The Underlying Psychological Processes of Peer Support in Stroke.

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Thesis submitted in partial fulfilment of the requirement for the degree of Doctor of Clinical Psychology (DClinPsy) at Cardiff University and the South Wales Doctoral Programme in Clinical Psychology

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Summary of Thesis

This thesis investigated the underlying psychological processes of peer support interventions in stroke. This project sought to develop empirical evidence for those theories and models that are hypothesised to underpin the efficacy of peer support interventions.

Paper 1 has been prepared in accordance with the author guidelines for the British Journal of Health Psychology. This paper is an innovative conceptual review that used a theory-focused review approach to explore how the use of theories and their concepts may influence stroke peer support (SPS) research. Nineteen studies were reviewed and evaluated to determine what psychological theories are used to explain the mechanisms of peer support in stroke and where the theories are used within the studies (e.g. to develop hypotheses, guide intervention or explain results). The review highlighted the paucity of interventions that are theoretically grounded and the lack of studies that attempt to test theory empirically. This makes interpreting generalizable conclusions about the effectiveness of the interventions and utility of theories challenging. The theoretical, clinical and research implications of this review are discussed.

Paper 2 has also been prepared for submission to the British Journal of Health Psychology and is an empirical investigation into the underlying psychological processes that contribute to the effectiveness of peer support interventions for stroke. The paper presents five phases of the study which ultimately resulted in stroke survivors rating video clips of positive and negative interactions. These interactions were developed from both stroke survivors and the qualitative literature and were constructed from 10 theoretical concepts such as positive social comparison and mutual reciprocity. The differences in ratings between the positive and negative interactions was highly significant, however, there were no significant correlations between (a) higher ratings of perceived social support or (b) lower rated

difficulties in emotion regulation and higher rated positive interactions. Furthermore, there was no significant correlation between the likelihood of attending a peer support group and higher rated positive interactions. The positive interactions produced two factors but were significant when forced into one factor which suggests that openness to peer support could be one-dimensional. The limitations and implication of this study are discussed.

Paper 3 describes a critical reflection of the processes undertaken for both the conceptual review and the empirical study and the motivations behind these. It discusses strengths and weaknesses and possible alternatives for future research. Personal reflections of the research process are also presented.

DECLARATION

This work has not been submitted in substance for any other degree or award at this or any other university or place of learning, nor is being submitted concurrently in candidature for any degree or other award.

Signed …………………………………… (candidate)   Date ……………………

STATEMENT 1

This thesis is being submitted in partial fulfilment of the requirements for the degree of DClinPsy.

Signed …………………………………… (candidate)   Date ……………………

STATEMENT 2

This thesis is the result of my own independent work/investigation, except where otherwise stated. Other sources are acknowledged by explicit references. The views expressed are my own.

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I hereby give consent for my thesis, if accepted, to be available for photocopying and for inter-library loan, and for the title and summary to be made available to outside organisations.

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A Theoretical Review to Investigate the Theories and Concepts used in Empirical Studies with Stroke Peer Support

1.0 ABSTRACT

Purpose: Stroke is a major global health problem and peer support interventions are becoming increasingly common as a model of support in health services. However, little is understood about the underlying concepts of peer support and how interventions utilise theoretical constructs in their development and evaluation. This paper aims to review studies evaluating peer support in stroke to determine which theories and models are being used to underpin the research and the functions they fulfil. Subsequently, the theories will be evaluated using standard criteria.

Method: A theoretical review was conducted with systematic methodologies. Databases MEDLINE, PsycINFO, EMBASE, CINAHL and Web of Science were searched to identify relevant literature using terms associated with both 'Stroke' and 'Peer Support'. Peer reviewed empirical studies (qualitative and quantitative) were included in the review if they either explicitly or implicitly referred to a theoretical concept in their study.

Results: Nineteen papers explicitly (9) or implicitly (10) referred to a particular theoretical framework. The most frequently cited theory was social comparison theory with social learning theory and the stress-coping model also being repeatedly used. The theoretical approach highlighted these dominant three theories and emphasised key principles that may provide a more comprehensive explanation of why peer support is effective for stroke survivors and carers. The review demonstrated that there may be common elements within the theories; (a) having homogeneity within the groups (b) having a sense of similarity amongst peers and (c) the extent to which role models are perceived to be authentic. This may offer a pathway towards defining and conceptualising SPS within empirical research studies.

Conclusions: The theoretical review emphasised the importance of theory use to understand behaviour change. The review also went some way to developing new understandings about the theories for SPS. The results suggest that three theories underpin some of the peer support processes thought to make the peer support model effective. However, only tentative conclusions can be drawn about the utility of the theories due to the issues outlined in the summary of findings and limitations of the review.

1.1 INTRODUCTION

Peer support occurs when people use their own experiences to help each other by providing knowledge, emotional, social or practical help (Mead et al., 2001). Peer support is often provided by people who have the same health condition (Yogesh & Priyank, 2018). It is considered different to professionally led support in that peers possess both experiential knowledge (derived from subjective and individual experience) and understanding which is pragmatic and therapeutic (Morris & Morris, 2012). Peer support has demonstrated its efficacy with stroke survivors and their carers when provided through multiple formats (telephone, web based, 1:1 and group) and contexts (hospital, community services and volunteer organisations).

Peer Support Groups

Peer support groups in stroke are heterogeneous (Dale et al., 2012) and vary in their aims, design, intervention and method of delivery. The aims of peer support groups include:

- Promoting resilience (Sadler, 2016);

- Decreasing depression (Dorning et al., 2016);

- Reducing social isolation (Dorning et al., 2016);

- Improving mental wellbeing (Dorning et al., 2016);

- Increasing knowledge and self-management (Dorning et al., 2016);

- Increasing likelihood of accessing support (Dorning et al., 2016);

- Improving confidence (Dorning et al., 2016).

Studies researching the effects of peer support have found increased feelings of belonging, encouragement, motivation and validation and decreased isolation (Kessler et al., 2014; Morris & Morris, 2012).

The use of Theory

Despite the importance of having explicit theoretical foundations, traditional systematic review procedures have been criticised due to the lack of exploration of contextual and process factors. This can lead to seemingly inconsistent findings relating to the evaluation of interventions (Pawson & Tilley, 1997). Consequently, theory-focused review approaches (such as this one) are acknowledged as worthwhile supplements to more traditional review methods. Such reviews can provide additional material regarding the multifaceted and underlying pathways underpinning the interventions (Baxter & Allmark, 2013). This type of review was agreed by the Academic Supervisor and Research Director of the South Wales DClinPsy course as per course guidelines (see appendix K) and emulates similar theoretical reviews (Baxter & Allmark, 2013; Bonell et al., 2013; Colquhoun et al., 2013; Davies et al., 2010).

The main contribution of theoretical reviews may be to 'open up reviewers thinking about the research topic and widen the potential space of hypothesis generation' (Campbell et al., 2014, p2). An initial scoping of the literature was performed to determine what previous reviews had been conducted. Systematic reviews evaluating the efficacy of peer support have already been completed and replicated (Dale et al., 2012; Lloyd-Evans et al., 2014); however, no conceptual or theoretical review evaluating the theoretical constructs underpinning peer support for stroke exist. Simultaneously, evidence suggests that much of the peer support research lacks this conceptual underpinning (Turner & Shepherd, 1999). Thus, the decision was made that the review should be theoretical in order to make a unique contribution to the literature.

A theory is described as '*a set of interrelated concepts, definitions and propositions*' about phenomena '*that present a systematic view of events or situations by specifying relations among variables, in order to explain or predict the events or situations*' (Glanz et al., 2015,

p25). Psychological theory is an evidence based concept, founded initially on hypotheses which are used to provide a model for understanding human thoughts, emotions and behaviours (Cherry, 2016). Theoretical conceptions are vital as they (a) help classify processes and underlying relationships, (b) understand the function for causal consistencies and (c) help us predict associations that may occur and guide research (White, 2016).

A 'good' theory generally has a number of characteristics which contribute to its utility:

1. It must have parsimony and be explained concisely with as few concepts as possible;
2. It must have falsifiability which enables an opportunity to refute it (Popper, 1963);
3. It must have testability in order for it to be repeated and either exposed as true or false, which may lead to it being eventually regarded as fact (Shuttleworth, 2008);
4. An effective theory should be generalizable to a wide range of settings (Wacker, 1998).

It is considered 'good practice' to apply theoretical concepts to the development and evaluation of interventions (Glanz & Rimer, 1995). However, empirically researched interventions usually apply the use of theory defectively and fail to demonstrate the links between (a) theoretical paradigms and the intervention hypotheses and (b) treatment design and evidence synthesis (Davis et al., 2015; Prestwich et al., 2013). Davis and colleagues (2015) postulated that theory application is a fundamental part of intervention development and evaluation and synthesis of evidence. They suggested that in order to strengthen treatment effectiveness, a theoretical understanding of behaviour change is imperative and should be applied within this process (as supported by the UK Medical Research Council's guidance for developing and evaluating complex interventions (Glanz & Bishop, 2010 as cited in Davis et al., 2015). This is vital for a number of reasons:

1. The causal elements of change can be appropriately recognised and utilised by the intervention and thus particular behaviour change practices can be cultivated;

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2. Theoretically recognised mediating effects such as 'social comparison' or 'social learning' can be explored to gain perspectives into the treatment effect stemming from the intervention;

3. Theoretical underpinnings encourage understanding of how to generalise behaviour change across a variety of different contexts and populations;

4. Those interventions that possess theoretical underpinnings enable the theory to be tested which assists in the development of more constructive and effective theoretical models which in turn leads to potentially more effective treatments.

It is currently unclear which (if any) theoretical concepts are being used to underpin the use of stroke peer support (SPS) or formulate hypotheses and results in SPS research. Exploring the theories used for SPS is fundamental given its prevalence in rehabilitation treatment and the variability in methodology (format, context, method of delivery, content, samples and designs) and effects (Dale et al., 2012). To date, there is no theoretical review of how peer support for stroke survivors and carers is conceptualised in the literature. Theoretical approaches result in generalizable frameworks 'within which to represent the dimensions that implementation studies address' (The Improved Clinical Effectiveness through Behavioural Research Group (ICEBeRG), 2006, p3). This informs intervention development and delivery, guides evaluation and allows exploration of potential causal mechanisms' (ICEBeRG, 2006, p3). Many studies involving SPS lack theoretical underpinnings (Trachtenberg et al., 2013; Lloyd-Evans et al., 2014); this implies that assertions for the efficacy of interventions lack foundation in prevailing theories and models and are instead, based on untested assumptions (Turner & Shepherd, 1999). Subsequently, former literature reviews have been unable to provide comprehensible recommendations for the efficacy of peer support (Repper & Carter, 2011). Theory use in study design, implementation, interpretation and development could lead to enhanced understanding of the causal mechanisms of how interventions function, improvement in intervention design

and improved understanding of why some interventions may fail where others succeed (Colquhoun et al., 2013).

1.1.1 AIMS

The review aimed to:

1. Discover the theories and concepts that have been used to develop and/or evaluate stroke interventions with peer support. Additionally, discover the theories and concepts that have been used in stroke group support studies to explain the mechanisms of peer support in stroke. A further aim was to determine where the theories are used within the studies (study design, intervention, explain results);

2. Evaluate the theories against the criteria for a 'good' theory;

3. Explore how the use of theories and their concepts may contribute to SPS research.

1.2 METHOD

1.2.1 Search Process

On 16th November 2016, a systematic search was performed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses PRISMA format and checklist (Moher et al., 2015) and the following databases were searched:

- PsycINFO (1806 – present)

- PsycARTICLES Full Text

- Ovid Medline (1946 – November Week 1 2016)

- Ovid MedlineR Epub Ahead of Print (November 15th 2016)

- AMED (Allied and Complementary Medicine)

- Embase (1947 – present)

- Cinahl

- Web of Science (the Web of Science search was conducted within the research 'Psychology' area)

The databases were searched with the following key terms which emerged from using the PICO (Population, Intervention, Comparison and Outcomes) tool which is predominantly used to identify elements of clinical evidence (Methley et al., 2014). This approach is generally recommended for a fully comprehensive search and recognised by the Cochrane Collaboration (Higgins & Green, 2013). Key search terms for both 'stroke' and 'peer support' (see table 1) were amalgamated using Boolean operator 'OR' and 'AND' respectively to provide a total number of articles.

Table 1 – Search Terms

Title OR Abstract OR Keyword (One of)		All Fields (One of)
Stroke* Cerebrovascular accidents* Cerebral haemorrhage* Cerebral hemorrhage* Cerebral ischemia* CVA* TIA* Cerebral infarction* Brain aneurysm* Intracerebral haemorrhage* Intracerebral hemorrhage* Cerebral thrombosis* Silent cerebral infarction*	**AND**	Peer Support* Peer counselling* Support group* Social network*

Arterial thrombosis*		Peer group*

1.2.2 Inclusion and Exclusion Criteria

Articles were included if they were peer-reviewed articles that used empirical research (either quantitative or qualitative) as a methodology and used either stroke survivors or carers over the age of 18 as participants. Papers were included (a) if peer support was evaluated as an intervention (formal peer support) and/or (b) if peer support was understood to be part of a group support intervention (informal peer support) and/or (c) if peer support was explored as part of an intervention. This may include case or exploration studies. The peer support element in the latter papers had to correspond with the definition of peer support (i.e. sharing knowledge/experiences within a group setting) (Mead & MacNeil, 2006). Furthermore, the peer support element had to correspond with a peer support delivery model; Peer support may have been facilitated by (a) professionals with the assistance of peers (b) peers only (peer-led) or (b) professionals leading the support group (facilitated peer support) (Mental Health Foundation, 2012). Papers must have referred explicitly or implicitly to theories and models pertaining to the use of peer support[1]. Theories can be explicit or implicit (ICEBeRG, 2006). It is common practice in theoretical reviews to include studies that do not explicitly mention theory but refer to the conceptual basis of theories (Baxter & Allmark, 2013; Bolander Laksov et al., 2017; Campbell et al., 2014; Davies et al., 2010). From a social constructivist perspective, implicit use of theory (which may involve only assumptions) stems from the shared understanding of a particular speciality group (i.e. psychologists) of how certain methods/analysis procedures are understood to be of value (Bolander Laksov et al., 2017). 'Using one (or several) concepts drawn from existing theory to illuminate research findings is perfectly valid and acceptable as a strategy in its own right'

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[1] Explicit – Papers that included the explicit discussion of theories, stated the name of the theory and how it was used in the study i.e. to develop interventions.
Implicit – Papers that included the implicit discussion of theories did not directly refer to the theory by name but may have referred to the theory's concepts i.e. to explain results.

(Layder, 1998, p24). In this case, 'implicit' use related to the reference or discussion of assumptions that relate to theoretical concepts although they may not have stated the theory explicitly. All articles were available in the English language. Articles were excluded if they were review papers, conference/dissertation abstracts, book chapters, unpublished research, and editorial letters. Papers were also excluded if they failed to explicitly or implicitly refer to a theory or if they included research pertaining to other health conditions without segregating stroke as the main condition. This was due to the possibility of creating anomalies in the results since effectiveness of peer support groups may depend on the homogeneity of members (Morris & Morris, 2012).

1.2.3 Search Results

The systematic search resulted in a total of 1612 potential articles for review. 1319 papers were excluded as they failed to meet the inclusion criteria based on title and abstract. A further 235 were omitted after more scrutiny as they were either conference (n=69) or dissertation abstracts (n=2), review papers (n=26), ineligible (n=108) or duplicates (n=31). Sixty-one full text papers in total were reviewed and a further 42 excluded because they did not explicitly or implicitly refer to a theoretical concept in their methodology or discussion. All papers that referred to a theoretical concept that was excluded from the review still met inclusion criteria (by either explicitly or implicitly referring to one of three theoretical concepts (Social Comparison Theory (SCT), Social Learning Theory (SLT), Stress Coping Model (SCM)). Consequently, no studies were excluded that made reference to theory. A total of 19 articles were included in the conceptual systematic review, 9 referred explicitly to one or more particular theoretical perspective to develop their intervention and/or to evaluate the effects of a peer support intervention. Ten other papers inferred implicitly to particular theoretical assumptions to explain results or findings in their discussion or conclusions. Seven of the papers were intervention studies (including 1 case study), 9 were group

support studies which involved peer support and 3 were exploratory studies. An overview of the search and screening process is displayed in Figure 1.

As opposed to more traditional systematic appraisals, this theoretical review was more 'configurative' rather than 'aggregative' and aimed to ascertain (a) what theories and concepts were being used in SPS studies and (b) explore they may contribute to SPS research. The nature of this configurative approach sought to elucidate existing research findings and develop 'new understandings' about the theories for SPS rather than evaluate and appraise empirical studies (Campbell et al., 2014). The review aimed to adopt a narrative approach to identify (a) the theories or theoretical concepts used, (b) the assumptions made by the authors based on those theories and (c) 'hypothesised mechanisms within the papers' (Baxter & Allmark, 2013, p3). Table 2 was used to help group studies which used theory in some form in their study (whether implicitly or explicitly) and identify and explore the associated assumptions and hypothesised mechanisms to help develop an understanding of the characteristics of papers (in terms of where and how they use theory) evaluating SPS interventions (Baxter & Allmark, 2013).

The aims of a theoretical review determine the approach to synthesis; similarly to Bonell et al., (2013) and Baxter & Allmark (2013), this review aims to consider individual theories as the unit of analysis with a focus on portraying a representation of fundamental factors inherent to that theory (Campbell et al., 2014).

Systematic review guidance usually recommends a team of researchers which may include a subject specialist (Campbell et al., 2014). This is particularly significant for theoretical reviews which are likely to involve researchers with a thorough knowledge of the field, where they can provide insight into the development and interrelation of theories (Campbell et al., 2014). However, a review that aims to scope out theories is less likely to require specialist

input than those aiming to develop meta-theories (Hannes, 2011 as cited in Campbell et al., 2014).

Selecting a systematic method for reducing the number of theories to review was a complex process; firstly, choosing theories based on methodological quality was regarded as unsuitable. 'Study methodology and theoretical development are different areas of research demanding different skills and thus, high quality empirical methods may not necessarily occur alongside good or influential theories' (Campbell et al., 2014, p7). Secondly, reviewing all the theories against the criteria for a 'good' theory in order to select the best theories to review would be tautological. This is also unfeasible for one researcher completing a DClinPsy review. Thirdly, almost all of the alternative theories that could have been reviewed were mentioned in only one paper (that may or may not have been included in the review). Thus, reviewing these theories would have only utilised one paper and may have left very little for discussion of information/results to explore how this theory influences SPS research. Consequently, only the three most frequently cited theories were evaluated in detail; it was considered that reviewing the theories in this way yielded more information about that theory's use in SPS. This also suited the theoretical approach of the review which was to portray a representation of fundamental factors inherent to a particular theory (Campbell et al., 2014)). This approach is used in the following paper; Baxter & Allmark (2013), although this paper chose to review only one theory (the most dominant) cited in papers.

The three most frequently cited theories were:

(a) Social Comparison Theory (SCT) (Festinger, 1954);

(b) Social Learning Theory (Bandura, 1963);

(c) The Stress-Coping Model (SCM) (Lazarus & Folkman, 1984).

The theories excluded were:

(a) Model of Human Occupation (MOHO) (Kielhofner & Burke, 1980)

(b) Group Dynamic Theory (Yalom & Leszcz, 2005);

(c) Equity, Reciprocal or Social Exchange Theory (Tilden & Galyen, 1987);

(d) Meaning Making Model (Park, 2010);

(f) Biographical Disruption and Repair (Bury, 1982).

Figure 1

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                    │   1612 records identified by │
                    │     searching databases      │
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                                  │        │  42 Articles Excluded     │
                                  │        │ Did not refer explicitly  │
                                  │───────▶│ or implicitly to theory   │
                                  │        │ or theoretical concepts   │
                                  │        │ of peer support.          │
                                  ▼        └──────────────────────────┘
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19 Articles met inclusion criteria
Referred explicitly to one or more theoretical concept (n=9)
- Social Comparison Theory (n=7)
- Social Learning Theory (n=5)
- Stress-Coping Model (n=3)

Inferred a theoretical concept (n=10)
- Social Comparison Theory (n=9)
- Social Learning Theory (n=1)
- Stress-Coping Model (n=3)

Table 2 - Overview of Articles included in the Theoretical Review

(a) Peer Support Intervention Studies

Study (Authors/Date/Location)	(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (peer-led only, facilitated by professionals) (b) Model of Peer Support Delivery (Facilitated peer support, Peer led, befriending/buddying, peer mentoring (MHF, 2014) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings related to Hypotheses of Theories	Implicit use of Models/Theories
1. Kessler et al., (2014) Canada	Aimed to: Describe the perceptions of stroke survivors, care partners, peer supporters and professionals of an individual peer support programme. Goals – to provide hope, decrease feelings of stigma and isolation. **Peer Support Intervention Study**	Qualitative Instrumental Case Study Design	Acute Care Home visits (a) Peer-led Only (2 at a time). (b) Peer-Led Support (c) 16 stroke survivors, 8 care partners, 7 peer supporters, 3 program co-ordinators, 4 health-professionals.	(a) No concepts used to inform study design (b) Concepts used to explain results	• Peers provided emotional and informational support. • Wide ranging benefits for peers.	*Concepts implicitly used to explain results* **1. Social Comparison Theory (similarity hypothesis)** – talking to someone who had gone through a similar experience fostered feelings of validation and decreased feelings of isolation. **2. Social Learning Theory** – Information received from a peer was generally given more value that received from a healthcare professional.

Study (Authors/Date/Location)		(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (peer-led only, facilitated by professionals) (b) Model of Peer Support Delivery (Facilitated peer support, Peer led, befriending/buddying, peer mentoring (MHF, 2014) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings related to Hypotheses of Theories	Implicit use of Models/Theories
2.	Morris & Morris (2012) (UK)	Aimed to: Examine stroke patients, carers and volunteer supports' experiences of peer support groups during hospital rehabilitation. **Peer Support Intervention Study**	Qualitative instrumental case study.	Inpatient (hospital based) peer support group (a) Groups co-facilitated by peers (stroke survivors and carers) and two staff members. Peers completed training prior to group. (b) Facilitated peer support (c) 7 stroke survivors, 3 carers (8-peer supporters (5-survivors and 3-carers)).	*(a) Concepts used to inform study design* 1. **Social Learning Theory** – promote social learning through role models to learn skills and increase self-efficacy 2. **Social Comparison Theory** – influences coping and emotions 3. **Stress Buffering** – highlights additional resources and effective means of coping 4. **Direct Benefit** – Practical help and support provided 5. **Mediating Effect Model** – inhibiting maladaptive responses to perceived stressors. *(b) Concepts used to explain results* 1. **Social Comparison Theory** (Upward and Downward) – both upward and downward comparisons occurred and could be experienced as uplifting.	• Social Comparison Theory (Upward and Downward) – both upward and downward comparisons occurred and could be experienced as uplifting. • Group members with the greatest similarity in terms of their stroke experience were perceived to be the most valuable sources of support.	*Concepts used to explain results* 1. **Social Comparison Theory (similarity hypothesis)** – Group members with the greatest similarity in terms of their stroke experience were perceived to be the most valuable sources of support.

Study (Authors/Date/Location)		(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (peer-led only, facilitated by professionals) (b) Model of Peer Support Delivery (Facilitated peer support, Peer led, befriending/buddying, peer mentoring (MHF, 2014) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings related to Hypotheses of Theories	Implicit use of Models/Theories
3.	Muller et al., (2014) USA	(a) Aimed to report results of a hospital based peer support group for young stroke survivors (b) 1. Socialisation both within and outside group context 2. Healthy coping strategies after stroke 3. Engagement in novel or premorbid role inside/outside of the group context. **Peer Intervention Study**	Pre-post Longitudinal	Inpatient (hospital based) peer support group. (a) Facilitated by professionals. A peer supporter facilitated one session. (b) Facilitated Peer Support (c) 13 Stroke Survivors all aged under 65	(a) *Concepts used to underpin peer support intervention* *(Theoretical perspectives used to guide development and implementation of group):* 1. **Model of Human Occupation (MOHO)** – *Used as a framework to understand the central importance of how the roles of individuals determine the nature of occupational performance and behaviours within different life stages.* Hypothesised that repetition and environmental feedback within group setting is beneficial to assimilate new performance patterns and modified roles. 2. **Self-efficacy Group Dynamic Theory** – Used to provide overall contextual framework – to provide a sense of belonging and commonality, opportunities for vicarious learning, feedback and modelling, facilitate real-life approximation within social contexts. Mechanisms of change include; universality, installation of hope, altruism, modelling, interpersonal learning, socialization, and catharsis with guided group processes. 3. **Social Learning Theory** – used to guide the implementation of the program. Hypothesised to promote coping and adaptation using active strategies such as modelling. *(b) No concepts used to explain results*	Survey results supported hypotheses: - 10 of 13 members agreed they were able to identify a new coping strategy and 8 reported they actively used this outside group. - Half of participants reported interaction with other members outside group context. - Half of participants reported socialisation being favourite part of group process.	

Study (Authors/Date/Location)		(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (peer-led only, facilitated by professionals) (b) Model of Peer Support Delivery (Facilitated peer support, Peer led, befriending/buddying, peer mentoring (MHF, 2014) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings related to Hypotheses of Theories	Implicit use of Models/Theories
4.	Sadler et al., (2016) UK	(a) Aimed to report on the development and preliminary evaluation of a novel intervention to promote resilience after stroke. (b) To increase resilience in stroke survivors **Peer Intervention Study**	Mixed Methods Design	Peer Group Program – two 50 minute long module sessions, running once a week for 6 weeks. (a) Facilitated by 2 stroke survivors. (b) Peer-led Support (c) 22 stroke survivors (60+ years) and 5 carers.	*(a) Concepts used to underpin peer support intervention (Theoretical mechanisms likely to improve resilience and psychosocial outcome).* 1. **Social Learning Theory** – improve socialisation, healthy coping and role attainment 2. **Meaning Making Model** – promotes adjustment 3. **Social Comparison Theory** – downward social comparison improves perceptions of wellbeing. *(b) Concepts used to explain results* 1. **Social Comparison Theory** – Positive appraisal of wellbeing through social comparison.	*Quantitative Results* • No change in mean activity levels • No change in mean depression scores • Marginal increase in resilience scores • Slight increase in mean anxiety scores *Qualitative Results* • Peers reported meaning-making through shared experiences • Peers reported increased coping strategies. • Peers reported positive appraisal of wellbeing through social comparison.	

Study (Authors/Date/Location)		(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (peer-led only, facilitated by professionals) (b) Model of Peer Support Delivery (Facilitated peer support, Peer led, befriending/buddying, peer mentoring (MHF, 2014) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings related to Hypotheses of Theories	Implicit use of Models/Theories
5.	Stewart et al., (1998) Canada	(a) Aimed to: 1. Implement a home visiting program for family caregivers of seniors with a recent stroke using experienced peers 2. Monitor, describe and evaluate the peer support intervention process 3. Measure the impact of the peer support intervention of caregivers' perceptions of their social support, burden, stress and competence and the use of health-care services by stroke survivors. **Peer Support Intervention Study**	Qualitative Instrumental Case Study	1:1 Peer Support home visits (2 home visits for two weeks) (a) Visits completed by peers (stroke carers) only. (b) Peer-led Support (c) 20 Carers of Stroke Survivors	*(a) Concepts used to underpin peer support intervention (Mediating Processes anticipated within intervention).* 1. **Social Comparison Theory** – depending on direction will influence emotions and coping effectiveness. 2. **Equity or Social Exchange Theory** – support may involve benefits and costs to both recipients and providers. 3. **Social Learning Theory** – perception of capabilities will affect behaviour, thinking and emotional reactions. *(b) No theories used to explain results*	• Peer support increased self-esteem and made them feel more capable. • Peer support increased confidence. • Peer support reduced feelings of uncertainty. • Peer support lessened caregiving demands. • Peer support increased coping effectiveness. Peer support improved emotion focused coping strategies.	

Study (Authors/Date/Location)		(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (peer-led only, facilitated by professionals) (b) Model of Peer Support Delivery (Facilitated peer support, Peer led, befriending/buddying, peer mentoring (MHF, 2014) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings related to Hypotheses of Theories	Implicit use of Models/Theories
6.	Stewart et al., (2006) Canada	(a) Designed to overcome barriers that prevent family caregivers from participating in support programs by developing and testing an accessible telephone support intervention Aimed to find: 1. What types of support provided? 2. What processes influence impact of telephone support dyads? 3. Participants perception of the impact of dyads? 4. How do participants evaluate satisfaction with intervention? **Peer Support Intervention Study**	Qualitative Approach	1:1 Telephone Peer Support. (a) Weekly telephone support (20 sessions) completed by peers (stroke carers) only. (b) Peer-led Support (c) 66 Carers of Stroke Survivors (Study also involved other chronic conditions, namely Alzheimer's).	(a) *Concepts used to underpin peer support intervention* *(Mediating Processes anticipated within intervention - does not hypothesise outcomes)* 1. **Social Comparison Theory** 2. **Social Exchange Theory** 3. **Social Learning Theory**. *(b) Concepts used to explain results* 1. **Social Comparison Theory** – *Validated and normalised experiences, some participants experienced negative effect as a result of comparison with peer helpers.* 2. **Social Learning Theory** – *Exemplified in interactions most similar in caregiving experiences. Many dyads established rapport/friendship based on similarity of situations or attitudes.* 3. **Social Exchange Theory** – *Peer dyads fostered reciprocal exchange and mutuality among equals.*	• Key perceived impact of intervention were: increased caregiving competence and confidence, decreased caregiving burden, decreased loneliness, increased satisfaction with support, decreased support needs and improved coping.	

Study (Authors/Date/Location)		(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (peer-led only, facilitated by professionals) (b) Model of Peer Support Delivery (Facilitated peer support, Peer led, befriending/buddying, peer mentoring (MHF, 2014) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings related to Hypotheses of Theories	Implicit use of Models/Theories
7.	Tregea & Brown (2013) Australia	(a) Aimed to identify core components of successful peer group from participants' perspective. Explore the information and support needs of peer leaders in starting and running a group.	Qualitative Approach (Focused ethnography)	Four Community Based Peer-support groups (a) Facilitated by peers only. (b) Peer Led Only (c) 26 (19 stroke survivors, including 2 peer leaders. 7 family members, including 1 peer leader).	*(a) No concepts used to inform study design or intervention.* *(b) No concepts used to explain results*	• Themes important for successful peer group; friendship, informality, supportive, communication environment, providing support and practical consideration for timings of meetings. • Meeting new people and sharing life experiences were identified as positive and important parts of the group. • Mutual support and understanding fostered communication between members. • Mutual understanding of communication difficulties provided the basis for supportive interactions – built confidence.	*Concepts implicitly used to explain results* **1. Social Comparison Theory (similarity hypothesis)** – participants described instant bonds, feelings of belonging and close friendships that were formed on the basis of shared experience.

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(b) Group Support Interventions (Peer Support within Studies)

Study (Authors/Date/Location)		(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (b) Model of Peer Support Delivery (Facilitated peer support, Peer led) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings	Implicit use of Models/Theories
8.	Barton (2002) UK	(a) Aimed to: Help patients to cope psychologically with the aftermath of a stroke. In particular, it aimed to give patients an opportunity to share and emotionally process their experiences of the stroke, and to work towards greater psychological acceptance of their disabilities and changed health circumstances, in a group setting. (b) Support patients in psychological adjustment through sharing and processing experiences. Increase individual control and self-esteem, and encourage patients to develop a positive attitude. **Not a peer support intervention study - peer support was explored as part of an intervention (informal peer support).**	Qualitative Approach	Inpatient support group (a) Facilitated by Professionals Only (Clinical Psychologist and Nursing Students). (b) Facilitated peer support (c) 6 Stroke Survivors	(a) *No concepts used explicitly in the design, intervention.* (b) *No concepts used to explain results.*	• The group helped patients in the emotional processing of their experience of stroke. It also helped to promote psychological adjustment to their changed circumstances	*Concepts used to explain results* **1. Social Comparison Theory (comparison) –** comparing their own 'ill health' to others in 'good health' invoked feelings of envy and resentment.

Study (Authors/Date/Location)		(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (b) Model of Peer Support Delivery (Facilitated peer support, Peer led) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings	Implicit use of Models/Theories
9.	Gurr et al., (2009) UK	Aimed to: Discuss the implementation and evaluation of a psychosocial group for stroke survivors in the acute phase of rehabilitation **Peer support was detailed as a purpose of the intervention**	Mixed Methods Design	Inpatient (ward based) support group. (a) Facilitated by Professionals Only (Trainee Psychologist, OT & Physiotherapy). (b) Facilitated peer support (c) 80 Stroke Survivors	(a) *No concepts used explicitly in the design, intervention.* (b) *No concepts used to explain results.*	• No significant improvement in mood. • Significant reduction in anxiety.	*Concepts implicitly used to explain results* **Social Comparison Theory (similarity hypothesis)** – The group provided a means for participants to communicate with like-minded people which guided understanding of their health situation and increased the likelihood of positive wellbeing. Helped patients explore emotional responses to stroke.
10.	Reed et al., (2010) UK	Aimed to: Explore stroke survivors' needs and their perceptions of whether a community stroke scheme met these needs. **Exploration study into whether a peer stroke group met needs**	Qualitative Study using a phenomeno logical approach. Mixed Methods RCT.	Community based peer support group. (a) Co-ordinated by peer volunteers. (b) Peer-led only. (c) 12 Stroke Survivors	a) *No concepts used explicitly in the design, intervention.* (b) *Concepts used to explain results* **1. Social Comparison Theory (comparison)** – Comparison with others created opportunities to change perspective of member's lives and re-evaluate negative impact of stroke. Participants compared to peers they perceived as more disabled; this increased self-esteem and enabled adjustment of perceived view of their own disability.	• Group members felt that the group met their needs through exercise, goal setting and peer group interaction – this included social support and knowledge acquisition.	

Study (Authors/Date/Location)	(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (b) Model of Peer Support Delivery (Facilitated peer support, Peer led) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings	Implicit use of Models/Theories
11. Rotherham et al., (2015) New Zealand	Aimed to: Explore benefits for adults with aphasia of all the groups they had participated in post stroke as perceived by aphasic individuals and their family members. **Not a peer support intervention study – exploration study into stroke groups including peer-facilitated aphasia and stroke groups.**	Qualitative Descriptive Approach	Semi-structured interviews using an interview guide involving attendees (at least once occasion) of stroke support groups. Stroke Survivors	a) *No concepts used explicitly in the design, intervention.* (b) *Concepts used to explain results* 1. **Social Comparison Theory (comparison)** – Participants found it beneficial to compare own communication and physical progress with others. Comparisons with group members who were perceived to be not doing as well as others helped individuals feel their own communication/physical skills could be worse. Others were inspired by the accomplishments of others.	Qualitative Key Findings of Peer Facilitated aphasia and stroke groups: • Feelings of hope and encouragement. • Improved confidence. • Positive appraisal of stroke. • Increased sense of worth. • Improved communication. • Provided with a sense of achievement. • Provided with a sense of identity in relation to stroke.	
12. Schouten et al., (2011) Australia	(a) Aimed to: Describe a study evaluation of a stroke rehabilitation support group programme from multiple perspectives **Peer support not main goal of intervention. Peer Support occurred as part of an intervention (informal peer support).**	Qualitative Approach	Community support group. (a) Facilitated by professionals only (b) Facilitated peer support (c) 4 Stroke Survivors	(a) *No theory or models used explicitly in the design, intervention* (b) *No theory used in explanation of results.*	• Six themes emerged: A place to go, diversity of the group, the art of group design, awareness of abilities through doing, it's all about relationships, over and above.	*Concepts used to explain results* **1. Social Comparison Theory (comparison)** –identified psychosocial benefits. This included peer comparison, a strong sense of belonging and enjoyment. Found opportunities to develop new self-identity though comparing selves to peers and assessing/gaining awareness/confidence in own functional abilities.

Study (Authors/Date/Location)	(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (b) Model of Peer Support Delivery (Facilitated peer support, Peer led) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings	Implicit use of Models/Theories
13. Van Den Heuvel et al., (2000) Netherlands	Aimed to: Enhance caregivers' confidence in knowledge, active coping strategies, mental well-being, vitality, social support, assertiveness, and at reducing strain. In addition, we investigated which type of support, i.e. a group program or home visits, had the most positive effects. Caregivers **A group support intervention study - peer support occurred within group intervention (informal peer support).**	Controlled Intervention Study (compared group program with 1:1 support programme)	Support Group Program and Home Visits. (a) Facilitated by Professionals Only. (b) Facilitated peer support (c) 130 Carers of Stroke Survivors (group programme) 78 (home visit programme).	(a) *Concepts used to underpin intervention* 1. **Stress-Coping Theory** – to increase knowledge of caregiving and active coping strategies. Further positive effects on wellbeing predicted as a result of enhanced active coping strategies. (b) *No concepts used to explain results*	• Medium increase in coping strategies (both interventions) • Participation in a group or 1:1 does not yield any positive effects on mental well-being and vitality or decreased strain. Neither does it result in an increase in the amount of social support or satisfaction with social support. No difference between group and 1:1 programme	

Study (Authors/Date/Location)	(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (b) Model of Peer Support Delivery (Facilitated peer support, Peer led) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings	Implicit use of Models/Theories
14. Van den Heuvel et al., (2002) Netherlands	Aimed to: Achieve an increase in both knowledge and in the use of active coping strategies. Long term aims were to obtain a decrease of strain, increase in vitality, mental-wellbeing, social support, satisfaction with social support and assertiveness in caregivers. **A group support intervention study - peer support occurred within group intervention (informal peer support).**	Longitudinal Controlled Design	Support Group Program and Home Visits. (a) Facilitated by Professionals Only (Nurses). (b) Facilitated peer support (c) 257 Carers of Stroke Survivors (110 in the group 'peer support element'	(a) *Concepts used to guide Intervention* 1. **Stress-Coping Theory** – hypothesised an increase in both knowledge and in the use of active coping strategies. Long term aims were to obtain a decrease of strain, increase in vitality, mental-wellbeing, social support, satisfaction with social support and assertiveness in caregivers. Model predicts that active coping strategies lead to increased wellbeing. (b) *States that did not get results expected based on the theory used to underpin intervention.*	• Significant effects in confidence in knowledge about patient care, seeking social support and the amount of social support in the group programme only (although not large enough to demonstrate significant differences between the group programme and home visits). • Both group programme and home visits contributed to a small to medium increase in confidence in knowledge and use of active coping strategy. • No Significant differences between support group and home visit group • No effect on caregivers' physical or mental well-being.	

