THE PODIUM ILLUSION: EXPERIENCES OF SOCIAL SUPPORT IN ELITE PARA-SWIMMERS

by

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ABSTRACT

Aims: Little research has investigated social support experiences in sport, with no literature to date exploring these experiences in elite para-sport. The first aim of this thesis was to investigate the experiences and perceived health benefits of sport participation across four disability populations to determine the current literature investigating social support and identify areas for further research. The second aim was to explore the experiences of social support in elite British para-swimmers, determining the members of their support network and exploring the influence of this support on performance and wellbeing.

Methods: A mixed-methods systematic review was conducted to answer the first aim. The researcher and a second reviewer independently undertook the searching of several sources, study selection and quality assessment. Data were extracted based on the JBI data extraction tool and quality assessment was carried out using the QATSDD. Thematic synthesis and narrative synthesis were employed to synthesise qualitative and quantitative studies respectively. Content analysis was used to analyse the perceived health benefits of sport. Confidence in cumulative evidence was determined using GRADE-CERQual and Classes of Evidence.

A hermeneutic phenomenological study was undertaken to answer the second aim of the thesis. Eight elite British para-swimmers (3M/5F, mean age 24.9 years) representing five para-swimming classes participated in semi-structured interviews exploring their social support experiences. Data were analysed following the Framework Method and research quality was ensured through employing techniques including data triangulation, member checking, a reflexive diary and an audit trail. For both studies, a stakeholder group were involved during the analysis stages.

Results: The systematic review highlighted many positive aspects of sport participation across all four of the populations, including socialisation, enjoyment, sense of freedom, and challenging stereotypes. More research is needed to explore the experiences and benefits for veterans. The synthesis highlighted three forms of social support for elite athletes and suggested more research is needed into their support network and experiences of social support.

The qualitative study generated five themes and eleven sub-themes from the interviews, and led to the development of a new model called 'The Podium Illusion'. The findings demonstrate the magnitude and quality of social support available to the elite para-swimmers to enable them to maximise their performance and maintain wellbeing.

Conclusions: The systematic review was the first of its kind and concluded that sport is an overall positive experience for individuals with a disability and that it should be promoted. However more research is needed to explore the experiences of veterans and to also compare perceived health benefits between populations. The qualitative study highlighted the important role of social support in an athlete's performance and wellbeing, and led to the development of a new model which reflects this crucial aspect of sport. Further research is required to confirm these findings and to explore the experiences of social support in elite para-athletes from other sports and countries.

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LIST OF ABBREVIATIONS

International Paralympic Committee – IPC

Athlete performance award – APA

National Performance Centre – NPC

World Class Pathway – WCP

Performance lifestyle – PL

National Governing Body – NGB

English Institute of Sport – EIS

Strength and conditioning – S&C

Home programme liaison – HPL

CHAPTER 1 – INTRODUCTION

1.1 Para-sport

Paralympic sport (para-sport) is sport governed by the International Paralympic Committee (IPC) and designed for individuals with a physical, visual or intellectual impairment (Inside the Games, n.d.; Swartz et al., 2019). The origin of para-sport dates back 1948 when Sir Ludwig Guttmann founded the Stoke Mandeville Games to help rehabilitate paralysed British Armed Forces members through competitive sport (Webborn, 1999; Silver, 2012). Although the International Stoke Mandeville Games were held in Rome following the 1960 Olympic Games, it was not until 1985 that 'Paralympic Games' was used to describe the event; this term is of Greek origin, meaning a Games running alongside the Olympics (Webborn, 1999; Webbon and Van de Vliet, 2012). The Paralympic Games is regarded as the pinnacle of para-sport and is the second largest international multi-sport event, second only to the Olympic Games (Jones and Howe, 2005; Blauwet and Willick 2012). Since their inception, the popularity of the Paralympic Games has increased significantly; rising from 400 competitors and 23 countries in 1960 to 4328 competitors and 160 countries in 2016 (IPC, no date-a). The main goals of the IPC are to promote para-athlete sporting excellence and to create a more inclusive world through para-sport (IPC, no date-b). Both the IPC and Sir Ludwig Guttmann have been credited with the development of the 'Paralympic Movement'; the purpose of which is to increase the profile of elite para-sport whilst also promoting equality and integration of individuals with disabilities in sport (IPC, no date-c; Blauwet and Willick, 2012).

