where desired change is a reduction in scores on both tests). Statistically reliable change is indicated for each participant, comparing pre-course (baseline) and post-course (12 month follow-up) data points (Clark et al., 2009).

Case	Assessment	Pre-course score (baseline)	Post-course score (final follow up)	Reliable Change Index (RCI)	Degree of change
A	SSI-4	Mild	Very mild	-2.44*	Reliable improvement
	OASES-S	Moderate/ severe	Mild/ moderate	-11.93*	Reliable improvement
B	SSI-4	Moderate	Moderate	-0.24	No reliable change
	OASES-S	Severe	Mild/ moderate	-10.26*	Reliable improvement
C	SSI-4	Moderate	Very mild	-4.16*	Reliable improvement
	OASES-S	Moderate/ severe	Mild/ moderate	-9.61*	Reliable improvement
D	SSI-4	Severe	Moderate	-2.2*	Reliable improvement
	OASES-S	Severe	Moderate	-6.25*	Reliable improvement
E	SSI-4	Mild	Mild	0.49	No reliable change
	OASES-S	Moderate/ severe	Mild/ moderate	-5.61*	Reliable improvement
F	SSI-4	Moderate	Moderate	-0.73	No reliable change
	OASES-S	Moderate	Mild/ moderate	-4.19*	Reliable improvement
G	SSI-4	Mild	Mild	0.98	No reliable change
	OASES-S	Moderate	Mild/ moderate	-3.42*	Reliable improvement

*RCI ≥1.96 = statistically significant change (Jacobson & Truax, 1991).

3.2. Qualitative Data: testing of theoretical propositions

The themes that emerged following TA of the data were consistent with the theoretical model being tested. Propositions 1-4 were reported by all participants and themes within proposition 5 were reported by five of the seven participants. No participant contradicted any of the propositions. Whilst each proposition is explored individually below, there is a close relationship between each proposition and there were several co-occurrences of themes for individual quotes, for each case.

Proposition 1: communication skills

All participants ($n = 7$) reported communication skills as being important in their process of change. Case C identified her most significant change as being able to communicate more in front of groups of people and identified one of the mechanisms of change as using more eye contact. Case F reported that as a result of her increased confidence she now answers and asks questions in class. Two sub-themes are illustrated in the following examples:

- **Communicating more:** "*I can talk in front of big groups and I can say what I want to say now…it makes life much easier*" (Case C).

- **Communicative competence:** "*When I used to meet people I'd be really tense…like really awkward in terms of my body language, but I've been working on trying to be more open and relaxed*" (Case E).

69/409 (=16.9%) of all coded quotations across all cases, were consistent with proposition 1.

Proposition 2: fluency management

All participants reported fluency as being important in their process of change and two participants reported increased fluency as their *most significant change.* This proposition included the use of a specific strategy to manage fluency and increased knowledge about stuttering and the speech mechanism, as illustrated below:

- **Learning a fluency strategy** (and communicative competence): "*Speaking slowly for me has really helped…when I do, people can understand me*" (Case D).

- **Learning about stuttering**: "*…it's the process of knowing what happens when you stammer…'cause if you know what happens, you know how to prevent it more…*" (Case G).

53/409 (=13%) of all coded quotations across all cases, were consistent with proposition 2.

Proposition 3: cognitive and emotional factors

Cognitive and emotional change was the most commonly reported theme overall and was reported by all participants. 57.1% of the participants (*n* = 4) reported their *Most Significant Change* as being a cognitive or emotional shift following therapy. A number of sub-themes emerged within this overarching theme, with a high proportion of all units of text relating to the following key sub-themes: 'thinking skills'; 'emotional reaction'; the 'shared experience' of being in a group with other CWS and identification of 'resilient cognitions', as illustrated below:

- **Thinking skills:** "*You could think of it as a really big issue, like a special need…but now you know it's just trouble getting your words out*" (Case G).

- **Emotional reaction:** "*Not getting too worried about whatever happens…I don't really worry about it now*" (Case A).