Study (Authors/Date/Location)	(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (b) Model of Peer Support Delivery (Facilitated peer support, Peer led) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings	Implicit use of Models/Theories
15. Vohora & Ogi (2008) UK	(a) Aimed to: facilitate psychological adjustment and to support understanding of the emotions associated with recovery. (b) Normalise reactions and emotions experienced by stroke survivors; Support the 'rebirth' of identity, as stroke survivors often report loss of their 'old self'. Give patients the space and opportunity to regain control and realise the importance of exercising choice. Encourage discussion in the group and the sharing of experiences. Raise awareness of the role of mood on engagement in rehabilitation.	Qualitative Approach	Inpatient group intervention (a) Facilitated by Professionals Only (Clinical Psychologist and Nursing Students). (b) Facilitated peer support (c) 6 stroke survivors	(a) *No theory or models used explicitly in the design or intervention.* (b) *No explicit use of theory in explanation of results.*	• 31% of all responses showed patients felt meeting others on the ward to be the most helpful outcome. • It was noted that patients from different bays on the ward tended not to interact with each other. However, some who attended the group were seen talking to each other on the ward following sessions. • A considerable proportion of responses did not identify any aspects of the group as unhelpful (71%).	*Concepts implicitly used to explain results* 1. **Social Comparison Theory (similarity hypothesis)** – Patients appeared to find comfort in realising that others expressed similar concerns and seemed to benefit from discussing difficulties and generating possible solutions.

Study (Authors/Date/Location)		(a) Research Aims (b) Goal of Intervention	Design	Details of Peer Support (a) Facilitators of Peer Support (b) Model of Peer Support Delivery (Facilitated peer support, Peer led) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings	Implicit use of Models/Theories
16.	Williams (2012) UK	(a) Aimed to discuss experiences of attending a self-supporting carers group. (b) objectives included; sharing experiences, providing support for each other and getting practical advice on caring Case study	Qualitative Approach	Group support programme for carers of stroke survivors. (a) Facilitated by professional (nurse) and peers with the view for to be self-sustaining with peer-led only. (b) Facilitated peer support. (c) Case Study involving 2 stroke survivors.	(a) *No concepts used explicitly in the design, intervention.* (b) *No explicit use of theory in explanation of results.*	• Increased confidence in caring. • Decreased isolation.	*Concepts implicitly used to explain results* 1. **Social Comparison Theory (similarity hypothesis)** – benefits included sharing worries and stories with others in the same situation – increased confidence in caring and reduced isolation

(c) Peer Support Exploratory Studies

Study (Authors/Date/Location)	(a) Research Aims	Design	Details of Peer Support (a) Facilitators of Peer Support (b) Model of Peer Support Delivery (Facilitated peer support, Peer led) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings related to Hypotheses of Theories	Implicit use of Models/Theories
17. Ch'ng et al., (2008) Australia	(a) Aimed to: Present results from a series of focus groups with stroke support members. **Not a peer support intervention study – exploratory study which featured peer support.**	Qualitative Approach	Focus Groups involving regular attendees of stroke support groups.	(a) (a) *No concepts used explicitly in the design, intervention.* (b) *No explicit use of theory in explanation of results.*	• Feeling understood by others in the group normalised experiences	*Concepts implicitly used to explain results* 1. **Social Comparison Theory (similarity hypothesis) –** feeling understood by others in the group in a way that family or friends could not understand – helped to normalise their experience and post stroke way of life as well as providing practical tips for living with a disability. It is encouraging to see other people's progress.
18. Cutler et al., (2016) Canada	(a) Aimed to: Find out how participating in a peer support group impacts an adults psychosocial adjustment following brain injury. **Exploring the role of a Peer Group on participant's psychosocial adjustment during recovery (goal was not to test effectiveness but use group to understand adjustment).**	Qualitative Approach	Inpatient Peer Support Group (a) Professional Led only (b) Facilitated Peer Support (c) 16 patients with brain injury (5 stroke patients)	(a) The study applied the theoretical framework of biographical disruption and repair to explore for the participants' perspective the role of a peer support group on their own psychosocial adjustment during their recovery. (b) Biographical repair was highlighted through an adapted sense of self fostered through shared processes.	• Data analysis (guided by Bury's sociological framework revealed participants pre-group disrupted sense of self, including subthemes related to intrinsic losses and uncertainty. • Enhanced psychosocial adjustment described participants' reorientation through shared experience.	*Concepts used to explain results* 1. **Social Comparison Theory (similarity hypothesis) –** the ability to connect with peers at similar developmental stages had significant emotional and social value. **(Comparison) -** Peers compared their own situation with others which yielded both gratitude and humility about their own situation. Comparison of stories had a positive impact of participants' self-perspective by challenging their own beliefs about their capabilities and sense of self. Helped cultivate inclusion, validation and normalisation

Study (Authors/Date/Location)	(a) Research Aims	Design	Details of Peer Support (a) Facilitators of Peer Support (b) Model of Peer Support Delivery (Facilitated peer support, Peer led) (b) Participants	(a) Concepts used to inform study design OR to underpin peer support intervention – Hypothesised outcomes (b) Concepts used to explain results	Key Findings related to Hypotheses of Theories	Implicit use of Models/Theories
19. Schure et al., (2005) Netherlands	(a) Aimed to: Evaluate the strengths and weaknesses of a group support program and home visiting program for family carers of stroke patients **Not a peer support intervention study - peer support was explored as part of an intervention (informal peer support).**	RCT	Support group program and home visits. (a) Facilitated by Professionals Only (Nurses). (b) Facilitated peer support (c) 127 Carers of Stroke Survivors.	(a) C*oncepts used to guide intervention* **1. Stress-Coping Model (Lazarus & Folkman, 1984) –** increased knowledge and coping which in turn increase wellbeing. **2. Social Comparison Theory –** both intervention types differ in the way SCT can be practiced. Deeper analysis of differing intervention components might reveal additional knowledge on this subject. (b) *Concepts used to explain results* **1. Social Comparison Theory (upward comparison) -** identified positive effects of emotional and informational support in their group programme compared to the 1:1 programme and used upward comparison to explain this.	• Home visit participants missed peer contact. • Group program demonstrated more benefits especially with regards to informational and emotional components. • Caregiver's preference for type of intervention revealed both types received support; those that preferred the group program could be characterised by a number of features: they were burdened, lived with a more psychologically handicapped relative, were using active coping strategies more frequently or lived in a region which is considered to be sociable.	

1.2.4 Quality Appraisal

Theoretical evidence cannot be appraised using the same tools developed for traditional systematic reviews which focus on study design and internal validity (Campbell et al., 2014). Some reviews evaluate theories from empirical papers appraised to be of a high methodological quality; however, study methodology and theoretical development are separate research topics which require different skills. Thus, 'high quality empirical methods do not necessarily occur alongside good or influential theories' (Campbell et al., 2014, p7).

Consequently, the theories were assessed in terms of their quality using a purpose designed tool of the standard characteristics for a 'good' theory derived from the literature. The theories were scored between 0-2 depending on how well they met each characteristic. The scoring was based on the quality of the theory at this current moment in time based on the literature supporting that theory. The quality scores given to each theory (SCT, SLT and SCM) are displayed in Table 2.

Table 3 - Quality Appraisal Scoring

A 'Good' Theory Characteristic	A 'Good' Theory Characteristic
Parsimony (*The theory includes the minimum number of constructs required to explain the phenomena sufficiently (Goodwin, 1999).*	**0-2**
Falsifiability (*that a hypothesis or theory has the capacity to be tested and then refuted as false*)	**0-2**

Testability (*The level to which a theory can create hypotheses that can be assessed empirically, thus the theory can be either confirmed or falsified*)	**0-2**
Generalizable (External Validity) (*The extent to which the theory is applicable to settings other than that in which they were originally applied Øvretveit* et al., *2011)*	**0-2**
Utility (*The application of psychological theory and its contribution to improvements in clinical practice and research*)	**0-2**

Score 0	Characteristic unmet
Score 1	Characteristic partially met
Score 2	Characteristic fully met

1.3 RESULTS

1.3.1 Theories of Peer Support

The three dominant theories identified in the literature were reviewed; social comparison theory, social learning theory and the stress-coping theory.

Aim: Discover the theories and concepts that have been used to develop and/or evaluate stroke interventions with peer support. Discover the theories and concepts that have been used in stroke group support studies to explain the mechanisms of peer support in stroke.

1.3.1.1 Social Comparison Theory

SCT claims that individuals appraise themselves by comparison with others in order to reduce feelings of uncertainty. They are drawn to/seek those they share similarities with (such as a chronic illness) to enhance their experience of normality (Festinger, 1954).

SCT has two central tenets:

a) The 'similarity hypothesis' theorises that individuals will be drawn to those most similar to themselves. This makes them able to assess and evaluate their aptitudes more accurately (Wood, 1989).

b) The 'upward and downward comparison' hypothesis. Upward comparison states that people strive to improve themselves so they compare with those they perceive to be above them. Downward comparison states that people compare themselves to those they perceive to be worse off in order to change the way they feel about a particular situation or self-concept.

Aim: Evaluate the theories against the criteria for a 'good' theory *(critical appraisal of theory)*

Table 4 - *Review of Social Comparison Theory*

A 'Good' Theory	Social Comparison Theory (SCT)	Quality Rating (1-2)
Parsimony	SCT could be considered parsimonious as it has very clear defined constructs such as upward and	2

	downward social comparison. Furthermore, it is easily distinguished from other theories - even those that have evolved from itself such as equity theory (Goldenberg et al., 2016). However, Kruglanski & Mayseless (1990) suggested that the original theory is too fixed and narrow to accommodate more recent conceptual and empirical research. This has subsequently led to additional comparison patterns and has included new domains of (a) threat and emotion and (b) alternative motivations for social comparison such as self enhancement and self-improvement (Taylor & Lobel, 1989; Wills, 1981; Kruglanski & Mayseless, 1990). This may potentially reduce its parsimony in the future.	
Falsifiability	Wood (1989) and Kruglanski & Mayseless (1990) found evidence that strongly supports many aspects of SCT and some that challenges it. One tenet in particular, is the 'similarity hypothesis' which has often been falsified; some research has demonstrated that on occasions, people prefer to compare with dissimilar rather than similar others (Gilbert et al., 1995). These examples demonstrate its verifiability and falsifiability.	**2**

Testability	SCT possesses a number of testable hypotheses within the model which have been empirically researched (Morse & Gergen, 1970). For example, social comparison can lead to affiliation and conformity pressures (Wood, 1989). The theory has demonstrated its testability in a number of settings and contexts such as eating disorders and the military (Tylka & Sabik, 2010; Goldenberg et al., 2016).	**2**
Generalizable	Despite many developments of SCT being quite dated (the new domains of threat and emotions being developed in the 1980's), many comparison patterns continue to be empirically supported today. These patterns have been tested recently in a number of different cultures and contexts including eating disorders (Tylka & Sabik, 2010) and the military (including vocational and organisational settings) (Goldenberg et al., 2016) demonstrating its continuing generalisability.	**2**
Utility	The utility of SCT is emphasised in its longevity and it continuity to inspire research today. Sheeran, Abrams & Orbell (1995) found support for the utility of SCT when evaluating the effects of unemployment on individual's self-esteem and depression, consistent with previous research. Furthermore, Guimond (2006) emphasised that the utility of SCT lies in being able to generalise the understanding and prediction of many different types of social behaviour. This has been	**2**

	demonstrated in many areas of social and health settings.	
Summary	SCT scores highly on most of the standard characteristics that contribute to the utility of a theory.	**2**

Aim: Determine where the theories are used within the studies (study design, intervention, explains results).

The most frequently documented theoretical scaffold was SCT. Seven papers described SCT in some form as a theoretical foundation for their research (Morris & Morris, 2012; Rotherham et al., 2015; Reed et al., 2010; Stewart et al., 1998; 2006; Sadler, 2016 and Schure et al., 2006). Nine other studies implicitly referred to aspects of SCT (Barton, 2002; Chu'ng et al., 2008; Cutler et al., 2016; Gurr et al., 2009; Kessler et al., 2014; Schouten et al., 2011; Schure et al., *2006*; Tregea & Brown, 2013; Vohora & Ogi, 2008 and Williams, 2012) but did not explicitly name it. One study used SCT to guide their hypotheses, three used SCT to inform their interventions and thirteen used SCT to explain their results (see table 3).

Aim: Explore how the use of theories and their concepts may influence SPS research *(critical appraisal of SPS findings).*

Theoretical Constructs

Similarity Hypothesis

All studies found favourable support for the utility of the similarity hypothesis in stroke peer support. They concluded that those peers perceived to be most similar were regarded as the most beneficial sources of support.

Stewart and colleagues (1998) found that peers better matched to caregivers in terms of experience of stroke disability (physical ailment, cognitive (aphasia)) and relationship

between the carer and stroke survivor (spouse, parent) were regarded as more effective. They supported this further in a subsequent study (Stewart et al., 2006) by utilising peer supporters in a different 1:1 telephone intervention. The authors made a point in this study (based on the outcomes of their previous study) of matching peer supporters to carers based on similarity of experiences. They found that the stage and type of their condition were more predictive of an efficacious match than age or gender and noted that the importance of this could not be understated. Their study also supported the central tenet of SCT in that carers compared themselves to those who had similar experiences of their stressful situation which resulted in feelings of validation and normalisation. Similarly, Williams (2012) found that sharing worries and stories with others in the same situation increased confidence in caring and reduced isolation. This suggests the fundamental influence social comparison may have as a key mediator of outcomes.

Some studies found support for a homogenous peer group for those with specific conditions relating to stroke (such as aphasia). Cutler and colleagues (2016) found significant emotional and social value attributable to a shared understanding of difficulties with others at similar developmental stages. Similarly, Tregea and Brown (2013) noted that the 'mutual understanding' of communication difficulties in an aphasia specific group resulted in improvements in confidence, self-esteem and communication. 'Stroke specific' peer comparison and being supported with 'like-minded' peers in ways they felt they could not be by their family and friends also provided emotional and practical support for stroke survivors helping to normalise experiences (Ch'ng et al., 2008; Cutler et al., 2016; Schouten et al., 2011) guided understanding of their situation (Gurr et al., 2009), fostered feelings of validation and inclusion (Cutler et al., 2016; Kessler et al., 2014; Schouten et al., 2011) and belonging (Schouten et al., 2011; Tregea & Brown, 2013).

This provides some evidence to support the significance of homogeneity in peer groups for health conditions (stipulated in the description of the theory and supported by the research described). Nevertheless, Schouten and colleagues (2011) described the benefits of social comparison as 'surprising' and 'over and above' the anticipated outcomes of the group designed by the clinical staff, despite this being a central theoretical concept of peer support. This substantiates the lack of theoretical foundation in this particular study.

Upward and Downward Social Comparison

The evidence supporting the utility of upward and downward social comparison was inconsistent. Supportively, Schouten and colleagues (2011) found that comparing with peers provided opportunities to develop a new self-identity. Conversely, Morris and Morris (2012) reported that the process of both comparisons was complex and not always positive as downward comparisons could be experienced as both 'uplifting and demoralising'. They noted possible bi-directional and causal effects of both comparisons that may also be associated with individual factors such as self-esteem and perceived control. Equally, Stewart and colleagues (2006) noted that on occasions, carers experienced negative affect as a result of social comparison in that upward comparison could result in feelings of frustration and inadequacy. However, they also found evidence in their results that the coping strategies learned from the peer supporters may have subsequently counteracted this original negative experience. Vohora and Ogi (2008) found sharing experiences the most helpful feature of a peer group. Similarly, Barton and colleagues (2002) found that sharing concerns and experiences impacted positively on self-esteem and reduced feelings of isolation. However, they also detailed feedback from participants which stated that comparing their own 'ill health' to others in 'good health' invoked feelings of envy and resentment.

Stewart and colleagues (1998; 2006) studies involved female carers only and may not be representative of the population of stroke survivors and male carers. Morris and Morris (2012) and Barton (2002) used both stroke survivors and carers in their study but did not specify who found downward comparisons challenging. However, the quote included in Morris and Morris (2012) study which detailed the comparison as unhelpful came from a carer. This suggests that social comparisons may only be helpful for certain communities (i.e. carers of stroke survivors) and may not be typical or generalizable across all stroke populations.

Comparably, Reed and colleagues (2010) found that downward social comparisons increased self-esteem and played a key role in (a) altering an individual's self-perception and (b) encouraging a re-evaluation of the effect of stroke in their lives. Similarly, Sadler and colleagues (2016) found that peers made downward social comparisons with those they perceived to be 'worse off' to improve wellbeing and cultivate resilience. However, they did not describe any upward comparisons and so could not explain any contrasting effects. Likewise, Rotherham and colleagues (2014) reported positive influences of both upward and downward comparisons where they (a) provided inspiration and (b) a feeling that things could be worse respectively. However, an extensive limitation of all these studies is that the researchers contemplated only the identified benefits of the entire group (Rotherham et al., 2014) or social comparisons within the group (Reed et al., 2010; Sadler et al., 2016) and did not explore any negative facets. This could mean any negative feedback regarding upward social comparison or social comparison in general would not have been explored.

Schure and colleagues (2006) identified positive effects of emotional and informational support in their group programme compared to the 1:1 programme. They attributed this to social comparison with others, concluding a correlation between enhanced outcomes and contact with fellow caregivers. They hypothesised that this may be due to upward social

comparison based on previous evidence suggesting that contact with similar others enhances coping and problem solving skills. However, they could provide no evidence to support this characteristic in their own study.

Summary

Social comparison appears to be a central tenet of peer support in stroke. However, only half of the studies included in the review refer directly to it as a theoretical foundation of their intervention. Understanding another's situation is regarded as a vital construct in the emotional support of peer support and is considered as being located in the shared experience as a caregiver or stroke survivor. This mechanism is suggested to enhance problem solving skills and improve emotional coping skills. This includes; increasing confidence and self-esteem and reducing isolation. Such effects appear particularly prominent when the 'similarity hypothesis' is adhered to and peer supporters are matched to stroke survivors and their families based on (a) the similarity of their stroke experience and the (b) the similarity of the relationship between carer and stroke survivor. These interactions between survivors/carers and peer supporters serve as a point for social comparison regarding the behaviour and function of themselves or their relative (Stewart et al., 1998).

The peer support programmes included in the review all differed in terms of format, context, method of delivery, length and frequency. However, despite the heterogeneous nature of these peer support programmes, they all appeared to draw the same conclusions from their studies regarding (a) the importance of social comparison and (b) the fundamentality of the similarity hypothesis in matching peers to stroke survivors and their family members.

Despite this, there is some disagreement amongst the studies about the effects of both downward and upward social comparison. The outcome of these comparisons in terms of positive or negative aspects is undetermined; it may be that carers alone find social

comparisons unhelpful or distressing. Alternatively, it may be that individual characteristics such as self-esteem or perceived control influence these effects in some way (Morris & Morris, 2012). It has previously been suggested that lack of comparability due to the heterogeneity in design and outcome measures makes recommendations for the efficacy of peer support in stroke services impractical. Nevertheless, these findings may provide support for the utility of incorporating the principles of SCT into the development and evaluation of peer support groups for stroke rehabilitation. However, more research is required into the effects of downward and upward social comparisons to ascertain its generalisability across stroke populations.

Summary of the Quality of the Theory *(critical appraisal of the theory)*

The results lend support for the theory in terms of its parsimony as its constructs were easily identified in the literature. The results also suggest that SCT is generalizable across heterogeneously designed interventions in SPS and are applicable to this setting. The results lend some support for the testability and utility of SCT as the results support concepts (i.e. similarity hypothesis and bi-directional comparisons (Morris & Morris, 2012)) and contributed to improvements in stroke survivors and carers (i.e. participants reported positive appraisal of wellbeing (Barton et al., 2002; Reed et al., 2010; Rotherham et al., 2014; Sadler et al., 2016). This demonstrates that the use of the theory in peer support interventions may contribute to improved outcomes for stroke survivors and their carers. However, the hypotheses relating to SCT were not formally tested so these are only tentative conclusions. This review cannot offer any conclusions regarding the falsifiability of the theory as none of the studies explicitly sought to test SCT directly.

Aim: Discover the theories and concepts that have been used to develop and/or evaluate stroke interventions with peer support. Discover the theories and concepts that have been used in stroke group support studies to explain the mechanisms of peer support in stroke.

1.3.1.2 Social Learning Theory

Social Learning Theory (SLT) posits that learning is an active behavioural and cognitive process that indirectly contributes to skill acquisition and occurs exclusively within a social context (Bandura, 1963). Social learning encourages both practical and emotional skill development through observation, replication and modelling.

SLT has one key tenet relevant to its use in peer support:

a) The successful role modelling of behaviours by another person is dependent upon a number of factors including (i) the characteristics and credibility of role models (i.e. individuals are more likely to imitate behaviours they observe being modelled by similar others (Harvey, 2011)) and (ii) the attributes of observers (Turner & Shepherd, 1999).

Aim: Evaluate the theories against the criteria for a 'good' theory *(critical appraisal of theory)*

Table 5 - *Review of Social Learning Theory*

A 'Good' Theory	Social Learning Theory	Quality Rating (1-2)
Parsimony	SLT is parsimonious in that is relatively simple and based on a small number of concepts including conditioning, reinforcement, self-efficacy, locus of	**2**

	control and learning (Sapp, 2004, Aker, 2010).	
Falsifiability	SLT has used experimentation to study learning in people and is easily tested because it is operationalised. This is easily replicated which provides opportunities 'to disconfirm results and thus falsify contested theories' (Kepes & McDaniel (2013). Despite some of the principles of SLT potentially appearing tautological (i.e. the definition of reinforcement strengthening behaviour), many researchers have proposed criteria and solutions for falsifying these suggestions (Burgess & Akers, 1966; Liska, 1969, cited in Akers, 2012, p. 71; Chadwick-Jones, 1976, cited in Akers, 2012, p. 71).	2
Testability	SLT possesses a small number of concepts which can be presented as testable hypotheses, all of which have been researched and effectively defined (Sapp, 2004, Aker, 2010) which demonstrates its testability. SLT has been evaluated with regards to its testability and empirical validity and has been rated highly, particularly with regards to its utility in the area of criminal behaviour research (Akers, 2012).	2
Generalizable	The cluster of SLT's is considered the most comprehensive of all the behavioural concepts (Sapp, 2004). Both Bandura's and Rotter's SLT's are regarded as having excellent empirical validity due to extensive clinical research establishing a	2

	fundamental influence of the model's effect on multifaceted learning of human behaviour (Sapp, 2004; Thyer & Myers, 1998). The abundance of research into the individual concepts of SLT across a variety of contexts (criminal, development, social, personality, anxiety disorders and vocational psychology), cultures and genders (Sapp, 2004, Aker, 2010) and health (Blair, 1993) demonstrate its heuristic value and generalisability (Zimmerman, 1995; Hackett, 1995).	
Utility	SLT is regarded as the most comprehensive of all the behaviour concepts. It has been applied extensively to understand aggression (Akers, 2010), personality (Rotter et al., 1972) and behaviour modification across a number of concepts and with a variety of populations (Zimmerman, 1995; Hackett, 1995). Furthermore, it underpins the behaviour modelling technique used widely in training programs and education (Bahn, 2001).	**2**
Summary	It scores highly in most characteristics that contribute to the utility of a theory.	**2**

Aim: Determine where the theories are used within the studies (study design, intervention, explains results).

Six of the papers reviewed referred explicitly to SLT to conceptualise the efficacy of their peer support interventions (Morris and Morris, 2012; Kessler et al., 2014; Stewart, 1998;

2006; Muller et al., 2014; Sadler et al., 2016). One paper used SLT to guide their hypotheses and three used SLT to explain their results (see table 3).

Aim: Explore how the use of theories and their concepts may influence SPS research *(critical appraisal of SPS findings).*

Role Modelling

Two of the papers (Stewart, 1998; 2006) explicitly supported the SLT concept in their results. They substantiated that learning was enhanced through the acquisition of personal experiential knowledge through the use of peer role models.

Direct, experiential knowledge was regarded an indispensable aspect of social learning and studies found more effective results generated though the provision of positive and effective role modelling (Sadler, 2016; Stewart et al., 1998; 2006). Role models in the form of peer supporters enhanced the acquisition of new knowledge through replication of coping skills and actions. This was epitomised by those relationships that were similar in terms of shared experience or attitudes (Stewart et al., 1998; 2006) supporting the importance of credible role models in peer support interventions and this central tenet of SLT.

Muller and colleagues (2014) used only professionals to facilitate and model positive behaviours. This was despite emphasising the use of SLT to guide their intervention development and implementation. When applying the theory they appeared not to consider concepts of the theory which indicate that (a) similarity is a key feature of the most effective role models (in SLT) and (b) that new knowledge acquisition and behaviour change is more readily embraced when modelled by peers as opposed to non-peers (Salzar, 2002). Muller and colleagues (2014) found that despite seeing significant improvements in home and community integration and activities of daily living, there were no significant changes in social integration, recovery and emotions. They attributed this to limitations in group

frequency, participation and resources. However, the study did not consider the possibility that overlooking peer supporters as facilitators, inherent to SLT, may potentially have reduced the efficacy of the study based on the benefits described above.

Qualitative evidence from these studies also suggests that stroke survivors and their carers value peers as part of the facilitation team. Participants described the significance of having stroke survivors as facilitators who served as positive role models (Sadler et al., 2016). Information provided by peers was valued more than when received by healthcare professionals due to the legitimacy in having experienced something similar (Kessler et al., 2014). Likewise, Stewart and colleagues (1998) reported that 67% of participants indicated a preference for peer supporters as facilitators due to the emotional investment of them living with the experience daily, as opposed to the clinical investment of professionals. This demonstrates the importance of experiential learning from role models in the form of peers in stroke peer support groups.

Summary of the Evaluation of the Theory for Peer Support in Stroke

The review suggests that using peers either instead of, or alongside professionals is vital to (a) enhance learning and (b) increase coping and self-efficacy skills. This is due to the authenticity of experiential knowledge provided by peers as role models, who have experienced comparable stroke effects and consequences. This supports the key concepts of SLT that suggest credibility of role models is vital for the successful modelling of behaviours.

All of the studies that referred explicitly to SLT adhered to the key principles of role model credibility with one exception, Muller et al., (2014). Those studies that did conform detailed enhanced effects as a result of this mediating factor. Stewart and colleagues (1998; 2006) additionally emphasised within this theoretical concept the importance of matching those with shared experiences or attitudes which in turn further enhanced knowledge acquisition.

This provides support for the central tenet of modelling in SLT and substantiates the hypothesis that role model credibility is fundamental for enhanced value and utility.

Summary of the Quality of the Theory (*critical appraisal of the theory*)

The results lend support for the theory in terms of its parsimony as its constructs are easily identified in the literature. The results also suggest that SLT is generalizable across heterogeneously designed interventions in SPS and are applicable in this setting. The results lend some support for the testability and utility of SLT as the results support concepts (importance of role modelling (Sadler et al., 2016; Stewart, 1998; 2006)) and contributed to improvements in stroke survivors and carers (increased coping strategies (Sadler et al., 2016)). However, SLT hypotheses were not formally tested in these studies. Furthermore, the outcomes could be due to non-SLT processes (i.e. SCT processes) as more than one theory was used in the study thus, these are only tentative conclusions. This review cannot offer any conclusions regarding the falsifiability of the theory as none of the studies explicitly sought to test SCT directly.
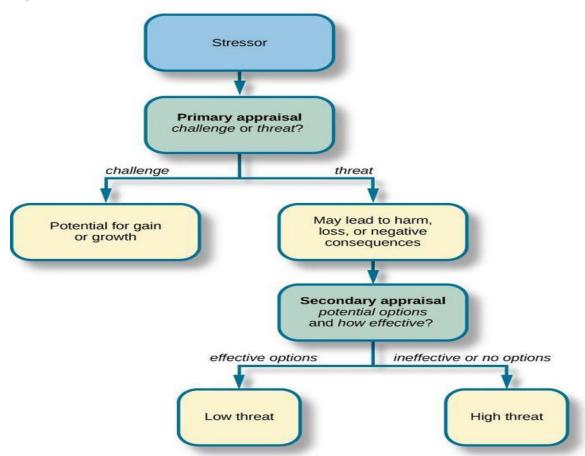
Aim: Discover the theories and concepts that have been used to develop and/or evaluate stroke interventions with peer support. Discover the theories and concepts that have been used in stroke group support studies to explain the mechanisms of peer support in stroke.

1.3.1.3 Stress-Coping Model

Lazarus and Folkman's (1984) stress coping model posits a transactional framework that accentuates the significance of idiosyncratic appraisal of a particular stressful event, a process that comprises of primary and secondary cognitive appraisal processes (see Figure 2). The central tenet of this model is the 'transaction' between a person and their environment (Lazarus and Folkman, 1984). This is where the individual attempts to assess and classify the stressor as either a source of threat, harm or challenge (Dennis, 2003;

Lazarus and Folkman 1984). Stress is said to occur when the 'demands' exceed coping (Lazarus & Folkman, 1984). Peer support is hypothesised to 'buffer' from the adverse consequences of stressful events that have detrimental effects on a person's wellbeing (Graham & Barnhow, 2013). Dennis (2003) suggested that peer support may play a vital role during the primary appraisal process in moderating a person's behaviour through both direct and indirect responses. This includes the provision of information and advice around how to manage particular stressors and social comparison of both emotional and practical responses.

Figure 2

Aim: Evaluate the theories against the criteria for a 'good' theory *(critical appraisal of theory)*

Table 6 - *Review of the Stress-Coping Model*

A 'Good' Theory	Stress-Coping Model	Quality Rating (1-2)
Parsimony	The model is generally regarded as broad in its capacity and possesses very few concepts (Rew, 2005) which may support its parsimony. However, the model is also regarded as increasingly complex and is publicised in the literature by a number of different names including; 'The Cognitive Appraisal Model' (Sincero, 2016; Rew, 2005), 'The Transactional Model of Stress and Coping' (Matthieu & Ivanoff, 2006) and 'The Cognitive-Relational Approach' (Mark & Smith, 2008). Whilst all appear to incorporate the same principles and concepts, this does make it challenging to assimilate and classify which may challenge its parsimony.	1
Falsifiability	Meyer and colleagues (2008) study both confirmed and found inconsistencies with the stress-coping paradigm. They reported the positives of describing negative findings, concluding that falsifiability leads to greater empirical validity.	2

Testability	This theory enables the development of hypotheses to test the main concepts of the model. This provides evidence for its testability. Many of the models' processes including; (a) the specific structured linear sequence involving cognitive evaluation, stress outcome and coping behaviours and (b) the existing relationships within the transactional framework have since been tested and verified (Mark & Smith, 2008) and the model extended and improved (Mark & Smith, 2008). This indicates its testability.	**2**
Generalizable	The model is generalizable to cultures and contexts and has been explored in occupational and health settings including functioning as a framework for interventions to help people with AIDS (Rew, 2005). It was previously suggested that this model may only be generalizable to adolescents and adults. This was due to the dominant cognitive processes inherent to this model which may not be applicable to children and infants (Rew, 2005) However, studies have since utilised this model with children experiencing chronic pain. Results have demonstrated empirical evidence to support the process of how children evaluate their pain and how coping may influence a range of stress outcomes (Walker et al., 2005).	**2**
Utility	Research has supported the utility of the stress-coping model to understand positive and negative adjustment outcomes in those caring for cancer and multiple sclerosis	**2**

	(Somerfield, 1997; Pakenham, 2001; Fitzell & Pakenham, 2010) and patients adjusting to negative schizophrenia symptoms (Watson-Luke, 2006). It has also been used to understand adolescence substance misuse (Wills & Filer, 1996) and coping strategies in runaway youths (Chun & Springer, 2005) The model has also demonstrated utility in health education, health promotion and disease prevention (Glanz et al., 2002). Stress management programmes have been based on the SCM (Lazarus & Folkman, 1984).	
Summary	The theory scored highly on most characteristics, apart from parsimony.	**1**

Aim: Determine where the theories are used within the studies (study design, intervention, explains results).

Three papers explicitly described utilising the SCM as a theoretical basis for intervention (van den Heuvel et al., 2000; 2002; Schure, 2006). Although three further studies (Stewart, 1998; 2006; Barton, 2002) did not explicitly make direct reference to this theoretical framework, they do report data relating to the influence of the model's processes in their results.

Aim: Explore how the use of theories and their concepts may influence SPS research *(critical appraisal of SPS findings).*

Theoretical Construct

Transactional Model of Stress and Coping (Stressful demands outweigh coping mechanisms)

Studies that based their intervention on the SCM yielded mixed findings in support of the model. Van den Heuvel and colleagues (2000; 2002) used the SCM to develop an intervention designed to increase stroke carers' confidence in their knowledge and use of active coping strategies to improve their stressful situations. The interventions compared group support and 1:1 home visits facilitated by nurses (professionally led only). Within the group setting, caregivers were stimulated to develop telephone networks with other caregivers. Primary and secondary effects were measured which included; coping strategies, social support, assertiveness and confidence in knowledge. The short term (ST) effect study found that whilst their primary aims were achieved (increased confidence in knowledge and increased use of active coping strategies), neither the group nor 1:1 intervention yielded any short terms benefits in terms of the secondary effects (mental wellbeing and vitality, decreased strain, increase or satisfaction with social support). They also reported no differences between the two interventions (group and 1:1). The long term effect study found similar increases in knowledge, use of active coping strategies and social support received by caregivers. However, as with the ST study, they found no effects on caregivers' physical or mental wellbeing (as predicted by the SCM) and no differences between the two interventions.

The authors concluded that a group focused solely on coping and information was insufficient to create positive buffering effects on the wellbeing of stroke survivors. However, Schure and colleagues (2006) sought to (a) evaluate the strengths and weakness of the group support and 1:1 programmes in van den Heuvel's study (2000; 2002) and (b) analyse

data from the van den Heuvel effect studies from the viewpoints of participants. They revealed a positive effect of contact with fellow caregivers in the support group intervention in terms of informational and emotional support compared to the 1:1 intervention. They suggested that the ability to compare with similar others enhanced the wellbeing of participants. They also stated that both intervention types differed in the extent to which social comparison could be practiced but did not explain these differences. The SCM suggests that the primary appraisal process involves social comparison of psychological and functional responses (Dennis, 2003). That is, stress moderating effects manifest when the support is provided by those that are perceived to be sources of direct experiential knowledge i.e. those who have similar experiences or similar characteristics (Cohen and McKay, 1984). Both the van den Heuvel studies appear to have overlooked the influence of social comparison in their study based on the SCM model. Social comparison predicts that social or peer support will only produce stress reducing outcomes if that support is provided by those who are perceived as accurate sources of information. This is either because (a) they encompass similar attitudes or characteristics or because (b) they have experienced a similar stressor (Cohen & McKay, 1984). Both interventions were facilitated by professionals which may also have limited the buffering effects due to being unable to compare with others who have experienced successful recovery from stroke. Stewart and colleagues (1998; 2006) studied peer supporters as facilitators. They found considerable improvements in many of the secondary benefit objectives predicted by the SCM in van den Heuvel and colleagues (2000; 2002) such as improved emotion and problem focused coping abilities and improved general aspects of wellbeing (increased self-esteem and confidence). They attributed this, in part, to the comparison with similar others. This may support the principle that social comparison of emotional and practical responses may assist during the primary appraisal of a stressful situation and effectively buffer against deleterious effects. This also indicates the value in obtaining qualitative data. However, there was a high drop-out rate for the 1:1 home visit intervention and this may have adversely influenced the results.

Summary of the Evaluation of the Theory for Peer Support in Stroke

The review suggests that principles of the stress-coping model may be useful in attaining increased knowledge and use of active coping strategies. However, the SCM also predicts that active coping strategies lead to increased well-being which was not evidenced in the studies that explicitly underpinned their intervention with this model. The concept of the primary appraisal process involving social comparison of responses (Dennis, 2003) may explain the reasons for the lack of effects on well-being in the 1:1 group but not the support group where there were opportunities for social comparison. Limitations are suggested as to why these secondary aims were not achieved in the support group including; that the duration of contacts with fellow caregiver's was too short and due to the region sizes involved, distances may have been too long for participants to keep in touch afterwards.

Summary of the Quality of the Theory *(critical appraisal of the theory)*

The results somewhat support the utility of the SCM. The studies demonstrate that SCM concepts can be used to develop interventions in SPS. These interventions have culminated in outcomes that have increased coping strategies and knowledge but not wellbeing (secondary outcomes hypothesised by the model) in stroke survivors and carers. This suggests that the intervention increased coping but there is no evidence to suggest that enhanced coping skills lead to increased wellbeing or buffered from adverse consequences (as predicted by the theory). This suggests that some of the model's basic principles are applicable in this setting; however, more research would need to be completed to test this sufficiently. The study did not seek to investigate any of the SCM's testable hypotheses (i.e. 'goodness of fit hypothesis'). The concepts are parsimonious (primary and secondary appraisal) but not easily discernible and it would be difficult to clearly identify concepts in papers that used the model implicitly in their studies.

Synthesis across theories in relation to Peer Support Outcomes and utility of the theory (critical appraisal of utility of theories)

Five intervention studies (Muller et al., 2014; Sadler et al., 2016; Stewart et al., 1998; van den Heuvel et al., 2000; van den Heuvel, 2002) that used theory explicitly in their interventions were evaluated to see whether the use of a theory improved the intervention in line with its predictions (as stated by the authors). All of the author's hypothesised increased coping by various processes (see Table 7) based on the theories, some of which were described (i.e. SCT through bi-directional comparisons and SLT through modelling; Stewart et al., 1998 and Muller et al., 2014 respectively). In the other papers, the authors described predicted outcomes but did not detail how these outcomes would be achieved. This synthesis suggests common factors:

a. Having homogeneity within groups (i.e. aphasia specific groups and stroke specific groups);

b. Having a sense of similarity amongst others;

c. The perceived credibility of role models.

Despite some methodological shortcomings, all these papers reported increased coping strategies following the peer intervention[2], despite recourse to different theoretical formulations (see Table 7). This suggests that common elements across theories may promote change in coping. It implies that particular results may be attributable to a range of theoretical processes and obscures the role of particular theories in determining particular outcomes.

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[2] Note: this review did not quality assess the methodological rigour of the studies and thus, these results must be interpreted with caution.

Table 7 - Overview of the Key Findings of PS Intervention Articles (as stated by the authors)

	Study (Authors/Date/Location)	Theory used to underpin Intervention	What the authors state that the theory predicts in the papers	Key Findings related to predictions	Other Findings
1.	Muller et al., (2014) USA	SLT	Promote coping and adaptation using active strategies such as modelling.	• 10 of 13 members agreed they were able to identify a new coping strategy and 8 reported they actively used this outside group.	• Half of participants reported interaction with other members outside group context. • Half of participants reported socialisation being favourite part of group process. • Significant improvements in home and community integration and activities of daily living • No significant changes in social integration, recovery and emotions.
2.	Sadler et al., (2016) UK	SLT	Improve socialisation, healthy coping and role attainment	• Peers reported increased coping strategies.	• No change in mean activity levels • No change in mean depression scores • Marginal increase in resilience scores • Slight increase in mean anxiety scores • Peers reported meaning-making through shared experiences
		SCT	Downward social comparison will improve perceptions of wellbeing.	• Peers reported positive appraisal of wellbeing through social comparison.	