Alongside increases in the number of athletes and countries at the Paralympic Games, more sports and impairment categories have been added over time (Webborn, 1999; Silver, 2012; Webborn and Van de Vliet, 2012). Currently, 28 Paralympic sports are sanctioned by the IPC (IPC, no date-d). Athletes are classified into sport classes based on the extent of activity limitation resulting from their impairment (IPC, no date-e). Classification is sport-specific due to the different components and skills required in each sport (IPC, no date-e). The purpose of classifying individuals is to encourage sports participation and to enable fair opportunities for sports competition for individuals with disabilities (Jones and Howe, 2005). It is also necessary to prevent the predictable scenario in which the athlete with the least severe impairment wins (IPC, no date-e). Athletes are classified according to eligible impairments, minimum disability criteria and sport class, determined by a classification panel after an athlete evaluation (IPC, no date-e). There are ten eligible impairment types: impaired muscle power, impaired passive range of movement, limb deficiency, leg length difference, short stature, hypertonia, ataxia, athetosis, vision impairment and intellectual impairment (IPC, no date-e). Sports can include all impairment types such as swimming, a selection of impairment types such as cycling, or just a single impairment type such as goalball. The minimum disability criteria refer to how severe the impairment must be to be eligible based on scientific research and is sport-specific (IPC, no date-e). The sport class then groups athletes with similar activity limitations in the same class, meaning that athletes with different impairments can compete in the same class (IPC, no date-e).

British Paralympic athletes are financially supported by UK Sport funding, which comes from the National Lottery and Exchequer income. Part of this is paid to the National Governing Body to fund their World Class Programme, and part is paid directly to athletes in the form

of an Athlete Performance Award (APA), helping with living and sporting costs (UK Sport, no date-a). The funding received by each sport is dependent on their success, including medals won and medallists, with some sports receiving considerably more funding than others (UK Sport, no date-a; UK Sport, no date-b).

1.2 Para-swimming

Para-swimming has featured at every Paralympic Games and is one of the most populous sports, with 152 countries and 593 competitors at the Rio 2016 Paralympic Games. (Paralympics GB, no date). The swimming strokes include freestyle, backstroke, butterfly and breaststroke, and swimmers compete in pool events ranging from 50m to 400m (Paralympics GB, no date; British Swimming, no date-a). Swimmers are classified according to the extent of activity limitation into one of 14 categories (Table 1) (British Swimming, no date-b; Swim England, no date). A lower number in the physical and visual classifications corresponds with increased severity and limitations of disability (British Swimming, no date-b). Other disability classes exist but are not recognised by the IPC. For example, deaf and hard of hearing swimmers compete at the Deaflympics, which is governed by the International Committee of Sports for the Deaf (Deaflympics, no date-a; Deaflympics, no date-b).

Table 1: Para-swimming classification categories.

Classification	**Impairment**
S1 – S10	Physical
S11 – S13	Visual
S14	Intellectual

Elite British para-swimmers can be selected to compete in a range of international events including the Paralympic Games, World Championships and European Championships if they reach a set qualifying time and comply with the selection policy for the competition (British Swimming, no date-c). British para-swimmers have been very successful in recent years, winning 16 gold medals and finishing 3rd in the swimming medal table at the Rio Paralympic Games in 2016 (Rio 2016, no date). Furthermore, swimming was the most successful Paralympics GB sport in Rio, winning 47 out of the 147 medals won across all sports (British Swimming, no date-a). The athletes also receive significant financial backing from UK Sport in the form of APAs based on the level of performance an athlete has reached (UK Sport, no date-a). The funding is awarded for a 4 year Paralympic cycle, commencing in the April following the previous Paralympic Games (UK Sport, no date-a). For Tokyo 2020, British para-swimming received almost £11 million for the period 2017-2020, of which just over £2 million was in the form of the APA (UK Sport, no date-b, UK Sport, no date-c). This figure has substantially increased compared to the £3.5 million invested in para-swimming for the Sydney Paralympic Games cycle and has increased for each cycle since (UK Sport, no date-c).