- **Shared experience:** "*I used to think 'why is this happening to me? Why do I have to stutter?'…knowing that I'm not the only out there that has one, is helpful*" (Case A).

- **Resilient cognitions: "***I would always tell myself to keep going…I think that's something I've managed to maintain throughout the course*" (Case B).

Additional themes were also reported within this proposition and links made between associated codes, such as:

- **Parents' emotional reaction** *and* **participant's emotional reaction towards stuttering:** "*If they're (parents) not bothered, neither am I*" (Case A).

- **Sharing emotions** *and* **the therapeutic environment:** *"…(the therapists) are all really nice people so you didn't feel embarrassed to say anything, so you could say what you wanted to say even though if it might be a bit personal…"* (Case A).

- **Being more open** *and* **teacher support:** *"We're doing leadership in PE so I wanted to get it out in the open so that then she'd know if I'd stuttered, what it was"* (Case E).

189/409 (=46.2%) of coded quotations across all cases, were consistent with proposition.

Proposition 4: systemic support

Systemic support encompassed:

- peers (developing new friendships and support from friends: $n = 7$; 34.7% of quotes within this theme);

- parents (parental support and level of understanding: $n = 5$; 32%);

- support from teachers ($n = 5$; 18.7%);

- the participants' active use of their support network ($n = 2$; 8%);

- receiving feedback from others ($n = 2$; 5.3%); and

- meeting famous people who stutter who share their experiences of acceptance of stuttering with the group ($n = 1$; 1.3%).

Examples include:

- **Support from friends:** "*Let's say I was to do a presentation next week, but I had the course the day before, I can get some advice from my friends here*" (Case G).

- **Parental support:** *"They (parents) encourage me not to worry about it and remind me what I learnt on the course"* (Case A).

- **Support from teachers:** "*…just giving me time to finish (speaking)*" (Case E).

Peers were reported to be instrumental in the process of change by all participants and parents and teachers were described as influential by five out of seven participants. Two participants (Cases A & E) reported that the key mechanism of change for them was due to sys-

temic factors; the first reporting that "parents being supportive" had contributed to him accomplishing change and the second reporting that staying in contact with the therapists following the 2-week course had given her "that constant communication" she needed to keep her skills going and to make longer-lasting changes.

75/409 (=18.3%) of all coded quotations across all cases, were consistent with proposition 4.
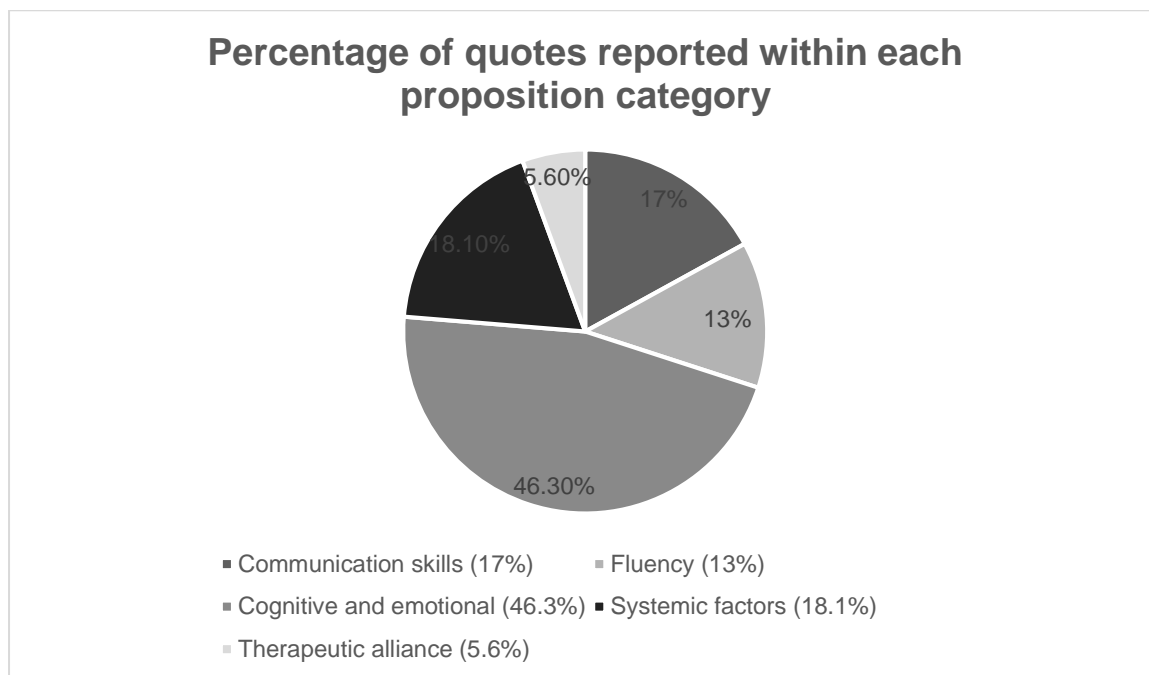
Proposition 5: therapy relationship