3.	Stewart et al., (1998) Canada	SLT	Perception of capabilities will affect behaviour, thinking and emotional reactions.	• Peer support increased self-esteem and made them feel more capable	• Peer support increased confidence. • Peer support reduced feelings of uncertainty. • Peer support lessened caregiving demands.
		SCT	Depending on direction of social comparison will influence emotions and coping effectiveness.	• Peer support increased coping effectiveness. • Peer support improved emotion focused coping strategies.	
4.	Van Den Heuvel et al., (2000) Netherlands	SCM	Increase in knowledge of caregiving and active coping strategies. Further positive effects on wellbeing predicted as a result of enhanced active coping strategies.	• Medium increase in coping strategies. • No further positive effects on mental well-being and vitality or decreased strain.	
5.	Van den Heuvel et al., (2002) Netherlands	SCM	Increase in knowledge and in the use of active coping strategies. Long term aims were to obtain a decrease of strain, increase in vitality, mental-wellbeing, social support, satisfaction with social support and assertiveness in caregivers.	• Significant effects in confidence in knowledge about patient care, seeking social support and the amount of social support in the group programme only. • No effect on caregivers' physical or mental well-being.	

1.4 DISCUSSION

1.4.1 Review Aims

This paper aimed to discover what theories and concepts are being used in SPS studies and adopt a theory based review approach to explore how the use of the theories and their processes may influence SPS research.

1.4.2 Conclusions

Aim: Discover the theories and concepts that have been used to develop and/or evaluate stroke interventions with peer support. Additionally, discover the theories and concepts that have been used in stroke group support studies to explain the mechanisms of peer support in stroke. A further aim was to determine where the theories are used within the studies (study design, intervention, explain results).

The theoretical approach aimed to determine those theories used to explain the mechanisms of SPS and where the theories are used within the studies (the wider use of theories in stroke peer support (SPS). The review highlighted the dominant three theories used and emphasised key principles that may provide a more comprehensive explanation of why peer support is effective for stroke survivors and carers. The review demonstrates that the theories may be useful in increasing awareness of peer dynamics in stroke survivors and carers that may affect intervention implementation and provide some perspective into treatment effects. This may offer a pathway towards defining and conceptualising SPS within empirical research studies.

This conceptual review found that evidence based theoretical underpinnings are rarely used in the development of interventions and explanation of results. This review found that studies that did fall under a number of categories:

   a) *Studies that used theoretical concepts to underpin intervention* – One study used

two of the three theories to justify a peer support focused intervention and explain their results but did not underpin the intervention with theory. Six studies used one or more of the three theories to underpin the development of their peer support intervention and many produced expected results based on the theoretical principles used.

b) *Studies that used theoretical concepts to explain results* – Some studies (a) did not use theory to underpin their interventions (12 studies) or (b) reviewed the effects of peer support programmes they did not develop themselves (2 studies). Many of these used theory to explain the positive (or to a lesser extent, negative) effects of attending peer support groups. Other studies described effects but did not attempt to attribute particular results to any theory.

c) *Studies that did not use theory to underpin their interventions* - Ten studies implicitly referred to underlying concepts to explain results or particular effects (i.e. they referred to the positive effects of meeting someone who had a similar experience) but did not explicitly refer to a theory to support this.

1.4.3 Summary of Key Findings

Aim: Adopt a theory based review approach to explore how the use of theories and their concepts may influence SPS research.

In this respect, the review highlighted some interesting findings as a result of the interventions used in SPS research; such as (a) the importance of the characteristics and credibility of role models for intervention success (b) the essential component of having shared an experience and (c) that understanding and focusing on 'coping' may be significant for SPS intervention success. However, comparable with previous research stated in the introduction, many of these studies did not apply theory adequately (Davies et al., 2015); several did not demonstrate links between intervention hypothesis and theory and those that did failed to evaluate their results in relation to the theory used. Furthermore, most studies

used more than one theory thus the assigned outcomes may be attributable to several processes or concepts from different theories. None of the studies sought to test the concepts of the theory empirically; for example, with regards to the credibility of role models (SLT), studies did not compare peer led support with professional led support to test the hypothesis that role models who are more similar in terms of (a) stroke experience or (b) likeness of relationship between carer and stroke survivor are more effective. Similarly, with regards to the similarity hypothesis (SCT), studies did not compare the efficacy of an aphasic peer group with a generic SPS group involving aphasic participants to ascertain any particular differences in outcomes between the two groups. Furthermore, with regards to the transactional relationship between a person and their stress (SCM), the studies did not assess the participant's perceived ability to engage in coping and/or examine the relationship between coping styles and health outcomes/wellbeing (this has previously been achieved in child health studies (Walker et al., 2005)). Thus, this makes portraying tangible conclusions about the utility and overall quality of the theories difficult as they were not explicitly tested. Furthermore, the quality of the papers in terms of how they applied the theory was not evaluated, as this was not an aim of this review. Understanding the quality of theory application may give more credence to the findings and provide more evidence for their utility in SPS. However, despite this, exploring the way researchers use theory in their studies based on analysis of papers may be misleading (Bolander Laksov et al., 2017); studies are usually written primarily to communicate findings and the implication of these rather than how they use theory (Bolander Laksov et al., 2017). Sadler et al., (2016) suggested that using peers as part of the facilitation team may potentially improve group relevance and impact and subsequently improve long term outcomes in stroke and other clinical populations. The studies investigating SPS suggested that stroke survivors and carers favour peer supporters (rather than professionals) as facilitators (Stewart et al., 1998, 2006), however, this information is inferred rather than empirically tested. Research suggests that peer support facilitated by a variety of people (professionals and peers) can

improve experience, behaviour and health outcomes. The 'similarity hypothesis' (SCT) suggests that information attained from a person perceived to be similar is more readily attended to; thus, SCT (in particular the 'similarity hypothesis' concept) may predict that using peers leads to more effective behaviour change than professionals. Similarly, the 'modelling' concept (SLT) suggests that role models who are more authentic in terms of understanding a person's experience are more valued and attended to, thus, their behaviours are more likely to be modelled. However, few studies have compared peer only, professional only and mixed peer/professional led support and found comparable results in terms of efficacy thus, there is not enough evidence to make conclusions regarding the disparities in efficacy of peer support facilitated by peers or professionals (Nesta & National Voices, 2013).

1.4.4 Limitations of the Review

It was beyond the scope of this review to evaluate all theories used to underpin peer support interventions in detail and thus the three most commonly used were reviewed. Although the frequency of citing method can be justified, it may be criticised and could lead to a potential for bias as those excluded theories may have (a) complemented the study aims better and (b) yielded interesting results that may also contribute to SPS outcomes. Nevertheless, all alternative theories were cited in only one paper and this would have left very little for discussion of information/results to explore how they influence outcomes in SPS and the factors inherent to that theory.

The small number of studies available that utilised the three theories described may also limit the efficacy of this review. The research being conducted in this field is increasing; however theory use in SPS research is limited. Furthermore, identifying theoretical concepts that had been implicitly discussed and classifying them under a particular theoretical framework based on the description was challenging. Some readers may disagree with the

theoretical framework assigned.

It was not an aim of this review to evaluate whether the aim of a study led to the authors using a particular theory which may be considered a limitation. Different papers may use theories related to the aims of the intervention (e.g. a peer group aimed to increase coping may use SLT to underpin their intervention through the use of role models). A large scale review could evaluate whether particular theories match particular aims.

A further limitation is that the review involved studies that did not specifically aim to evaluate a SPS intervention (as this would have yielded too few studies to review), thus the inclusion criteria had to be expanded. Although the named theory was in the context of the peer support element, this comprised comparatively inconsequential theoretical discussion in some studies (Campbell et al., 2014). Furthermore, although it is common practice in theoretical reviews to include studies that implicitly refer to theory (Davies et al., 2010; Baxter & Allmark, 2013; Bolander Laksov et al., 2017), this also may have generated similar difficulties in terms of insignificant theoretical examination within these papers.

Some authors may have used theory in their studies but not reported it in the main publications (due to space restraints) or considered the reporting of the justification for interventions inconsequential (Davies et al., 2010). Consequently, this may not be a true representation of the use of theory in these studies. Research suggests that it is challenging to synthesise data associated with the theoretical underpinnings due to the lack of review methodology instruments. Thus, tools allowing the evaluation the 'quality of the theoretical lens' may enhance the perception of need for theoretical rationale to be reported in studies (Baxter & Allmark, 2013, p14).

A potential limitation of this study could be the lack of a valid instrument used to assess the quality of the theories. The quality measure used had not been psychometrically tested for reliability, validity or sensitivity so it cannot be said that the tool measured the quality of the three theories successfully. Furthermore, the scoring for the characteristics could also be viewed as a limitation as each could potentially differ in their significance and prominence (i.e. testability vs. empirical validity). However, this did not affect the research synthesis as the aims were to consider how the studies utilised the theories and the outcomes related.

1.4.5 Review Implications

The main contribution of this theoretical review was to 'open up reviewers thinking about the research topic', elucidate existing research findings and develop 'new understandings' about the theories for SPS rather than evaluate and appraise empirical studies (Campbell et al., 2014, p2,7). This review does not necessarily add to the evaluation of the utility of the three theories due to the findings not being empirically tested. However, this review does create a foundation on which to test the theories which may contribute to their utility at a later stage. The results suggest that these three theories may underpin some of the peer support processes thought to make SPS effective. However, tangible conclusions are to be considered with caution due to the issues outlined in the summary of findings and limitations of the review.

Despite this, the review does highlight that it is important to use theory to understand behaviour change (for the reasons proposed in in the introduction (p21) and how and why interventions may work (Baxter & Allmark, 2013). Peer support has become a significant component in the delivery of healthcare and is supported by clinical and professional guidelines (DOH, 2007, ICSWP, 2012). However, many studies do not attempt to conceptualise peer support and do not ground their intervention in theory. There is no empirical research to clarify why theory is not used more comprehensively although

investigator awareness of theory, difficulties in choosing theory and lack of accessible measures are all proposed factors (ICEBeRG, 2006). The review highlights the difficulties in drawing conclusions based on the inconsistency with which theory is applied. The use of explicit theory to design interventions and explore mediating and moderating pathways is encouraged to enhance research utility (Davies et al., 2010).

This theory-based review has offered some indication of what makes SPS effective by appraising SPS research studies. This is important as it is the first step in understanding the initial stages of programme implementation and the underlying mechanisms (Baxter & Allmark, 2013). It is anticipated that this review will encourage interventions to be explicitly grounded in theoretical models and constructs which should be clearly publicised (Baxter & Allmark, 2013). This in turn should add value to the model of peer support and increase its utility in clinical services.

1.4.6 Implications for Future Research

The review emphasised the complexity of upward and downward social comparisons. One study (Morris & Morris, 2012) highlighted the possibility of individual differences and suggested exploration of this as a future research task. Furthermore, the review highlighted that possibly only carers may regard social comparisons as unhelpful. Assessing an individual's personal characteristics prior to starting a peer support group may provide some insight into who may benefit most from upward and downward comparisons. The review also highlighted the preference for peer supporters as facilitators; however, this has not been empirically tested. Future SPS that underpin their interventions with theory could compare peer led, professional led and peer/professional led interventions to emphasise any evidenced differentiations.

Negative experiences of peer support are rarely documented in the literature which may be

due in part to (a) the limited research available or (b) the limitations within the studies which are not reporting these disadvantages. Negative perspectives may contribute to the improvement of effective interventions by contributing to the empirical validity of theories as research either supports or refutes their testability and falsifiability.

Results illustrated that out of 61 papers, only 10 of these referred explicitly to a theoretical model. Out of these 10, none of the papers synthesised their results with the theory hypotheses and highlighted how the theory was tested/falsified. This has substantial implications for the prominence of peer support as an evidenced based model of working in clinical services. It is hoped that this review will encourage researchers to develop and evaluate future peer support interventions on theoretical foundations. This will subsequently increase the quality of treatment programmes and thus the quality of research into peer support in stroke.

Although the rationale for the review of the three theories may be justifiable, it would be beneficial to include and investigate all the theories currently being used in SPS intervention studies. Future reviews, comprising of research teams could use more robust methods to enhance the quality of the review. For example; (a) categorising theories by applicability to the review question and/or by level of detail or innovation may help to exclude studies that contain relatively minor theoretical discussions (Campbell et al., 2014), or (b) large research teams could quality appraise all the theories documented in the SPS literature and review all theories or those that are regarded as highest quality based on the criteria of a 'good' theory.

This is the first theoretical review that has attempted to explore theory use into SPS studies. This paper adopted a theory-focused approach (Campbell et al., 2014) and aimed to review the theories being used in SPS and explore how particular theories may be shown to underpin particular peer support processes. This is only one type of theoretical review and

there is scope for others which may contain more aspects of aggregation for example, subsequently theoretical reviews could:

1. Evaluate the quality of the papers in terms of how well they use the theory in their studies. This could involve an evaluation of the quality of the paper in terms of its methodological rigour.

2. Evaluate the use of explicit and implicit theory in SPS studies in more detail and classify papers in terms of their level and stage of theory use (Davies et al., 2010).

3. Conduct a 'realist' review to supplement an existing systematic review which has evaluated SPS interventions to further understand the mechanisms underpinning those interventions. These are concerned with theory development and refinement (Rycroft-Malone et al., 2012).

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A Study to Investigate the Underlying Psychological Processes of Peer Support in Stroke.

Prepared for submission to British Journal of Health Psychology
(see Appendix J)

2.0 ABSTRACT

Objectives: The objective of this study was to provide empirical evidence for the theoretical processes thought to underpin the effectiveness of peer support after stroke.

Design: A within-subjects design was employed for the main part of the study.

Methods: The paper presents five phases of the study which ultimately resulted in stroke survivors rating video clips of positive and negative interactions. These interactions were developed from both stroke survivors and the qualitative literature and were constructed from 10 theoretical concepts such as positive social comparison and mutual reciprocity.

Results: The differences in ratings between the positive and negative interactions was highly significant; however, there were no significant correlations between higher ratings of positive interactions and (a) higher ratings of perceived social support or (b) lower rated difficulties in emotion regulation. Furthermore, there was no significant correlation between the likelihood of attending a peer support group and higher rated positive interactions. The positive scale items produced two factors but were also reliable when forced into one factor which suggests that openness to peer support is one-dimensional.

Conclusions: The results make a unique theoretical contribution to the stroke and peer support literature: they (a) demonstrate that stroke survivors respond positively to theory generated positive peer support and interactions and (b) support the application and utility of the underlying processes and concepts hypothesised to underpin peer support.

2.1 INTRODUCTION

2.1.1 Focus and Relevance to Clinical Practice

Stroke survivors often experience a range of psycho-social problems and notice a lack of support after hospital discharge, feeling isolated at a critical time in the stroke recovery process (Kendall et al., 2007). Implementing effective psychosocial rehabilitation has both individual and wider societal benefits including reduced hospital stays and improved functional ability (McGovern, 2013).

2.1.2 Peer Support

Peer support is a key source of psychosocial rehabilitation after stroke and for many people the only resource available to them after hospital discharge, as the provision of psychological and behavioural support for stroke survivors is perceived to be inadequate in the NHS (NICE, 2013). Peer support is championed by the World Health Organisation (WHO) (Dennis, 2003) and recognised by government and clinical guidelines and strategies who recommend the use of community based peer support (DOH, 2007; 2011; ICSWP, 2012) as an essential part of the recovery process. The use of peer support as a rehabilitative intervention can reduce the use of resources and culminate in shorter hospital stays (Kurtz, 1990, 1997).

2.1.3 Theories of Peer Support

Need for Theory

Peer support, despite being theoretically plausible, lacks empirical evidence for the causal psychological processes (Campbell et al., 2004; Lloyd Evans et al., 2014) that could underpin its effectiveness. Peer support programmes are generally not theoretically underpinned, sufficiently explained or encompass distinct objectives (Lloyd-Evans et al., 2014; Turner & Shepherd, 1999). However, testing theories of the underlying processes of peer support to establish the mechanisms responsible for (a) the association with positive

outcomes and (b) behavioural and cognitive changes could increase understanding of how interventions are effective (Milne, 2004). Many studies involving stroke peer support lack a theoretical foundation (Trachtenberg et al., 2013; Lloyd-Evans et al., 2014) which has implications for peer support as an evidenced based model of working in clinical services.

The development and evaluation of interventions that are grounded in theory is considered 'good practice' (Glanz & Rimer, 1995) and is essential to the appraisal of interventions and synthesising the evidence base (Davis et al., 2015). This process strengthens treatment efficacy (Davis et al., 2015) and is supported by the UK Medical Research Council's guidance for developing and evaluating complex interventions (Glanz & Bishop, 2010 as cited in Davis et al., 2015).

Relevant Theories of Peer Support

To date, attempts to describe the underlying theories of peer support have been implied rather than tested experimentally (Solomon, 2004). Instilling hope is regarded as a critical part of the therapeutic process in peer support (Yalom, 2005). This is considered to derive from connecting with positive role models who provide hope by 'role modelling' effective recovery (Sowards et al., 2006; Corrigan, 2016). Role modelling is the key tenet of Social Learning Theory (SLT) and is likely to be more effective if role models are more similar which increases their credibility (Macdowell et al., 2006). Peers are considered more authentic which is likely to enhance self-efficacy, hope and positive behaviour change (Solomon, 2004).

The mechanism of social comparison theory (SCT) is proposed to lead to enhanced self-esteem, self-efficacy and well-being by relating to comparable others through shared experience (Gurr et al., 2009; Kessler et al., 2014). There is evidence to support the utility of SCT in peer support. However, research into both upward and downward comparisons show

that they vary in their perceived helpfulness for participants in stroke peer support groups (Morris & Morris, 2012; Reed et al., 2010).

There is evidence to corroborate that social support (SS) underpins the benefits of peer support (Nelson et al., 2006) and buffers against adverse effects through instrumental, affirmational and emotional support (Proudfoot, 2012). Connecting with others through shared experiences leads to more authentic validation (Mead & Macneil, 2003), acceptance, affirmation, understanding and empathy. This subsequently enhances feelings of hope, belonging, encouragement and normalisation (Davidson et al., 2006; Soundy et al., 2014; Solomon, 2004; Gidugu et al., 2015).

The Helper Therapy Principle (Reissman, 1965) supports recovery through the underlying process of mutual reciprocity which suggests that a person achieves an enhanced sense of self through using their experiences to help others (Solomon, 2004). This process has been evidenced in peer support research in stroke (Morris & Morris, 2012).
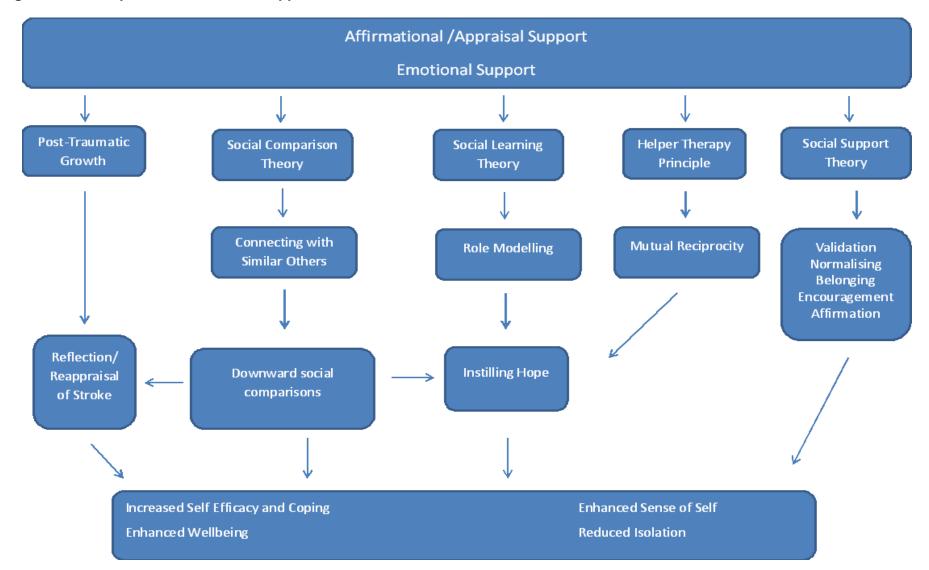
The post traumatic growth model proposes that post-traumatic growth is positively affected by SS through the reflection and reappraisal that occurs as a result of sharing experiences and perspectives (Tedeschi and Calhoun, 2004) through social comparison (Chun & Lee, 2008).

Due to the lack of theory based literature pertaining to stroke peer support (19 studies), the peer support literature into other health conditions including mental health was explored. Based on this literature, the putative processes relevant to peer support were organised into 10 main categories by the researcher and academic supervisor and are detailed in table 7. These are referred to as domains throughout the study (a full breakdown of the literature on which this is based can be found in appendix A1 & 2). A conceptualisation of the theories from this literature (and their relationship with the domains) is presented in figure 3. The directional links have not all been empirically tested but have developed predominately from the qualitative research.

Table 8 - Domains

Domain
- **Domain 1:** Instilling hope (Sowards et al., 2006; Macdowell et al., 2006; Corrigan, 2016).
- **Domain 2:** Positive social comparison (Soloman, 2004, Dennis, 2003; Simoni et al., 2011).
- **Domain 3:** Unconditional positive regard and acceptance (Dennis, 2003, Gidugu et al., 2015)
- **Domain 4:** Affirmation (Dennis, 2003; Soloman, 2004)
- **Domain 5:** Validation (Wills & Shinar, 2000)
- **Domain 6:** Encouragement (Kessler, 2014)
- **Domain 7:** Normalising (Soloman, 2004, Dennis, 2003, Gidugu et al., 2015, Dass and Gorman, 1985).
- **Domain 8:** Mutual reciprocity (Dennis, 2003; Gidugu et al., 2015, Soloman, 2004, Heisler, 2010)
- **Domain 9:** Reflection/Reappraisal of stroke (Tedeschi & Calhoun, 2004)
- **Domain 10:** Belonging (Davidson et al., 2012; Kessler, 2014)

Figure 3 – Conceptualisation of Peer Support

Affirmational /Appraisal Support

Emotional Support

| Post-Traumatic Growth | Social Comparison Theory | Social Learning Theory | Helper Therapy Principle | Social Support Theory |

Connecting with Similar Others — Role Modelling — Mutual Reciprocity — Validation Normalising Belonging Encouragement Affirmation

Reflection/ Reappraisal of Stroke ← Downward social comparisons → Instilling Hope

Increased Self Efficacy and Coping   Enhanced Sense of Self

Enhanced Wellbeing   Reduced Isolation

2.1.4 Research Rationale and Aims

Despite documented benefits, the diversity of peer support programmes and their lack of theoretical foundation and clear goals make it challenging to make consistent comparisons and recommendations about their efficacy (Lloyd-Evans et al., 2014). The lack of robust evidence for peer support is highlighted by NICE guidelines (NICE, 2013) and may be why it struggles to maintain sustainable funding (despite being advocated) (Dorning et al., 2016). Policy makers and commissioners are not required to support unsubstantiated recommendations to provide peer support interventions (Lloyd-Evans et al., 2014). Consequently, peer support competes with other intervention models that are more theoretically robust at a time when services are facing enormous financial pressures.

Therefore, the overall objective of the study was to investigate the aforementioned 10 domains hypothesised in the peer support literature to underpin the effectiveness of peer support after stroke. Empirical evidence to establish the putative processes underpinning peer support in stroke will be attained by testing the six research hypotheses detailed in Table 9.

Table 9 - Hypotheses

Hypotheses
1. Positive and negative peer interactions were generated by focus groups and the peer support literature. Trainee clinical psychologists and researchers will be able to reliably sort these peer interactions into their identified domains. There will be a high level of inter-rater reliability and agreement.
2. A rating development team made up of experienced stroke peer supporters will

	be able to differently rate positive and negative peer interactions for each of the 10 domains on a set of 5 Likert scales. For example, positive items will be rated as more positive, and more motivating than negative items.
3 (a)	When the positive and negative peer interactions for each of the 10 domains are presented as video clips, positive interactions will be rated more positively on all 5 Likert Scales by stroke survivors.
3 (b)	There will be a significant difference between the median ratings across all Likert scales for the positive and negative peer interactions in each domain.
4 (a)	Validity will be demonstrated through negative correlation of responses to the positive items on each of the 10 domains and the Berlin Social Support Scale (BSSS). This is due to how positive interactions were scored (more positive interactions resulted in a lower score). BSSS total score will be negatively correlated with higher total positive ratings of the positive peer interactions. This would suggest that perceived social support and support seeking behaviours are associated with positive perception and openness to peer support.
4 (b)	There will be a significant negative correlation between the total median scores of positive interactions averaged across all domains and the BSSS total score. This would suggest that higher perceived social support and support seeking behaviours are associated with positive perception and openness to peer support.
5 (a)	Validity will be demonstrated through correlation of the responses to the positive items on each of the 10 domains and the Difficulties in Emotion Regulation Scale (short-form) (DERS-18) total score. Scores on the DERS-18 will be positively correlated with ratings on the positive peer interactions for each domain suggesting that emotion regulation underpins positive perception and openness

	to peer support.
5 (b)	There will be a significant positive correlation between the total median scores of positive peer interactions averaged across all domains and the DERS-18 total score. This would suggest that less perceived difficulties in emotion regulation underpins positive perception and openness to peer support.
6.	Validity will be demonstrated through correlation of the total scale score for all positive peer interactions on all domains and the analogue measure of motivation to join a peer support group.
7.	Factor analysis of the positive scale items will produce a single factor, indicating that positive perception and openness to peer support is one-dimensional.

Perceived social support (as measured by the BSSS) is proposed to lead to positive affect and to improve psychological constructs such as hope, optimism, self-efficacy and resilience (Xu et al., 2017) which is likely to enhance motivation for engagement in peer support (Wesley et al., 2013). Furthermore, recent research has indicated that stroke survivors who demonstrate difficulties in emotion regulation skills (as measured by the Difficulties in Emotion Regulation Scale – 18) can experience reduced social participation after stroke (Cooper et al., 2015; Yule, 2013). This in turn may affect whether someone will engage in social peer support. Both perceived social support and difficulties in emotion regulation skills are considered significant to how someone will benefit from the underlying peer support processes and will be investigated in this research project. The evidence for the role of perceived social support and emotion regulation in social participation underpins hypothesis 4(a) and (b) and 5(a) and (b) respectively.

2.2 METHODOLOGY

2.2.1 Ethical Approval

This study was approved by the Cardiff University Ethics Committee on 16/02/2016 (see appendix A1).

2.2.2 Procedure

Phase 1 - Focus Groups

Recruitment and Sample

The Stroke Association charity (TSA) approved the recruitment of participants to this phase. Survivors were recruited into two preliminary focus groups each comprising of 25 people which lasted 1 hour. Stroke survivors were included if they were at least three months into their recovery.

All group members we recruited from peer support groups and thus had previous experience of peer support. Participants provided consent using the relevant forms (see appendix B3 & B5).

Objective

The focus group's objective was to develop examples of both positive and negative peer group interactions for each domain.

Procedure

A literature search established the theories and concepts highlighted within the generic peer support literature (see appendix A2). These were categorised into 10 domains (see appendix A2) by both the researcher and academic supervisor. The focus groups were presented with the 10 domains and asked (a) to generate examples of positive and negative examples of

experiences and interactions for each domain and (b) whether they agreed with the original domains and felt they were applicable to their experience of stroke peer support.

One hundred and eight positive and negative interactions were generated in total (see appendix A3). Fifty-five of the interactions were developed by the researcher and academic supervisor based on the material generated from the focus group participants' personal experiences and fifty-three informed from the qualitative literature evaluating peer support. (See appendix A3 for origins of interactions).

Phase 2 - Validity Check

Recruitment and Sample

Seven people were recruited. Five participants were third year DClinPsy trainees. Two other participants were clinical trial managers employed by Cardiff University.

Objective

Participants were required to sort the interactions into the domain they felt was best suited (see appendix A4 and A5).

Procedure

The participants were provided with 10 separate sheets of paper typed with each domain along with clear guidelines of domain characteristics (see appendix A4). Participants were also provided with the 108 interactions printed on different sheets of paper. They were asked to sort each interaction into the domain they felt was *most* relevant.

Subsequently, inter-rater reliability was assessed using percentage agreement (Reis & Judd, 2000). Syntax was developed in SPSS to calculate the domain number (1-10) the interaction was most commonly placed in by the 7 sorters. This calculation is based on the agreement

between pairs of sorters (Wongpakaran et al., 2013). The percentage agreement was also used to reduce the number of interactions from 108 to a more suitable number to present to the Rating Development Group.

The researcher reorganised the 108 interactions into the domains most commonly categorised by the 7 sorters based on a rule. The rule stated that any interaction sorted in the same domain by at least 28.57% of the participants were re-categorised into that domain and included in the study. Those interactions that achieved only a 14.29% agreement (or less) were discarded. If domains included no interactions that scored at least a 28.57% agreement, the interaction with the largest level of agreement was selected (i.e. 14.29%). If all interactions within that domain scored the same (i.e. 4.76%), a best fit judgement was made by the researcher and supervisor. This reduced the number of interactions from 108 to 59 (see table 10 and appendix D1). Five of the interactions included were based on either a 'largest level of agreement' or 'best fit' judgement.

Table 10 – Number of Interactions in each Domain

Domain	Number of Positive and Negative Interactions
1. **Instilling Hope**	2 Positive 4 Negative
2. **Positive Social Comparison**	2 Positive 6 Negative
3. **Inconditional Positive Regard**	1 Positive 1 Negative

4. **Affirmation**	2 Positive
	1 Negative
5. **Validation**	2 Positive
	5 Negative
6. **Encouragement**	7 Positive
	3 Negative
7. **Normalising**	2 Positive
	1 Negative
8. **Mutual Reciprocity**	2 Positive
	2 Negative
9. **Reflection/Reappraisal of Stroke**	3 Positive
	2 Negative
10. **Reflection**	6 Positive
	5 Negative
TOTAL	**59**

Phase 3 – Rating Development Group

Recruitment and Sample

TSA approved recruitment of participants which included four experienced peer supporters who had previously helped facilitate peer support groups. Participants provided consent using the relevant forms (see appendix B4 & B5).

Objective

The objective was to rate the 59 interactions subsequently reorganised into the ten domains by the validity check (see appendix A6). This phase was implemented to reduce the

interactions to a suitable number to be filmed by actors and evaluated by participants (59 to 20). This phase also identified which interactions were positive and which were negative.

Procedure

Participants were asked to rate each interaction of the ten domains on five Likert scales (see appendix C2). The Likert Scales essentially aimed to measure the stroke survivors attitudes and opinions about the statements they were presented with (Jamieson, 2004). Participants were asked to respond by indicating their level of agreement by using a six point scale of paired opposites. Due to the novel nature of this study, there were no pre-existing suitable pre-developed and tested Likert scales. Thus, one was created by the reviewer and the supervisor and followed a guide to developing an effective survey (Derrington, 2009). The Likert Scales were derived from the literature (pertaining to the qualitative outcomes of peer support in stroke), the domains and the discussions in the focus group. The researcher and supervisor made a decision based on the extensive material and the guidelines for developing Likert Scales (i.e. clear, concise language) (Derrington, 2009) to create the 5 scales.

The results were inputted into SPSS. Frequencies were used to find the median of all 20 ratings (four raters scoring on five scales) for each of the 59 interactions (see results and appendix D2). For each domain the positive interaction with the lowest median and the negative interaction with the highest median were selected. Those interactions that had equal medians were inspected and those that lent themselves best to scripting were selected based on the judgement of the research and academic supervisor. This reduced the number of interactions from 59 to 20 (one positive and negative interaction for each of the 10 domains).

The 10 positive and 10 negative interactions were then developed into scripts by the researcher and supervisor (see appendix D3) in preparation to be filmed by actors. There were no standardised scripts due to the novel nature of this project. The 20 interactions were written into a conversation between 2 or more actors.

Phase 4 – Filming the Interactions

Recruitment and Sample

Five amateur actors were recruited from the Radyr Drama Society to film the interactions. Mature actors were selected to ensure a more realistic situation.

Objective

The actors were provided scripts of the 20 interactions (two interactions from each domain - one positive and one negative). They each took on different roles scripted for the interactions and learnt them in advance.

Procedure

The actors were filmed performing the scripted interactions in a semi-circular peer group setting. Filming was completed and edited by the University of Wales media department (see appendix D4 for film clips).

Phase 5 – Interaction Rating Group

Recruitment and Sample

TSA and the Bristol Area Stroke Foundation (BASF) were used to recruit participants.

G-Power software was used to determine the required sample size due both to the limited research available from stroke peer support research and the distinctiveness of this project. Using an alpha of 0.05, G-Power suggested that a minimum sample of 37 participants was

required to detect a correlation of 0.4 (regarded as a medium-strong effect size) at a power of 0.8.

Seventy-two participants were recruited from six different groups. Prior experience of peer support was not compulsory. Participants provided consent using the relevant forms (appendix B6 & B7). Stroke survivors were excluded if they were (a) unable to provide consent (b) communicate or understand the English language and/or (c) had severe visual difficulties.

Objective

The objective was for participants to rate the 20 interactions within the film clips on the same five Likert scales as the Rating Scale Group (see appendix C2).

Procedure

Pilot Testing

The study was piloted with a small group of DClinPsy trainees in order to ascertain foreseeable problems. It was decided (based on this trial) that participants would be offered one numbered score sheet (see appendix C2) for each film clip to avoid confusion. It was predicted that it would take double the time it required of the pilot group to complete all film clips with participants.

Main Study

The order of film clips was randomised for each different group using a research randomiser computer programme (Urbaniak & Plous, 2015). Participants were required to complete the questionnaire pack detailed below (see appendix C1). They were then presented with the 20 film clips and asked to rate each on the same five Likert scales as the Rating Development

Group (appendix C2). Again, the Likert scales for scoring film clips sought to obtain information about the participants' attitudes and opinions regarding the interactions.

Materials/Measures (See Appendix C1 for all questionnaires)

Demographic Questionnaire

The demographic questionnaire gathered information relating to the participants age, gender, ethnicity, occupation, living arrangements, educations and effects of their stroke.

Berlin Social Support Scale (BSSS) (Schwarzer & Schulz, 2013)

The BSSS measures perceived available social support and support seeking behaviours. The scale has demonstrated good reliability (Internal consistency for subscales in validation samples; Perceived Social Support (8 items): Cronbach's alpha = .83; Need for Support (4 items): Cronbach's alpha = .63; Support Seeking (5 items): Cronbach's alpha = .81) and validity (Schulz & Schwarzer, 2003; Schulz & Schwarzer, 2004 as cited in MIDSS, n.d.).

Difficulties in Emotion Regulation Scale 18 (DERS-18) (Gratz & Roemer, 2004)

The DERS-18 generates a total score to measure emotion dysregulation. Higher scores indicate greater emotion regulation problems. The DERS-18 has demonstrated good overall reliability (high internal consistency ($α$= .91) with most samples achieving higher than 0.80) (Victor & Klonsky, 2016). Concurrent validity of the DERS-18 was demonstrated by strong correlations with subscale (0.92) and total scores (0.98) on the full scale DERS in five samples including community adults (Victor & Klonsky, 2016). Predictive validity scores on the DERS-18 demonstrated very similar correlations as the original version for both negative (r = .27, p = .004) and positive emotions (r = .20, p = .03) (Victor & Klonsky, 2016). The full DERS scale has demonstrated good test-retest reliability (p=.88, p<.01) (Gratz and Roemer 2004).

Peer Support Number Scale

A scale measuring self-rated likeliness to join a peer support group asked participants to rate between 0 (Not likely) and 10 (Highly likely). This was designed as a simple measure to indicate how participants feel about peer support groups. This was to get an indication of how positive stroke survivors feel about peer support groups.

2.3 RESULTS

2.3.1 Phase 2: Trainee Validity Check – Inter-rater Reliability

2.3.1.1 Hypothesis 1 – Participants will reliably sort the interactions into categories.

Inter-rater reliability was measured using percentage agreement. Interactions that achieved a percentage agreement of 28.57% or above were re-categorised into that most commonly selected domain, even if the original categorisation was different (see appendix D1).

The percentage agreement statistic does not account for chance agreement and should not be used as the only measure of inter-rater reliability (Albano, 2016). Therefore, Fleiss Kappa statistic was conducted to determine consistency among the sorters that can be expected above chance. The rating system described by Landis and Koch (1977) was used to rate the levels of agreement estimated by the kappa scores (see appendix E). An overall kappa score was calculated in addition to individual kappa scores for the levels of agreement within each of the 10 domains.

Table 11 – Overall Fleiss Kappa

	Kappa	Asymptotic Standard Error	Z	P Value	Lower 95% Asymptotic CI Bound	Upper 95% Asymptotic CI Bound
Overall	.219	.007	30.011	.000	.204	.233

The interrater reliability for the sorters was found to be Kappa = 0.22 (p <.0.001), 95% CI (0.20, 0.23). This demonstrates a *fair* agreement amongst the sorters (Landis & Koch, 1977).

Table 12 – Fleiss' Kappa's for the Individual Domains

Rating Category	Conditional Probability	Kappa	Asymptotic Standard Error	Z	P Value	Lower 95% Asymptotic CI Bound	Upper 95% Asymptotic CI Bound
1	.371	.297	.021	14.216	.000	.256	.338
2	.290	.182	.021	8.716	.000	.141	.223
3	.108	.048	.021	2.281	.023	.007	.089
4	.225	.189	.021	9.060	.000	.148	.230
5	.318	.208	.021	9.928	.000	.167	.248
6	.394	.310	.021	14.840	.000	.269	.351
7	.205	.140	.021	6.720	.000	.100	.181
8	.256	.187	.021	8.955	.000	.146	.228
9	.197	.115	.021	5.493	.000	.074	.156
10	.445	.355	.021	16.986	.000	.314	.396

Table 12 demonstrates the inter-rater reliability for the 10 domains. For domains 1, 6, and 10, kappa varied between 0.21 and 0.39 demonstrating a *fair* agreement amongst the sorters. All other domains demonstrated a *slight* agreement with kappa results between 0.04 and 0.20 (Landis & Koch, 1977). All domains have significant *p* values (p<.0.05) which demonstrates that all domains have inter-rater reliability that is not due to chance.

Furthermore, the confidence intervals determine that the kappa values are significantly different from 0 (Zaiontz, 2013).

A binomial test is a one sample test of the statistical significant when comparing two small samples or categories (Oracle, 2018). This test is considered 'an exact probability test used for dichotomous variables' (Oracle, 2018 p1). The binomial test was conducted to ascertain the significance of the level of agreement between the 7 raters and the original research team (researcher and supervisor). The binomial sought to test how often the 108 interactions were sorted into the same 10 domains by the 7 raters and the research team to a level that was greater than chance (0.5). Thus, it is expected that the raters agreed with the research team for at least 54 of the interactions. The binominal test indicated that all of the 7 raters organised at least 54 of the interactions into the same 10 domains (see Table 13) as the original research team to a significant level ($p < 0.000$, one-tailed) that was greater than chance (0.5).