The National Performance Centre (NPC) for British para-swimming, located in Manchester, is the training base for many members of the British team (British Swimming, no date-d). The programme is semi-centralised however, meaning that is not mandatory to train at the NPC and some swimmers train in their home programmes (British Swimming, no date-d). There are two programmes which make up the World Class Pathway (WCP), podium and podium potential, which support athletes in achieving success at the next Paralympic Games and beyond (British Swimming, no date-g). The para-swimmers at the NPC and those on the WCP have access to many forms of performance support and the highest standard

technology, including the Kistler Performance Analysis System (British Swimming, no date-d; British Swimming, no date-e). These British para-swimmers have access to sport practitioners in the fields of sports medicine, strength and conditioning, psychology, performance science and nutrition to support and enhance their performance (British Swimming, no date-f). The social support provided by these support staff and also by family and friends combines to help the athletes achieve success.

1.3 Social support

Social support has been defined as *'an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the wellbeing of the recipient'* (Shumaker and Brownell, 1984, p. 13). Social support can be considered as two categories: functional and structural (Broadhead et al., 1989; Hwang et al., 2011). Functional social support is concerned with the practical aspects of support and the perception of the quality of the support that is received (Broadhead et al., 1989; Cutrona and Russell, 1990; Hwang et al., 2011). There are four dimensions of functional social support: emotional, esteem, informational and tangible, which are defined in this thesis according to the research of Cutrona and Russell (1990) (Table 2). Structural social support is concerned with the size and frequency of social interactions and the value of being part of a group (Broadhead et al., 1989; Cutrona and Russell, 1990; Hwang et al., 2014). In a sporting context, it is likely that the support provided can also be intended to enhance the performance of the athlete, not just their wellbeing. The wide variety of social support available to British para-swimmers including physiotherapists, nutritionists and performance lifestyle (PL) advisors can only be beneficial to their performance and overall wellbeing (British Swimming, no date-f).

Table 2: The four types of functional social support and the definitions as defined by Cutrona and Russell (1990) pg. 322.

Functional Social Support	**Definition (Cutrona and Russell, 1990, pg. 322)**
Emotional	*"The ability to turn to others for comfort and security during times of stress, leading the person to feel that he or she is cared for by others"*
Esteem	*"The bolstering of a person's sense of competence or self-esteem by other people. Giving an individual positive feedback on his or her skills and abilities or expressing a belief that the person is capable of coping with a stressful event are examples of this type of support"*
Informational	*"Providing the individual with advice or guidance concerning possible solutions to a problem"*
Tangible	*"Concrete instrumental assistance, in which a person in a stressful situation is given the necessary resources (e.g., financial assistance, physical help with tasks) to cope with the stressful event"*

When exploring elite para-athlete experiences with social support, it became clear that there is very little literature in this area. In sub-international level swimmers with a disability, social support was perceived to be vital in both a sporting and non-sporting context, and was provided principally by coaches, parents and friends (Martin and Mushett, 1996). The importance of social support has been found to vary according to the performance level of the athlete, suggesting that the experiences of the elite para-swimmers may differ (Swanson, Colwell and Zhao, 2008). Qualitative, quantitative and mixed-methods research has explored social support experiences in non-disabled athletes, reporting that social support helps athletes achieve performance targets, cope with competition stress and recover following injury (Rosenfeld, Richman and Hardy, 1989; Gould et al., 1999; Barefield and McCallister, 1997; Kristiansen and Roberts, 2010; Yang et al.,

2010). This research clearly demonstrates the importance of social support for athletic performance and wellbeing.

The dearth of literature exploring the experiences of social support in para-athletes meant that the scope of the literature search was expanded further to include the experiences of being a para-athlete in general. This search also demonstrated a paucity of literature, with a handful of studies exploring the beliefs, identities, injury and retirement experiences of elite athletes with a disability (Fagher et al., 2016; Pack, Kelly and Arvinen-Barrow, 2017; Bundon et al., 2018; De Cruz, Spray and Smith, 2019). Therefore the scope of the search was extended further again to explore the experiences of sport participation across a range of populations, including children, adolescents, elite athletes and veterans with a disability. This phenomenon will be explored in the next chapter in the form of a mixed-methods systematic review.

1.4 Aim and objectives

Aim 1: To understand and explore the current literature on the sport experiences and perceived health benefits in four populations: children and adolescents, adults, elite athletes and veterans with a disability.

Objectives:

a) To explore the experiences of children and adolescents, adults, elite athletes and veterans with a disability participating in sport.
b) To examine the perceived health benefits of participating in sport for children and adolescents, adults, elite athletes and veterans with a disability.
c) To determine areas where there is a paucity of literature and where more research is required to enable a better understanding of the sport experience.