The therapeutic *relationship* was reported by two out of seven participants. Five participants made other statements relating to the therapist. All statements were coded within four sub-themes: therapists' input ($n = 2$; 43.5%); therapeutic environment ($n = 3$; 30.4%); the therapy relationship ($n = 2$; 17.4%) and the therapists' knowledge about stuttering ($n = 2$; 8.7%). Two cases (D and F) did not make any statements relating to this proposition. No negative comments (against the proposition) were reported by any participant.

- **Therapists' input:** "*...they taught us that it's not something you should be scared about*" (Case G).

- **Therapeutic environment:** "*The Centre is a pretty stress-free environment" (Case B) and "I'm in a pretty stress-free place"* (Case G).

- **Therapy relationship:** "*Having that really strong connection with them is great*" (Case B).

- **Therapists' knowledge:** *"...they know a lot more about stuttering than what we did before we came on the course"* (Case B).

23/409 (=5.6%) of all coded quotations across all cases, were consistent with proposition 5.

Figure 3 shows the frequency of codes reported by each participant, for each proposition.

Percentage of quotes reported within each proposition category

- Communication skills (17%)
- Fluency (13%)
- Cognitive and emotional (46.3%)
- Systemic factors (18.1%)
- Therapeutic alliance (5.6%)

Figure 3: Pie chart showing code frequencies for each proposition across all 7 cases.

Results are highly idiosyncratic, as might be predicted given the individuality of cases, the complexity of stuttering and the multi-faceted nature of the intervention carried out. However there were recurrent themes across all cases. Propositions 1-4 were reported by all participants as being instrumental in the mechanism of change and proposition 5 was reported by five participants. Whilst change was reported across all 5 propositions, the most commonly reported change was in proposition 3 (cognitive and emotional factors). Sub-themes within this same proposition were also reported by the majority of participants as being their most significant change of all, following the intervention.

3.3. Thematic Network Analysis

Thematic network analysis (Attride-Stirling, 2001) was used to organise the above themes into a framework representing the basic, organising and global themes that arose from the data. The global themes of the child's **internal world** (i.e. their cognitive and emotional processing of information) and **external world** (i.e. how they interact in their real world and are viewed by others) and the **interface between these two domains** were used to encompass