The data met the assumptions for use of this particular analysis; (a) independent observations were assumed (b) the sample size is significantly less than the population size (c) items are dichotomous and nominal (d) the probability of a given outcome is the same for all samples (statisticalsolutions, 2018). The binomial test is non-parametric and thus regarded as more robust to the prescence of data regarded as not normal due to having fewer assumptions (Lamorte, 2016). However, due to having fewer assumptions, non-parametric tests have less statistical power than parametric tests.

Table 13 - Binomial Test Summary

	Null Hypothesis	Test	Sig
1.	Agreement beween rater 1 and research team that all 108 interactions are sorted into the same domain to a level that is greater than chance (0.5)	One-Sample Binomial Test	.000
2.	Agreement beween rater 2 and research team that all 108 interactions are sorted into the same domain to a level that is greater than chance (0.5)	One-Sample Binomial Test	.000
3.	Agreement beween rater 3 and research team that all 108 interactions are sorted into the same domain to a level that is greater than chance (0.5)	One-Sample Binomial Test	.000
4.	Agreement beween rater 4 and research team that all 108 interactions are sorted into the same domain to a level that is greater than chance (0.5)	One-Sample Binomial Test	.000
5.	Agreement beween rater 5 and research team that all 108 interactions are sorted into the same domain to a level that is greater than chance (0.5)	One-Sample Binomial Test	.000
6.	Agreement beween rater 6 and research team that all 108 interactions are sorted into the same domain to a level that is greater than chance (0.5)	One-Sample Binomial Test	.000
7.	Agreement beween rater 7 and research team that all 108 interactions are sorted into the same domain to a level that is greater than chance (0.5)	One-Sample Binomial Test	.000

Note: Significance level is 0.007

Bonferroni Adjustment

Due to multiple comparisons, a Bonferroni adjustment was required to reduce the likelihood of type 1 errors (Statistics.laerd.com, n.d). The critical (α) value was changed from $p<0.05$ to $p<0.007$ which still indicated that the 7 raters organised at least 54 of the interactions into the same 10 domains (see Table 13) as the original research team to a significant level ($p=0.007$).

2.3.2 Phase 3: Rating Development Group

2.3.2.1 Hypothesis 2 – Peer supporters will be able to differently rate positive and negative items for each of the 10 domains on a set of Likert scales. For example, positive items will be rated as more positive than negative items.

Frequencies were used to find the median of all 20 ratings for each of the 59 interactions (see appendix D2).

A Mann-Whitney U test was used to compare the differences between the median ratings for each positive and negative interaction. The positive interactions were rated more positively (Mdn=2) than the negative interactions (Mdn=4), (U=53.5, Z=-5.906, p<0.001) to a statistically significant level.

2.3.3 Phase 5: Interaction Rating Group

2.3.3.1 Missing Data

Seventy two people were recruited into the project. Two participants gave the same response for 50% or more of the film clip data (including an equal mix of positive and negative interactions) and were excluded. This was based on the reasoning they clearly did not understand the concept of the study. Seven had 20% or more missing data from scoring the film clips and were excluded from the analysis which resulted in 63 participant's clips being analysed. Out of these 63 participants;

Table 14 – Missing Data

1.	Six and seven participants did not complete the BSSS and DERS-18 respectively and thus were excluded from these correlations.
2.	Three participants had one missing data sheet for the film clips.
3.	One person had missing data from Likert scales within the clips.
4.	Two people had one missing score on the DERS-18.
5.	Two people had two and one missing scores on the BSSS respectively.
6.	Six people had one missing score each on the 'information about how stroke has affected you' questionnaire.

Missing data in this instance was replaced using mean-value substitution (Humphries, 2013). Missing values were replaced with the mean value of that particular subscale in the questionnaires for that particular participant. Similarly, with the film clips, if the missing data was a positive clip, the mean value of each Likert scale across all positive clips for that participant replaced missing values. The equivalent applied if the missing data was a negative clip. If missing data was a Likert scale within a clip, the mean value of the Likert scales for that clip replaced missing values. This ensured that complete case analysis methods could be used.

2.3.3.2 Descriptive Data

Sample Characteristics

The sample characteristics are summarised in tables 15 and 16. The mean time since stroke was 9.75 years.

Table 15 – Demographic Sample (age and gender)

	Gender	N	Mean
Age	Male	39	63.41
	Female	18	62.78
	Total	57	63.21

Table 16 – Background Characteristics

		Participants n, (%)
Ethnicity, n (%)	British	61 (88.9)
Occupation n, (%)	Retired	45 (71.4)
How Many Strokes n, (%)	First	36 (57.2)
	Second	17 (27.0)
	Third	5 (7.9)
	Fourth	4 (1.6)
Currently Live With	Partner	23 (36.5)
	Family	15 (23.8)
	Carer	3 (4.8)
	Alone	15 (23.8)
Communication difficulties n, (%)	Yes, a lot	18 (28.6)
	Yes, somewhat	27 (42.9)
	Same as before stroke	13 (20.6)
Memory difficulties n, (%)	Yes, a lot	18 (28.6)
	Yes, somewhat	30 (47.6)
	Same as before stroke	10 (15.9)
Relationships Affected n, (%)	Yes, a lot	16 (25.4)
	Yes, somewhat	32 (50.8)
	Same as before stroke	10 (15.9)
Reduced Activity n, (%)	Yes, a lot	25 (39.7)
	Yes, somewhat	26 (41.3)
	Same as before stroke	7 (11.1)
Reduced Time with Others n, (%)	Yes, a lot	18 (28.6)
	Yes, somewhat	26 (41.3)

	Same as before stroke	14 (22.2)
Anxious n, (%)	Never	16 (25.4)
	Sometimes	37 (58.7)
	Often	5 (7.9)
Depressed n, (%)	Never	19 (30.2)
	Sometimes	32 (50.8)
	Often	6 (9.5)

2.3.3.3 Data Analysis

Consultation with a statistician influenced the choice of data analysis used for this study. It was clear that the data presented was not normally distributed because (a) the outcomes were ordinal or ranked variables and (b) there were definite outliers evident with the box-plot graphs (LaMorte, 2016; Sullivan, n.d.). Thus, a related samples, non-parametric test was used as recommended due to being unable to assume the data was normally distributed (see appendix F). Assumptions for using this analysis were met; (a) the independent variable involves two 'related groups', is paired and comes from the same population and (b) the dependent variable is measured on an ordinal scale (Likert). The third assumption is that the distribution of differences between the positive and negative variables should be symmetrical. Boxplots revealed some outliers evident in the data; however, non-parametric tests are considered robust against outliers (Scibilia, 2015). The presence of non-normal data/outliers can make mean values inaccurate, thus the median value was used.

The following results will be presented in order of hypotheses (Table 5). The negative interactions that corresponds with a particular domain will be used as a control and will not be analysed.

2.3.3.4 Hypothesis 3(a)

Positive interactions will be rated more positive on all five Likert Scales by stroke survivors.

Wilcoxon Ranks Signed Tests indicated there was a highly significant difference ($p < 0.001$) in how the participants rated each Likert scale for the positive and negative interactions within each of the 10 domains (Table 17). This provides further statistical evidence to support the hypothesis.

Table 17 – Analysis of positive and negative items in each domain (N=63 for all comparisons)

Domain	Likert Scale	Z Score	Exact Sig, (2-tailed)
Domain 1 **Instilling Hope** **Positive & Negative Interaction**	Positive	-6.732	P<0.001
	Valued	-6.713	P<0.001
	Motivated	-6.640	P<0.001
	Hopeful	-6.620	P<0.001
	Confident	-6.510	P<0.001
Domain 2 **Positive Social Comparison** **Positive & Negative Interaction**	Positive	-6.415	P<0.001
	Valued	-6.147	P<0.001
	Motivated	-5.881	P<0.001
	Hopeful	-6.356	P<0.001

	Confident	-6.415	P<0.001
Domain 3 **Unconditional Positive** **Regard and Acceptance** **Positive & Negative** **Interaction**	Positive	-6.573	P<0.001
	Valued	-6.108	P<0.001
	Motivated	-6.175	P<0.001
	Hopeful	-5.894	P<0.001
	Confident	-5.858	P<0.001
Domain 4 **Affirmation** **Positive & Negative** **Interaction**	Positive	-3.965	P<0.001
	Valued	-4.176	P<0.001
	Motivated	-4.134	P<0.001
	Hopeful	-4.573	P<0.001
	Confident	-4.376	P<0.001
Domain 5 **Validation** **Positive & Negative** **Interaction**	Positive	-4.576	P<0.001
	Valued	-3.946	P<0.001
	Motivated	-4.121	P<0.001
	Hopeful	-4.945	P<0.001
	Confident	-4.219	P<0.001
Domain 6 **Encouragement** **Positive & Negative** **Interaction**	Positive	-5.974	P<0.001
	Valued	-6.176	P<0.001
	Motivated	-6.335	P<0.001
	Hopeful	-6.164	P<0.001
	Confident	-5.465	P<0.001

Domain 7 **Normalising** **Positive & Negative** **Interaction**	Positive	-4.474	P<0.001
	Valued	-4.084	P<0.001
	Motivated	-4.571	P<0.001
	Hopeful	-4.286	P<0.001
	Confident	-3.190	P<0.001
Domain 8 **Mutual Reciprocity** **Positive & Negative** **Interaction**	Positive	-6.013	P<0.001
	Valued	-4.687	P<0.001
	Motivated	-4.858	P<0.001
	Hopeful	-4.763	P<0.001
	Confident	-5.601	P<0.001
Domain 9 **Reflection/Reappraisal** **Positive & Negative** **Interaction**	Positive	-6.604	P<0.001
	Valued	-6.565	P<0.001
	Motivated	-6.383	P<0.001
	Hopeful	-6.423	P<0.001
	Confident	-6.377	P<0.001
Domain 10 **Belonging** **Positive & Negative** **Interaction**	Positive	-6.368	P<0.001
	Valued	-6.052	P<0.001
	Motivated	-6.064	P<0.001
	Hopeful	-6.193	P<0.001
	Confident	-6.260	P<0.001

Bonferroni Adjustment

Due to multiple comparisons, a Bonferroni adjustment was required to reduce the likelihood of type 1 errors (Statistics.laerd.com, n.d). The critical (α) value was changed from p<0.05 to p<0.001 which still indicated a significant difference (p<0.001) in how the participants rated each Likert scale for the positive and negative interactions within each of the 10 domains.

2.3.3.5 Hypothesis 3(b)

 There will be a significant difference between the median ratings across all Likert scales for the positive and negative interactions in each domain.

Wilcoxon Ranks Signed Tests indicated a highly statistically significant difference between the median scores of each scale from the same participant for each positive and negative interaction for each of the 10 domains (p<0.001) (table 18).

Table 18 – Wilcoxon Test for Median Scores across all Scales or Ratings for Positive and Negative Interactions in each of the 10 Domains (N=63 for all comparisons)

	Domain	Z	Sig.
1.	Instilling Hope	-6.671	P<0.001
2.	Positive Social Comparison	-6.091	P<0.001
3.	Unconditional Positive Regard	-5.887	P<0.001
4.	Affirmation.	-4.650	P<0.001
5.	Validation	-6.196	P<0.001

6.	Encouragement	-5.933	P<0.001
7.	Normalising	-4.831	P<0.001
8.	Mutual Reciprocity	-5.740	P<0.001
9.	Reflection/Reappraisal	-6.674	P<0.001
10.	Belonging	-6.254	P<0.001

Bonferroni Adjustment

Again, due to multiple comparisons, the critical value was recalculated. All negative and positive interaction pairs within each domain had values of less than the recalculated *p* value (p<0.005) and thus were still considered statistically significant.

2.3.3.6 Hypothesis 4(a)

BSSS total score will be negatively correlated with higher total positive ratings on the positive items.

A non-parametric (Kendall's tau) test was used to analyse the correlations for hypotheses 5-7 due to the data not meeting assumptions for parametric testing (see *2.2.4.3*).

Based on the hypothesis, we would expect these correlations to be negative. This is due to how positive interactions were scored (more positive interactions resulted in a lower score).

The results (Table 19) demonstrated there were no significant correlations between responses to the positive interactions on each of the 10 domains and the BSSS Total Score

after Bonferroni adjustment. This suggests that those who rated positive interactions more highly did not tend to have higher scores for perceived behavioural and/or cognitive support. However, 9 out of the 10 domains are negatively correlated suggesting that higher levels of perceived behavioural and cognitive social support are associated with higher ratings of positive interactions in domains 1-6 and 8-10. A binomial test of proportions was conducted to assess the significance of the finding that 9/10 of the correlations were negative whereas by chance 5/10 would be expected. This was significant (p=0.021, one-tailed). This direction of this difference in direction across domains suggests that people who rated positive items highly tend to have higher levels of perceived cognitive and behavioural support, as predicted.

Table 19 – Kendall's Tau Correlation for BSSS total score and positive interactions

			BSSS Total Score
Kendall's Tau	Positive Interaction Domain 1 Instilling Hope	Correlation Coefficient	-.079
		Sig. (2-tailed)	.452
		N	57
	Positive Interaction Domain 2 Positive Social Comparison	Correlation Coefficient	-.158
		Sig. (2-tailed)	.121
		N	57
	Positive Interaction Domain 3 Unconditional Positive Regard and Acceptance	Correlation Coefficient	-.001
		Sig. (2-tailed)	.994
		N	57
	Positive Interaction Domain 4 Affirmation	Correlation Coefficient	-.047
		Sig. (2-tailed)	.644
		N	57

	Positive Interaction	Correlation Coefficient	-.265[*]
	Domain 5	Sig. (2-tailed)	.012
	Validation	N	57
	Positive Interaction	Correlation Coefficient	-.015
	Domain 6	Sig. (2-tailed)	.883
	Encouragement	N	57
	Positive Interaction	Correlation Coefficient	.054
	Domain 7	Sig. (2-tailed)	.593
	Normalising	N	57
	Positive Interaction	Correlation Coefficient	-.036
	Domain 8	Sig. (2-tailed)	.729
	Mutual Reciprocity	N	57
	Positive Interaction	Correlation Coefficient	-.100
	Domain 9	Sig. (2-tailed)	.327
	Reflection/Reappraisal	N	57
	Positive Interaction	Correlation Coefficient	-.246[*]
	Domain 10	Sig. (2-tailed)	.018
	Belonging	N	57

2.3.3.7 Hypothesis 4(b)

There will be a significant negative correlation between the total median scores of positive interactions averaged across all domains and the BSSS total score.

The results demonstrate the correlations between the BSSS total score and the total median scores of all the positive items on each of the 10 domains. There was no significant correlation between the total score of the median responses to the positive interactions across all of the 10 domains and the BSSS Total Score (Kendall's Tau = -.141, n=57, p=.134 (two tailed)).

2.3.3.8 Hypothesis 5(a) - Scores on the DERS-18 will be positively correlated with ratings on the positive items for each domain suggesting that emotion regulation underpins openness to peer support.

Based on the hypothesis, a positive correlation was predicted with higher positive ratings associated with lower scores on the DERS-18 due to the nature of how the positive interactions were scored (more positive interactions resulted in a lower score).

The results (Table 20) indicated no significant correlations between the median responses to the positive interactions on each of the 10 domains and the DERS-18 total score after accounting for Bonferroni adjustment. This suggests no significant correlation between the positive interaction scores and lower levels of emotion regulation. However despite this, these results are all positively correlated and binomial test of proportions was conducted to assess the significance of this difference in direction (p=0.002). This suggests that, across all domains, lower levels of difficulties in emotion regulation are associated with higher ratings of positive interactions. This is in the direction suggested by the hypothesis.

Table 20 - Kendall's Tau Correlation for ERS total score and positive interactions

			ERS Total Score
Kendall's tau	Positive Interaction Domain 1 Instilling Hope	Correlation Coefficient	.207
		Sig. (2-tailed)	.049
		N	56
	Positive Interaction Domain 2 Positive Social Comparison	Correlation Coefficient	.191
		Sig. (2-tailed)	.061
		N	56

	Positive Interaction Domain 3 Unconditional Positive Regard and Acceptance	Correlation Coefficient	.046
		Sig. (2-tailed)	.655
		N	56
	Positive Interaction Domain 4 Affirmation	Correlation Coefficient	.021
		Sig. (2-tailed)	.833
		N	56
	Positive Interaction Domain 5 Validation	Correlation Coefficient	.050
		Sig. (2-tailed)	.637
		N	56
	Positive Interaction Domain 6 Encouragement	Correlation Coefficient	.065
		Sig. (2-tailed)	.532
		N	56
	Positive Interaction Domain 7 Normalising	Correlation Coefficient	.100
		Sig. (2-tailed)	.326
		N	56
	Positive Interaction Domain 8 Mutual Reciprocity	Correlation Coefficient	.002
		Sig. (2-tailed)	.988
		N	56
	Positive Interaction Domain 9 Reflection/Reappraisal	Correlation Coefficient	.087
		Sig. (2-tailed)	.393
		N	56
	Positive Interaction Domain 10 Belonging	Correlation Coefficient	.232[*]
		Sig. (2-tailed)	.026
		N	56

2.3.3.9 Hypothesis 5(b) - There will be a significant positive correlation between the total median scores of positive interactions for all domains and the DERS-18 total score.

The results demonstrated no significant correlation between the total score of the median responses to the positive interactions on each of the 10 domains and the DERS-18 total score. This suggests no significant correlation between the total positive interaction scores and lower levels of emotion regulation (Kendall's Tau = .138, n=56, p=.142 (two tailed)).

2.3.3.10 Hypothesis 6 - Validity will be demonstrated through correlation of the total median score for all positive items on all domains and the analogue measure of motivation to join a peer support group.

It was expected that a negative correlation would be evident between higher levels of motivation to join a peer support group and total median scores of all positive items on each of the 10 domains. This is due to the nature of how the positive interactions were scored; more positive interactions resulted in a lower score. The results indicated there was no significant correlation between the total score of the median responses to the positive interactions on each of the 10 domains and the likelihood of joining a peer support group (Kendall's Tau = -174, n=56, p=.100 (two-tailed)). The results do demonstrate a negative correlation which does partially support the hypothesis that higher positive scores result in a likelihood of joining a peer support group.

Frequencies were calculated to attempt to understand these results further. The analogue scale was scored 1-11 (1=not likely and 11=highly likely). The median score for this scale is 11 (the highest possible score). This demonstrates that there is little variability in the data and this ceiling effect is a possible reason why there is no significant correlation (Median = 11.0, n=56, (missing 7)).

2.3.3.11 Hypothesis 7 - Factor analysis of the positive scale items will produce a single factor, indicating that openness to peer support is one dimensional.

Factor analysis was used in an attempt to explore the data for underlying relationships and associations between the 10 domains. The data were assessed and considered compliant with the assumptions for factor analysis.

Prior to proceeding with the factor analysis, two processes were undertaken to determine whether the data was appropriate for this analysis. 1) Bartlett's Sphericity Test and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and 2) inspection of the correlation matrix were performed to determine whether the data could be factored (see Table 21).

Table 21 – KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.795
Bartlett's Test of Sphericity	Approx. Chi-Square	170.732
	Df	45
	Sig.	.000

A KMO score of 0.5 is usually considered appropriate for factor analysis ("Chapter 1: Factor Analysis, 2016"; Kaiser, 1974); values between 0.7 and 0.8 are considered 'good' (Hutcheson & Sofroniou, 1999 as cited in Field, 2005). The data for this study have a score of 0.795 and thus is considered suitable for factor analysis. The results of Bartlett's Test of Sphericity demonstrate that the data are highly significant (p>0.001) and suggests that the

'*R*-matrix is not an identity matrix' (Field, 2005), Therefore, the data were considered suitable for factor analysis.

Table 22 illustrates the Pearson's correlation coefficient between all pairs of variables (interactions). Correlations need to be considered adequate in order to continue with factor analysis ("Chapter 1: Factor Analysis, 2016"). The correlation between variables was higher than 0.3 in more than half of the pairs ("Chapter 1: Factor Analysis, 2016"). No correlation coefficients are greater than 0.9 and subsequently singularity is not problematic (Field, 2005). The determinant for these data was 0.052 which is larger than the required value of 0.00001 and thus eliminates the problem of perfect multicollinearity (Field, 2005). More than half the correlations (see Table 22) are significant at the .05 level; consequently no interactions require elimination and the data were considered appropriate for factor analysis.

Table 22 – Correlation Matrix

		1	2	3	4	5	6	7	8	9	10
Correlations (Positive Interactions)	1 Instilling Hope	1.00	.55***	.36**	.19	.37**	.35**	.20	.31**	.55***	.47***
	2 Positive Social Comparison	.55***	1.00	.41***	.14	.27*	.39**	.21	.31**	.40**	.52***
	3 Unconditional Positive Regard and Acceptance	.36**	.41***	1.00	.22*	.23*	.25*	.22*	.13	.20	.29*
	4 Affirmation	.19	.14	.22*	1.00	.33**	.43***	.45***	.16	.21*	.19
	5 Validation	.37**	.27*	.23*	.33**	1.00	.14	.18	.28*	.40**	.45***
	6 Encouragement	.35**	.39**	.25*	.43***	.14	1.00	.32**	.28*	.46***	.36**
	7 Normalising	.20	.21	.22*	.45***	.18	.32**	1.00	-.01	.20	.25*
	8 Mutual Reciprocity	.31**	.31**	.13	.16	.28*	.28*	-.01	1.00	.23*	.34**
	9 Reflection/Reappraisal	.55***	.40**	.20	.21*	.40**	.46***	.20	.23*	1.00	.52***
	10 Belonging	.47***	.52***	.29*	.19	.45***	.36**	.25*	.34**	.52***	1.00

Note: *$p < .05$ (one-tailed); **$p < .01$ (one-tailed); $p < .001$ (one-tailed).

The criteria for the number of factors to be extracted were tested using the eigenvalue (see table 23) and the scree plot (see appendix G). Factors with an eigenvalue (variance) of above 1.0 are sufficient for establishing the number of factors ("Chapter 1: Factor Analysis, 2016"). The number of factors based on both of these criteria was two.

Table 23 – Eigenvalues to assess the number of values to be tested.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1 Instilling Hope	3.830	38.304	38.304	3.830	38.304	38.304
2 Positive Social Comparison	1.297	12.972	51.276	1.297	12.972	51.276
3 Unconditional Positive Regard and Acceptance	.954	9.538	60.814			
4 Affirmation	.861	8.611	69.425			
5 Validation	.819	8.189	77.614			
6 Encouragement	.611	6.110	83.724			
7 Normalising	.509	5.090	88.814			
8 Mutual Reciprocity	.444	4.435	93.249			
9 Reflection/Reappraisal	.363	3.628	96.877			
10 Belonging	.312	3.123	100.000			

The hypothesis stated that all the positive items would produce a single factor. An orthogonal (varimax) rotation was used due to each factor being independent to the others. A principal component analysis demonstrated that 7 of the 10 domains loaded most strongly onto factor 1 and 3 of the domains loaded most strongly onto factor 2 (see Table 24). All the loadings lower than 0.3 were suppressed (which explains the missing scores) as they are considered to be low and can be ignored (Burgess, 2006; Field, 2013).

Loadings above 0.3 and 0.6 are considered high and very high respectively (Burgess, 2006). Stevens (1992) suggests that factor loadings of above 0.4, regardless of sample size are acceptable. Field (2005) and MacCallum et al., (2001) suggest accepting reliability if a factor contains 4 or more loadings of at least 0.6 again, regardless of sample size. Therefore, both factors can be considered reliable. This suggests that domains 1,2,3,5,8,9 and 10 are strongly related and domains 4 and 7 are strongly related. However, this matrix also suggests that domain 6 is strongly related to the domains in both factors.

Table 24 – Factor Analysis – Rotated Component Matrix

	Component	
	Indirect Reflections	**Direct Reassuring Interactions**
Positive Interaction Domain 1 Instilling Hope	.771	
Positive Interaction Domain 2 Positive Social Comparison	.742	
Positive Interaction Domain 3 Unconditional Positive Regard and	.426	

Acceptance		
Positive Interaction Domain 4 Affirmation		.825
Positive Interaction Domain 5 Validation	.551	
Positive Interaction Domain 6 Encouragement	.431	.556
Positive Interaction Domain 7 Normalising	.	.808
Positive Interaction Domain 8 Mutual Reciprocity	.581	
Positive Interaction Domain 9 Reflection/Reappraisal	.695	
Positive Interaction Domain 10 Belonging	.754	

However, further analyses were conducted to ascertain whether the domains would all have reliabe loadings if the factor analysis was forced to put all the domains into a single factor (see table 25). The results demonstrate that all loadings are acceptable with factor values all being above 0.4 (Burgess, 2006; Stevens, 1992). This lends some support to the hypothesis that suggests openness to peer support is compatible with a single factor solution.

Table 25 – Factor Analysis – Principal Component Matrix (1 Component)

	Component
	Positive Response to Peer Support
Positive Interaction Domain 1 Instilling Hope	.740
Positive Interaction Domain 2 Positive Social Comparison	.711
Positive Interaction Domain 3 Unconditional Positive Regard and Acceptance	.522
Positive Interaction Domain 4 Affirmation	.494
Positive Interaction Domain 5 Validation	.593
Positive Interaction Domain 6 Encouragement	.649
Positive Interaction Domain 7 Normalising	.444
Positive Interaction Domain 8 Mutual Reciprocity	.479
Positive Interaction Domain 9	.712

Reflection/Reappraisal	
Positive Interaction	
Domain 10	.743
Belonging	

2.4 Discussion

The study aimed to explore the theories and models hypothesised to underpin peer support and provide empirical evidence for the underlying processes.

2.4.1 Evidence for the Theories

Participants in the validity check phase were able to sort the peer interactions into the relevant domain with a level of agreement that was not due to chance and there were domains that demonstrated some distinctiveness. Furthermore, all raters placed interactions into relevant domains with a level of agreement that was significant with the original sorting by the research team. However, the percentage agreement was low considering the usual levels of agreement considered appropriate (Graham et al., 2012). Furthermore, only four of the raters sorted interactions into the original domains categorised by the research team over 50% of the time (although all did sort into the same category as the original sorting at above chance level). The decision to implement this phase of the study was only decided after the initial interactions from the focus groups were collected. It was considered important to have a more objective view of the domains in which the interactions should be placed. Seven people were available to participate in this particular phase, although it was considered that more would have been beneficial. Participants found this a time-consuming task due to having to sort 108 interactions into 10 domains. Many of the interactions were ambiguous and participants felt that they could have been sorted into more than one domain. The literature suggests that differences in percentage agreement could be resolved through shared discussion and then those that didn't meet the required level of agreement

should be re-categorised by the participants (McHugh, 2012). If this study were to be repeated group discussions about which domains certain interactions were placed could be discussed. Substantiating findings with participants is encouraged (Guba & Lincoln, 1981) and facilitates better research through co-production (Campbell & Vanderhoven, 2016). Due to the subjectivity involved in interpreting and categorising such as large amount of information, training is often suggested to reduce the amount of variability in how sorters view and interpret data (McHugh, 2012). Due to the nature of the task, results are vulnerable to reliability issues; the domains are not distinctly differentiated but overlap often in their nature and thus sorters were required to make subtle discriminations in the interactions provided. The nature of the data makes reliability more challenging to achieve and thus, more likely to be low (McHugh, 2012). Moreover, the sample of sorters was not homogenous and the differences in their respective professions may have led to differences in the agreement. Thus, if the study were to be repeated, it may be useful to have a homogenous group of sorters who undertake a comprehensive training program or involve sorters who have extensive theoretical knowledge; this may increase inter-rater reliability.

Alternatively, this lack of agreement may suggest that the interactions are in fact relevant to a variety of concepts and models that overlap i.e. instilling hope may occur as a result of either positive role modelling, downward social comparison and/or mutual reciprocity, which may explain the low percentage agreement attained. Thus, the associations between interactions and theories remain hypothetical and are not empirically confirmed by this study.

2.4.1.1 Social Learning Theory (SLT)

Instilling Hope

The examples of interactions developed from the focus group provide support for the utility of instilling hope in peer support for stroke survivors. One particular interaction example involved how talking about experiences instilled hope in others: ('talking about my

experiences, both good and bad, has helped other people to be hopeful'). However, this was reorganised into the domain of mutual reciprocity by the validity check, supposedly based on the benefit peers would experience as a result of helping others. The focus group examples of giving and receiving support corroborates previous research that suggests role modelling from authentic peers (based on similar experience) is likely to enhance self-efficacy, hope and positive behaviour change (Solomon, 2004; Salzar, 2002). The significant difference in ratings between positive and negative interactions from the Rating Development and Interaction Rating groups substantiate the findings from the focus group and further support that this domain underpins peer support in stroke. The correlational results also demonstrated a significant correlation between instilling hope and mutual reciprocity (r= 0.31, p<0.01) which suggests a relationship between these two domains. This may provide an explanation for why the above interaction originally placed in 'instilling hope' by the focus group was subsequently sorted into 'mutual reciprocity'. Future research could investigate this relationship further.

2.4.1.2 Social Comparison Theory (SCT)

Positive Social Comparison

Focus group participants produced downward social comparisons as positive and upward comparisons as predominately negative interactions. The Rating Development Group and Interaction Rating Group correspondingly rated the downward comparison interaction positive and upward comparison interaction negative to a level that was significantly different. This supports previous research demonstrating the utility of downward comparisons in stroke peer support (Reed et al., 2010; Sadler et al., 2016). These findings contrast with literature that reports benefits of upward comparisons (Proudfoot, 2012) but equally accords with literature that recognised some social comparisons are not always helpful (Morris & Morris, 2012; Stewart et al., 2006). Future research looking at underlying processes of peer support could explore the causal factors associated with upwards and

downward social comparisons in more detail. Previous research has suggested that upward social comparisons usually inspire hope (Simoni et al., 2011). However, a downward positive comparison interaction was produced by the focus group participants that appeared to result in feelings of hope ('that person seems to be worse off than me and has gone back to work…that makes me hopeful that I'll be able to return to work'). Furthermore, the downward positive social comparison interaction was significantly correlated with the instilling hope interaction (r=.55, P<.001) which suggests that these comparisons may also elicit this affect.

The results may also provide corroboration for the similarity hypothesis (central to SCT). Focus group participants produced information that created positive interactions occurring as a result of shared experiences (i.e. 'you gain confidence in sharing fears….', 'listening to other people…decreases feelings of loneliness and isolation'). This accords with previous research which suggests that communicating with similar others can result in positive affect (see Cohen et al., 2000).

2.4.1.3 Social Support (SS)

Validation, Normalising, Belonging, Encouragement, Affirmation, Acceptance

Focus group participants were able to provide examples of interactions in which they thought that connecting with others through the shared experience of stroke leads to positive affect (i.e. 'the group has given me confidence to do things independently'). This included examples of experiences and interactions that 'affirm' the relevance and normality of emotions, cognitions and behaviours (i.e. 'only the people in the group are able to share the understanding of the real impact of having a stroke') such as feeling encouraged, validated, reassured and accepted. This corroborates research emphasising that peer support 'buffers' against adverse emotional effects of situations through the processes of affirmational and emotional support (Proudfoot, 2012; Dennis, 2003).

The results from the Rating Development and Interaction Rating groups also provide support for the hypotheses that the interactions generated on the basis of these underlying processes are indeed positive and relevant to the peer support experience. This provides further support for the putative buffering effects of peer support which leads to enhanced validation (Mead & Macneil, 2003), acceptance, affirmation, feelings of hope, belonging, encouragement and normalisation (Davidson et al., 2006; Soundy et al., 2014; Solomon, 2004; Gidugu et al., 2015; Simoni et al., 2011).

2.4.1.4 Relationship between Theories

SS, SCT and SLT all appear to share the same concept based on connecting with peers through 'similarities' or 'shared experience'. The correlational results demonstrated a positive significant correlation between positive social comparison and instilling hope ($r=.55$, $p<.001$), acceptance ($r=.41$, $p<.001$, validation ($r=.27$, $p<.05$), encouragement ($r=.39$, $p<.01$) and belonging ($r=.52$, $p<.001$) which support this relationship. Positive comparisons are said to enhance self-esteem (Gurr et al., 2009; Kessler, 2014) and thus may do so by enhancing feelings of acceptance, validation, encouragement and belonging. Similarly significant correlations were found between instilling hope and acceptance ($r=.36$, $p<.01$), validation ($r=.37$, $p<.001$), encouragement ($r=.35$, $p<.01$) and belonging ($r=.47$, $p<.001$). This may suggest that these underlying processes (like instilling hope) could possibly occur as a result of positive role modelling from similar others.

These correlations support previous research which states that key conceptions of SS (emotional and affirmational) which are said to be enhanced through components of SCT and SLT (comparisons and role modelling respectively) (Sadler et al., 2016; Stewart et al., 1998) instill feelings of hope, validation and encouragement (Kessler et al., 2014). This also supports results from the conceptual review which corroborated the links between these conceptions and theories. The review also concluded that all studies with theoretically grounded interventions recognised the importance of connecting with others through shared

experience in their results and noted enhanced outcomes associated with this. Future research could investigate the relationships between these domains based on the fundamentality of shared experience further.

2.4.1.5 The Helper Therapy Principle

Mutual Reciprocity

The positive rating from the Rating Development and Interaction Rating group for the positive pole of this interaction support previous research documenting positive effects such as increased self-esteem and interpersonal competence (Repper & Carter, 2010) that helping others can elicit. This may also provide support for the Helper Therapy Principle based on the underlying process of mutual reciprocity which suggests that a person achieves an enhanced sense of self through using their experiences to help others (Solomon, 2004).

2.4.1.6 Post –Traumatic Growth

Reflection/Reappraisal of Stroke

Participants from the focus group were able to produce examples of exchanges and interactions that demonstrated positive reflection and reappraisal of their stroke experience (i.e. ...I've developed new skills and realised talents that I never knew I had' and '... group made me change the way I think about things...' They were able to consider how being part of the group altered their perceptions to make their experiences of stroke more hopeful and positive. The significant difference in ratings of positive and negative interactions from this domain by the Rating Development and Interaction Rating groups also provides support for the potential role of peer support in fostering post-traumatic growth. Tedeschi and Calhoun (2004) proposed that the process of reappraisal leads to adaptive re-evaluation and subsequent positive changes, potentially through the mechanism of social comparison with peers (Chun & Lee, 2008). This relationship between reappraisal and social comparison is

further supported by the correlation matrix which demonstrated a statistically significant positive relationship between these two domains (r=.40, $p<0.05$). The highly significant positive ratings potentially corroborate Linley and Joseph (2004) who emphasised the significance of the positive appraisal of peer support rather than the peer support itself.

2.4.1.7 Summary

The results from the Focus Group, Rating Development Group and Interaction Rating Group provide some support for the underlying processes hypothesised to underpin effective peer support in stroke. This corroborates the perceived psychosocial benefit that derives from connecting with other people and the perceptible comradery associated with peer support. This generates feelings of belonging, normalisation, hope and validation which encourage people to reflect and re-appraise their situations through positive social comparison. This may subsequently create confidence in survivors which enables them to offer support to others through mutual reciprocity and instilling hope through effective role modelling. However, despite this, the highly positive ratings of the positive interactions may be may be due to bias; research suggests that people have different ways of responding to rating scales and interpret the points differently. Many people will use the edges of scales and others will use the midpoints (Hoskin, 2012). This will produce differences between participants' results which may intimate something other than what the questionnaire was intending to measure (Hoskin, 2012) for example, individual differences. Another way of conducting this study in order to make it easier and more accessible to stroke survivors may have been to have only one Likert scale (i.e. how helpful was the film clip) and a choice of two or three responses (i.e. helpful/neutral/unhelpful). This type of questioning can appear to be restrictive (Hoskin, 2012); however, with a population of many people who struggle cognitively, this may have been more accessible and yielded more reliable and valid results. This may have reduced the duration of the study, potentially decreasing participant fatigue and may have helped to reduce missing data. These changes may also have made existing

data more reliable; it is uncertain whether some stroke survivors understood the response they were selecting. They may have selected responses in the region of how they were feeling (i.e. 1-4 (Extremely positive, very positive, somewhat positive and slightly positive)) without understanding the nuances that make each of these options differently. Alternatively, the highly positive results could also be due to overlapping constructs or alternative 'optimistic' constructs that cut across the domains for example, 'empathy' or 'positivity'.

2.4.2 Evidence for a General Theoretical Basis for Peer Support

The correlations between higher positive ratings on the positive interactions and the BSSS and DERS-18 total scores occurred in the expected direction. However, contrary to the hypotheses, after allowing for Bonferroni adjustment, none of these results were statistically significant. This suggests that perceived emotional and behavioural support and perceived difficulties in emotion regulation may not be a reason for people to engage in peer support. Higher levels of perceived social support are usually associated with enhanced psychological wellbeing (Yadav, 2009; Xu et al., 2017). However, the results of this study suggest that this does not necessarily translate into an enhanced positive appraisal of peer support.

In the case of emotion regulation, these results do not support research that established a positive relationship between emotion regulation and perceived quality of social interactions (Lopes et al., 2005). However, characteristics of social interactions are influenced by many other factors including motivation and personality traits (Lopes et al., 2005) which may provide some explanation for the lack of relationship between difficulties in emotional regulation and ratings of positive interactions.

Alternative reasons for these results could be attributed to the use of self-report measures. These can present a challenge to stroke survivors due to the communication and cognitive

problems that may occur. Hence, they may lack the 'introspective ability' to provide accurate answers to questions (Hoskin, 2012) and struggle to understand and interpret the information being asked. Many of the participants required support from either the research team or group volunteers and thus, responses may have been influenced by response bias or social desirability. The BSSS and DERS-18 were selected due to good validity and reliability within health contexts. However, neither has been validated for the stroke or aphasia population and thus results should be interpreted with caution.
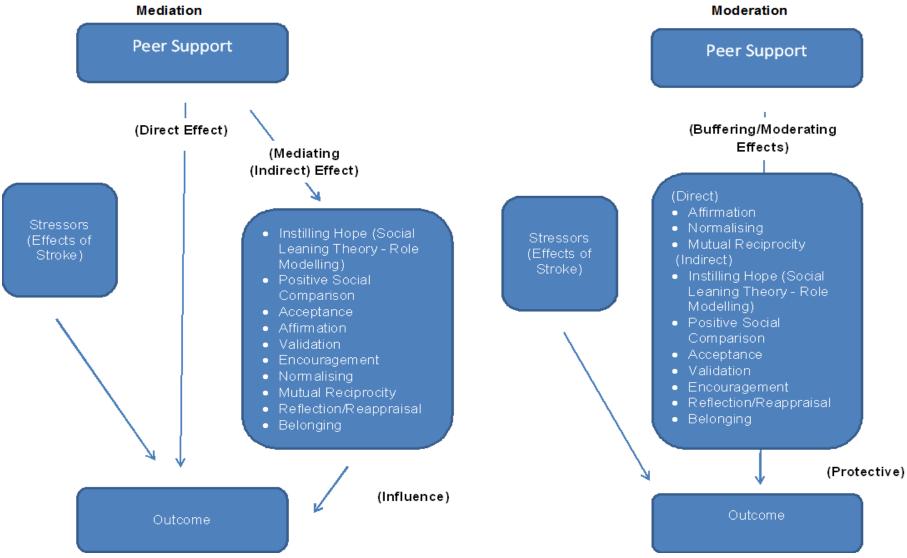
The principal component analysis suggested the 10 domains could be reduced into either 1 or 2 factors to account for 38% and 59% of the variance respectively. For the initial reduction into two factors, the components were named 'Indirect Reflections' and 'Direct Interactions' respectively. This suggests that the domains loading on each of these components share similarities. The interactions involved in the two domains from the 'Direct Interactions' component differed from those interactions in the 'Indirect Reflections' component which may explain the reasons for the different factors (see *2.3.1.4*). The domain that had high factor loadings in both factors involved an interaction ('a round of applause') which could be interpreted as either direct or indirect. This may provide some explanation as to the relationship between these domains and the reduction into two factors. Further research could explore this association to understand the differences in how stroke survivors may respond to direct and indirect peer interactions.