Aim 2: To explore the experiences of social support in elite para-swimmers.

Objectives:

a) To determine the members of the elite para-swimmers' support network.
b) To explore the elite para-swimmers' perceptions of the use of the support network and the available support.
c) To explore the influence this support has on elite para-swimmer wellbeing and performance.

1.5 Thesis overview

In order to answer the above aims and objectives, this thesis is organised into the following chapters:

Chapter 2 describes a mixed-methods systematic review undertaken to answer the first aim and objectives of this thesis. It details the methods, results and conclusions of a systematic review exploring the experiences and perceived health benefits of participating in sport for the following populations: children and adolescents, adults, elite athletes and veterans with a disability. In total, 11 themes and 20 sub-themes were generated and discussed in relation to existing literature specific to each population. The implications of the systematic review and discussed and recommendations are made for future research.

Chapter 3 describes the qualitative study undertaken to answer the second aim and objectives of this thesis. It details the research methods, including theoretical framework, study design, participant eligibility, recruitment, data collection methods, data analysis and the measures taken to ensure high quality research. It reports the findings from the qualitative study, which comprises five themes and 11 sub-themes, representing the elite para-swimmers experiences with social support. The results are then analysed from a hermeneutic phenomenological perspective in relation to existing literature.

Chapter 4 presents a discussion of the findings with respect to the systematic review and the qualitative study. The strengths and limitations are discussed, along with the implications of the research.

Chapter 6 highlights the conclusions and key findings from the mixed-methods systematic review and the qualitative study.

CHAPTER 2

STUDY 1 – SYSTEMATIC REVIEW

This chapter outlines the methods, results and conclusions of a mixed-methods systematic review addressing Aim 1 and the subsequent objectives of the thesis. It is based on an elaborated version of a systematic review protocol under review for publication in the BMJ Open (Appendix 1).

2.1 Introduction

Sport is classed as an activity involving physical exertion with or without a game or competition element, where skills and physical endurance are either involved or improved (Kemper, Ooijendijk and Stiggelbout, 2000). It provides individuals with a disability with the opportunity to experience the many positive aspects and health benefits associated with being physically active, including increased fitness, functionality and increased socialisation opportunities (Shephard, 1991; Slater and Meade, 2004; Johnson, 2009; Barfield and Malone, 2013). Despite these positives, just under 40% of adults with a disability are inactive (<30 mins/week) in the UK, with similar figures reported in the USA (44.3%) (Carroll et al., 2014; Sport England, 2019a; JFF Research, 2020). Individuals with a disability also have higher rates of chronic disease than those without a disability (>40% vs. <14%), further highlighting the importance of being physically active (Carrol et al., 2014).

Although the activity level of adults has increased over the past three years, the proportion of those with an active sports club membership has decreased by almost 10% in two years (Sport England, 2019a). Research across several countries has demonstrated low physical

activity levels and high sedentary levels in children with a disability, who have also been shown to be less active than their non-disabled peers (Sit et al., 2007; Einarsson et al., 2015; Pan et al., 2015; Sit et al., 2017; Sit et al., 2019; Sport England, 2019b; Activity Alliance, 2020). It is of interest to explore the sport experiences and perceived health benefits of sport in these populations in order to inform the promotion of sport and increase participation rates.

At the elite level of sport, there has been a steady growth in Paralympic Games participation and investment (IPC, no date-a; UK Sport, no date-d). Despite this, there is a relatively small body of literature in elite para-sport, with limited research exploring elite para-athletes' experiences of sport. A synthesis of the literature in this field will determine areas of future research with the overall goal of informing elite para-athlete wellbeing and performance. Sport camp and competition participation has been shown to improve the quality of life of veterans with a disability, aiding rehabilitation and increasing self-confidence (Sporner et al., 2009; Caddick and Smith, 2014). This review will be the first to focus on the experiences and benefits of continued, longer-terms sport participation for veterans with a disability.

To the best of the researcher's knowledge, this review is first to synthesise the literature on the experiences and perceived health benefits of sport across these different populations, providing insight into the positive aspects of sport and determining areas of further research.