eight organising themes. These included the shared experience of group therapy, being more open about stuttering, practising skills in the clients' 'real world' and the role of the support network in facilitating change, alongside a number of basic themes. Themes which arose that are not included in the theoretical model proposed were the importance of the 'shared experience' of the group; the therapy 'environment' and therapists' knowledge (as opposed to the relationship itself between therapist and client); the opportunity to practise skills in the client's 'real life'; demonstrating resilience when faced with challenges and the need for a narrative to explain stuttering to others, to feel empowered and more at ease. *Figure 4* shows a thematic map representing a hypothetical account of the relationships between the global and organising themes drawn from qualitative data analysis.
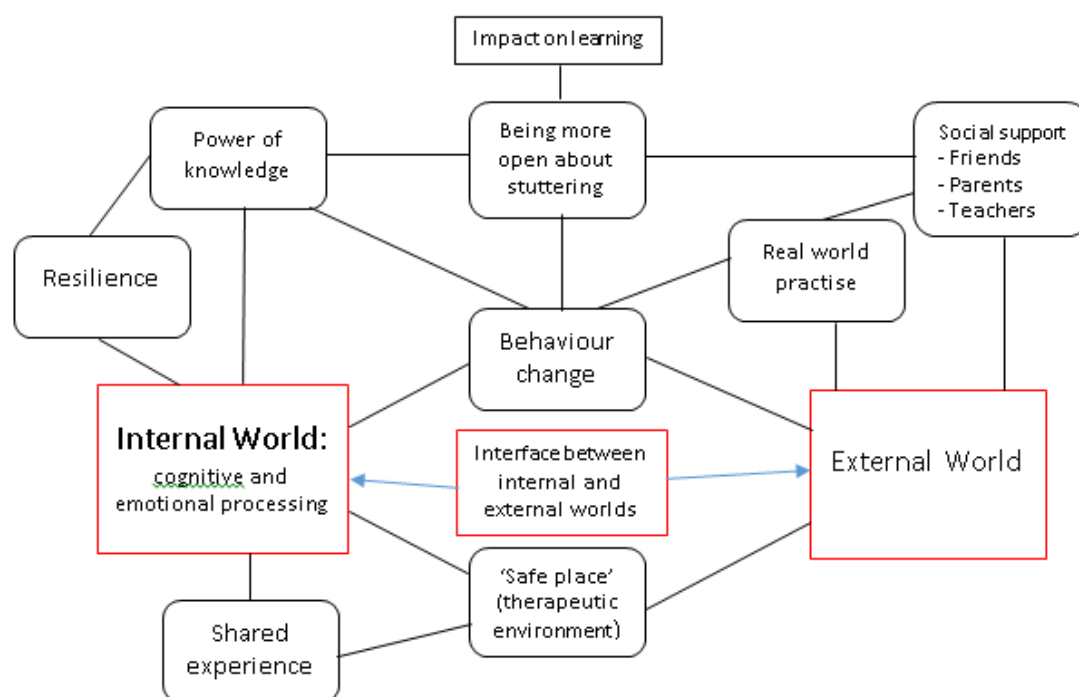
Figure 4: Thematic map representing the relationship between the global and organising themes drawn from qualitative data analysis

4. Discussion

Transcripts of semi-structured interviews were explored using TA, enabling a rich and enlightening interpretation of the data. In addressing the research questions regarding therapeutic change and the nature and mechanisms of change, participants identified changes across a range of domains. The results reported are consistent with Cook & Botterill's (2005) theoretical model and both the qualitative and quantitative data support the existing literature regarding the effectiveness of this integrated group intervention for stuttering (Millard, 2011).

The most commonly reported mechanism of change was related to proposition 3 (cognitive and emotional change), indicating that a change in the cognitive processing and emotional reactions of participants towards their stuttering was considered to be instrumental in the change process. This was also reflected in the significant reduction in scores measuring the overall impact of stuttering on all participants (using the OASES-S), despite fluency measures only reflecting a meaningful improvement for three participants on the SSI-4. This positive shift in the covert aspects of stuttering is consistent with the literature reported by Yaruss, Coleman & Quesal (2012), Fry et al. (2014), and Murphy et al. (2007), which highlight the importance of addressing cognitive and emotional reactions to stuttering, as part of the therapy process. Within this proposition, participants described the importance of 'being more open' about stuttering and linked this with the 'shared experience' of being in a group with other CWS. This may have contributed to desensitisation to stuttering (Manning, 2009).