Despite this, the results suggest that openness to peer support is also compatible with a single factor solution. This suggests that all 10 domains are related and share a common theme (Field, 2005). This supports the hypothesis which predicted that openness to peer support is one dimensional as all the dimensions could be described well by a single factor, thus the component was renamed 'positive response to peer support'. These results provide support for the 10 domains and indicate that they may underpin peer support in stroke.

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The relationships between these 10 processes and outcomes could be explained by the 'mediating' and/or 'buffering' effect models. In the mediating effect model, underlying processes stemming from peer support such as downward social comparison, role modelling and reflection/reappraisal may indirectly influence how a survivor evaluates their stroke experience. Furthermore, the results support Dennis (2003) who asserted that the appraisals offered by peers which are affirming, validating or encouraging assist in this mediating process due to the credibility of the peers.

These findings also suggest that the peer support processes may engender a buffering (moderating) effect that protects against the adverse psychosocial effects of stroke through the various positive effects of peer support (i.e. social comparison, effective role modelling) communications (Dennis, 2003) (see Figure 4).

Figure 4 – Mediating and Moderating Processes

2.4.3 Limitations

Initially, the aim of the study was to repeat re-randomised presentations of the same interactions to reduce the impact of an order effect. However, this process was discarded due to the time it took for stroke survivors to view and rate the original 20 clips. For each group of raters, therefore, there was the possibility of an order effect; for example, people may have had a systematic tendency to rate the first clip more positively, but tiredness and fatigue could then have potentially biased ratings to become generally more negative. However, as the clips were randomised differently over the six groups and ratings were averaged across all groups, this likely averaged out any order effect; indeed, all positive and negative interactions were rated significantly positively and negatively, respectively, across all groups, indicating that order effects did not have a big impact on averaged ratings.

Another limitation is that significant differences found between positive and negative interactions may not unequivocally support the domain from which they are derived, as the actors' non-verbal communication (body language and tone of voice) likely indicated the emotional meaning of their words. There is developing research to suggest that non-verbal communication such as emotional expressions can indicate basic information that influences behaviour, judgements and decision making in a range of domains (Tracy et al., 2015). This could have induced a more positive/negative mood in participants which may have biased their ratings. Positive non-verbal communication can have influential clinical benefits, although the mechansims are not fully researched (Kemper & Shaltout, 2011). However, this is less likely to be the fact as not all interactions were distinctly positive and negative in their communication; e.g., the 'affirmation' positive interaction comprised of a negative statement with an evidently despondent tone followed by a positive (affirmative) response with an optimistic tone. That participants rated entire clips as either positive or negative in spite of such ambiguity in the emotional nature of some clips, suggests that ratings could not have been based solely on the emotional meaning conveyed by actors' non-verbal communication.

Additional support for the validity of the domains comes from the fact that the focus groups were able to develop positive and negative interactions based on the presented domains, and that professionals were then able sort these interactions into relevant domains with a level of agreement not due to chance. Moreover, not all domains significantly correlate with each other (appendix I) which may also provide further evidence for the validity of domains.

A further limitation is that particular groups of participants were observably more positive in their reaction to the clips than others; some groups cheered or booed when they viewed positive and negative clips respectively which may have resulted in contamination of individual judgements (Asch, 1951). Future research could consider conducting this study on an individual basis in order to remove the possibility of such social contamination of clip ratings.

Finally, this study did not adapt the language and communication style of the clips to improve understanding for the raters, which might have impaired interpretation as stroke survivors, particularly those who are aphasic, can have difficulties in language comprehension (Nystrom, 2006). Feedback from some raters (particularly those who were aphasic) indicated some difficulties in understanding and interpreting clips. Consequently, it would be sensible for any future studies that use stroke survivors as raters to consider adapting the language and communication style of the clips to improve comprehension. This process could involve the participation of stroke survivors which would accord with patient and public involvement (PPI) and co-production initiatives.

The results provide some support that the 10 domains are meaningful and underpin peer support in stroke. However, due to the complex relationships between the domains and the overarching theories (see Figure 3), it cannot be concluded that these results support the underpinning of one or more theories in particular or that the domains can be consigned to a particular domain. For example, the instilling hope domain could derive from SCT or SLT,

thus it is evident that the interactions or underlying processes are supported as a result of this study but it is ambiguous as to which domains or theories. Many of the relationships described in Figure 3 have not been empirically tested and this study demonstrates similar implied (rather than empirically tested) associations. Future research could build on this preliminary work and investigate the links between particular theories and effective peer support in order to assist in the development of 'theory-based' rather than 'theory-inspired' interventions (Michie et al., 2016).

2.4.4 Theoretical, Research and Clinical Implications

This study presents a unique contribution to the stroke and peer/social support literature with regards to theoretical, practical and wider service and policy implications. The associations between the theories and the domains remain implied and are still not empirically supported by this project due to the potential overlap in domains. However, the results of this knowledge translation study (a) indicate that stroke survivors respond positively to theory generated positive peer support and interactions and (b) support the application and utility of the underlying processes and concepts hypothesised to underpin peer support. this may still help overcome the problems associated with methodological limitations and lack of theory (Trachtenberg et al., 2013; Lloyd-Evans et al., 2014) often documented in the literature. This in turn inhibits the recommendations of policy and stakeholders for peer support provision. The film clips may have clinical and research utility; those stroke survivors that scored the positive interaction highly may benefit most from peer support and this could be empirically tested in future research. The film clips could be used to replicate the study with a larger sample of stroke survivors and comparisons could be made between those who have experienced peer support and those who have not. The positive interactions could be built into current peer support interventions and tested; peer supporters could be trained to provide these interactions and deliver a peer support intervention. Outcomes could then be compared with a group intervention that doesn't involve these trained peers.

The lack of previous theoretical evidence is highlighted by NICE guidelines (NICE, 2013) and may be a reason peer support is inadequately funded in healthcare services. This study has resulted in a new perspective by creating awareness of the conceptual underpinnings of peer support in stroke. Subsequently, this should encourage the development of more robust, evidenced-based interventions through consideration of the theoretical implications of the underlying processes explored in this project. This will ensure stroke survivors experience a more conceptually grounded peer support programme and will enable more rigorous measurement of its efficacy. The findings and conclusions of this study could potentially increase the legitimacy of peer support programmes by ensuring they are grounded in theoretical concepts and principles. Subsequently, this will improve peer support practices and strengthen the resourcefulness of interventions which will contribute to more effective synthesis of the evidence and ensure their position in future service policies and strategies (Mead et al., 2001; Lloyd-Evans, 2014).

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Critical Reflection

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3.0 Thesis Context and Relevance

Peer support for stroke survivors is not a new concept. However, it is now receiving more interest and attention as a model for psychosocial intervention. Peer support is currently included in the national stroke strategy for England (DOH, 2007) in four of the quality markers and the ten point improvement plan (Cookson & Casey, 2013). It is also included in national guidelines for long term conditions (ICSWP, 2012) and clinical guidelines for improving psychological care after stroke (NICE, 2011) which supports its integration into services.

Stroke is a major health problem and a leading cause of death and disability in the UK (Scarborough et al., 2009). Stroke services have an estimated annual economic cost of £7 billion per year (NICE, 2013) which will escalate as a result of an aging population. Consequently, the need for support and rehabilitation for older people will increase. Stroke rehabilitation involves a principally medical focus on disability (Kendall et al., 2006) with a distinct separation between physical and psycho-social recovery (Naylor et al., 2012). Services remain insufficient in their provision of longer term, secondary, rehabilitative care (NICE, 2013). They often focus on the immediate, post-stroke period, placing emphasis on physical recuperation (Dowsell et al., 2000) and only respond to psychosocial issues at the point of crisis (Kendall et al., 2006).

Peer support is regarded as a mutual relationship, with people who share similar characteristics (Heisler, 2010; Morris & Morris, 2012) which is grounded in; experiential knowledge, social and emotional support, genuine understanding and validation (Heisler, 2010; Mead & Macneil, 2003). Peer support relationships eliminate the power imbalance often present in professional-patient relationships (Repper & Perkins, 2003). Instead they offer non-hierarchical, altruistic roles constructed through a shared life experience (Heisler, 2010). The benefits of peer support are well documented in both the physical and mental

health literature (Dale et al., 2012; Resnick & Rosenheck, 2008). Benefits include; (a) reduced problematic health behaviours and isolation (b) decreased fear and depression (c) enhanced coping and social competence for both patients and carers and (d) long term positive outcomes on both physical and psychological wellbeing (Heisler, 2010; NICE, 2013; Cookson and Casey, 2013). The peer support model encourages a 'wellness' perspective which focuses on the development of strengths, resources and recovery (Repper & Carter, 2010) rather than disability and impairment (Carter, 2000). Peer support interventions that are properly designed and implemented have the potential to enhance care and health management. This is based on strengths and self-directed recovery rather than deficits and symptom reduction at a time when the NHS is facing great austerity (Graham & Rutherford, 2016).

Despite the documented benefit and value of peer support, systematic reviews have criticised many studies for their inferiority and methodological limitations (Trachtenberg et al., 2013; Lloyd-Evans et al., 2014). Many reviews emphasise encouraging results from poor quality studies that do not present experimental substantiation (Lloyd-Evans et al., 2014). Peer support programmes contrast vastly in format, frequency and length of programmes (Graham & Rutherford, 2016) and studies often fail to report their interventions succinctly which makes reviewing and synthesising their effectiveness challenging (Lloyd-Evans et al., 2014). Research into peer support continues to evaluate interventions while overlooking these underlying processes that appear fundamental to their success. This thesis is well-timed clinically, seizing a valuable opportunity to explore other directions for evaluating peer support in stroke.

This thesis is considered to fulfil the criteria for *high impact research* as defined by the Research Council UK (RCUK) (ESRC, 2017):

1. Academic Impact – The results of the review paper provide an alternative view for the diversity of empirical evidence evaluating the efficacy of peer support in stroke. This research project is the first of its kind to attempt to provide empirical evidence for the underlying processes and concepts that may underpin the efficacy of peer support. Both these papers contribute to a potential shift in 'understanding and advancing scientific method, theory and application' within the stroke peer support field. It is anticipated that (based on this review and research) researchers and clinicians will be better able to underpin their peer support interventions with relevant theories and models which will help in creating an evidence based model for peer support.

2. High Economic And Societal Impact – Both the review and empirical research project are novel and innovative (a requirement of most funding applications for research). These results are likely to have a high impact on those individuals seeking peer support; if peer support programmes become more theory based, they are likely to yield more effective outcomes. Evidenced-based programmes are likely to appeal more to stakeholders making decisions about where to allocate resources. This is in turn likely to have a positive impact on organisations, society and the economy.

3. Instrumental Impact - This study has high instrumental impact in that it could potentially influence how peer support interventions are developed and practised. If peer support programmes become more evidenced-based and empirically supported, this will have a high impact on service provision and policy development.

4. Conceptual Impact - The project also has high conceptual impact and provides a consolidation of theoretical perspectives. This could potentially have an impact on policy development, service provision and society.

5. Capacity Building – This project has brought a new perspective to peer support in stroke including how to develop, implement and evaluate interventions to produce effective results based on theoretical underpinnings. Both the review and empirical paper are novel and unique pieces of work in the stroke peer support field. The

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critical reflection that follows provides evidence of 'technical and personal skill development'. This involves reflection on process decisions that were made in the project and alternatives for future research within this field.

3.1 Systematic Review

3.1.1 Design

Systematic reviews are dominated by the synthesis of empirical studies (Campbell et al., 2014) usually based on experimental paradigms considering the impact or efficacy of a particular intervention (Gough et al., 2012). However, interventions within health and social care can comprise multiple, interrelating mechanisms 'directed at a community rather than individual level' (Milne et al., 2004, p339) which usual systematic review approaches neglect. Subsequently, review approaches are rapidly developing to (a) include the theoretical role involved in research synthesis (Gough et al., 2012) (b) address the complex nature of interventions which often involve multiple components (Milne et al., 2004) and understand why and how particular results have occurred and (c) understand the influence of 'social and paradigmatic' contextual factors (Gough et al., 2012, p2; Milne et al., 2004). The systematic identification of theories is supported by the developing methodology of research synthesis which includes realist or theory based reviews (Booth & Carroll, 2015) rather than the more traditional systematic approach. These endeavour to explore the underlying pathways and contextual and process factors critical to treatment success (Booth & Carroll, 2015; Campbell et al., 2014).

3.1.2 Review Question and Study Search

It was unclear what (if any) theories were being used to underpin stroke peer support research. Thus, it was decided that the review question should be broad which reflected the aims of general theory based reviews which was 'to scope out and map a wide range of theories within a subject area' (Campbell et al., 2014, p4). Systematic review guidance

usually recommends a team of researchers which may include a subject specialist (Campbell et al., 2014). This is particularly significant for theoretical reviews where they can provide insight into the development and interrelation of theories (Campbell et al., 2014). Meeting these criteria as one reviewer conducting a doctoral thesis was considered unachievable and impractical and may present as a limitation of this review. However, a review that aims to scope out theories is less likely to require specialist input than those aiming to develop meta-theories (Hannes, 2011 as cited in Campbell et al., 2014) suggesting that this may not be necessary unless a more in-depth qualitative analysis was anticipated. This review aimed to discover what theories and concepts are being used in SPS studies and adopt a theory based review approach to explore how the use of the theories and their processes may contribute to SPS research, thus, specialist input may not have been necessary in this case.

3.1.3 Review Methodology

This review, although theoretical, adopted many traditional systematic methodologies. Efforts were made to reduce bias and ensure clarity and transparency (Campbell et al., 2014). Comprehensive systematic searching and inclusion/exclusion criteria were incorporated, as advocated by Cochrane, through the use of PICO (population, intervention comparison and outcome) criteria. This was completed in order to widen the search criteria and encapsulate theories from literature beyond the field of psychology including; occupational therapy, nursing, general practice and patient education (Campbell et al., 2014). The lack of an equivalent framework for theoretical reviews (Campbell et al., 2014) can make the process complex and although the methodological processes were determined in advance, it is considered acceptable to adapt and alter them as the research proceeds (Gough et al., 2012).

Methodological flexibility was prominent in this review and inclusion and exclusion criteria were modified throughout the process. The inclusion of studies that *implicitly referred to theory* for intervention development and/or evaluation was determined during synthesis rather than *a priori*. During study searching, it became apparent that many studies did not explicitly underpin their interventions with theory. Instead, they referred implicitly to components of theoretical models within their descriptions. Alternatively, other studies based their interventions on an identified theoretical framework whilst also incorporating components of other theoretical concepts (without specifically naming them). Due to the lack of research explicitly referencing theory, it was decided that these *implicitly inferred* studies would also be included in the review to ensure an element of comprehensiveness. **It is regarded as common practice in reviews to include studies that do not explicitly use theory but refer to their conceptual basis (Baxter & Allmark, 2013; Bolander Laksov et al., 2017; Campbell et al., 2014; Davies et al., 2010). Implicit use of theory may only involve assumptions which emerge from shared understanding of the value of particular methods and analyses. This is considered 'perfectly valid and acceptable in a strategy in its own right' (Layder, 1998).** This added a complex element to the study search as potentially subjective inferences had to be made on which theoretical components were being used. This was achieved by examining the study descriptions in detail in order to extract this information. This required a thorough understanding of the three main theories discussed (SCT, SLT and SCM) and their components in order to recognise them within the articles. Traditional systematic review searches should be comprehensive (Gough et al., 2012) and all attempts were made for the searches to be exhaustive (including the addition of inferred studies in the inclusion criteria). However, it is expected that due to the nature of including these studies, some key research may have been missed due to the limitations of one reviewer's perspective (who is not a subject specialist in theory). However, the literature advocates that configuring reviews such as this one intend to find a sufficient amount of studies to investigate *patterns* within research (Gough et al., 2012) and they do not

necessarily have to be extensive or comprehensive (Gough et al., 2012). It is felt that this was achieved in the review with the three theories considered.

A second example of methodological flexibility is the exclusion of theories other than the three most commonly cited (SLT, SCT and SCM) in studies included in the review. At the outset, the reviewer was unsure the extent to which theories were being used to underpin peer support interventions, thus it was difficult to predict the quantity of theories that would have to be quality assessed. When scoping out theories, it was evident that a diverse range were being discussed in papers developing and evaluating peer support. Due to the constraints of having one reviewer, it was decided that quality assuring more than three theories would be excessive and beyond the remit of this review. This was predominately due to the in depth knowledge required regarding each theory in order to scope out those studies that 'inferred' theories. It was suspected that gathering sufficient knowledge about more than three theories in order to recognise their components within the studies descriptions was unfeasible. Therefore, it was decided that only the three most commonly detailed theories would be included in the review. This meant that the review may have excluded exploration and synthesis of a wider range of disregarded but possibly influential or emerging theories (Campbell et al., 2014) and could be considered a further limitation of this review.

A third example was the decision to include studies that measured the efficacy of a number of peer support groups that the authors themselves did not develop. This meant that intervention provenance and knowledge of theoretical foundation was unknown. However, these papers did consider components of theory within their discussion to explain results and thus met the inclusion criteria for implicitly inferred theories. It was considered important to include these studies in order to contribute to the investigation of patterns within the

research. It was reflected that this contributed to the utility of those theories that may support the efficacy of peer support and thus these were included at a later stage.

These flexible methodological processes support the suggestion that developing inflexible *a priori* inclusion and exclusion criteria in advance may not be particularly beneficial for theoretical reviews and a more subjective approach may be more useful (Campbell et al., 2014). However, this subjectivity may in turn reduce the replicability of the review due to the role of the reviewer and their perspective which could be considered a further limitation. Theoretical reviews may benefit from having multiple reviewers (as in traditional systematic reviews) in order to reduce bias when scoping out theories. If this review were to be repeated, it may be useful to use a team of researchers including a subject specialist to ensure that significant theories in the field of peer support are not overlooked.

3.1.4 Quality Assessment

The unique and broad aims of this review directed the quality assurance approach. Traditional systematic reviews usually assess the quality of studies though their methodology (Gough et al., 2012). However, it was considered more appropriate in this review to quality assess the *identified theories* used to develop and evaluate peer support interventions. To the author's knowledge, there is no validated instrument to assess the quality of a theory and consequently, one was developed. This required a literature review into the characteristics of what makes a 'good' or 'useful' theory which formed the basis of the quality assessment tool. However, the characteristics used was not an exhaustive list and other key attributes exist which may have enhanced the tool further. Other features include; (a) how the theory corresponds with the empirical evidence (otherwise known as descriptive adequacy) (b) coherence and consistency (which can be complicated due to psychological theories commonly being presented in verbal form) (c) breadth and (d) originality (Dennis & Kintsch, 2007). However, due to the constraints of having one reviewer,

assessing the quality of theories against all characteristics was considered unfeasible and thus only the most commonly cited in the literature review were utilised. This may be considered a further limitation as the quality of the theories may have potentially increased or reduced with the addition of supplementary criteria.

One of the key characteristics emphasised in this review was the utility and applicability of the three theories postulated. This was considered fundamental to the development and evaluation of stroke peer support interventions due to the potential clinical impact on health and stroke services. However, a lack of research explicitly assessing the quality of these theories meant the literature search had to be broad. This search aimed to find evidence that either supported or refuted the characteristics of a good theory for each framework. For example, the author consulted empirical papers that had developed interventions in various contexts based on these three theories which could be said to support i.e. its testability and generalisability. Thus, this information was based on the subjective perspective of the reviewer and may be viewed as a limitation. It was a revelation during this literature search that there was evidence to support a theory in terms of i.e. its generalisability and testability due to empirical studies conducting successful research in various contexts. However, there was a lack of research that *directly* tested or investigated a theory's testability and generalisability; this could be achieved by testing hypotheses based on the theory's concepts in a variety of clinical settings. Future research specifically exploring the utility of a theory may be helpful and would provide a more objective account when considering how to incorporate them in the design, implementation and evaluation of interventions.

This method of quality assurance was considered relevant to the review and contributed to the synthesis of results. However, alternative quality assessments could have been performed; the quality of the studies in terms of their *application* of theoretical concepts could have been assessed. This could have included assessment of how well the studies

utilise theory to develop and evaluate their interventions including intervention success (Kaner et al., 2015), using an existing tool such as Michie's 19-item Theory Coding Scheme. The 19-item Theory Coding Scheme identifies how theory is used in six areas; 'reference to underpinning theory, targeting of relevant theoretical constructs, using theory to select recipients or tailor interventions, measurement of constructs, testing of mediation effects and refining theory' (Kaner et al., 2015, p5). This would have been more closely aligned to traditional systematic review methodologies and is a possible recommendation for a future review in this subject area.

3.1.5 Implications for Theory and Practice

This review is original and applicable to both health and stroke services. No previous review into stroke peer support (to the author's knowledge) has attempted to investigate the underlying theoretical concepts being used in peer support interventions. The review yielded some interesting results and supported initial conclusions elucidating a lack of research into this area of service development. However, this review additionally highlighted the inadequacy of many interventions being used; only a small quantity of studies used evidenced based interventions to evaluate the efficacy of peer support. This has massive implications for peer support as an evidenced based model of working in clinical services.

The review found that three theories are dominantly used in SPS; this may offer a pathway towards defining and conceptualising SPS within empirical research studies. The review highlighted some interesting findings, however, the majority of studies used theories sporadically in their studies and did not set out to test theories or demonstrate links between intervention hypothesis and theory. Theory *can* be applied at various stages on the research process including; defining aims, providing a rationale and interpreting the results (Stewart & Klein, 2016). However, many intervention studies fail to make 'use of a theoretical lens' (Stewart & Klein, 2016, p5). This is thought to be due to lack of investigator awareness of

theory, difficulties in choosing theory, lack of accessible measures (ICEBeRG, 2006) and that the application of theory is perplexing due to the number of approaches and explanations (Stewart & Klein, 2016). The UK Medical Research Council highlighted the poor use of theory in implementation research in a recent systematic review and emphasizes that awareness of the relevant theory in implementation research is likely to result in a more effective intervention (Stewart & Klein, 2016). Theory should be considered by researchers early on in the study planning stage and enhances the relevance and significance of findings (Stewart & Klein, 2016). Previously, mixed efficacy has been attributed to the methodological flaws inherent in many studies which are said to produce inadequate recommendations. However, this could potentially be due to the lack of theory used in the development of SPS interventions and the lack of understanding into the importance of contextual and process factors that may also contribute to these diverse findings in efficacy. These findings highlight the importance of utilising evidence based theories and concepts to underpin peer support interventions in stroke. They also emphasise that specific attention must be given to understanding the unique processes and various contextual factors involved as this may help understand the mechanisms responsible for change (Milne et al., 2004). The other difficulty with making tangible conclusions is that most studies used more than one theory, thus, the assigned outcomes may be attributable to several processes or concepts from different theories. It is suggested that investigating how researchers use theory in their studies based on analysis of papers may be misleading (Bolander Laksov et al., 2017); studies are usually written primarily to communicate findings and the implication of these, rather than to communicate how they use theory (Bolander Laksov et al., 2017). However, on the other hand, embedding particular theories (e.g. behaviour change theories for peer support) may 'generate findings which can be related to how and why a behaviour has occurred (or not)' which would provide information on how an intervention has been (un)successful (Stewart & Klein, 2016, p5). Theories provide conceptual understanding of why people, cultures and societies behave in particular ways and provide a lens through

which researchers can understand complicated social issues, 'providing a framework through which to conduct analysis' (Reeves, 2008, p631). It is hoped that these conclusions will subsequently change the way researchers design and develop interventions for peer support in stroke. Furthermore, it is expected that this review will encourage more evidence based development, grounded in theoretical models and constructs which should be clearly publicised (Baxter & Allmark, 2013). This would add subsequent value to the model of peer support and increase its utility in health and clinical services.

This is the first theoretical review that has attempted to explore theory use into SPS studies. The researcher acknowledges that there are a number of ways to conduct a theoretical review and that it was an ambitious task to undertake such a review. Alternative methods could have included reviewing the quality of papers in terms of theory application or methodological rigour (as with traditional systematic reviews). Due to the novel nature of this project, the researcher and supervisor made process decisions based on similar theoretical review papers in order to make best practice decisions. One of these was to review only the three most commonly cited theories; despite this being justifiable, it would have been useful to investigate all the theories and how they are used in SPS intervention studies. Future reviews which have large research teams (preferably with a theory expert) could use more robust methods to enhance the quality of the review.

3.2 Research Paper

3.2.1 Methodology

Phase 1 - Focus Group

In this study, focus groups were used in the early stages in order to generate ideas and views which would inform the main project. Focus groups are particularly useful in the preliminary stages of research (Vaughn et al., 1996) to generate ideas that inform larger study designs. Due to the unique nature of this project, focus groups were useful to explore

those ideas that are well known to participants (Freitas et al., 1998) but have not yet been explored through research. This concept fits with a 'bottom-up' approach which reduces the likelihood of imposing preconceived ideas and views of the research team. Thus, using focus groups to precede a quantitative study is a good way to help understand the language and terminology of the area to be studied. It is also a useful way to discover the thoughts and views of the 'experts' actually engaging in the area to be studied (Freitas et al., 1998). Demographic data were not collected from the participants for the focus group; collecting information on ages, genders and time since stroke for these participants could be considered important with an innovative project such as this one. This information may have assisted in making conclusions about this particular population in comparison with other populations. For example, a common factor of this population may have been age or ethnicity; the positive and negative interactions perceived helpful in this population may differ from those recognised in either a younger population or a population of stroke survivors from different ethnicities.

There is variation in what constitutes an ideal number of people in a focus group with recommended numbers ranging between 4 and 10 people (Liamouttong, 2011). Larger numbers can usually be difficult to co-ordinate and some group members may struggle to make their voices heard (Liamouttong, 2011). However, the size of the group can be decided based on the needs of the project and is often ascertained based on study design and practical constraints (Liamouttong, 2011). Staff leading the peer support groups for the stroke association organised the two focus groups for this project and dedicated the task for the group that day to the focus group activity. Consequently, all those that wanted to take part appropriated one room and those that declined or could not consent used another room to complete a different activity.

Due to researcher constraints, it was considered that having two large groups to discuss their peer experiences was the more suitable option to gather as much data as possible. Given the nature of the project, it may have required a large number of smaller groups to warrant gathering enough information (Liamputtong, 2011). This was unfeasible due to researcher constraints to organise five or six different focus groups on a weekly basis for each group due to time. In addition, it was felt this would encroach on the time of the peer support group for a number of weeks. However, there are limitations to having two large groups; (a) conformation to group judgements (Asch, 1951) may have arisen as some participants members may have felt unable to express their true feelings to such a large group on people (b) two single groups may enhance bias as additional themes may have emerged from other groups that may have enriched the information. Despite this, patient and public involvement focus groups such as this one can range between 3 and 30 people and have no set limit on attendees (NIHR, 2017).

Analysis of the focus groups was completed using a low intensity analysis (Freitas et al., 1998) using categorisation. The interactions were organised into what was considered the most appropriate domain based on the opinions of two researchers from the team and then re-organised using seven independent sorters from clinical and research professions. This was considered to be the most objective and valid method for categorising the interactions. Due to this being a preliminary phase of the research and due to the constraints of only one researcher, it was not feasible to use a more intense qualitative data analysis (i.e. grounded theory). A key feature of focus groups is the interaction between participants and the data that is accessed through observations of these interactions and promotes high face validity (Webb & Kevern, 2001). The interactions gathered from the focus group, alongside those derived from the literature formed the basis for the study. Thus, it was important that the data was applicable and relevant. Focus groups, due to their nature are high in face validity (Kreuger, 1994); however, more intense analysis of the observations of the interactions

identified by the focus groups (due to them involving members of an established peer group) may have cultivated more unusual (but highly applicable) data. In addition, without this more intense analysis, saturation of the data is unknown and thus this may have limitations as to reliability in terms of answering the research question (Liamputtong, 2011).

These focus groups required high levels of moderator involvement; the data the researcher was attempting to obtain required the participants to be very reflective. They were required to consider the conversations and interactions they have in the peer support groups and how these make them feel. For stroke survivors, this sophisticated cognitive task may have been quite challenging (although being amongst peers perhaps made this a slighter easier task). If this stage of the project were to be repeated in more depth, filming or observing the peer support groups instead of, or alongside other methodologies such as a focus group may enrich the emergent data. These controlled or naturalistic observation methods have the advantage of being replicable and have high ecological validity.

Phase 2 - Validity Check

The decision to implement this phase of the study was only decided after the initial interactions from the focus groups were collected. It was considered important to have a more objective view of the domains in which the interactions should be placed. Thus it was decided that third year clinical psychology trainees and researchers should categorise the interactions into what they consider the most suitable domain based on the information provided. Seven people were available to participate in this particular phase, although it was considered that more would have been beneficial. Participants found this a time-consuming task due to having to sort 108 interactions into 10 domains. Many of the interactions were ambiguous and participants felt that they could have been sorted into more than one domain.

Percentage agreement is most commonly used to assess reliability of categorical variables (Reis & Judd, 2000). Traditional percent agreement (McHugh, 2012) was thus completed to assess inter-rater reliability amongst the sorters categorising the interactions. Percentage agreement was suitable in this study as it is 'easily calculated and directly interpretable' (McHugh, 2012, p281). The literature does not state a minimum number for this process and due to time constraints, the acceptable level of percentage agreement for this study was set to 28.57% or above. Percentage agreement can become more complex to calculate with many categories (5 or more) (Graham et al., 2012). There appear to be no cast-iron rules about the level of agreement required with values ranging from 75-90% (Graham et al., 2012). The literature suggests that in cases like this, differences could be resolved through shared discussion and then those that didn't meet the required level of agreement should be re-categorised by the participants (McHugh, 2012). This would have been completed after inputting the data and assessing which interactions did not achieve above at least a 75% agreement. If this study were to be repeated with more time and researcher resources, the group of sorters could be reassembled and group discussions about which domains certain interactions were placed discussed. Substantiating findings with participants is encouraged (Guba & Lincoln, 1981) and facilitates better research through co-production (Campbell & Vanderhoven, 2016). However, due to time constraints, this was unachievable in this study.

There are many factors that can affect inter-rater agreement. Due to the subjectivity involved in interpreting and categorising such as large amount of information, training is often suggested to reduce the amount of variability in how sorters view and interpret data (McHugh, 2012). Reis and Judd, p300 (2000) suggested that sorters should be 'psychologically minded' individuals that have good social skills and awareness of their biases. Third year trainees have reached the final stages of their clinical psychology training and are competent in a variety of psychological models and approaches. This training means that trainees would encompass good knowledge of these domains. The clinical trial

managers were considered competent in clinical research with knowledge of data integrity and good clinical practice ensuring standards are maintained. Furthermore, all participants they were given clear guidelines on the characteristics and components of each domain (see appendix A4). Thus, they were considered good candidates for this task. McHugh, p7 (2012) suggests that if sorters are well trained (which would suggest that the possibility of guessing is reduced) then 'the researcher may safely rely on only percent agreement to determine interrater reliability'. However despite this, due to the nature of the task, results are vulnerable to reliability issues. The domains are not distinctly differentiated but overlap often in their nature and thus sorters were required to make subtle discriminations in the interactions provided. Despite the capabilities of the sorters in this case, the nature of the data makes reliability more challenging to achieve and thus, more likely to be low (McHugh, 2012). Moreover, the sample of sorters was not homogenous and the differences in their respective professions may have led to differences in the agreement. Thus, if the study were to be repeated, it may be useful to have a homogenous group of sorters who undertake a comprehensive training program. This may increase inter-rater reliability. Other factors that may affect inter-rater agreement is sorter selection; extensive training does not automatically indicate that all the trainees would agree with each other (Myford & Wolfe, 2009 as cited in Graham et al., 2012) thus, those who appear unable to pass agreement or reliability screenings are generally removed (Graham et al., 2012).

The percentage agreement method should not be used in isolation due to its inability to control for chance agreement (Reis & Judd, 2000; McHugh, 2012; Wongpakaran et al., 2013). Thus, inter-relater reliability or extent of agreement was also assessed using Fleiss Kappa; this is a modified form of percentage agreement that also accounts for chance agreement (Albano, 2016). It is the most commonly used statistic which controls random agreement in rating categories by more than two raters (McHugh, 2012). According to the literature (Landis and Koch, 1977; Altman, 1991), the Fleiss Kappa level of agreements were

considered fair (K=0.22) although only kappa agreements that are 'substantial' (K=0.61-0.80) are thought to be appropriate. Despite this, it has been suggested that this rule can be more harmful than beneficial (Gewt, 2014) as the extent of the value will be affected by a number of conditions such as the quantity of subjects and categories (Sim, 2005). Thus, the Kappa would automatically be higher if there were fewer than 10 domains and more than 7 sorters. Furthermore, the kappa may overly lower the agreement estimation and 'cannot be interpreted directly' (McHugh, 2012). Thus, it is suggested that in health related studies, both kappa and percent agreement should be analysed collectively (McHugh, 2012). This is appropriate if the measurement consists of rating categories (as was the case here) (Trochim, 2006).

Two interactions went through to the next stage of the study in error despite not reaching the agreement criterion. These were a positive interaction for domain 5 (0% agreement) and a negative interaction for domain 6 (4.76% agreement) (see appendix D1). The researcher reflected on the possible reasons for these errors including; (a) managing the time pressures associated with a research project that encompass many phases that require completion within a specific time period (b) understanding the analyses required for the phases whilst they are being implemented. The validity check was a 'best practice' decision that was made during the implementation of the study and the analyses were all completed manually before knowledge of how to accomplish them with a statistical package was understood through consultation with a statistician. The researcher reflected that in any subsequent research projects, they would acknowledge when there is too much to do in short spaces of time and ask for support.

Phase 3 - Rating Development Group

It was decided that 20 was an appropriate number of interactions to be filmed by actors and evaluated by participants. Thus, in order to reduce the interactions from 59 to 20, a new set

of stroke survivors were recruited. These had previously helped facilitated a number of peer support groups and were considered experienced in this capacity. The involvement of service users at this stage of the project could be seen as a strength in support of the significance of patient and public involvement (PPI) in clinical research (this will be discussed in more detail in section *3.2.4*). The participants involved at this part of the study were known by the research team for their prior involvement with peer support research. It is unsure whether the number of raters in this case was sufficient to be able to reduce the interactions reliably as there appears to be no rules for this in the literature.

Frequencies were used to find the median of all 59 ratings. The most positive interaction with the highest median and the most negative interaction with the lowest median for each domain was selected for scripting for the main data collection. However, many of the interactions had equal medians and it was decided that those considered best for scripting would be selected. This was a decision perhaps based on time and researcher restraints. However, for only one of the domains (belonging), all of the positive interactions with equal scores were selected; this domain had a high number of positive interactions that came through from the validity check and appeared to achieve the biggest level of agreement out of all the domains (100% (1 interaction), 71.42% (interaction) and 47.43% (3 interactions)). It was considered by the researcher and the supervisor that it was difficult to pick out one of these interactions as they all lent themselves well to scripting, thus they were amalgamated into one interaction. However, this subjective opinion could reduce the reliability and validity of the study and it is considered that all domains should have been treated equally. Alternative methods could have entailed using the mean or standard deviation of those equal medians to select interactions; this would have supported the decision for these interactions on statistical evidence. Alternatively, those interactions with equal medians could have been presented back to the members of the rating development group for further evaluation. However, due to time restraints, this was considered unfeasible within this project.

3.2.2 Recruitment

Including people with aphasia in the research

Research suggests that those with aphasia are particularly at risk of adverse social outcomes post stroke which can critically affect quality of life associated with health (Northcott & Hilari, 2013). Aphasic individuals are usually excluded from stroke research despite them being a high percentage of the stroke survivor's population (Northcott & Hilari, 2013). Thus, it was considered important for these survivors to be a part of this study and for them to be appropriately represented in the research. The demographic information sought information for the physical consequences of a person's stroke but not the cognitive effects. This might have yielded how many of the sample had aphasia. This is a limitation and should be considered should the study be repeated. However, one of the groups that took part in the research was classified by the charity as an 'aphasia specific' group. More than 50% of the participants in this group were excluded because their data did not meet criteria due to missing values (over 20% of clips). It may be that participants struggled to interpret and understand the verbal information from the clips. This suggests that this population of participants may not be fully represented in this sample and the results may not generalise beyond those who have higher levels of cognitive and language functioning. Future research should consider possible adaptations that could increase accessibility in order for them to be fairly represented.

It was also noted that although most of the groups thoroughly enjoyed watching and rating the clips, the group of aphasia participants struggled enormously with engaging in the study. Notably, they struggled with watching and rating the clips and many withdrew without completing the project. They appeared unable to relate to the experiences incorporated within the interactions and felt invalidated by the use of actors who did not appear physically affected by stroke. Research has ascertained that participants with aphasia may participate less than those without (Hilari, 2011). This was evident in this study where participants felt an overall sense of pessimism with the concept and content of the study. However, a

limitation of this study is that more consideration could have been given to increasing accessibility for aphasia participants. People with aphasia have difficulties in understanding both spoken and written language and may have struggled to interpret and understand the content of the film clips. This may in turn have affected the reliability of the results. It was also evident that these participants required more regular breaks and became fatigued more rapidly which led to increases in missing data. Adaptations to make the study more accessible to aphasic participants could be considered if this study were to be repeated. A repeat study could involve the inclusion of aphasia patients in the design of the study, making recommendations based on their insight of living with aphasia, as per PPI guidelines. Patient involvement is strongly recommended by the National Institute for Health Research (NIHR, 2014), guiding researchers to ensure the design of the research is approached in the right way. Based on retrospective feedback adaptations could have included; (a) reducing the amount of scoring information required for rating the film clips (discussed in more detail in section *3.2.3*) and (b) reducing the amount of information communicated via the clip (i.e. statements as opposed to interactions). This may have helped accessibility and enhanced engagement in the study. Encouraging those usually excluded from research was considered important. However, ensuring accessibility as well as inclusivity would improve the quality of the research and contribute to enhanced reliability and validity of the work (Young et al., 2007).