2.2 Methods

A systematic review was conducted according to a pre-defined protocol registered with the International Prospective Register of Systematic Reviews (PROSPERO registration number:

CRD42020169224). This systematic review is reporting in accordance with the Preferred Reporting Items for Systematic review and Meta-Analysis (PRISMA) 2009 checklist and supplemented by the Enhancing Transparency in Reporting the synthesis of Qualitative research (ENTREQ), located in Appendix 2 and Appendix 3 (Moher et al., 2009; Tong et al., 2012).

2.2.1 Theoretical framework and study design

The theoretical framework underpinning this systematic review was that of subtle realism. Subtle realism is of the view that many valid, non-contradictory explanations exist for the same phenomena because different individuals experience a certain phenomenon in different ways (Lincoln and Guba, 2000; Hammersley, 2002; Duncan and Nichol, 2004). The mixed methods research design was chosen to enable all available studies exploring the phenomena to be sought, allowing for a comprehensive synthesis of evidence (JBI, no date-a). The research methodology was in keeping with the subtle realism and mixed-methods nature of the study, with thematic synthesis and narrative synthesis employed to synthesise the qualitative and quantitative studies respectively (Popay et al., 2006; Thomas and Harden, 2008).

2.2.2 Eligibility criteria

Study eligibility criteria were informed using the Sample, Phenomenon of Interest, Design, Evaluation and Research (SPIDER) concept (Cooke, Smith and Booth, 2012). To be eligible, studies had to meet the following criteria:

Sample: Individuals who had a physical, visual or intellectual disability who participated in sport competitively or recreationally. In terms of each population: children and adolescents

were under 18 years of age; adults were over 18 years of age; elite athletes were of international standard or were a member of the national team; and veterans were (former) members of the armed forces. Studies with individuals who were disabled as a result of old age or a medical condition in isolation (e.g. diabetes) were excluded. There was no age limit on participants. Studies with participants who took part in sport programmes <6 months in duration were excluded because this was not determined to be continued participation in sport. Studies which explored participants' competition experiences were excluded as it only addresses one moment in time, not continued sport participation. Studies which included forms of physical activity (e.g. walking, yoga) were excluded where it was not possible to distinguish participants involved in sport and those involved in physical activity.

Phenomenon of interest: The experiences of individuals with a disability participating in sport, where experiences include aspects such as the meaning of sport, the support for participation, being part of a team sport and the barriers and facilitators. The second phenomenon of interest was the perceived health benefits of sport, both physical and mental, which included an individual's self-reported benefits and comments suggesting the benefits of sport, e.g. increased fitness, weight management.

Design: All types of study designs were included except reviews. Only studies written in English were included.

Evaluation: Any reported experiences or health benefits of participating in disability sport were explored.

Research type: Mixed-methods research.

2.2.3 Information sources and search strategy

The information sources included six online databases which were searched from database inception until February 2020. They included: Medline (Ovid interface), EMBASE (Ovid interface), PyschINFO (Ovid interface), Web of Science (Clarivate Analytics interface), CINAHL Plus (EBSCO interface) and SportDiscus (EBSCO interface). Grey literature sources, including OpenGrey, British Library EThOS and Explore the British Library, were searched up to February 2020 using specific key words. The following journals were hand-searched to complement the search strategy: *Qualitative Research in Sport, Exercise and Health*, *Psychology of Sport and Exercise, Disability and Rehabilitation, British Journal of Sports Medicine, European Journal of Sports Science* and *International Journal of Sports Science*. The references of included studies were screened to further supplement the search. The researcher and a second reviewer carried out the searches independently using a search strategy which in the main was consistent across all databases, with specific search terms adjusted to reflect database-appropriate syntax (Bramer et al., 2018). The search strategy was pre-planned and comprehensive, aiming to seek all available studies. A copy of the MEDLINE search strategy can be found in Appendix 4.

2.2.4 Study selection

The researcher and the second reviewer independently screened the titles and abstracts using the pre-determined eligibility criteria. If it was clear from the title and abstract that the content was not relevant to the systematic review objectives, the study was excluded. Full-text copies of potentially relevant studies were obtained and both the researcher and the second reviewer screened the full-texts for inclusion using the eligibility criteria. Studies were excluded if a full-text copy was not available. A complete dual review approach was

used where the researcher and second reviewer screened all studies at the title and abstract stage and the full text stage, reaching a consensus on included studies after each stage (Stoll et al., 2019). Using two individuals to screen studies for eligibility increases the identification of relevant studies, making the process more comprehensive (Stoll et al., 2019; Waffenschmidt et al., 2019). Endnote was used for data management and reference storage (Clarivate, no date).