4.1. Global and organising themes

The thematic map presented in Figure 4 shows the relationships between the global and organising themes, interpreted from the TA conducted. Some participants reported a highly internal focus of attention prior to therapy (e.g. blushing and feeling "really awkward": Case E) and engaging in avoidance behaviours in order to minimise stuttering or to keep it hidden from others (e.g. ordering food that is easier to say). These features of anxiety are

consistent with Clark and Wells' (1995) social anxiety model and are commonly reported safety behaviours by children and adults who stutter. Following the intervention, attention and behaviour became more externalised, which could be associated with a positive change in cognitive processing and emotional reactivity towards stuttering (i.e. reduced anxiety about stuttering and increased confidence); increased mastery of fluency (reflected in SSI-4 scores for three participants) and communication skills. Participants reported behavioural changes such as communicating more and actively stretching their 'comfort zone', to challenge themselves (e.g. volunteering to speak in class). It could be argued that the shared experience of the group (Heaney & Israel, 2008), alongside the positive perception of the role of the therapist (Imel & Wampold, 2008) allowed a 'safe therapeutic space' to be experienced (Rober, 1998), enabling participants to build their skills and confidence within the group before transferring them into their 'real world'. This generalisation of skills was supported by participants' social network (peers, parents and teachers), which may have been mobilised by being more open about stuttering. The impact for some participants of being more open about stuttering and communicating more was a positive effect on their learning at school.

The data revealed additional themes (e.g. the nature of the therapists' role; the relative importance of the role of peers; the construct of resilience and the participants' 'real world'), as well as those consistent with theoretical propositions 1-5, explored individually below.

4.1.1. The role of the therapist

Imel and Wampold (2008) propose that the therapeutic *alliance* is a fundamental factor in the process of change. Two participants referred to the therapy relationship explicitly as being a factor that enabled change, however this was not reported by the remaining five participants in this study. Other aspects of the therapeutic process were highlighted by participants as being important. Firstly, the establishment of a therapeutic environment of acceptance and openness was reported by three out of seven participants. The therapists'

knowledge of stuttering was reported as being important in the process of change, by two participants (Plexico et al., 2010). Finally the therapists' input/support (which was perceived as being given support for speaking tasks in school, liaison with school staff and on-going support beyond clinic sessions) was reported by two participants.

This suggests that the therapy alliance itself is possibly largely 'invisible' to participants, or may be less critical than reported (Ratner, George, & Iveson, 2012). Participants may also 'expect' the therapy relationship to be strong when attending a specialist centre and may therefore not view this as a significant factor. A key component in the change process may also be the clients' expectation that therapy will be effective and their engagement in the therapy process (Blease, 2015; Floyd et al., 2007), rather than the client-therapist relationship explicitly. This supports the notion of clients becoming 'their own therapist', developing an increased locus of control, and making and maintaining long-term changes without being reliant on the support of their therapist. Participants' perception of the role of the therapist may also be influenced by their age, and the stage at which the interviews were carried out (nine months post-intervention). All quotes coded for proposition 5 indicated a positive perception of the therapists' involvement in their process of change.

4.1.2. The importance of peers

Whilst it was proposed that peer support might be important in participants' perception of the mechanism of change, the *relative* importance of the peer group and development of friendships, compared to the support of parents and teachers, was not predicted. Studies by Asher and McDonald (2010) and Naylor and Cowie (1999) highlight the importance of peer support and the role of friendships in school. The development of friendships with other CWS in the therapy group was also reported as being a central social support. This support system is unique due to the commonality of experiences between group members, the shared understanding of each other's difficulties and the ability to offer specific support which par-

ents and therapists, who do not stutter, are unable to provide. The redefinition of the role of attachment during adolescence may involve a shift away from reliance on parents, towards developing strong attachments with peers, within secure parent-adolescent attachment relationships (Dubois-Comois, Cyr, Pascuzzo, Lessard, & Poulin, 2013).

4.1.3. The real world

A key organising theme derived from the data is the notion of the importance of actively practising skills within the participants' 'real world' (Manning, 2009), and the continual bi-directional relationship between their internal and external world as their skills and confidence increase and cognitive change ensues. Participants reported the use of their acquired fluency and communication skills during lessons in school and in their interactions with friends, beyond the clinic setting. The 'next steps' in the change process were identified, and active goal-setting to continue progress beyond the course was described. Whilst the process of generalisation is integral from the start of therapy (e.g. through on-going homework and out of clinic assignments), the links between the clinical setting and participants' school and home environments were perceived to be significant.