Sample

The mean age of the sample was 63 and over 70% identified themselves as retired. Consequently, these results may not be generalizable to a younger population of stroke survivors. Although the overall incidence of stroke is decreasing, strokes in younger people are actually increasing with 20% of survivors below the age of 55 (Kissela et al., 2012). This suggests that younger people will experience more 'lifetime disability' which puts significant pressure on existing health services (Lever, 2012, p1). Peer support interventions are said to benefit younger populations of stroke survivors (Muller et al., 2014) due to issues associated

with being at an earlier phase of life and feeling different (Morris, 2011), consequently, the underlying psychological processes of these interventions may differ between the two groups. This suggests that conducting future research with young stroke survivors is crucial as the theoretical concepts underpinning effective peer support interventions between the two populations may differ. Similarly, 94% of the sample identified themselves as 'British' and thus, the results may not be generalizable to those more ethnically diverse populations.

3.2.3 Data Collection

Length

Due to the distinctiveness of this study, it was anticipated that obstacles would be encountered despite all attempts to predict and prepare for eventualities. Most of the difficulties arose whilst collecting data where a number of study limitations became evident. Initially, it was decided that participants would rate 40 video clips; this included the 20 clips repeated once for test-retest reliability. However, it became evident whilst running the first group that stroke survivors required more time than expected to rate each film clip. It took 1 hour to complete the 20 film clips as well as considerable time and support to complete the questionnaires. Thus, it was decided (during the first group) that only 20 film clips would be presented for the remainder of the study. Nevertheless, despite reducing the clips, stroke survivors found the duration and concentration required for this length of time demanding and often become tired. This caused some participants to stop prematurely, without completing ratings for all video clips which created missing data. If this study were to be repeated, it may have been better to reduce the amount of domains i.e. (by half) and have a total of 10 clips which would have been less challenging and tiring for participants. However, this would reduce the wealth of information ascertained from the study. Alternatively, with more time and resources, the study could be completed in stages with a particular number of clips being presented at different times. This may present challenges in attempting to correlate this data with psychometrics that measure intrinsic factors (such as mood or

emotion) within a particular time period (i.e. that week). This method would also rely on participants attending multiple sessions which may still create problems with missing data.

Likert Scales

The Likert rating scales for scoring the film clips were created in an attempt to obtain as much information as possible about how the participants felt about the interaction. However, this amount of required information posed a difficulty for stroke survivors. Although rating scales (such as this) allow for more 'nuanced responses' that are less constricting, they do create problems in general for participants (Hoskin, 2012, p1). In this study, five scales appeared too many and a decision between the six responses too ambiguous. Some participants were excluded from the study due to having more than 50% of the data the same; these participants may have struggled with understanding and interpreting the question and the rating scale due to its intricacy. Alternatively, they may not have the introspective ability to access how the clip made them feel. Cognitive problems are extremely common after stroke (Al-Qazzaz et al., 2014) and this may have impacted on the ability to access this rating scale. However, upon reflection, removal of these participants may inadvertently support the hypotheses that positive and negative interactions would be rated differently. Hence, the percentage of data that is the same for participants to be excluded could have been increased to (for example) 75-80%.

Missing Data

It was decided prior to statistical analysis that if a participant had 20% or more missing data from any questionnaire, the total score of that questionnaire would be excluded from data analysis. If a participant had 20% or more missing data from scoring the film clips, they would completely be excluded from data analysis.

Missing data were replaced using the mean substitution method (Humphries, 2013). It was considered that the missing data could have been inputted with median values as opposed

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to mean due to the use of non-parametric data analyses. However, mean-value substitution is considered acceptable with Likert scale data as they are limited and are unlikely to contain extreme values. For extreme values and data that is not Likert, usually the median value is selected (Macdonell, 2007). The method of substituting a missing response with the mean of that participants responses across the clips (and thus the different domains) rather than the other participants responses for that particular clip is said to be a contentious issues as it may 'artificially increase the internal-consistency reliability of the measuring instrument' (Macdonell, 2007, p1). A test was conducted to ascertain the mean scores for all participants for each clip to see if there was a marked difference in the mean scores across clips. Mean scores for both the positive and negative clips had variations of 2.2-3.3 and 4.1-5.2 respectively (see appendix H for table of mean scores). Thus it is considered that re-substituting the values with the mean scores across participants rather than within particular participants may have been a better option.

Similarly, it was considered that replacing mean values in individual missing Likert scale scores using the other Likert scales scores in that clip should have been excised with caution. This is due to them measuring different factors. However, this was tested by choosing five random participants with no missing values and randomly picking out missing values. The same methods used for mean value replacement of missing scored was calculated. In three out of the six values taken out, these scores were exactly the same. In two of the values, the values were a maximum of 0.5 off the removed value. In one of the values, the replaced score was 1 score off the removed value. Due to the estimations required to replace missing value scores, this level of estimation was considered appropriate.

3.2.4 Patient and Public Involvement (PPI)

Stroke Survivors were involved in developing, rating and selecting the interactions based on personal experiences for this study. This could be considered a strength in support of the importance of patient and public involvement (PPI) and co-production in clinical research which corresponds with the prudent healthcare model. However, consideration of PPI at many other stages of this study (in particular the design) may have highlighted the difficulties described in advance, prior to commencing the actual study. This may have created an awareness of the potential inaccessibility of some of the written material. Possible involvements may have included: (a) contributing and inspecting the questionnaires (b) considering the best interactions for scripting from those that had equal medians in the rating development group (c) contributing to the scripts and (d) piloting the video clips and contributing to the consideration of timings. In addition, co-production could have been considered and integrated more effectively during the phases which did involve PPI; for example, verification of the focus group findings could have been achieved to provide confirmation of their accuracy (Guba & Lincoln, 1981). British Psychological Society (BPS) guidelines state that involving patients at 'every stage of the research process' should be advocated. This is being increasingly acknowledged with the development of the organisations CERES and INVOLVE, both of which promote and guide the involvement of patients and the wider public (BPS, 2010).

Research into PPI of stroke survivors has demonstrated that they can contribute significantly to the research process by bringing (a) difference perspectives and (b) challenging assumptions resulting in changes to the design process (Harrison & Palmer, 2015). One paper described the development of an NHS questionnaire which was consulted by the Stroke Advisory Group. As a result, the wording of questions was amended or questions were eliminated where it was felt they would be inaccessible (Howell et al., 2004). Many

limitations of the study design and accessibility may have been overcome if PPI had been considered for all processes within the project.

3.2.5 Measures

The Berlin Social Support Scale (BSSS) was selected due to the wealth of information it yields. Its multidimensional approach assesses both cognitive and behavioural aspects of perceived emotional and information support, need for support and actual support seeking. This enabled us to interpret and measure the extent to which participants who attend peer support groups felt they need support and were motivated to seek it. The scale was also selected due to its good validity and reliability within health contexts. However, validity co-efficient and test-retest reliability information was unobtainable as the papers were only accessible in another language. The BSSS additionally incorporates subscales for 'actual received and provided support' and 'protective buffering' where participants are asked to consider how a particular person close to them has responded to them in the past week. The close person also fills out a questionnaire detailing how they have responded to the participant that week. It was decided to exclude these scales from the study as gathering information from a close person associated with the participant would have been difficult. Furthermore, the added effort this would have required from stroke survivors would have been excessive. Moreover, the limitations of this scale are generally associated with the actual received and provided support and protective buffering subscales i.e. vulnerability to social desirability and no assessment of negative social interaction (Schulz & Schwarzer, 2003), thus it was considered appropriate to eliminate these from the study.

Other scales that have been used in stroke research include; the Medical Outcomes Social Support Scale (MOSSSQ) (Hamza et al., 2012) and the Multidimensional Scale of Perceived Social Support (MSPSS), originally designed for adolescents (Mohammad et al., 2015). There is no social support scale that has been validated for the stroke or aphasia population

until very recently with the development of the Stroke Social Network Scale (SSNS) (Northcott & Hilari, 2013). The SSNS was designed specifically for stroke survivors including those who are aphasic (Northcott & Hilari, 2013) and measures the effects on social networks after stroke. However, it does not provide the wealth of information the BSSS does and yields information only relating to immediate social networks (such and family and friends). It does not extend to the wider social network that may include peer support. However, this scale was developed to assess social support with stroke survivors so is concise and accessible. It has also demonstrated strong internal consistency (Cronbach's a=0.85) (Northcott & Hilari, 2013). Furthermore, it focuses on satisfaction, rather than size of social network which is more predictive of psychological distress following stroke (Hilari et al., 2010 as cited in Northcott & Hilari, 2013). However, due to being a fairly new development, its test-retest reliability has not yet been determined and more research is required to corroborate its psychometric properties. If this study were to be repeated, using a potentially more accessible scale that has been validated with the stroke population (such as this one) may be more productive.

The Difficulties in Emotion Regulation Questionnaire (DERS) is the most commonly selected scale for assessing emotion regulation difficulties in stroke survivors (Cooper et al., 2015; Scott et al., 2012). Initially, the full 36 item scale was selected; however, this was considered too lengthy for stroke survivors and thus, was replaced by the short form prior to data collection. The DERS (SF) was developed to reduce participant burden during research whilst also maintaining its reliability, validity and factor structure in a number of samples (Victor & Klonsky, 2016; Kaufman et al., 2016). The short form has equivalent if not better psychometric properties to the original DERS (Kaufman et al., 2016) so was considered appropriate. In addition, higher reliability from truncated tests is said to increase statistical power and inferences and reduce measurement error (Wilmer et al., 2012 as cited in Kaufman et al., 2016). The DERS was considered useful in that is investigates concepts

such as awareness of emotions in addition to the usual regulatory strategies (Yule, 2013). This was significant as lack of insight can present problems post stroke which can in turn affect awareness and acknowledgement of emotions which would influence the ability to sufficiently regulate emotions (Yule, 2013).

The number of questionnaires appears consistent (if not slightly less) that those used in other stroke research (Muller et al., 2014; van den Heuvel, 2000). The main limitations of the questionnaires were the time they took to complete and that many stroke survivors required assistance to answer all questions. This was facilitated by the research team and volunteers working at the groups. The psychometric scales are considered important to potentially vital information that was gleaned from the study. Furthermore, participants appeared to manage this quite well and did not consider this a lengthy task.

3.2.6 Results

Parametric tests require normal distribution of the data and involve approximations of the crucial parameters of the distribution i.e. the mean (Coolen, 2008). Data that is ordinal, ranked and exposed to outliers are complex to analyse with parametric tests without making some key assumptions about the distributions and judgements about coding variables (LaMorte, 2016). When these assumptions are violated, the use of non-parametric tests is recommended (Bakker & Wicherts, 2014). Non-parametric (distribution free) tests are said to have specific benefits and may have been the only safe way to analyse this particular data. They make fewer assumptions and are more powerful and robust to the presence of non-normal data (Lamorte, 2016; Scibilia, 2015) and thus supported the use of this type of data analysis.

Despite this, the cost of fewer assumptions means that non-parametric tests have less statistical power than their parametric counterparts that are intended to be used on data from

specific distributions. Thus, the null hypothesis is more likely to be accepted when this is, in fact false (LaMorte, 2016; Kitchen, 2009). Furthermore, data are not often normally distributed (Bridge & Sawilowsky, 1999) and statistical methods such as transformation and bootstrapping are alternatives to non-parametric tests to circumvent issues around outliers and normality of data (Bakker & Wicherts, 2014). Parametric tests also provide more sophisticated information i.e. parameters and confidence intervals which provide population sample information (Campbell & Swinscow, 2009). However, the non-parametric approach was still considered the most appropriate based on the data being ordinal. Despite this, aspects of the data that used total scores (i.e. of the psychometrics and scales) could be considered interval and thus, parametric tests (alongside statistical methods) may potentially have been utilised.

A parametric test was used for the factor analysis as SPSS automatically uses Pearson's correlation coefficient and it is not possible to select a non-parametric alternative. Violations of the assumptions of the test did inevitably occur with (a) non-linear correlations (this was determined with scatter graphs) and (b) the presence of outliers. However, it is advantageous (but not necessary) to have linear data ("Chapter 1: Factor Analysis, 2016") and this violation may potentially be due to the lack of variability in the data which was ascertained by verifying the median values. Research suggests that the data should not have outliers (Shukla, 2017); however, boxplots evidenced their presence in some clips. The presence of outliers can create bias to any successive statistical analysis such as the mean and can lead to exaggerated errors and estimates in both parametric and non-parametric tests (Zimmerman, 1998). On re-examination of these identified outliers, none appeared to be due to data error, motivated or intentional misreporting, sampling error, standardisation failure or faulty distributional assumptions (Osborne & Overbay, 2004). The outliers were sampled from the correct population and appeared to be due to random chance. This is common if the data set is large as the more the sample represents the population, the more

likely outliers will occur (Osborne & Overbay, 2004). Comparisons of the demographic information from these particular outliers appeared to be representative of the rest of the sample thus they were considered appropriate. Despite some researchers suggesting the removal of these outliers, this is considered to threaten scientific integrity and objectivity (Breheny, 2016) and is only recommended if they are deemed to have not come from the sample population (Conolly, 2011). Thus, it was decided to keep the outliers in the data. However, despite this, all tests that were completed to assess whether the data was appropriate for factor analysis (KMO and Bartlett's Test of Sphericity) met the requirements. Thus, this was considered an appropriate test and the results valid.

3.2.7 Suggestions for Future Research

The results suggested complex relationships between the domains and overarching theories. This led to conclude that the results could not support the underpinning of particular theories due to a domain possibly deriving from more than one theory. It was suggested in 'Future Research' that building on these initial suggestions and investigating the links between particular theories in an attempt to differentiate between them would help develop interventions that are grounded in theory rather than interventions that use theory on an ad hoc basis (Michie et al., 2016). Some work has already been achieved which has investigated the associations between behaviour change techniques and the effects of a particular mechanism of action such as self-efficacy (Michie et al., 2016). However, despite this, more transparent and established methods to 'identifying hypothesised links' and 'a better understanding of the mechanisms of action believed to underlie each behaviour change technique' are required if empirical findings are to be more systematic and efficient (Michie et al., 2016, p3).

3.3 Personal and Professional

The author became interested in working with stroke survivors and their carers whilst on a core placement in the stroke rehabilitation ward as part of the doctoral programme in clinical psychology. Whilst on placement, the author became involved in developing a peer support group with the psychology team as part of another trainee's thesis. It was evident that the peer support group was helpful in facilitating recovery in terms of reducing isolation and increasing self-esteem for group members and they clearly found it a very valuable experience. The author began to expand this interest and visited peer groups operated in the area by The Stroke Association to speak to the stroke survivors and carers who regularly attend these groups. However, it became frustrating that despite this being the primary community intervention available to stroke survivors after discharge from hospital, they are required to pay in order to attend these peer support groups. Having to financially contribute to this recovery service that already relieves the NHS of financial pressure made the author consider those who may not be in a position to financially support their rehabilitation. This raised questions about diversity and accessibility to lower socio-economic groups. A literature search into peer support clarified that despite confirmation of its efficacy in increasing positive health and social behaviours, there is no validated model that explains the processes of what makes peer support effective. Thus, it struggles to compete with other well evidenced models of intervention. Therefore, this stimulated interest in this study.

Meeting so many people at various stages of their recovery was both enlightening and at times distressing. Listening to stories about how people had rebuilt their lives and achieved goals that they never thought possible after their stroke was thought provoking. Those survivors that were in the earlier stages of their recovery and felt quite hopeless about their future was upsetting and procedures were put in place to manage these feelings throughout the duration of the study. Most of the volunteers at the peer groups were remarkable people and very supportive of all members of the group, as were other stroke survivors. Some

groups thoroughly enjoyed watching the clips, two groups cheered or booed when they saw clearly distinguishable positive and negative clips and appeared quite entertained. Another group made up of mainly aphasia survivors struggled enormously with watching the film clips and felt that the physical abilities of the actors did not truly reflect the adversity of having a stroke. For some stroke survivors, the opportunity to engage in a project that could promote the benefits of peer support meant playing an active role in their recovery. However, for others, the study only reminded them of some of the struggles and losses they had suffered as a result of their stroke.

Professionally, this project was a considerable learning curve for the author and involved many new experiences. The task of writing a theoretical rather than traditional systematic review was challenging due to the lack of specific well-defined guidelines. However, achieving this highlighted the positive aspects of attempting something different and the unique information that can emerge from this.

Due to the novelty of the empirical project, the author again faced new experiences and challenges. There was no similar previous research available that could be consulted about experiences, challenges and future research suggestions. Thus the project design and methodology was positively innovative and creative despite being under constant modification with the introduction of new phases such as the validity check and the pilot study. This involved a lot of time, repeated drafts and determination in order to prepare for data collection. Due to time and researcher constraints this was perhaps done less effectively than if done as part of a larger research team and some errors were made. If the amount of work had been foreseen in advance, a number of trainee's could have participated in the project and had a role in the different phases. The initial phases could have been explored in more detail and possibly subjected to a more thorough, qualitative analysis which may have reduced the limitations previously discussed. The validity checks

and rating scales could have involved more participants which may have increased inter-relater reliability and potentially changed the nature of the final interactions. Having more time and space to concentrate on these analyses would also have (a) limited the errors that were made in the trainee validity check and (b) potentially changed the methodology for how those interactions that had equal means in the rating development group were chosen.

The author considers the completion of this project a significant achievement. The completing demands of split placement work and the research project collectively was testing on occasions. However the added challenges of balancing this with a family, a young child and being pregnant added further pressures. The author was required to be organised and ensure that boundaries between home and work were maintained which was difficult in the final stages of write up. The author received incredible support from family who were always there to help with childcare and proof reading. The academic supervisor and appraisal tutor were very attentive to signs of stress and were supportive of adjustments that were required. The author's clinical supervisor left just before the first phase of the study was due to be implemented which meant only one supervisor for the entirety of the project. Having a good working relationship with the remaining academic supervisor was imperative to the success of this project and all decisions and changes were discussed and agreed collectively which was extremely helpful. The author felt well supported throughout all stages of this research project.

3.4 Dissemination

The review and empirical paper will be submitted to the British Journal of Health Psychology. An abstract will also be submitted to Welsh Stroke Conference (which usually occurs annually) after returning from maternity leave. The findings of the study will be distributed to all the peer support groups involved in the project via an information sheet. In terms of PPI guidelines, it may be useful to involve stroke survivors in this dissemination process.

INVOLVE promotes service user involvement in research projects conducted in the NHS and suggests that the 'engagement' of patients and the public can help determine how and where research can be circulated (BPS, 2010; INVOLVE, 2017). Discussions with the head of older adult services for Cardiff and Vale UHB will also be organised in an attempt to disseminate the importance of theoretically based development of peer support interventions to clinicians working in the stroke field.

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Appendices

Cardiff University Email of Ethical Approval

From: psychethics
Sent: 16 February 2016 11:51
To: Carys Marshall; Reg Morris (Cardiff and Vale UHB - Psychology Training)
Subject: Ethics Feedback - EC.16.02.09.4450R

Dear Carys
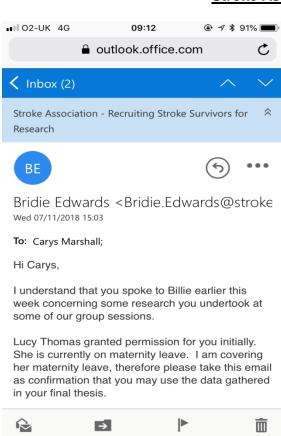
The Ethics Committee has considered your revised project proposal: *Underlying Psychology Processes of Peer Support in Stroke Survivors (EC.16.02.09.4450R).*
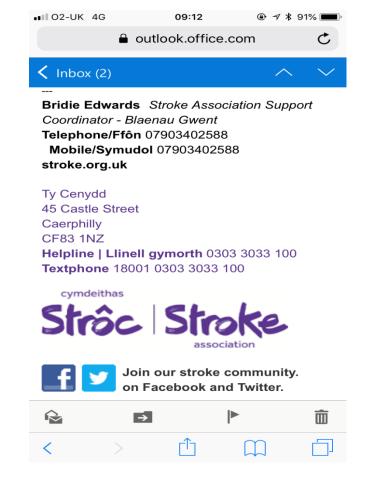
The project has now been approved.

Please note that if any changes are made to the above project then you must notify the Ethics Committee.

Best wishes,
Mark Jones

Stroke Association Email of Ethics

Stroke Association - Recruiting Stroke Survivors for Research

Bridie Edwards <Bridie.Edwards@stroke
Wed 07/11/2018 15:03

To: Carys Marshall;

Hi Carys,

I understand that you spoke to Billie earlier this week concerning some research you undertook at some of our group sessions.

Lucy Thomas granted permission for you initially. She is currently on maternity leave. I am covering her maternity leave, therefore please take this email as confirmation that you may use the data gathered in your final thesis.

Bridie Edwards *Stroke Association Support Coordinator - Blaenau Gwent*
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<u>**Appendix A2**</u>
<u>**Domains Identified from the Literature**</u>

1. Instilling Hope

- Campbell et al., (2004) – Common emotional benefit
- Davidson et al., 2006 – Those with similar experiences can offer hope
- Yalom (2005) – Critical part of therapeutic process
- Gidugu et al., (2015) – Seeing someone who has gone through it and come out the other end. Being with someone who has similar experiences provided people with a sense of hope.
- Sowards et al., (2006); Corrigan (2016) – Being with positive role models who provide hope by role modelling effective recovery.
- Macdowell et al., (2006) – Role modelling key to Social Learning Theory and likely to be more effective if role models are more similar – increases credibility.
- Solomon (2004) Salzar et al., (2002) – Peers interacting with each other increases self-efficacy (key tenet of Social Learning Theory) which increases hope and optimism
- Proudfoot (2012) – Upward social comparisons – increased sense of hope and motivation.
- Kessler (2014) – Emotional and affirmational support instilled hope

Positive Examples

- 'If she can do it, I can do it' (Gidugu et al., 2015)
- 'It gets better and things improve. It's just about finding new ways of doing things'.

Negative Examples

- 'Things will never get better, I've lost everything'.
- 'Things are just getting worse every day'.

2. Positive Social Comparison

- Soloman (2004) – Upward (Offer of hope and optimism) and downward (recognition that things could be worse) comparison. Individuals are attracted to others who share commonalities – establishes normality.
- Gurr et al., 2009; Kessler (2014) – Leads to enhanced self-esteem, self-efficacy and wellbeing by connecting to others through shared experiences.

- Dennis (2003) – Stress buffering model – social comparison promotes adaptive behaviour.
- Simoni et al., 2011 – Upward social comparisons inspire hope.

Positive Examples
- 'It could be worse… at least I'm better than I was'.
- 'I'm better off than…..'
- 'He seems to have improved so much, all is not lost'.

Negative Examples
- 'People seem so much better than me'.
- 'I seem to be worse off than everyone'.

3. Unconditional Positive Support and Regard/Acceptance
- Dennis (2003) – Expressions of caring, encouragement, attentive listening, reflection, reassurance (feeling accepted and empathised)
- Heisler (2009) – Encouragement, reinforcement, decreased sense of isolation.
- Soloman (2004)

Positive Examples
- 'We're all here for you'
- 'You are allowed to get upset' (permission to display emotion)

Negative Examples
- 'You've just got to get on with it and stop feeling sorry for yourself'
- 'Just put on a brave face' (no permission to display emotion)

4. Validation (Feeling Understood)
- Willis & Shinar (2000) Central to SCT and is a consequence of the normalisation of feelings and behaviours when compared to comparable peers.
- Mead & Macneil (2003) - Connecting with others through shared experiences leads to more authentic validation.
- Kessler (2014) – Emotional and affirmation support provided - instilled feelings of validation.
- Ketokivi (2009) – Social validation.
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Positive Examples

- 'I understand how you feel, its normal to feel like that after having a stroke'

Negative Examples

- 'Maybe you could try a little harder to help yourself'.

5. Encouragement

- Gidugu et al., (2015) – Helping stay motivated and hopeful when they felt like giving up, feeling understood, feeling respected and supported. Described receiving emotional support including helping them stay motivated and hopeful when they felt like giving up, saying things that built their self-esteem, conveying respect and providing encouragement to work through their challenges.
- Kessler (2014) – Emotional support provided in form of encouragement
- Morris & Morris (2012) – value of peers in encouragement

6. Normalising

- Gidugu et al., (2015) – Other people talking about their experiences, made them feel like they belonged and were not alone.
- Dass and Gorman (1985) – Peer support is about normalising what has been named as abnormal because of other people's discomfort.

7. Affirmation

- Dennis (2003) – Communication of information pertinent to self-evaluation – includes motivational aspects such as encouragement.
- Dennis (2003) – Performance appraisal from peers (mediating effect model).
- Soloman (2004) – Enhanced sense of self from receiving positive feedback from others.
- Trickey (2013)

Positive Examples

- 'You're doing really well'; 'you're doing everything right'.

Negative Examples

- 'Maybe you could try a little harder to help yourself'.

8. Mutual Reciprocity (Helper Therapy Principle)

- Heisler (2009) – Shared problem solving – giving and contributing – giving their own experiences and sharing fears.
- Soloman (2004) – Enhanced sense of interpersonal competence from making an impact on another's life. Gained as much as they have given to others. Personalised learning from working with others.
- Gidugu et al., (2015) – Participants felt like they were 'giving something back' or 'adding something'. Relationship is not solely one way (a core value that underpins peer support initiatives.
- Proudfoot (2012) – Peers benefit from helping others – increased confidence in capabilities, increased control, empowerment and hope.

Positive Examples

- 'I felt like that before, but I did this and it really helped'.
- 'Don't worry about it, I felt like that as well, but things improve'.
- 'You have helped me'.

Negative Examples

- 'I don't really understand what the problem is, you just get on with it and stop thinking about it'
- 'I find that just hearing about other people's stories makes me depressed. I don't have any skills or anything that is helpful to someone else'.

9. Reflection/Reappraisal (of stroke and its aftermath)

- Recurrent, event related thinking including making sense of the problem, problem solving and reminiscing – referring to past, present or future regarding positive or negative events (Tedeschi & Calhoun). Thinking that leads survivors towards growth.
- Chun & Lee, 2008 - Appreciation of life is a theme characterizing the experience of PTG. This can be achieved through appreciation through social comparisons, and appreciation through comparing self.

Positive Examples

- 'It got me thinking about my own…..'
- 'Made me stop taking things for granted'.
- 'I have become more appreciative about my life since my stroke'.

- 'I found that thinking about it in terms of a new start and a new opportunity to learn different things and new ways of doing things'. Before, I was just existing; going to work and had the same routines. This has made me think about the things I want to achieve in my life and how close I came to not doing any of them!'.

Negative Examples
- 'My life was so much better before the stroke. Things will never be the same again'.
- 'I can't stop thinking about things before'.
- 'I wish I could go back to how things used to be'.

10. Belonging
- You find you're not alone – just by going and listening to each other's stories helped me cope and recover (Stroke Recovery Canada).
- Dennis (2003) Social integration reduces isolation (association with negative affect – diminished feelings of control and self-esteem. Deters maladaptive behaviours and responses, promotes positive psychological states and motivation, prevention of risk and promotion of recovery.
- Schiff & Bargal (2000) – Use of personal stories and ideas decreased loneliness and isolation.
- Active approach to coping. Relating to others (Salzar, 2002).
- Morris & Morris (2012) – value of peers in belonging

Meta-domains

- Experiential Knowledge
- Soloman (2004) – Reciprocal learning from experience.
- Dennis (2003) – Informational support – problem solving.
- Heisler (2009) – Sharing experiences with others in similar situations effectively gains mastery and improves disease outcomes. Assimilating new knowledge through mutual exchange occurs more effectively with those who share common experiences.
- Castelein et al., (2010) 'Recognition and self-expression' enabling participants to share experiences and to learn from other peers.

- Empathy
- Dennis (2003) – The most homogenous the sample – the more likely the support will lead to empathy.

- Colella (2004) – The ability to empathize or set one's experience aside enough to enter the world of another seems is a fundamental aspect of good helping.

Positive and Negative Interactions

1. 'You get a sense from the group that you all have experienced the same thing and can relate to each other' *(focus group)*

2. 'In group you are all in the same boat, you are different people who have had completely different experiences of the same event. You can relate to these people' *(focus group)*

3. 'In group, you find you're not alone – just by listening to another person's experience helps you cope better'. *(focus group)*

4. 'Listening to other people's stories and ideas in group decreases the feelings of loneliness and isolation' *(focus group)*

5. 'You really feel part of something unique in this group' *(focus group)*

6. 'I really can't relate to the people in the group' *(focus group)*

7. 'I find it really depressing and negative listening to other people's problems in this group. They're not like me'

8. 'I feel really different like I don't belong in the group' *(focus group)*

9. 'These really aren't my type of people and this really isn't my kind of thing'. *(focus group)*

10. 'I don't want to make friends with other stroke survivors – I don't want my life to be all about stroke' *(focus group)*

11. 'Talking about my experiences, both good and bad, has helped other people to be hopeful' *(focus group)*

12. 'In the group you realise that the challenges and difficult times have been worthwhile.....because you then have the information and advice to give to others who are experiencing similar challenges'.

13. 'You gain confidence in sharing fears because then other people start to share theirs and you can see that it is helpful. It feels good that you can help someone else out'. *(focus group)*

14. 'Sometimes it seems that you rely on everyone else for support – family, friends, and medical professionals. In group it's a nice change to feel like others rely on you for support, it stops you feeling so helpless'.

15. 'People look to you to know what to do and sometimes you don't know what to say to them' *(focus group)*

16. 'I feel like I'm not able to give anything back' *(focus group)*

17. 'I don't feel I've had the experiences to be able to help others in the group'

18. 'I never know what to say to people who have shared my experience. I don't know how to cope myself so how am I meant to help others?'

19. 'The people in the group got me thinking about my own life and appreciating the good things'

20. 'I had to learn everything again; how to walk, talk. The group made me reflect on my stroke after meeting other people. It made me change the way I think about things - This is another life and I'm going to make it better than the last' *(focus group)*

21. 'The group made me reflect on my stroke after meeting other people and changed to way I think about things - This is another chapter in my life so now is the time to move forwards. It's not going to be how it was before. It will be different but that's not a bad thing' *(focus group)*

22. 'From being in the group, I've developed new skills and realised talents that I never knew I had'

23. 'The group changed the way I think about things – it made me stop taking things for granted'. *(focus group)*

24. 'From talking to people in the group, I have become more appreciative about my life since my stroke'.

25. 'This group got me thinking about my stroke in terms of a new start and a new opportunity to learn different things and new ways of doing things'. This has made me think about the things I want to achieve in my life and how close I came to not doing any of them!'.

26. 'Things I used to take for granted I don't anymore, the group has made me realise that tiny achievements are a big deal and little successes become victories, a really big deal'

27. 'Since I've had a stroke and come to the group, I realise that I'm a better person'

28. 'Being in the group makes me think about how things were before the stroke'. *(focus group)*

29. 'The group only highlights how I used to be able to do everything. Now I can't do anything'.

30. 'There is always so much going on at group, I don't have the chance to think or reflect on my stroke'

31. 'The group is always so negative with people saying what they can't do anymore – it makes me think negatively about my future' *(focus group)*

32. 'We're all here for you' – 'In the group, you are all there for each other, to support and nurture no matter who you are or what your level of disability'. *(focus group)*

33. 'You are allowed to get upset or angry' (permission to display emotion)

34. 'In group, there's no time limit on improvement. You feel able to just progress in your own time and your own way' *(focus group)*

35. 'At home with family you have to try to be as normal as possible and put on a brave face, but at group you can focus on yourself and be yourself and everyone accepts that it's ok'

36. 'In this group, it feels like you are given permission to express your emotions and no one will contradict you or say you shouldn't feel like that'

37. 'Outside of the group, you feel you have to be grateful to people but in the group you don't feel like that, you don't feel indebted to anyone' *(focus group)*

38. 'You've just got to get on with it and stop being sorry for yourself' *(focus group)*

39. 'Just put on a brave face' (no permission to display emotion) *(focus group)*

40. 'No one will ever understand what you have been through. You are very much alone in that respect'

41. 'Although the group tries to be understanding, basically your still very much on your own' *(focus group)*

42. 'You're doing really well'; 'you're doing everything right'. *(focus group)*

43. 'Your speech has come on brilliantly. I know you don't think so but it has' *(focus group)*

44. 'You're doing everything you can possibly do' *(focus group)*

45. 'I'm amazed you're coping so well despite everything that is going on' *(focus group)*

46. *Round of applause (focus group)*

47. 'Maybe you could try a little harder to help yourself'. *(focus group)*

48. 'You should have achieved more by now'

49. 'Perhaps you could practice a little more this week – you may notice quicker changes then'. *(focus group)*

50. 'You haven't coped as well as I would have thought – perhaps you need extra support?'

51. 'I can see why you feel angry' *(focus group)*

52. 'In the group, people don't worry and question when you feel sad or depressed – they understand why someone would feel that way and give you the space to feel like that'

53. 'In this group we understand that people struggle with difficult feelings and may need a helping hand'

54. 'Only the people in the group are able to share the understanding of the real impact of having a stroke' *(focus group)*

55. 'I don't really understand what the problem is, you just get on with it and stop thinking about it' *(focus group)*

56. 'Cheer up'

57. 'Buck up' *(focus group)*

58. 'Just get on with it'

59. 'Stop thinking about things like driving and work, they're not important – just stop worrying about it' *(focus group)*

60. 'It's pointless to have goals like driving to work – be more realistic'

61. 'There's no point in worrying about it anymore, what's happened has happened' *(focus group)*

62. 'See if you can do a little bit more of that' *(focus group)*

63. 'You are stronger than you think'.

64. 'I thought I would never be able to cope but being in the group has made me realise that I've coped better than I thought I ever would' *(focus group)*

65. 'Why don't you have a go at this'

66. 'Why don't you see if you can do another step' *(focus group)*

67. 'The group has given me confidence to do things independently and to venture out on my own'

68. 'Listening to others has encouraged me to talk and has really improved my verbal skills'

69. 'You should be able to walk further by now' *(focus group)*

70. 'You may as well give up if you're not able to walk yet'

71. 'It takes a strong kind of person deal with this kind of trauma. People with your kind of stroke often can't do it'.

72. 'Stroke is a life sentence. There is no point in struggling to get back to your old self'

73. 'Some people can cope and others can't. You may not be one of the people able to cope and may struggle in your position'.

74. 'Listening to other people's stories makes me realise what a difficult journey it's going to be'.

75. 'It's normal to feel like that after having a stroke'

76. 'It's normal to think that things aren't going to get better or be the same again – a lot of people think this at first'

77. 'We all feel like that after having a stroke; we've all felt like that before at some point'

78. 'Anyone would feel like that after what you've been through' *(focus group)*

79. 'It's normal to feel like a different person after stroke – this feels strange and weird at first but it's not necessarily a bad thing when you talk to others in the group'

80. 'It would be really odd if you didn't feel depressed and angry at times.

81. 'You realise that everyone in the group shares similar struggles' *(focus group)*

82. 'I have never heard of anyone feeling like that after a stroke' *(focus group)*

83. 'That's a funny thing to think about your stroke – I've never heard that before'

84. 'Some people behave in very strange ways after having a stroke'

85. 'That's a really strange way to react to your stroke'.

86. 'If he can do it, I can do it'

87. 'That person seems to be worse off than me and has gone back to work – surely, I can do that. That makes me hopeful that I'll be able to return to work' *(focus group)*

88. 'If he's not given up yet, I've got no business giving up'

89. 'Look at him - what am I worried about'

90. 'I've been lucky, other people are not as lucky'

91. 'In this group, people are at different stages of recovery so there is someone always behind and someone ahead to aspire to!'

92. 'Everybody else seems so much better than me'. *(focus group)*

93. 'I seem to be worse off than everyone'.

94. 'She's had 3 strokes and I'm worried that I could have another one too' *(focus group)*

95. 'Seeing people further along in their recovery makes me realise what a long and arduous journey is ahead of me'.

96. 'N had a stroke 2 years ago and they are able to walk now' *(focus group)*

97. 'N's done this – why don't you try to see if you can do this' *(focus group)*

98. 'N's done it so why can't you?' *(focus group)*

99. 'Just think how much you can improve after a stroke' *(focus group)*

100.   'This group has taught me never to say never about improvement after stroke'

101.   'It gets better and things improve. It's just about finding new ways of doing things'. *(focus group)*

102.   'I was told I would never drive again in hospital by a clinician. This group gives you an idea of what could be possible'

103.   'People in this group have learnt to drive and walk when they were told they wouldn't and those who couldn't read after their stroke are now avid readers! It's amazing!'

104.   'I am amazed at the progress and recovery of the people within this group'.

105.   'Things never really get better after a stroke'

106.   'Things are just getting worse every day'. *(focus group)*

107.   'A stroke is like a bereavement or grief feeling, like I've lost myself and who I was'. *(focus group)*

108.   'I'll never be able to drive again or do anything I used to do. It's hopeless'. *(focus group).*

Appendix A4
Trainee Validity Check
Domains

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a. Instilling Hope (Schiff & Bargal, 2000, Campbell et al., 2004)

Focus Group

- Hearing someone else's story (i.e. about someone managing to stop using their stick) which encourages you to think 'what's to stop me from doing that?'
- To help people think that things are possible – that they can achieve things including a better future.

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b. Positive Social Comparison with your own position

- Upward (optimism) and downward (recognition that things could be worse) comparison (Social learning theory), role modelling. Sharing with individuals who have had similar experiences (research literature).
- Seeing others that have been where you are and got through it or looking back at how you were and how much you have progressed.
- Comparing with average but also extremes – those who are definitely worse off that you and those that are much far ahead in recovery than you.

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c. Unconditional Positive Regard and Acceptance

Focus Group

- Everyone in this group did not know what each other were like before the stroke so comparisons can't be made to how they were before'. There are no preconceived ideas.
- Expressions of caring, encouragement, reinforcement, attentive listening, reflection, reassurance (feeling accepted and empathised), decrease sense of isolation (research literature).
- You are supported and accepted no matter what.

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e. Validation (Feeling Understood)

- It's ok to feel like that – not necessarily that it's normal to feel this way but nevertheless it's still ok.

f. Encouragement

- Helping stay motivated and hopeful when they felt like giving up, feeling understood, feeling respected and supported. Described receiving emotional support including helping them stay motivated and hopeful when they felt like giving up, saying things that built their self-esteem, conveying respect and providing encouragement to work through their challenges (research literature).
- Encouragement to keep recovering

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g. Normalising

- Other people talking about their experiences, made them feel like they belonged and were not alone (research literature).

- Peer support is about normalising what has been named as abnormal because of other people's discomfort (research literature).

- It's normal to think, feel and behave the way you do.

- Comparing with the average.

---

d. Affirmation

- Communication of information pertinent to self-evaluation – includes motivational aspects such as encouragement (research literature).
- Performance appraisal from peers (mediating effect model) (research literature).
- Enhanced sense of self from receiving positive feedback from others (research literature).
- You've done well – you're doing great!