2.2.5 Data collection process

Data were extracted from included studies by the researcher based on the standardised qualitative data extraction tool from the Joanna Briggs Institute and checked by the second reviewer (JBI, no date-b). The tool was piloted on five studies prior to data extraction to determine the completeness and suitability of the form. The form was modified to include a section for the design of a study to be extracted, reflecting the variation in study designs included in the review (qualitative, quantitative and mixed-methods) (Appendix 5).

2.2.6 Quality Assessment

The Quality Assessment Tool for Studies with Diverse Designs (QATSDD) was used to determine a quality score for all included studies (Appendix 6) (Sirriyeh, Lawton, Gardner and Armitage, 2012). This tool was used because of its suitability for quality assessment in mixed-methods designs and its ability to allow an in-depth understanding of the included studies (Fenton, Lauckner and Gilbert, 2015). External feedback sought from the creators of the QATSDD reported positive feedback on the ease of application and comprehension of the tool (Sirriyeh, Lawton, Gardner and Armitage, 2012). Piloting of the tool with further researchers established good inter-rater reliability (71.5%) and test-retest reliability (51.7%-

100%), further supporting its use in this review (Sirriyeh, Lawton, Gardner and Armitage, 2012). Additional information was sought from some authors to enable fair quality assessment, such as the interview topic guide and clarification of population demographics. If no response was received in 10 days the author was sent a follow up email and given a further 10 days to reply. If there was no reply, or the information provided was not available in English, the study was score 0 for that particular criteria.

2.2.7 Data synthesis

The purpose of data synthesis is to collate the findings from the included studies in order to come to conclusions based on the body of evidence (Popay et al, 2006). All study designs were included in this review in order to conduct a comprehensive search and answer the review objectives (JBI, no date-a). This meant that there was considerable heterogeneity in terms study designs, requiring specific analysis methods appropriate for each design. Mixed methods studies were analysed qualitatively and/or quantitatively according to the relevance of the data to the review objectives. An audit trail can be found in Appendix 8 which details the origins and interpretations of the themes and sub-themes generated.

Studies were grouped into population categories, with some studies present in more than one category due to mixed participant characteristics. When studies provided with pseudonyms or ID numbers and ages, the participants were placed into the appropriate category. For 'children and adolescents', the study participants were either: under the age of 18, over 70% were under 18, or the mean age was under 18. For 'adults', study participants were: over the age of 18, over 70% were over 18, or the mean age was over 18. To be categorised as 'elite athletes', the participants had to: be competing at international level or be a member of the respective national team. If there was no response upon

contacting the study authors, studies were categorised as elite athletes if at least 70% of the participants were at the elite level. Special Olympics (an organisation which provides sports opportunities for individuals with intellectual disabilities) participants were not classed as elite because there are no qualifying times for international competition and selection is random to enable those of all abilities to compete (Special Olympics, no date; Dowling, McConkey and Hassan, 2011; Bowers et al., 2016).

The qualitative studies were analysed following the three stages of 'thematic synthesis' as described by Thomas and Harden (2008). Firstly, all text under the headings 'results' or 'findings' was printed out to allow the researcher to fully interact with the data. The researcher carried out line-by-line coding of the text according to its content and meaning. The process of translation was employed, involving the concepts and ideas identified from one study then being identified and recognised in another (Britten et al., 2002). This allowed comparisons between studies while still preserving the meaning of any given study (Britten et al., 2002). Throughout the process a bank of codes was created and new codes added or refined where necessary. All studies were then re-read to ensure the synthesis and interpretation had been carried out consistently and no additional codes were required. The researcher then looked for the connections, similarities and differences between codes to begin grouping them into descriptive themes which were common to the majority of studies (Thomas and Harden, 2008). The final stage is seen as very important and involves going beyond the findings of the primary studies to generate additional concepts which address the objectives of the review (Britten et al., 2002; Thomas and Harden, 2008). Through looking in-depth at the review questions and descriptive themes, analytical themes were developed. Stakeholder meetings were held which involved the researcher, three

experienced qualitative researchers from the University of Birmingham who had extensive publications of empirical studies and systematic reviews, and one experienced physiotherapist working in para-sport. All future stakeholder meetings involved these individuals. These meetings allowed discussion of concepts and agreement of analytical themes. Further reduction and reorganisation of the themes was carried out to best represent the key concepts of all included studies, resulting in the generation of themes and sub-themes for each population.