4.1.4 Resilience ('bouncing back' following adversity)

The construct of resilience and its role in stuttering therapy, was a factor explored within this study. Resilience is employed when people face adversity, which CWS may be more vulnerable to, given the increased risk of negative reactions and teasing and bullying by others (Blood et al., 2010; Langevin at al., 2009) and the increased likelihood of developing social anxiety in adolescence and adulthood (Blood et al., 2007; Iverarch & Rapee, 2014). A number of participants described the 'challenges' they faced, both prior to and during the intervention (e.g. being teased; stuttering in class; experiencing difficulty making and maintaining friendships). Themes related to resilience were reported by a number of participants, such

as: their willingness to persist in the face of adversity; the ability to move on from negative experiences more quickly; the use of coping skills; reduced emotional reactivity and actively entering into challenging speaking situations. In addition, their sense of mastery of new skills (e.g. in fluency, communication and thinking skills) and their active use of the support network (including peers, parents and teachers) were all reported as being instrumental in their experience of positive change following the intervention. Case A highlighted the important role of resilience in his ability to overcome a challenge. Whilst formal stuttering measures reflected a negative shift at 5-months post-therapy (at a time of transition), his continually increasing resilience scores over the 12 month period indicate his increased capacity to cope with difficulties and to recover more quickly (Plexico et al., 2009).

Quantitative data also reflected a positive trend in participants' resilience profiles in six cases. A statistically reliable improvement was shown between pre-course and 12 month follow-up scores in *resourcefulness* for four participants and in *vulnerability* for six participants. This demonstrates a strength in this study's design of incorporating follow-up data in order to investigate the ability of individuals to 'bounce back' following adversity (Luthar et al., 2000). This may be an important consideration in stuttering therapy, given the natural occurrence of relapse in the process of change (Prochaska & DiClemente, 1986) and the high rate of relapse experienced by CWS (Craig, 1998).

It can be argued therefore that resilience, as a construct, should be incorporated as part of this intervention programme, with a group of individuals who may be more vulnerable to negative experiences and who may benefit from enhancing their coping skills, in order to recover more easily from challenges. It is however important to consider that due to individual internal and external differences, some CWS may be well-functioning and at low risk of adversity. This is highlighted in the heterogeneity of participants' reported experiences and the variability in individual resilience profiles.