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h. Mutual Reciprocity (Altruism)

- Shared problem solving – giving and contributing – giving their own experiences and sharing fears (research literature).
- Enhanced sense of interpersonal competence from making an impact on another's life. Gained as much as they have given to others. Personalised learning from working with others (research literature).

- Participants felt like they were 'giving something back' or 'adding something'. Relationship is not solely one way (a core value that underpins peer support initiatives (research literature).
- Gaining something positive from contributing and helping others with their stories and experiences.

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i. *Reflection/Reappraisal (of stroke and its aftermath)*

- Recurrent, event related thinking including making sense of the problem, problem solving and reminiscing – referring to past, present or future regarding positive or negative events (Tedeschi & Calhoun). Thinking that leads survivors towards growth (research literature).

- Thinking of the stroke and life in a more positive way.

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j. Belonging

- You find you're not alone – just by going and listening to each other's stories helped me cope and recover (research literature).
- Social integration reduces isolation (association with negative affect – diminished feelings of control and self-esteem. Deters maladaptive behaviours and responses, promotes positive psychological states and motivation, prevention of risk and promotion of recovery (research literature).
- Use of personal stories and ideas decreased loneliness and isolation (research literature).
- Active approach to coping. Relating to others (research literature).
- Feeling like you belong to something. Gaining something positive from being with others.

Appendix A5
Trainee Validity Check
Positive and Negative Interactions

1. 'You get a sense from the group that you all have experienced the same thing and can relate to each other'

2. 'In group you are all in the same boat, you are different people who have had completely different experiences of the same event. You can relate to these people'

3. 'In group, you find you're not alone – just by listening to another person's experience helps you cope better'.

4. 'Listening to other people's stories and ideas in group decreases the feelings of loneliness and isolation'

5. 'You really feel part of something unique in this group'

6. 'I really can't relate to the people in the group'

7. 'I find it really depressing and negative listening to other people's problems in this group. They're not like me'

8. 'I feel really different like I don't belong in the group'

9. 'These really aren't my type of people and this really isn't my kind of thing'.

10. 'I don't want to make friends with other stroke survivors – I don't want my life to be all about stroke'

11. 'Talking about my experiences, both good and bad, has helped other people to be hopeful'

12. 'In the group you realise that the challenges and difficult times have been worthwhile.....because you then have the information and advice to give to others who are experiencing similar challenges'.

13. 'You gain confidence in sharing fears because then other people start to share theirs and you can see that it is helpful. It feels good that you can help someone else out'.

14. 'Sometimes it seems that you rely on everyone else for support – family, friends, and medical professionals. In group it's a nice change to feel like others rely on you for support, it stops you feeling so helpless'.

15. 'People look to you to know what to do and sometimes you don't know what to say to them'

16. 'I feel like I'm not able to give anything back'

17. 'I don't feel I've had the experiences to be able to help others in the group'

18. 'I never know what to say to people who have shared my experience. I don't know how to cope myself so how am I meant to help others?'

19. 'The people in the group got me thinking about my own life and appreciating the good things'

20. 'I had to learn everything again; how to walk, talk. The group made me reflect on my stroke after meeting other people. It made me change the way I think about things - This is another life and I'm going to make it better than the last'

21. 'The group made me reflect on my stroke after meeting other people and changed to way I think about things - This is another chapter in my life so now is the time to move forwards. It's not going to be how it was before. It will be different but that's not a bad thing'

22. 'From being in the group, I've developed new skills and realised talents that I never knew I had'

23. 'The group changed the way I think about things – it made me stop taking things for granted'.

24. 'From talking to people in the group, I have become more appreciative about my life since my stroke'.

25. 'This group got me thinking about my stroke in terms of a new start and a new opportunity to learn different things and new ways of doing things'. This has made me think about the things I want to achieve in my life and how close I came to not doing any of them!'.

26. 'Things I used to take for granted I don't anymore, the group has made me realise that tiny achievements are a big deal and little successes become victories, a really big deal'

27. 'Since I've had a stroke and come to the group, I realise that I'm a better person'

28. 'Being in the group makes me think about how things were before the stroke'.

29. 'The group only highlights how I used to be able to do everything. Now I can't do anything'.

30. 'There is always so much going on at group, I don't have the chance to think or reflect on my stroke'

31. 'The group is always so negative with people saying what they can't do anymore – it makes me think negatively about my future'

32. 'We're all here for you' – 'In the group, you are all there for each other, to support and nurture no matter who you are or what your level of disability'.

33. 'You are allowed to get upset or angry' (permission to display emotion)

34. 'In group, there's no time limit on improvement. You feel able to just progress in your own time and your own way'

35. 'At home with family you have to try to be as normal as possible and put on a brave face, but at group you can focus on yourself and be yourself and everyone accepts that it's ok'

36. 'In this group, it feels like you are given permission to express your emotions and no one will contradict you or say you shouldn't feel like that'

37. 'Outside of the group, you feel you have to be grateful to people but in the group you don't feel like that, you don't feel indebted to anyone'

38. 'You've just got to get on with it and stop being sorry for yourself'

39. 'Just put on a brave face' (no permission to display emotion)

40. 'No one will ever understand what you have been through. You are very much alone in that respect'

41. 'Although the group tries to be understanding, basically your still very much on your own'

42. 'You're doing really well'; 'you're doing everything right'.

43. 'Your speech has come on brilliantly. I know you don't think so but it has'

44. 'You're doing everything you can possibly do'

45. 'I'm amazed you're coping so well despite everything that is going on'

46. *Round of applause*

47. 'Maybe you could try a little harder to help yourself'.

48. 'You should have achieved more by now'

49. 'Perhaps you could practice a little more this week – you may notice quicker changes then'.

50. 'You haven't coped as well as I would have thought – perhaps you need extra support?'

51. 'I can see why you feel angry'

52. 'In the group, people don't worry and question when you feel sad or depressed – they understand why someone would feel that way and give you the space to feel like that'

53. 'In this group we understand that people struggle with difficult feelings and may need a helping hand'

54. 'Only the people in the group are able to share the understanding of the real impact of having a stroke'

55. 'I don't really understand what the problem is, you just get on with it and stop thinking about it'

56. 'Cheer up'

57. 'Buck up'

58. 'Just get on with it'

59. 'Stop thinking about things like driving and work, they're not important – just stop worrying about it'

60. 'It's pointless to have goals like driving to work – be more realistic'

61. 'There's no point in worrying about it anymore, what's happened has happened'

62. 'See if you can do a little bit more of that'

63. 'You are stronger than you think'.

64. 'I thought I would never be able to cope but being in the group has made me realise that I've coped better than I thought I ever would'

65. 'Why don't you have a go at this'

66. 'Why don't you see if you can do another step'

67. 'The group has given me confidence to do things independently and to venture out on my own'

68. 'Listening to others has encouraged me to talk and has really improved my verbal skills'

69. 'You should be able to walk further by now'

70. 'You may as well give up if you're not able to walk yet'

71. 'It takes a strong kind of person deal with this kind of trauma. People with your kind of stroke often can't do it'.

72. 'Stroke is a life sentence. There is no point in struggling to get back to your old self'

73. 'Some people can cope and others can't. You may not be one of the people able to cope and may struggle in your position'.

74. 'Listening to other people's stories makes me realise what a difficult journey it's going to be'.

75. 'It's normal to feel like that after having a stroke'

76. 'It's normal to think that things aren't going to get better or be the same again – a lot of people think this at first'

77. 'We all feel like that after having a stroke; we've all felt like that before at some point'

78. 'Anyone would feel like that after what you've been through'

79. 'It's normal to feel like a different person after stroke – this feels strange and weird at first but it's not necessarily a bad thing when you talk to others in the group'

80. 'It would be really odd if you didn't feel depressed and angry at times.

81. 'You realise that everyone in the group shares similar struggles'

82. 'I have never heard of anyone feeling like that after a stroke'

83. 'That's a funny thing to think about your stroke – I've never heard that before'

84. 'Some people behave in very strange ways after having a stroke'

85. 'That's a really strange way to react to your stroke'.

86. 'If he can do it, I can do it'

87. 'That person seems to be worse off than me and has gone back to work – surely, I can do that. That makes me hopeful that I'll be able to return to work'

88. 'If he's not given up yet, I've got no business giving up'

89. 'Look at him - what am I worried about'

90. 'I've been lucky, other people are not as lucky'

91. 'In this group, people are at different stages of recovery so there is someone always behind and someone ahead to aspire to!'

92. 'Everybody else seems so much better than me'.

93. 'I seem to be worse off than everyone'.

94. 'She's had 3 strokes and I'm worried that I could have another one too'

95. 'Seeing people further along in their recovery makes me realise what a long and arduous journey is ahead of me'.

96. 'N had a stroke 2 years ago and they are able to walk now'

97. 'N's done this – why don't you try to see if you can do this'

98. 'N's done it so why can't you?'

99. 'Just think how much you can improve after a stroke'

100. 'This group has taught me never to say never about improvement after stroke'

101. 'It gets better and things improve. It's just about finding new ways of doing things'.

102. 'I was told I would never drive again in hospital by a clinician. This group gives you an idea of what could be possible'

103.   'People in this group have learnt to drive and walk when they were told they wouldn't and those who couldn't read after their stroke are now avid readers! It's amazing!'

104.   'I am amazed at the progress and recovery of the people within this group'.

105.   'Things never really get better after a stroke'

106.   'Things are just getting worse every day'.

107.   'A stroke is like a bereavement or grief feeling, like I've lost myself and who I was'.

108.   'I'll never be able to drive again or do anything I used to do. It's hopeless'.

Phase 3 – Rating Development Group

Final Domains (10) and Interactions (59)

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1. Instilling Hope

Focus Group

- Hearing someone else's story (i.e. about someone managing to stop using their stick) which encourages you to think 'what's to stop me from doing that?'
- To help people think that things are possible – that they can achieve things including a better future.

Positive Examples

- (1) 'It gets better and things improve. It's just about finding new ways of doing things'.
- (2) 'I thought I would never be able to cope but being in the group has made me realise that I've coped better than I thought I ever would'

Negative Examples

- (3) Things never really get better after a stroke
- (4) 'Things are just getting worse every day'.
- (5) 'A stroke is like a bereavement or grief feeling, like I've lost myself and who I was'.
- (6) 'I'll never be able to drive again or do anything I used to do. It's hopeless'.

2. Positive Social Comparison with your own position

- Upward (optimism) and downward (recognition that things could be worse) comparison (Social learning theory), role modelling. Sharing with individuals who have had similar experiences (research literature).
- Seeing others that have been where you are and got through it or looking back at how you were and how much you have progressed.
- Comparing with average but also extremes – those who are definitely worse off that you and those that are much far ahead in recovery than you.

Positive Examples

- (7) 'That person seems to be worse off than me and has gone back to work – surely,

I can do that. That makes me hopeful that I'll be able to return to work' (*focus group*)
- (8) 'Look how bad life is for them – what am I complaining about?' (thought) (*focus group*)

Negative Examples
- (9) 'Everybody else seems so much better than me'.
- (10) 'She's had 3 strokes and I'm worried that I could have another one too' (*focus group*)
- (11) 'N had a stroke 2 years ago and they are able to walk now'. (*focus group*)
- (12) 'N's done this – why don't you try to see if you can do this'. (*focus group*)
- (13) 'N's done it so why can't you?' (*focus group*)
- (14) 'Listening to other people's stories makes me realise what a difficult journey it's going to be'. (6)

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3. Unconditional Positive Regard and Acceptance

Focus Group
- Everyone in this group did not know what each other were like before the stroke so comparisons can't be made to how they were before'. There are no preconceived ideas.
- Expressions of caring, encouragement, reinforcement, attentive listening, reflection, reassurance (feeling accepted and empathised), decreased sense of isolation (research literature).
- You are supported and accepted no matter what.

Positive Examples
- (15) 'In group, there's no time limit on improvement. You feel able to just progress in your own time and in your own way' (*focus group*)

Negative Examples
- (16) *Member of the group responds -* 'I have never heard of anyone feeling like that after a stroke' (7)

4. Affirmation

- Communication of information pertinent to self-evaluation – includes motivational aspects such as encouragement (research literature).
- Performance appraisal from peers (mediating effect model) (research literature).
- Enhanced sense of self from receiving positive feedback from others (research literature).
- You've done well – you're doing great!

Positive Examples

- (17) 'You're doing really well'; 'you're doing everything right'.
- (18) 'Your speech has come on brilliantly. I know you don't think so but it has' *(focus group 2).*

Negative Examples

- (19) 'Maybe you could try a little harder to help yourself'.

5. Validation (Feeling Understood)

- It's ok to feel like that – not necessarily that it's normal to feel this way but nevertheless it's still ok.

Positive Examples

- (20) 'I can see why you feel angry'
- (21) 'Outside of the group, you feel you have to be grateful to people but in the group you don't feel like that, you don't feel indebted to anyone'

Negative Examples

- (22) 'I don't really understand what the problem is, you just get on with it and stop thinking about it'
- (23) 'Stop thinking about things like driving and work, they're not important – just stop worrying about it' *(focus group)*
- (24) 'There's no point in worrying about it anymore, what's happened has happened'
- (25) 'You've just got to get on with it and stop being sorry for yourself' (3)

- (26) 'Just put on a brave face' (no permission to display emotion) (3)

6. Encouragement

- Helping stay motivated and hopeful when they felt like giving up, feeling understood, feeling respected and supported. Described receiving emotional support including helping them stay motivated and hopeful when they felt like giving up, saying things that built their self-esteem, conveying respect and providing encouragement to work through their challenges (research literature).
- Encouragement to keep recovering

Positive Examples

- (27) 'See if you can do a little bit more of that' (*focus group*)
- (28) 'Why don't you see if you can do another step' (*focus group*)
- (29) 'Just think how much you can improve after a stroke' (1) …
- (30) 'You're doing everything you can possibly do' (4) …
- (31) You're trying your best and that's all you can do' (4) …
- (32) 'I'm amazed your coping so well despite everything that is going on' (4) …
- (33) *Round of applause* (*focus group) (4 …*

Negative Examples

- (34) 'You should be able to walk further by now'
- (35) 'Perhaps you could practice a little more this week – you may notice quicker changes then'. …
- (36) 'Buck up' (focus group) (5) …

7. Normalising

- Other people talking about their experiences, made them feel like they belonged and were not alone (research literature).
- Peer support is about normalising what has been named as abnormal because of other people's discomfort (research literature).
- It's normal to think, feel and behave the way you do.
- Comparing with the average.

Positive Examples

- (37) 'It's common to think that things aren't going to get better or be the same again – a lot of people think this at first'
- (38) 'Anyone would feel like that after what you've been through'

Negative Examples
- (39) 'I have never heard of anyone feeling like that after a stroke'

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8. Mutual Reciprocity (Altruism)

- Shared problem solving – giving and contributing – giving their own experiences and sharing fears (research literature).
- Enhanced sense of interpersonal competence from making an impact on another's life. Gained as much as they have given to others. Personalised learning from working with others (research literature).
- Participants felt like they were 'giving something back' or 'adding something'. Relationship is not solely one way (a core value that underpins peer support initiatives (research literature).
- Gaining something positive from contributing and helping others with their stories and experiences.

Positive Examples
- (40) 'Talking about my experiences, both good and bad, has helped other people to be hopeful'
- (41) 'You gain confidence in sharing fears because then other people start to share theirs and you can see that it is helpful. It feels good that you can help someone else out'.

Negative Examples
- (42) 'People look to you to know what to do and sometimes you don't know what to say to them'
- (43) 'I feel like I'm not able to give anything back'

9. *Reflection/Reappraisal (of stroke and its aftermath)*

- Recurrent, event related thinking including making sense of the problem, problem solving and reminiscing – referring to past, present or future regarding positive or negative events (Tedeschi & Calhoun). Thinking that leads survivors towards growth (research literature).

- Thinking of the stroke and life in a more positive way.

Positive Examples

- (44) 'I had to learn everything again; how to walk, talk. The group made me reflect on my stroke after meeting other people. It made me change the way I think about things - This is another life and I'm going to make it better than the last' (*focus group 2).*

- (45) 'The group made me reflect on my stroke after meeting other people and changed the way I think about things - This is another chapter in my life so now is the time to move forwards. It's not going to be how it was before. It will be different but that's not a bad thing' (*focus group 2).*

- (46) 'The group changed the way I think about things – it made me stop taking things for granted'.

Negative Examples

- (47) 'The group only makes me realise that my life was so much better before the stroke. Things will never be the same again'.
- (48) 'The group is always so negative with people saying what they can't do anymore – it makes me think negatively about my future'

10. Belonging

- Direct Effect (research literature).
- You find you're not alone – just by going and listening to each other's stories helped me cope and recover (research literature).
- Social integration reduces isolation (association with negative affect – diminished feelings of control and self-esteem. Deters maladaptive behaviours and responses,

promotes positive psychological states and motivation, prevention of risk and promotion of recovery (research literature).

- Use of personal stories and ideas decreased loneliness and isolation (research literature).
- Active approach to coping. Relating to others (research literature).
- Feeling like you belong to something. Gaining something positive from being with others.

Positive Examples
- (49) 'You get a sense from the group that you all have experienced the same thing and can relate to each other' (*focus group 2)*
- (50) 'In group you are all in the same boat, you are different people who have had completely different experiences of the same event. You can relate to these people' *(focus group 2)*
- (51) 'You really feel part of something unique in this group'
- (52) 'We're all here for you' – 'In the group, you are all there for each other, to support and nurture no matter who you are or what your level of disability'. (3) …
- (53) 'The people in the group are able to share the understanding of the real impact of having a stroke' *(focus group 2). (5) …*
- (54) 'You realise that everyone in the group shares similar struggles' (*focus group)* (7) …

Negative Examples
- (55) 'I really can't relate to the people in the group'
- (56) 'I feel really different like I don't belong in the group'
- (57) 'These really aren't my type of people and this really isn't my kind of thing'.
- (58) 'I don't want to make friends with other stroke survivors – I don't want my life to be all about stroke'
- (59) 'Although the group tries to be understanding, basically you're still very much on your own' (3)…

APPENDIX B
Consent and Information Forms

Appendix B1

Participation Invitation Letter

Dear Participant,

You are invited to participate in a research study, "Underlying Psychological Process of Peer Support in Stroke Survivors" which is part of the Clinical Psychology Doctoral Programme. I have enclosed an information sheet so that you can find out more about the study.

It is completely your choice if you want to take part. If you decide not to take part, this will have no effect on the standard of services you receive. If you do decide to take part, you and a number of other stroke survivors will meet for approximately one hour at a location to be confirmed. We will arrange with you the best way to get to that location and establish whether you need any support with transportation. There will be plenty of opportunity to discuss the project and any questions you have before we start.

We will contact you in the next couple of weeks to give you time to make an informed choice.

Best wishes,

Carys Marshall

Trainee Clinical Psychologist
Clinical Psychology Training,
School of Psychology, Tower Building, 70 Park Place, Cardiff, CF10 3AT.

E-mail: Carys.Marshall@wales.nhs.uk
Telephone: 029 2087 0582

Appendix B2

Information Sheet 1

(Focus Group Participants)

PARTICIPANT INFORMATION SHEET

Underlying Psychological Process of Peer Support in Stroke Survivors.

Introduction

You have been invited to take part in this research project to find out the underlying psychological process involved in peer support groups for stroke survivors. Please read the information sheet carefully before deciding whether you want to take part in the study. The following information details what the study is about and you're your participation will involve.

Purpose of the Research

Research has suggested that peers support groups are effective and helpful for those people who have suffered a stroke. This study aims to find out what makes peer support groups effective and how they help people who have suffered a stroke.

What will I need to do?

You are invited to take part in a focus group to discuss with other stroke survivors what may be helpful when taking part in a peer support group. From this discussion, we will ask you to generate up to four valued and negative peer group interactions based on what you have suggested may be helpful and unhelpful in peer support groups. You will be then asked to select the two you feel are the most relevant (one valued and one negative).

Why have I been invited?

You have been invited because you have suffered a stroke and been in recovery for at least 3 months. You have also been part of a peer support group.

Do I have to take part?

It is up to you to decide if you want to take part and participation is entirely voluntary. If you do decide to take part, the researcher will discuss any questions with you and guide you through a consent form which you will be asked to sign. If at any point in the duration of the study you wish to withdraw, you may do so at any time without giving any reasons and we will destroy all individual information you have provided. If you do decide to withdraw, this will not affect the standard of care you receive.

What happens with my information?

Your information will be used to make videos where actors will play out the two interactions (one valued and one negative) you felt were most relevant when in a peer support group. These videos will then be played to other stroke survivors who have not been involved in peer support groups to see how they rate the interactions.

Everyone who takes part in the study will be given a random number so their information remains anonymous. If anything said during the focus group is involved in the research, pseudonyms will be given (false names) or no names at all so you cannot be identified. All information will be stored separately from your name and personal information and destroyed one year after the research is completed.

The results will be submitted as part of Carys Marshalls' training in Clinical Psychology which will be widely accessible through the Cardiff University library system. They may also be written up and published in an academic journal. If you would like to know the conclusions of the research, please contact the names at the end of this information sheet.

Possible advantages of taking part in the research
Research has shown that peer support groups are helpful for people who have suffered a stroke or other enduring health conditions. However, we do not understand why these groups are helpful. We are hoping that this research helps us find out the psychological processes that happen within a peer support group. If we are able to understand what is effective in peer support groups, this may improve access to peers support groups which may help with access to funding and training.

Possible disadvantages of taking part in this research
This research aims to look at the valued and helpful interactions involved in peer support groups. However, due to nature of our discussion and the fact you have had a stroke and may have experienced significant negative consequences as a result, it may bring back some distressing memories.

Further Support
The researcher will be there to support you should you become distressed and we can guide you to further independent support or inform your GP if you feel you need it. Should you wish to leave at any point, without any reason, you may do this. If after the discussion, you have left and start to feel upset or concerned, please contact any of the research team whose contact details are at the end of this information sheet.

Participation in this research does not result in payment.

Research Sponsorship
Cardiff and Vale University Health Board is funding the research and Cardiff University is sponsoring the research.

Who has said that the study is OK to go ahead?
The research study has been reviewed and approved by the School of Psychology Research Ethics Committee at Cardiff University. If you have any concerns or complaints about the research you can contact the School of Psychology Research Ethics Committee in writing at:

Secretary to the Research Ethics Committee
School of Psychology
Tower Building
70 Park Place

Cardiff
CF10 3AT
psychethics@cardiff.ac.uk

Contact Details (If you require any more information or have any concerns)

Carys Marshall
Trainee Clinical Psychologist, Postgraduate student.
South Wales Doctoral Programme in Clinical Psychology
11th Floor, School of Psychology, Tower Building,
70 Park Place,
Cardiff,
CF10 3AT

Email: Carys.Marshall2@wales.nhs.uk
Tel: 029 20870582

Academic supervisor:

Prof. Reg Morris
Consultant Clinical Psychologist
South Wales Doctoral Programme in Clinical Psychology
Cardiff & Vale UHB

Email: reg.morris@nhs.wales.uk
Tel: 02920 206464

Clinical supervisor:

Dr Samantha Fisher
Stroke Rehabilitation Centre
University Hospital Llandough
Penlan Road
Penarth
CF64 2XX

Email: Samantha.Fisher3@nhs.wales.uk
Tel: 029 2071 5992 / 02920 716827

Consent Form 1

(Focus Group Participants)

CONSENT FORM FOR FOCUS GROUP

Title of Study: Underlying Psychological Processes of Peer Support in Stroke.

Principal investigator: Carys Marshall, Trainee Clinical Psychologist.

Supervisors: Professor Reg Morris, Consultant Clinical Psychologist.

                                      Dr Samantha Fisher, Consultant Clinical Psychologist.

1. I understand that my participation in this project will involve a discussion with other stroke survivors about what I found helpful in attending the peer support group. This will last about two hours. ☐

2. I have read and understood the information sheet and have been able to ask any questions. ☐

3. I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason. This will not affect my access to services. ☐

4. I understand that I am free to ask any questions at any time. I can discuss any concerns with Dr Samantha Fisher or the University Ethics Committee. ☐

5.

6. I understand that the information provided by me will be held confidentially, such that only the Researcher and Supervisors can trace this information back to me individually. The information will be retained for up to when the project finishes (approximately June 2017), when it will be deleted/destroyed. I understand that I can ask for the information I provide to be deleted/destroyed at any time and I can have access to the information at any time. ☐

7. I understand that the researcher will share information with their clinical supervisor if they are worried that I am at risk of harming myself or if someone else is in danger. ☐

8. I understand that if I feel distressed during the study that I discuss gaining extra support with the researcher. ☐

9. I also understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

□

10. I agree to take part in the above study.

□

I, _____(NAME) consent to participate in the study conducted by Carys Marshall, School of Psychology, Cardiff University with the supervision of Professor Ref Morris and Dr Samantha Fisher.

Signed:

Date:

Information Sheet 2

(Rating Development Group Participants)

PARTICIPANT INFORMATION SHEET

Underlying Psychological Process of Peer Support in Stroke Survivors.

Introduction
You have been invited to take part in this research project to find out the underlying psychological process involved in peer support groups for stroke survivors. Peer support involves a group of people who have all shared a similar experience (a stroke) and support each other by sharing ideas for recovery.
Please read the information sheet carefully before deciding whether you want to take part in the study. The following information details what the study is about and what participation will involve.

Purpose of the Research
Research has suggested that peers support groups are effective and helpful for those people who have suffered a stroke. This study aims to find out what makes peer support groups effective and how they help people who have suffered a stroke.

What will I need to do?
You are invited to take part in rating some of peer group interactions that have already been developed by a focus group of stroke survivors. We will ask you to rate them on a number of scale, such as how valued or motivated the interaction makes you feel.

These interactions will be analysed and the highest rated interactions will be performed by actors and filmed. Another group of stroke survivors will then rate the films on the same rating scales as your selves.

Why have I been invited?
You have been invited because you have suffered a stroke and been in recovery for more than 3 months. You have also not been part of a peer support group previously.

Do I have to take part?
It is up to you to decide if you want to take part and participation is entirely voluntary. If you do decide to take part, the researcher will discuss any questions with you and guide you through a consent form which you will be asked to sign. If at any point in the duration of the study you wish to withdraw, you may do so at any time without giving any reasons and we will destroy all individual information you have provided. If you do decide to withdraw, this will not affect the standard of care you receive.

What happens with my information?

Your information will be used to make videos where actors will play out the interactions you felt were most relevant when in a peer support group. These videos will then be played to other stroke survivors who will rate the interactions on the same scales as you have.

Everyone who takes part in the study will be given a random number so their information remains anonymous. All information will be stored separately from your name and personal information and destroyed one year after the research is completed.

The results will be submitted as part of Carys Marshalls' training in Clinical Psychology which will be widely accessible through the Cardiff University library system. They may also be written up and published in an academic journal. If you would like to know the conclusions of the research, please contact the names at the end of this information sheet.

Possible advantages of taking part in the research

Research has shown that peer support groups are helpful for people who have suffered a stroke or other enduring health conditions. However, we do not understand why these groups are helpful. We are hoping that this research helps us find out the psychological processes that happen within a peer support group. If we are able to understand what is effective in peer support groups, this may improve access to peers support groups which may help with access to funding and training.

Possible disadvantages of taking part in this research

This research aims to look at the valued and helpful interactions involved in peer support groups. However, due to nature of our discussion and the fact you have had a stroke and may have experienced significant negative consequences as a result, it may bring back some distressing memories.

Further Support

The researcher will be there to support you should you become distressed and we can guide you to further independent support or inform your GP if you feel you need it. Should you wish to leave at any point, without any reason, you may do this. If after the discussion, you have left and start to feel upset or concerned, please contact any of the research team whose contact details are at the end of this information sheet.

Participation in this research does not result in payment.

Research Sponsorship

Cardiff and Vale University Health Board is funding the research and Cardiff University is sponsoring the research.

Who has said that the study is OK to go ahead?

The research study has been reviewed and approved by the School of Psychology Research Ethics Committee at Cardiff University. If you have any concerns or complaints about the research you can contact the School of Psychology Research Ethics Committee in writing at: Secretary to the Research Ethics Committee

School of Psychology
Tower Building
70 Park Place
Cardiff
CF10 3AT
psychethics@cardiff.ac.uk

Contact Details (If you require any more information or have any concerns)

Carys Marshall
Trainee Clinical Psychologist, Postgraduate student.
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Tel: 029 20870582

Academic supervisor:

Prof. Reg Morris
Consultant Clinical Psychologist
South Wales Doctoral Programme in Clinical Psychology
Cardiff & Vale UHB

Email: reg.morris@nhs.wales.uk
Tel: 02920 206464

Clinical supervisor:

Dr Samantha Fisher
Stroke Rehabilitation Centre
University Hospital Llandough
Penlan Road
Penarth
CF64 2XX

Email: Samantha.Fisher3@nhs.wales.uk
Tel: 029 2071 5992 / 02920 716827

Consent Form 2

(Rating Development Group Participants)

CONSENT FORM FOR PARTICIPANTS RATING INTERACTIONS

Title of Study: Underlying Psychological Processes of Peer Support in Stroke.

Principal investigator: Carys Marshall, Trainee Clinical Psychologist.

Supervisors: Professor Reg Morris, Consultant Clinical Psychologist.

                                 Dr Samantha Fisher, Clinical Psychologist.

1. I understand that my participation in this project will involve rating interactions that have been developed by other stroke survivors. This will last about an hour. ☐

2. I have read and understood the information sheet and have been able to ask any questions. ☐

3. I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason. This will not affect my access to services. ☐

4. I understand that I am free to ask any questions at any time. I can discuss any concerns with Dr Samantha Fisher or the University Ethics Committee. ☐

5. I understand that the information provided by me will be held confidentially, such that only the Researcher and Supervisors can trace this information back to me individually. The information will be retained for up to when the project finishes (approximately June 2017), when it will be deleted/destroyed. I understand that I can ask for the information I provide to be deleted/destroyed at any time and I can have access to the information at any time. ☐

6. I understand that the researcher will share information with their clinical supervisor if they are worried that I am at risk of harming myself or if someone else is in danger. ☐

7. I understand that if I feel distressed during the study that I discuss receiving extra support with the researcher.

8. I also understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

9. I agree to take part in the above study.

I, _____(NAME) consent to participate in the study conducted by Carys Marshall, School of Psychology, Cardiff University with the supervision of Professor Ref Morris and Dr Samantha Fisher.

Signed:

Date:

Information Sheet 3

(Interaction Rating Group)

PARTICIPANT INFORMATION SHEET

Underlying Psychological Process of Peer Support in Stroke Survivors.

Introduction

You have been invited to take part in this research project to find out the underlying psychological process involved in peer support groups for stroke survivors. Peer support involves a group of people who have all shared a similar experience (a stroke) and support each other by sharing ideas for recovery.

Please read the information sheet carefully before deciding whether you want to take part in the study. The following information details what the study is about and what participation will involve.

Purpose of the Research

Research has suggested that peers support groups are effective and helpful for those people who have suffered a stroke. This study aims to find out what makes peer support groups effective and how they help people who have suffered a stroke. We will also be assessing individual characteristics that predict if a person will derive benefit from peer support.

What will I need to do?

You are invited to take part in rating 20 very short video clips of peer support group interactions developed by other stroke survivors. We will ask you to rate them on a number of scales, such as how valued or motivated the interaction makes you feel.

We will also ask you to fill out three questionnaires:

- A short questionnaire which will ask you some questions about yourself and your stroke.
- The Berlin Social Support Scales (BSSS) – A scale that looks at how you perceive the need for support.
- Difficulties in Emotion Regulation Scale (DERS) – An emotion regulation scale which looks at how people notice, understand and react to their emotions.

Why have I been invited?

You have been invited because you have suffered a stroke and been in recovery for more than 3 months.

Do I have to take part?

It is up to you to decide if you want to take part and participation is entirely voluntary. If you do decide to take part, the researcher will discuss any questions with you and guide you through a consent form which you will be asked to sign. If at any point in the duration of the study you wish to withdraw, you may do so at any time without giving any reasons and we

will destroy all individualised information you have provided up to the point that it is anonymised. If you do decide to withdraw, this will not affect the standard of care you receive.

What happens with my information?
Your information will be analysed to find out what makes peer support groups helpful. The results will be submitted as part of Carys Marshalls' training in Clinical Psychology which will be widely accessible through the Cardiff University library system. They may also be written up and published in an academic journal.

Everyone who takes part in the study will be given a random number so their information remains anonymous. All information will be stored separately from your name and personal information and destroyed one year after the research is completed.

If you would like to know the conclusions of the research, please contact the names at the end of this information sheet.

Possible advantages of taking part in the research
Research has shown that peer support groups are helpful for people who have suffered a stroke or other enduring health conditions. However, we do not understand why these groups are helpful. We are hoping that this research helps us find out the psychological processes that happen within a peer support group. If we are able to understand what is effective in peer support groups, this may improve access to peers support groups which may help with access to funding and training.

Possible disadvantages of taking part in this research
This research aims to look at the valued and helpful interactions involved in peer support groups. However, due to nature of our discussion and the fact you have had a stroke and may have experienced significant negative consequences as a result, it may bring back some distressing memories.

Further Support
The researcher will be there to support you should you become distressed and we can guide you to further independent support or inform your GP if you feel you need it. Should you wish to leave at any point, without any reason, you may do this. If after the discussion, you have left and start to feel upset or concerned, please contact any of the research team whose contact details are at the end of this information sheet.

Participation in this research does not result in payment.

Research Sponsorship
Cardiff and Vale University Health Board is funding the research and Cardiff University is sponsoring the research.

Who has said that the study is OK to go ahead?

The research study has been reviewed and approved by the School of Psychology Research Ethics Committee at Cardiff University. If you have any concerns or complaints about the research you can contact the School of Psychology Research Ethics Committee in writing at:

Secretary to the Research Ethics Committee
School of Psychology
Tower Building
70 Park Place
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CF10 3AT
psychethics@cardiff.ac.uk

Contact Details (If you require any more information or have any concerns)

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Academic supervisor:

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Consultant Clinical Psychologist
South Wales Doctoral Programme in Clinical Psychology
Cardiff & Vale UHB

Email: reg.morris@nhs.wales.uk
Tel: 02920 206464

Clinical supervisor:

Dr Samantha Fisher
Stroke Rehabilitation Centre
University Hospital Llandough
Penlan Road
Penarth
CF64 2XX

Email: Samantha.Fisher3@nhs.wales.uk
Tel: 029 2071 5992

Consent Form 3

(Interaction Rating Group)

CONSENT FORM FOR PARTICIPANTS RATING VIDEO CLIPS

Title of Study: Underlying Psychological Processes of Peer Support in Stroke.

Principal investigator: Carys Marshall, Trainee Clinical Psychologist.

Supervisors: Professor Reg Morris, Consultant Clinical Psychologist.

                                       Dr Samantha Fisher, Consultant Clinical Psychologist.

1. I understand that my participation in this project will involve rating video clips on some scales to see what may be helpful when attending a peer support group for stroke survivors. I will also fill out three questionnaires. This will last about an hour. ☐

2. I have read and understood the information sheet and have been able to ask any questions. ☐

3. I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason. This will not affect my access to services. ☐

4. I understand that I am free to ask any questions at any time. I can discuss any concerns with Dr Samantha Fisher or the University Ethics Committee. ☐

5. I understand that the information provided by me will be held confidentially, such that only the Researcher and Supervisors can trace this information back to me individually. The information will be retained for up to when the project finishes (approximately June 2017), when it will be deleted/destroyed. I understand that I can ask for the information I provide to be deleted/destroyed at any time and I can have access to the information at any time. ☐

6. I understand that the researcher will share information with their clinical supervisor if they are worried that I am at risk of harming myself or if someone else is in danger. ☐

7. I understand that if I feel distressed during the study that I discuss receiving extra support with the researcher. ☐

8. I also understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study. ☐

9. I agree to take part in the above study. ☐

I, _____(NAME) consent to participate in the study conducted by Carys Marshall, School of Psychology, Cardiff University with the supervision of Professor Ref Morris and Dr Samantha Fisher.

Signed:

Date:

Debriefing Sheet

Underlying Psychological Process of Peer Support in Stroke Survivors

Thank you very much for taking part in this research project. The study aimed to find out what psychological processes were involved in peer support groups for stroke survivors to understand why they can be helpful and effective.

Research has found that peer support groups are helpful for people who have suffered a stroke or other enduring health conditions. However, we do not understand why these groups are helpful.

We are hoping that this research helps us find out the underlying psychological processes that happen within a peer support group. This may potentially improve access to peers support groups if it can be understood as an evidenced based intervention which may help with access to funding and training. If we are able to understand what is particularly effective in peer support groups, this information can be shared so all peer support groups adopt the helpful interactions that make it effective. We also intend to create an assessment tool with the information gathered so we can assess whether people will benefit from a peer support group which may save time with people being matched to appropriate treatments and interventions.

Confidentiality

If at any point in the duration of the study you wish to withdraw, you may do so at any time without giving any reasons and we will destroy all personal information you have provided. If you have been part of the group that collectively decided what interactions are most helpful, this will still be a part of the study. Any individual information will be taken out. If you do decide to withdraw, this will not affect the standard of care you receive.

Further Support

If after you have left you start to feel upset or concerned, please contact any of the research team whose contact details are at the end of this debriefing sheet. We will guide you to further support or inform your GP if you feel you need this.

Further Information

If you would like a summary of the research findings and conclusions, these can be sent to you on completion of the research by September 2017.

If you have any further questions or concerns, please contact us:

Researcher:
Carys Marshall
Trainee Clinical Psychologist
Carys.Marshall@wales.nhs.uk
029 20870582

Academic Supervisor:
Professor Reg Morris
Consultant Clinical Psychologist
Reg.Morris@wales.nhs.uk
029 20870582

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11th Floor, School of Psychology, Tower Building,
70 Park Place, Cardiff, CF10 3AT

If you have any concerns or complaints about the research you can contact the School of
Psychology Research Ethics Committee in writing at:
Secretary to the Research Ethics Committee
School of Psychology, Tower Building
70 Park Place, Cardiff, CF10 3AT

psychethics@cardiff.ac.uk

NAME:

Participant Number:	Date:
Age in Years:	**Gender:** Male Female **(Please circle)**

Ethnicity:
(Please circle)

British	Caribbean
Irish	African
Other White	Any other Black
White and Black Caribbean	Chinese
White and Black African	Other ethnic group
White and Asian	
Any other mixed	
Indian	
Pakistani	
Bangladeshi	
Any other Asian	

Occupation:
(Please circle)

    Retired   Employed   Self Employed   Unemployed

About your stroke:

How long has it been since your stroke? _____years _____months

How many strokes have you had before this one?   0   1   2   3   More than 3
(please circle)

Which side of your body has been affected (if any) –**Please circle one**

Right   /   Left

What are your living arrangements?
(please circle)

Living with family (partner and children)

Living with partner

Living with carer

Living alone

Other (please specify): _____

Education:

Age Left School: _____

Highest qualification:
(please circle)   O-Level / GCSE
                                        A-Level
Diploma or Certificate
Degree

Lifestyle.