The adapted integrated therapy model presented in *Figure 5* considers the child's internal and external factors and incorporates novel themes interpreted from the analysis of qualitative and quantitative data collected from the seven participants involved in this study.
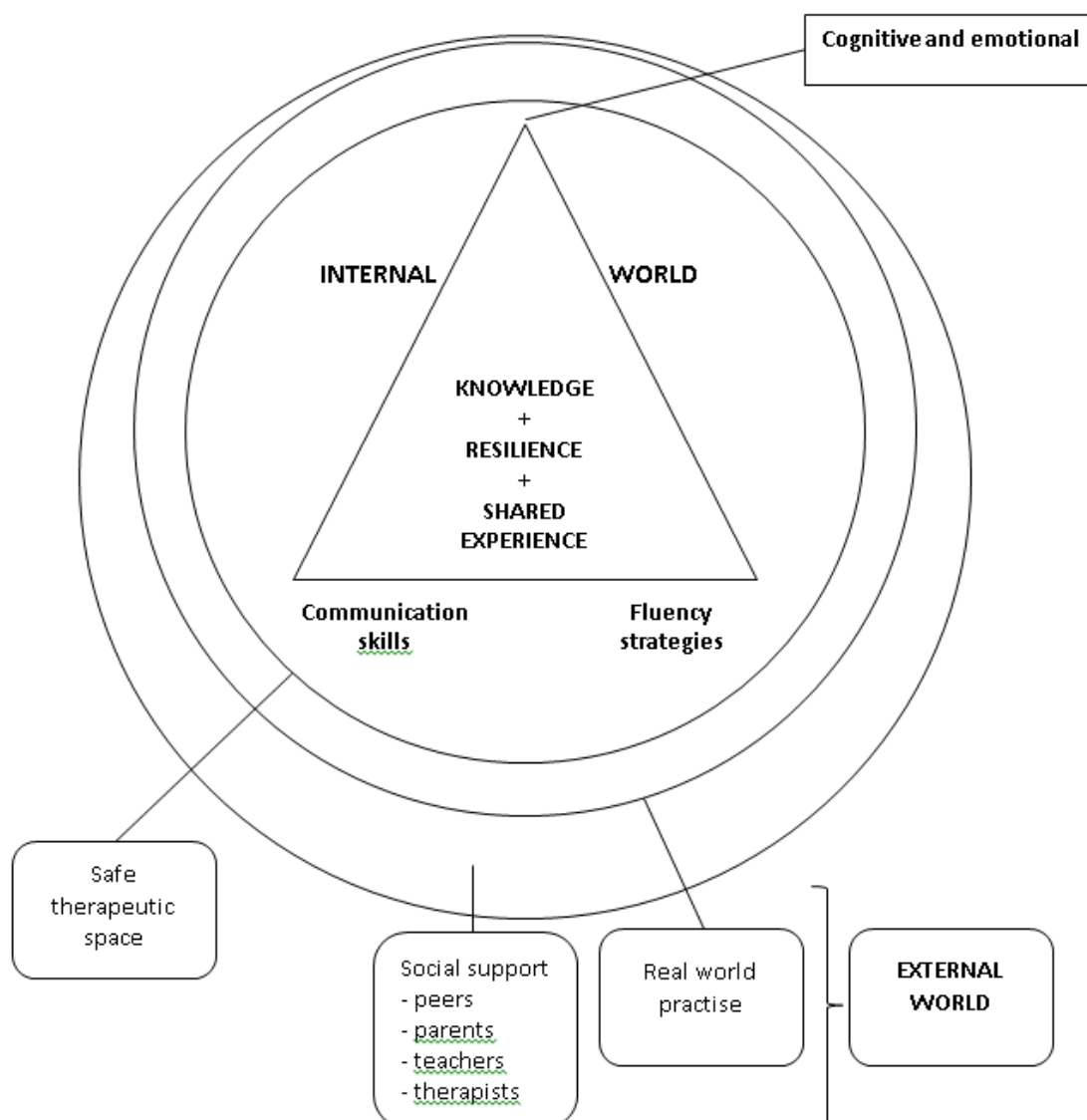
Figure 5: Holistic therapy framework, adapted from Cook & Botterill (2005), incorporating themes that emerged from the data analysis

4.2. Strengths and Limitations

There are a number of advantages to case study research design when addressing research questions which are exploratory and interested in client perception and experience. The collection of both qualitative and quantitative data enabled broader and more robust data

to be gathered. Further benefits of this study's design are the inclusion of multiple, rather than single cases, and the longitudinal collection of data, over a 12-month timeframe. Limitations of case study research naturally include the small number of participants involved and therefore the boundaries within which conclusions can be interpreted beyond the cases included in the study (Shenton, 2004).

5. Conclusion

This study offers a unique insight into the perceptions of a group of CWS regarding their experiences of therapy and their process of change. Cognitive and emotional change was a fundamental component reported by participants in their process of change, alongside access to a positive support network, which linked to a change in behaviour (e.g. communicating more and being more fluent) and to participants' ability to recover from difficulties (i.e. the capacity to be more resilient). The qualitative results therefore highlight the importance of adopting an integrated approach in therapy for CWS and the key role of addressing the cognitive and emotional aspects of stuttering within this framework. The quantitative data also highlights the value of exploring and building resilience in CWS, to support the development of adaptive coping skills and reduce vulnerability, which may contribute to the maintenance of positive change.

Empirical exploration across a larger number of participants, would enable a greater insight into the process of change for participants attending integrated group therapy. The results of this study suggest that further investigation into the use of CBT with CWS, and exploration of the perceived importance of the cognitive and emotional changes experienced following therapy, may be warranted.

Acknowledgements

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