Since your stroke:

1. Has your mobility been affected? (Please circle)

Yes, a lot   Yes, Somewhat   No, activity levels are as before

If yes, please specify (wheelchair, walking aids) _____

2. Have you reduced the amount of time you spend doing activities? (Please circle)

Yes, a lot   Yes, Somewhat   No, activity levels are as before

3. Have you reduced the amount of time you spend with others? (Please circle)

Yes, a lot   Yes, Somewhat   No, activity levels are as before

4. Have you noticed your relationships with those closest to you have been affected? (Please circle)

Yes, a lot   Yes, Somewhat   No, activity levels are as before

5. Has your ability to communicate with others been affected? (Please circle)

Yes, a lot   Yes, Somewhat   No, activity levels are as before

6. Do you experience memory difficulties? (Please circle)

Yes, a lot   Yes, Somewhat   No, activity levels are as before

7. Please circle which applies to you for how you are currently feeling.

(a) Low in mood or depressed   **NEVER**   **SOMETIMES**   **OFTEN**

(b) Anxious or worried   **NEVER**   **SOMETIMES**   **OFTEN**

Social Support Scale (BSSS)

When answering please think of people who are close to you.

TICK ONE BOX

Perceived Emotional Support	*Strongly Disagree (1)*	*Somewhat Disagree (2)*	*Somewhat Agree (3)*	*Strongly Agree (4)*
1. There are some people who truly like me.				
2. Whenever I am not feeling well, other people show me that they are fond of me.				
3. Whenever I am sad, there are people who cheer me up.				
4. There is always someone there for me when I need comforting.				
Perceived Instrumental Support				
1. I know some people upon whom I can always rely.				
2. When I am worried, there is someone who helps me.				
3. There are people who offer me help				

Perceived Emotional Support	Strongly Disagree (1)	Somewhat Disagree (2)	Somewhat Agree (3)	Strongly Agree (4)
when I need it.				
4. When everything becomes too much for me to handle, others are there to help me.				
Need for Support				
1. When I am down, I need someone who boosts my spirits.				
2. It is important for me always to have someone who listens to me.				
3. Before making any important decisions, I absolutely need a second opinion.				
4. I get along best without any outside help.				
Support Seeking				
1. In critical situations, I prefer to ask others for their advice.				
2. Whenever I am down, I look for someone to cheer me up again.				
3. When I am worried, I reach out to				

someone to talk to.				
Perceived Emotional Support	**Strongly Disagree (1)**	**Somewhat Disagree (2)**	**Somewhat Agree (3)**	**Strongly Agree (4)**
4. If I do not know how to handle a situation, I ask others what they would do.				
5. Whenever I need help, I ask for it.				

Difficulties in Emotion Regulation Scale

Please indicate how often the following 18 statements apply to you by ticking the box (1-5) that applies to you.

TICK THE BOX THAT BEST SUITS YOUR RESPONSE

	Almost Never (1)	Sometimes (2)	About half the time (3)	Most of the time (4)	Almost Always (5)
1. I pay attention to how I feel					
2. I have no idea how I am feeling					
3. I have difficulty making sense out of my feelings					
4. I care about what I am feeling					
5. I am confused about how I feel					
6. When I'm upset, I acknowledge my emotions					
7. When I'm upset, I become embarrassed for feeling that way					
8. When I'm upset, I have difficulty getting work done					
9. When I'm upset, I become out of control					
10. When I'm upset, I believe that I will end up feeling very depressed					
11. When I'm upset, I have difficulty focusing on other things					

	Almost Never (1)	Sometimes (2)	About half the time (3)	Most of the time (4)	Almost Always (5)
12. When I'm upset, I feel guilty for feeling that way					
13. When I'm upset, I have difficulty concentrating					
14. When I'm upset, I have difficulty controlling my behaviours					
15. When I'm upset, I believe there is nothing I can do to make myself feel better					
16. When I'm upset, I become irritated with myself for feeling that way					
17. When I'm upset, I lose control over my behaviour					
18. When I'm upset, it takes me a long time to feel better					

Number Scale

How likely would you be to join a stroke peer support group?

Please circle one number:

Not Likely   **Highly Likely**

0	1	2	3	4	5	6	7	8	9	10

Score Sheets for Film Clips

Name:_____   **Clip Number:**_____

Ring on number for each question

1. How ***positive*** would the interaction make you feel?

1. Extremely positive	2. Very positive	3. Somewhat positive	4. Slightly positive	5. Neutral	6. Negative

2. How ***valued*** would the interaction make you feel?

1. Extremely valued	2. Very valued	3. Somewhat valued	4. Slightly valued	5. Neutral	6. Not Valued

3. How ***motivated*** would the interaction male you feel?

1. Extremely motivated	2. Very motivated	3. Somewhat motivated	4. Slightly motivated	5. Neutral	6. Unmotivated

4. How ***hopeful*** would the interaction make you feel?

1. Extremely hopeful	2. Very hopeful	3. Somewhat hopeful	4. Slightly hopeful	5. Neutral	6. Unhopeful

5. How ***confident*** would the interaction make you feel?

1. Extremely confident	2. Very confident	3. Somewhat confident	4. Slightly confident	5. Neutral	6. Unconfident

Appendix D1

Phase 2 – Validity Check

Truncating the Interactions from 108 to 59

Interaction	Reassigned Domain Based on Rule by Validity Check	Percentage Agreement Calculation	Original Domain Assigned by Research Team	Selected for Rating Development Group
1.	10 Positive	47.62	10 Positive	Yes
2.	10 Positive	47.62	10 Positive	Yes
3.	10 Positive	14.29	10 Positive	No
4.	10 Positive	14.29	10 Positive	No
5.	10 Positive	71.43	10 Positive	Yes
6.	10 Negative	47.62	10 Negative	Yes
7.	10 Negative	4.76	10 Negative	No
8.	10 Negative	47.62	10 Negative	Yes
9.	10 Negative	47.62	10 Negative	Yes
10.	10 Negative	28.57	10 Negative	Yes
11.	8 Positive	28.57	8 Positive	Yes
12.	8 Positive	14.29	8 Positive	No
13.	8 Positive	28.57	8 Positive	Yes
14.	1 Positive	14.29	8 Positive	No
15.	8 Negative	28.57	8 Negative	Yes
16.	8 Negative	71.43	8 Negative	Yes
17.	8 Negative	4.76	8 Negative	No
18.	8 Negative	14.29	8 Negative	No
19.	9 Positive	4.76	9 Positive	No
20.	9 Positive	28.57	9 Positive	Yes
21.	9 Positive	28.57	9 Positive	Yes
22.	9 Positive	14.29	9 Positive	No
23.	9 Positive	28.57	9 Positive	Yes
24.	9 Positive	14.29	9 Positive	No
25.	9 Positive	4.76	9 Positive	No
26.	9 Positive	4.76	9 Positive	No
27.	9 Positive	14.29	9 Positive	No
28.	9 Negative	14.29	9 Negative	Yes
29.	2 Negative	14.29	9 Negative	No
30.	2 Negative	14.29	9 Negative	No
31.	9 Negative	14.29	9 Negative	Yes
32.	10 Positive	47.62	3 Positive	Yes
33.	5 Positive	14.29	3 Positive	No
34.	3 Positive	14.29	3 Positive	Yes
35.	5 Positive	4.76	3 Positive	No
36.	10 Positive	14.29	3 Positive	No
37.	10 Positive	14.29	3 Positive	No
38.	5 Negative	28.57	3 Negative	Yes
39.	5 Negative	47.62	3 Negative	Yes

40.	10 Negative	28.57	3 Negative	Yes
41.	4 Positive	47.62	4 Positive	Yes
42.	4 Positive	28.57	4 Positive	Yes
43.	6 Positive	28.57	4 Positive	Yes
44.	6 Positive	28.57	4 Positive	Yes
45.	6 Positive	28.57	4 Positive	Yes
46.	6 Positive	71.43	4 Positive	Yes
47.	4 Negative	0	4 Negative	Yes
48.	5 Negative	14.29	4 Negative	No
49.	6 Negative	100.00	4 Negative	Yes
50.	4 Negative	0	4 Negative	No
51.	5 Positive	71.43	5 Positive	Yes
52.	5 Positive	14.29	5 Positive	No
53.	10 Positive	14.29	5 Positive	No
54.	10 Positive	100.00	5 Positive	Yes
55.	5 Negative	28.57	5 Negative	Yes
56.	6 Negative	14.29	5 Negative	No
57.	6 Negative	47.62	5 Negative	Yes
58.	5 Negative	28.57	5 Negative	Yes
59.	5 Negative	47.62	5 Negative	Yes
60.	5 Negative	14.29	5 Negative	No
61.	5 Negative	28.57	5 Negative	Yes
62.	6 Positive	47.62	6 Positive	Yes
63.	6 Positive	14.29	6 Positive	No
64.	1 Positive	28.57	6 Positive	Yes
65.	6 Positive	4.76	6 Positive	No
66.	6 Positive	47.62	6 Positive	Yes
67.	8 Positive	4.76	6 Positive	No
68.	6 Positive	4.76	6 Positive	No
69.	8 Positive	4.76	6 Positive	No
70.	6 Negative	28.57	6 Negative	Yes
71.	1 Negative	14.29	6 Negative	No
72.	5 Negative	14.29	6 Negative	No
73.	6 Negative	4.76	6 Negative	No
74.	2 Negative	4.76	6 Negative	No
75.	2 Negative	28.57	6 Negative	Yes
76.	7 Positive	47.62	7 Positive	Yes
77.	7 Positive	4.76	7 Positive	No
78.	7 Positive	47.62	7 Positive	Yes
79.	7 Positive	14.29	7 Positive	No
80.	7 Positive	14.29	7 Positive	No
81.	10 Positive	28.57	7 Positive	Yes
82.	3 Negative	28.57	7 Negative	Yes
83.	7 Negative	4.76	7 Negative	Yes
84.	3 Negative	14.29	7 Negative	No
85.	2 Negative	14.29	7 Negative	No
86.	2 Positive	4.76	2 Positive	No
87.	2 Positive	28.57	2 Positive	Yes
88.	2 Positive	14.29	2 Positive	No
89.	2 Positive	28.57	2 Positive	Yes
90.	2 Positive	14.29	2 Positive	No
91.	2 Positive	14.29	2 Positive	No

92.	2 Negative	28.57	2 Negative	Yes
93.	2 Negative	14.29	2 Negative	No
94.	2 Negative	47.62	2 Negative	Yes
95.	2 Negative	14.29	2 Negative	No
96.	2 Negative	28.57	2 Negative	Yes
97.	2 Negative	28.57	2 Negative	Yes
98.	2 Negative	28.57	2 Negative	Yes
99.	6 Positive	28.57	1 Positive	Yes
100.	1 Positive	14.29	1 Positive	No
101.	1 Positive	28.57	1 Positive	Yes
102.	1 Positive	4.76	1 Positive	No
103.	1 Positive	4.76	1 Positive	No
104.	1 Positive	4.76	1 Positive	No
105.	1 Negative	71.43	1 Negative	Yes
106.	1 Negative	71.43	1 Negative	Yes
107.	1 Negative	28.57	1 Negative	Yes
108.	1 Negative	47.62	1 Negative	Yes

Final Selected 59 Interactions

Interaction	Domain Positive/Negative	Rating	Explanation
11.	1 Positive	28.57%	Rule (Most commonly sorted category)
12.	1 Positive	28.57%	Rule (Most commonly sorted category)
13.	1 Negative	71.43%	Rule (Most commonly sorted category)
14.	1 Negative	71.43%	Rule (Most commonly sorted category)
15.	1 Negative	28.57%	Rule (Most commonly sorted category)
16.	1 Negative	47.62%	Rule (Most commonly sorted category)
17.	2 Positive	28.57%	Rule (Most commonly sorted category)
18.	2 Positive	28.57%	Rule (Most commonly sorted category)

19.	2 Negative	28.57%	Rule (Most commonly sorted category)
20.	2 Negative	47.62%	Rule (Most commonly sorted category)
21.	2 Negative	28.57%	Rule (Most commonly sorted category)
22.	2 Negative	28.57%	Rule (Most commonly sorted category)
23.	2 Negative	28.57%	Rule (Most commonly sorted category)
24.	2 Negative	28.57%	Rule (Most commonly sorted category)
25.	3 Positive	4.76%	Rule (best fit judgement)
26.	3 Negative	28.57%	Rule (Most commonly sorted category)
27.	4 Positive	47.62%	Rule (Most commonly sorted category)
28.	4 Positive	28.57%	Rule (Most commonly sorted category)
29.	4 Negative	0%	Rule (Best fit judgement)
30.	5 Positive	47.62%	Rule (Most commonly sorted category)
31.	5 Positive	0%	Error
32.	5 Negative	28.57%	Rule (Most commonly sorted category)
33.	5 Negative	47.62%	Rule (Most commonly sorted category)
34.	5 Negative	28.57%	Rule (Most commonly sorted category)

35.	5 Negative	28.57%	Rule (Most commonly sorted category)
36.	5 Negative	47.62%	Rule (Most commonly sorted category)
37.	6 Positive	28.57%	Rule (Most commonly sorted category)
38.	6 Positive	28.57%	Rule (Most commonly sorted category)
39.	6 Positive	28.57%	Rule (Most commonly sorted category)
40.	6 Positive	28.57%	Rule (Most commonly sorted category)
41.	6 Positive	71.43%	Rule (Most commonly sorted category)
42.	6 Positive	47.62%	Rule (Most commonly sorted category)
43.	6 Positive	47.62%	Rule (Most commonly sorted category)
44.	6 Negative	4.76%	Error
45.	6 Negative	100%	Rule (Most commonly sorted category)
46.	6 Negative	28.57%	Rule (Most commonly sorted category)
47.	7 Positive	47.62%	Rule (Most commonly sorted category)
48.	7 Positive	47.62%	Rule (Most commonly sorted category)
49.	7 Negative	4.76%	Rule (Best fit judgement)
50.	8 Positive	28.57%	Rule (Most commonly sorted

			category)
51.	8 Positive	28.57%	Rule (Most commonly sorted category)
52.	8 Negative	28.57%	Rule (Most commonly sorted category)
53.	8 Negative	71.43%	Rule (Most commonly sorted category)
54.	9 Positive	28.57%	Rule (Most commonly sorted category)
55.	9 Positive	28.57%	Rule (Most commonly sorted category)
56.	9 Positive	28.57%	Rule (Most commonly sorted category)
57.	9 Negative	14.29%	Rule (best fit judgement)
58.	9 Negative	14.29%	Rule (best fit judgement)
59.	10 Positive	47.62%	Rule (Most commonly sorted category)
60.	10 Positive	47.62%	Rule (Most commonly sorted category)
61.	10 Positive	71.43%	Rule (Most commonly sorted category)
62.	10 Positive	47.62%	Rule (Most commonly sorted category)
63.	10 Positive	100%	Rule (Most commonly sorted category)
64.	10 Positive	28.57%	Rule (Most commonly sorted category)
65.	10 Negative	47.62%	Rule (Most commonly sorted category)

66.	10 Negative	47.62%	Rule (Most commonly sorted category)
67.	10 Negative	47.62%	Rule (Most commonly sorted category)
68.	10 Negative	28.57%	Rule (Most commonly sorted category)
69.	10 Negative	28.57%	Rule (Most commonly sorted category)

Phase 3 – Rating Development Group

Frequencies – Truncating number of interactions from 59 to 20 using the Median

Key		
Interaction	*Positive*	
	Negative	
	Selected Positive/Negative Interaction from each Domain	

Domain 1 – Instilling Hope

Interaction		Instilling Hope *Positive*	Instilling Hope *Positive*	Instilling Hope *Negative*	Instilling Hope *Negative*	Instilling Hope *Negative*	Instilling Hope *Negative*
N	Valid	20	20	20	20	20	20
	Missing	0	0	0	0	0	0
Mean		3.1000	2.5000	5.8000	6.0000	3.3500	5.2000
Median		3.0000	2.0000	6.0000	6.0000	3.0000	6.0000
Mode		3.00	2.00	6.00	6.00	3.00[a]	6.00
Std. Deviation		.91191	.76089	.69585	.00000	1.22582	1.50787
Range		3.00	3.00	3.00	.00	5.00	5.00

Domain 2 – Positive Social Comparison

Interaction		Positive Social Comparison *Positive*	Positive Social Comparison *Positive*	Positive Social Comparison *Negative*	Positive Social Comparison *Negative*	Positive Social Comparison *Negative*	Positive Social Comparison *Negative*	Positive Social Comparison *Negative*	Positive Social Comparison *Negative*
N	Valid	20	20	20	20	20	20	20	20
	Missing	0	0	0	0	0	0	0	0
Mean		2.5000	3.8000	5.6500	5.1500	3.2500	4.0000	5.3500	4.2500
Median		2.0000	4.0000	6.0000	5.0000	3.0000	4.0000	5.5000	4.0000
Mode		2.00	5.00	6.00	5.00	3.00	4.00	6.00	5.00
Std. Deviation		.76089	1.15166	.48936	.58714	.78640	.85840	.81273	.78640
Range		3.00	3.00	1.00	2.00	3.00	3.00	3.00	2.00

Domain 3 – Unconditional Positive Regard

Interaction		Unconditional Positive Regard *Positive*	Unconditional Positive Regard *Negative*
N	Valid	20	20
	Missing	0	0
Mean		2.3000	5.9500
Median		2.0000	6.0000
Mode		2.00	6.00
Std. Deviation		.65695	.22361
Range		2.00	1.00

Domain 4 – Affirmation

Interaction		Affirmation *Positive*	Affirmation *Positive*	Affirmation *Negative*
N	Valid	20	20	20
	Missing	0	0	0
Mean		2.8500	2.8000	5.7500
Median		3.0000	3.0000	6.0000
Mode		3.00	3.00	6.00
Std. Deviation		.58714	.41039	.44426
Range		2.00	1.00	1.00

Domain 5 – Validation

Interaction		Validation *Positive*	Validation *Positive*	Validation *Negative*	Validation *Negative*	Validation *Negative*	Validation *Negative*	Validation *Negative*
N	Valid	20	20	20	20	20	20	20
	Missing	0	0	0	0	0	0	0
Mean		2.4000	2.0000	5.7500	6.0000	4.6500	5.7500	5.3500
Median		2.0000	2.0000	6.0000	6.0000	5.0000	6.0000	5.5000
Mode		2.00	2.00	6.00	6.00	5.00	6.00	6.00
Std. Deviation		.50262	.00000	.44426	.00000	.67082	.44426	.74516
Range		1.00	.00	1.00	.00	2.00	1.00	2.00

Domain 6 – Encouragement (Positive)

Interaction		Encouragement *Positive*	Encouragement *Positive*	Encouragement *Positive*	Encouragement *Positive*	Encouragement *Positive*	Encouragement *Positive*	Encouragement *Positive*
N	Valid	20	20	20	20	20	20	20
	Missing	0	0	0	0	0	0	0
Mean		2.4500	2.6500	3.8500	3.1000	3.0000	2.9500	2.2500
Median		2.0000	3.0000	4.0000	3.0000	3.0000	3.0000	2.0000
Mode		2.00	3.00	4.00	3.00	3.00	3.00	2.00
Std. Deviation		.68633	.58714	.98809	.64072	.64889	.51042	.44426
Range		3.00	2.00	3.00	2.00	2.00	2.00	1.00

Domain 6 – Encouragement (Negative)

Interaction		Encouragement *Negative*	Encouragement *Negative*	Encouragement *Negative*
N	Valid	20	20	20
	Missing	0	0	0
Mean		6.0000	3.1500	5.7500
Median		6.0000	3.0000	6.0000
Mode		6.00	3.00	6.00
Std. Deviation		.00000	.36635	.44426
Range		.00	1.00	1.00

Domain 7 – Normalising

Interaction		Normalising *Positive*	Normalising *Positive*	Normalising *Positive*	Normalising *Negative*
N	Valid	20	20	20	20
	Missing	0	0	0	0
Mean		3.3500	4.0000	2.9500	6.0000
Median		3.0000	4.0000	3.0000	6.0000
Mode		3.00	4.00	3.00	6.00
Std. Deviation		.48936	.72548	.51042	.00000
Range		1.00	2.00	2.00	.00

Domain 8 – Mutual Reciprocity (Altruism)

Interaction		Altruism *Positive*	Altruism *Positive*	Altruism *Negative*	Altruism *Negative*
N	Valid	20	20	20	20
	Missing	0	0	0	0
Mean		2.0000	2.0000	2.5500	4.5000
Median		2.0000	2.0000	3.0000	5.0000
Mode		2.00	2.00	3.00	5.00
Std. Deviation		.00000	.00000	1.05006	1.23544
Range		.00	.00	3.00	4.00

Domain 9 – Reflection/Reappraisal (*of stroke and its aftermath*)

Interaction		Reflection *Positive*	Reflection *Positive*	Reflection *Positive*	Reflection *Negative*	Reflection *Negative*
N	Valid	20	20	20	20	20
	Missing	0	0	0	0	0
Mean		2.5500	2.6500	4.2500	5.0000	5.5500
Median		2.5000	3.0000	4.5000	5.0000	6.0000
Mode		2.00	3.00	5.00	5.00	6.00
Std. Deviation		.60481	.58714	.85070	.00000	.75915
Range		2.00	2.00	2.00	.00	3.00

Domain 10 – Belonging (Positive)

Interaction		Belonging *Positive*	Belonging *Positive*	Belonging *Positive*	Belonging *Positive*	Belonging *Positive*	Belonging *Positive*
N	Valid	20	20	20	20	20	20
	Missing	0	0	0	0	0	0
Mean		2.0000	2.0500	2.0500	1.9500	2.1000	2.8500
Median		2.0000	2.0000	2.0000	2.0000	2.0000	3.0000
Mode		2.00	2.00	2.00	2.00	2.00	3.00
Std. Deviation		.32444	.22361	.22361	.39403	.30779	.48936
Range		2.00	1.00	1.00	2.00	1.00	2.00

Domain 10 – Belonging (Negative)

Interaction		Belonging *Negative*	Belonging *Negative*	Belonging *Negative*	Belonging *Negative*	Belonging *Negative*
N	Valid	20	20	20	20	20
	Missing	0	0	0	0	0
Mean		5.2500	5.1000	5.0000	5.0000	3.4000
Median		5.0000	5.0000	5.0000	5.0000	3.0000
Mode		5.00	5.00[a]	5.00	5.00	3.00
Std. Deviation		.44426	1.02084	.00000	.00000	.50262
Range		1.00	4.00	.00	.00	1.00

Basic Script for Actors

1. Instilling Hope

Positive

Participant 1 – 'How are you finding the group?'

Participant 2 - 'I thought I would never be able to cope but being in the group has made me realise that I've coped better than I thought I ever would.'

Negative

Participant 1 – 'How have you found coming to the group?'

Participant 2 – 'I've been coming to group for a year now and I've realised that things never really get better after a stroke.'

2. Positive Social Comparison

Positive

(Two members of the group conversing – others in a separate conversation or doing something practical)

Participant 1 - 'That person seems to be worse off than me and has gone back to work – surely, I can do that. That makes me hopeful that I'll be able to return to work.'

Participant 2 – 'Yes he never thought he would be able to go back to work but he did it – it just shows doesn't it?'

Negative

(Same scenario as above)

Participant 1 -'Everybody else seems so much better than me, I feel like I'm never going to improve.'

3. Unconditional Positive Regard and Acceptance

Positive

Participant 1- 'How has being the group differed to other services you've accessed like statutory services?'

Participant 2 - 'In group, there's no time limit on improvement. You feel able to just progress in your own time and in your own way.'

Negative

Participant 1 – 'I felt a grief and a sense of loss for the person that I was before the stroke'

Participant 2 - 'I have never heard of anyone feeling like that.'

4. Affirmation

Positive

Participant 1 – 'I do everything I can to help me improve and progress but sometimes it seems like it's not working.'

Participant 2- 'You're doing really well'; 'you're doing everything right.'

Negative

Participant 1 – 'I'm trying my best to improve a little everyday although progression often feels really small.'

Participant 2- 'Maybe you could try a little harder to help yourself.'

5. Validation

Positive

Participant 1 – 'How does being in the group make you feel when you are here?'

Participant 2– 'Outside of the group, you feel you have to be grateful to people but in the group you don't feel like that, you don't feel indebted to anyone'

Negative

Participant 1 – 'sometimes I feel really angry and frustrated at what has happened with the stroke and everything.'

Participant 2 - 'I don't really understand what the problem is, you just get on with it and stop thinking about it.'

6. Encouragement

Positive
Participant 1- (walks steps with support from another participant) 'I just walked 10 steps for the first time!'
All participants – '*Round of applause*

Negative
Participant 1 – 'I walked 10 steps for the first time today!'
Participant 2 - 'surely you should be able to walk further by now?'

7. Normalising

Positive
Participant 1 – 'sometimes if feel like crying' (elaborate a little bit)
Participant 2 - 'That sounds familiar-anyone would feel like that after what you've been through.'

Negative
Participant 1 'Sometimes I feel like I'm never going to get better and that I'm going to be like this forever.'
Participant 2 – 'Well that seems a strange way to feel; I've certainly never felt that way.'

8. Mutual Reciprocity

Positive
Participant 1 – 'You get a lot out of this group- not just by gaining advice and support but by giving it also….'
Participant 2 - 'Yes….you gain confidence in sharing fears because then other people start to share theirs and you can see that it is helpful. It feels good that you can help someone else out.'

Negative
Participant 1 – 'You get a lot out of this group- not just by gaining advice and support but by giving it also….'

Participant 2 – 'I don't feel like I'm able to give anything back.'

9. Reflection/Reappraisal

Positive

Participant 1 – 'What has being in the group made you think about your own experience?'

Participant 2 - 'I had to learn everything again; how to walk, talk. The group made me reflect on my stroke after meeting other people. It made me change the way I think about things - This is another life and I'm going to make it better than the last'

Negative

Participant 1 – 'Sometimes I feel that improvement is slow, it feels ok sometimes but other times really frustrating.'

Participant 2 - 'The group is always so negative with people saying what they can't do anymore – it makes me feel so depressed.'

10. Belonging

Positive

Participant 1 – 'You get sense from the group that you all have experienced the same thing and can relate to each other.'

Participant 2 – 'You really feel part of something unique in this group.'

Participant 3 – We're all here for each other – in the group you are all there for each other, to support and nurture not matter who you are or what your level of disability.'

Participant 4 – 'Yes the people in the group are able to share the understanding of the real impact of having a stroke.'

Participant 5 – 'We come here every week and help each other.'

Negative

Participant 1 'We all get in this group; we all share the experiencing of having a stroke.'

Participant 2 – 'I don't want to make friends with other stroke survivors – I don't want my life to be all about stroke.'

Appendix D4

Film Clips

Appendix E

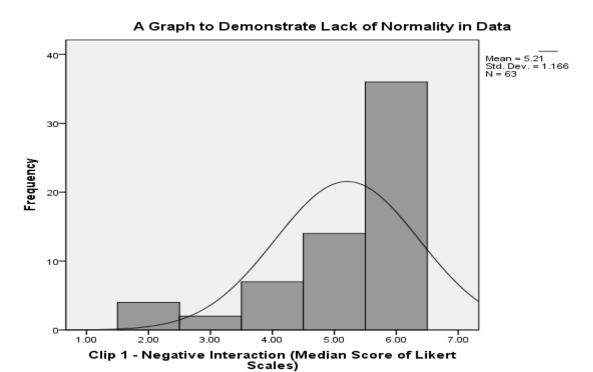## Landis and Koch (1977) Kappa Rating Interpretation

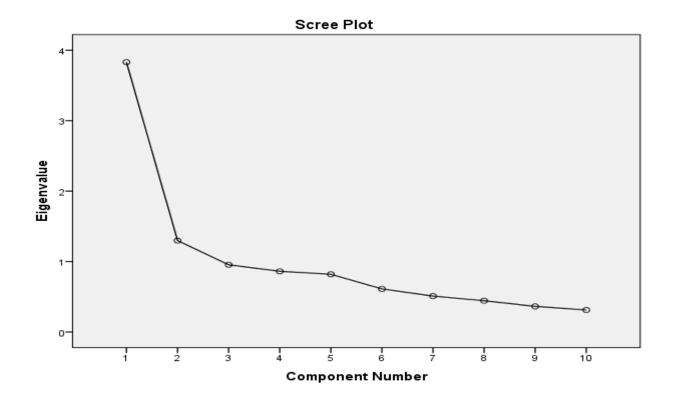| K	Interpretation
< 0	Poor agreement
0.01 – 0.20	Slight agreement
0.21 – 0.40	Fair agreement
0.41 – 0.60	Moderate agreement
0.61 – 0.80	Substantial agreement
0.81 – 1.00	Almost perfect agreement

Appendix F

Evidence of non-normal Data

The graph below was produced to assess normality of one example of the data (Domain 1 – Instilling Hope, average of negative interactions). It is evident that the data is highly skewed for this particular interaction and thus not normally distributed. It was therefore decided that non-parametric tests would be more suitable due to the violations of the assumptions of parametric tests.

Graph 1 – Test of Normality

A Graph to Demonstrate Lack of Normality in Data

Mean = 5.21
Std. Dev. = 1.166
N = 63

Frequency

Clip 1 - Negative Interaction (Median Score of Likert Scales)

Assessing The Significance of Factor Loadings

Scree Plot

Scree Plot

Appendix H

Average of Mean Scores for Positive and Negative Interactions

Table of Mean Scores for Positive and Negative Interactions

Negative Interactions	Average Rating	Range
Clip 1	5.2	2.0-6.0
Clip 3	5.0	2.0-6.0
Clip 5	4.8	2.0-6.0
Clip 7	4.5	2.0-6.0
Clip 9	4.8	1.8-6.0
Clip 11	4.5	1.8-6.0
Clip 13	4.7	1.4-6.0
Clip 15	4.1	1.0-6.0
Clip 17	5.0	2.2-6.0
Clip 19	4.5	2.2-6.0

Positive Interactions	Average Rating	
Clip 2	2.3	1.0-4.6
Clip 4	2.6	1.0-6.0
Clip 6	2.5	1.0-4.6
Clip 8	3.2	1.0-5.6
Clip 10	2.6	1.0-4.8

Clip 12	2.5	1.0-5.0
Clip 14	3.3	1.4-5.6
Clip 16	2.4	1.0-4.6
Clip 18	2.4	1.0-5.0
Clip 20	2.2	1.0-3.4

Appendix I

Significance Values for Correlation Co-efficient between Pairs of Interactions

Sig. (1-tailed)		1	2	3	4	5	6	7	8	9	10
	1 **Instilling Hope**		.000	.002	.069	.001	.002	.061	.007	.000	.000
	2 **Positive Social Comparison**	.000		.000	.145	.016	.001	.054	.007	.001	.000
	3 **Unconditional Positive Regard and Acceptance**	.002	.000		.043	.033	.023	.042	.155	.063	.012
	4 **Affirmation**	.069	.145	.043		.004	.000	.000	.102	.048	.064
	5 **Validation**	.001	.016	.033	.004		.132	.082	.012	.001	.000
	6 **Encouragement**	.002	.001	.023	.000	.132		.006	.014	.000	.002
	7 **Normalising**	.061	.054	.042	.000	.082	.006		.477	.058	.026
	8 **Mutual Reciprocity**	.007	.007	.155	.102	.012	.014	.477		.036	.003
	9 **Reflection/Reappraisal**	.000	.001	.063	.048	.001	.000	.058	.036		.000
	10 **Belonging**	.000	.000	.012	.064	.000	.002	.026	.003	.000	

<u>**Appendix J**</u>

<u>**Author Guidelines for Journal**</u>

British Journal of Health Psychology

Edited By: Alison Wearden and David French

Author Guidelines

The aim of the British Journal of Health Psychology is to provide a forum for high quality research relating to health and illness. The scope of the journal includes all areas of health psychology as outlined in the Journal [Overview].

The types of paper invited are:

• papers reporting original empirical investigations, using either quantitative or qualitative methods, including reports of interventions in clinical and non-clinical populations;

• theoretical papers which report analyses on established theories in health psychology;

• we particularly welcome review papers, which should aim to provide systematic overviews, evaluations and interpretations of research in a given field of health psychology; and

• methodological papers dealing with methodological issues of particular relevance to health psychology.

Authors who are interested in submitting papers that do not fit into these categories are advised to contact the editors who would be very happy to discuss the potential submission.

All papers published in The British Journal of Health Psychology are eligible for Panel A: Psychology, Psychiatry and Neuroscience in the Research Excellence Framework (REF).

1. Circulation

The circulation of the Journal is worldwide. Papers are invited and encouraged from authors throughout the world.

2. Length

Papers describing quantitative research (including reviews with quantitative analyses) should be no more than 5000 words (excluding the abstract, reference list, tables and figures). Papers describing qualitative research (including reviews with qualitative analyses) should be no more than 6000 words (including quotes but excluding the abstract, tables, figures and references). The Editors retain discretion to publish papers beyond this length in cases where the clear and concise expression of the scientific content requires greater length.

3. Editorial policy

The Journal receives a large volume of papers to review each year, and in order to make the process as efficient as possible for authors and editors alike, all papers are initially examined by the Editors to ascertain whether the article is suitable for full peer review. In order to qualify for full review, papers must meet the following criteria:
• the content of the paper falls within the scope of the Journal
• the methods and/or sample size are appropriate for the questions being addressed
• research with student populations is appropriately justified
• the word count is within the stated limit for the Journal (i.e. 5000 words, or 6,000 words for qualitative papers)

4. Submission and reviewing

All manuscripts must be submitted via Editorial Manager. The Journal operates a policy of anonymous (double blind) peer review. We also operate a triage process in which submissions that are out of scope or otherwise inappropriate will be rejected by the editors without external peer review to avoid unnecessary delays. Before submitting, please read the terms and conditions of submission and the declaration of competing interests. You may also like to use the Submission Checklist to help your prepare your paper.

5. Manuscript requirements

• Contributions must be typed in double spacing with wide margins. All sheets must be numbered.

• Manuscripts should be preceded by a title page which includes a full list of authors and their affiliations, as well as the corresponding author's contact details. You may like to use this template. When entering the author names into Editorial Manager, the corresponding author will be asked to provide a CRediT contributor role to classify the role that each author played in creating the manuscript. Please see the Project CRediT website for a list of roles.

• For articles containing original scientific research, a structured abstract of up to 250 words should be included with the headings: Objectives, Design, Methods, Results, Conclusions. Review articles should use these headings: Purpose, Methods, Results, Conclusions. As the abstract is often the most widely visible part of your paper, it is important that it conveys succinctly all the most important features of your study. You can save words by writing short, direct sentences. Helpful hints about writing the conclusions to abstracts can be found here.

• Statement of Contribution: All authors are required to provide a clear summary of 'what is already known on this subject?' and 'what does this study add?'. Authors should identify existing research knowledge relating to the specific research question and give a summary of the new knowledge added by your study. Under each of these headings, please provide 2-3 (maximum) clear outcome statements (not process statements of what the paper does); the statements for 'what does this study add?' should be presented as bullet points of no more than 100 characters each. The Statement of Contribution should be a separate file.

• Conflict of interest statement: We are now including a brief conflict of interest statement at the end of each accepted manuscript. You will be asked to provide information to generate this statement during the submission process.

• The main document must be anonymous. Please do not mention the authors' names or affiliations (including in the Method section) and always refer to any previous work in the third person.

• Tables should be typed in double spacing, each on a separate page with a self-explanatory title. Tables should be comprehensible without reference to the text. They should be placed at the end of the manuscript but they must be mentioned in the text.

• Figures can be included at the end of the document or attached as separate files, carefully labelled in initial capital/lower case lettering with symbols in a form consistent with text use. Unnecessary background patterns, lines and shading should be avoided. Captions should be listed on a separate sheet. The resolution of digital images must be at least 300 dpi. All figures must be mentioned in the text.

• For reference citations, please use APA style. Particular care should be taken to ensure that references are accurate and complete. Give all journal titles in full and provide doi

numbers where possible for journal articles. For example:

Author, A., Author, B., & Author, C. (1995). *Title of book.* City, Country: Publisher.
Author, A. (2013). Title of journal article. *Name of journal, 1,* 1-16. doi: 10.1111/bjep.12031
• SI units must be used for all measurements, rounded off to practical values if appropriate, with the imperial equivalent in parentheses.
• In normal circumstances, effect size should be incorporated.
• Authors are requested to avoid the use of sexist language.
• Authors are responsible for acquiring written permission to publish lengthy quotations, illustrations, etc. for which they do not own copyright. For guidelines on editorial style, please consult the APA Publication Manual published by the American Psychological Association.
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• Manuscripts reporting systematic reviews and meta-analyses are encouraged to submit in accordance with the PRISMA statement.
• Manuscripts reporting interventions are encouraged to describe them in accordance with the TIDieR checklist.
If you need more information about submitting your manuscript for publication, please email Hannah Wakley, Managing Editor (bjhp@wiley.com) or phone +44 (0) 116 252 9504.

6. Supporting information
We strongly encourage submission of protocol papers or trial registration documents, where these are in the public domain, to allow reviewers to assess deviations from these protocols. This will result in reviewers being unblinded to author identity.

Supporting Information can be a useful way for an author to include important but ancillary information with the online version of an article. Examples of Supporting Information include appendices, additional tables, data sets, figures, movie files, audio clips, and other related nonessential multimedia files. Supporting Information should be cited within the article text, and a descriptive legend should be included. Please indicate clearly on submission which material is for online only publication. It is published as supplied by the author, and a proof is not made available prior to publication; for these reasons, authors should provide any Supporting Information in the desired final format.
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The corresponding author will receive an email alert containing a link to a web site. The proof can be downloaded as a PDF (portable document format) file from this site. Acrobat

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Further information about the process of peer review and production can be found in this document. What happens to my paper? Appeals are handled according to the procedure recommended by COPE.

Appendix K

Course Guidelines for Review

Literature review

The default format for the literature review is a systematic review closely linked to the main research project. A systematic review seeks to:

•   Identify all relevant published and unpublished evidence

•   Select studies or reports for inclusion

•   Assess the quality of each study or report

•   Synthesise the findings from individual studies or reports in an unbiased way

•   Interpret the findings and present a balanced and impartial summary of the findings with due consideration of any flaws in the evidence.

If a systematic review is unfeasible, for example because insufficient appropriate studies have been published in the relevant field, the trainee should discuss other options with their supervisory team and the Research Director if necessary. Whichever form of review is undertaken, the review must be substantial, critical in nature and present clear recommendations for clinical practice and/or theory. It is envisaged that most literature reviews will not necessarily be the final manuscript that may be sent for review to a journal. Hence, most will be a combination of the final manuscript enriched with necessary additional material to provide the necessary background to the research. The format and guidelines for the target journal should be adhered to but when no word limit is stated, it is expected that the review will be a maximum of 8000 words.