A narrative synthesis based on the guidelines of Popay et al. (2006) was conducted to analyse the quantitative studies. The steps followed were modified slightly as it was not possible to synthesise the data and explore relationships due to the very small number of quantitative studies in each population category (and none in the veteran category) (Popay et al., 2006). Therefore the stages detailed below were followed. A preliminary synthesis of the studies was carried out where an initial description of the results was developed. Due to being unable to explore relationships within and between studies due to the small quantity of studies included, the key findings of each study were tabulated to allow ease of reading. An integration matrix was created to juxtapose the findings from the qualitative and quantitative studies (Thomas et al., 2004). The findings from the quantitative studies were compared against the findings and initial themes and sub-themes generated from the qualitative studies to determine the agreement of identified themes and sub-themes.

To explore the perceived health benefits of participation in sport, a content analysis was undertaken (Downe-Wamboldt, 1992). Content analysis involves coding and categorising data to determine the patterns, frequencies and structures of words used (Grbich, 2013; Vaismoradi, Turunen and Bondas, 2013). It allows for both qualitative and quantitative

analysis of the data so was deemed appropriate to code the data regarding perceived health benefits qualitatively and to allow a quantitative count of the frequency of the codes (Downe-Wamboldt, 1992; Gbrich, 2013). The process of data analysis used in content analysis was based on that by Elo and Kyngäs (2008). The researcher immersed herself in the data to fully understand the findings and focused on the manifest content of the data, which involves analysing directly what the text says and developing categories (Downe-Wamboldt, 1992; Granheim and Lundman, 2004; Vaismoradi, Turunen and Bondas, 2013). Two main categories were created, physical health benefits and mental health benefits, to aid in the numerical analysis of the data (Cavanagh, 1997). For each population, reported benefits were tabulated, coded and given a frequency score (Elo and Kyngäs, 2008; Vaismoradi, Turunen and Bondas, 2013).

2.2.8 Confidence in cumulative evidence

To assess the overall quality and strength of evidence two different approaches were utilised. The 'Grading of Recommendations Assessment, Development and Evaluation' – 'Confidence in the Evidence from Reviews of Qualitative research' (GRADE-CERQual) was used to determine how much confidence to place in the findings from the qualitative studies and the qualitative component of mixed-method studies (Lewin et al., 2018). GRADE-CERQual provides a transparent, systematic framework to guide the confidence in the qualitative synthesis findings and increases the usability of the findings (Lewin et al., 2018). For the quantitative studies and quantitative component of mixed-method studies, Classes of Evidence (CoE) was used to rate the quality of evidence and bias risk for each study based on study design and certain criteria (*Definition of classes of evidence and overall strength of evidence,* 2013).

2.3 Results

2.3.1 Study selection

Thirty nine studies (n=39) met the eligibility criteria. There were 912 studies identified through database searching and 12 through other sources. After the duplicates were removed, 515 studies remained. At the title-abstract stage, 374 were excluded and 102 were excluded at the full-text stage for not meeting the inclusion criteria. The PRISMA flow diagram detailing the number of included and excluded studies is detailed in Figure 1. There was 100% agreement achieved between the researcher and second reviewer at the full-text stage.

2.3.2 Study characteristics

Of the 39 included studies, 34 were qualitative, 2 were quantitative and 3 were mixed-methods. Of the 3 mixed-methods studies, both the qualitative and quantitative components of 2 were relevant to the study objectives, and the qualitative component of the third study was relevant. A summary of the data extracted from each study can be found in Table 3 and includes participant information, data collection methods, analysis methods and phenomenon of interest.

2.3.3 Quality assessment and confidence in cumulative evidence

The QATSDD was used to create a quality score for the included studies. A summary of the quality score and converted percentage score for each study is provided in Table 4, enabling the quality of a study to be considered alongside its results. The GRADE-CERQual assessment of confidence in the evidence determined there to be high confidence in 10 of the findings, moderate confidence in 4 and low confidence in 2. The Classes of Evidence

determined the risk of bias of quantitative studies, of which 3 were high risk and 1 was moderately high risk. The summary of findings table for GRADE-CERQual is located in Table 5 and the class of evidence table is located in Table 6. Appendix 7 contains the evidence profile for GRADE-CERQual.

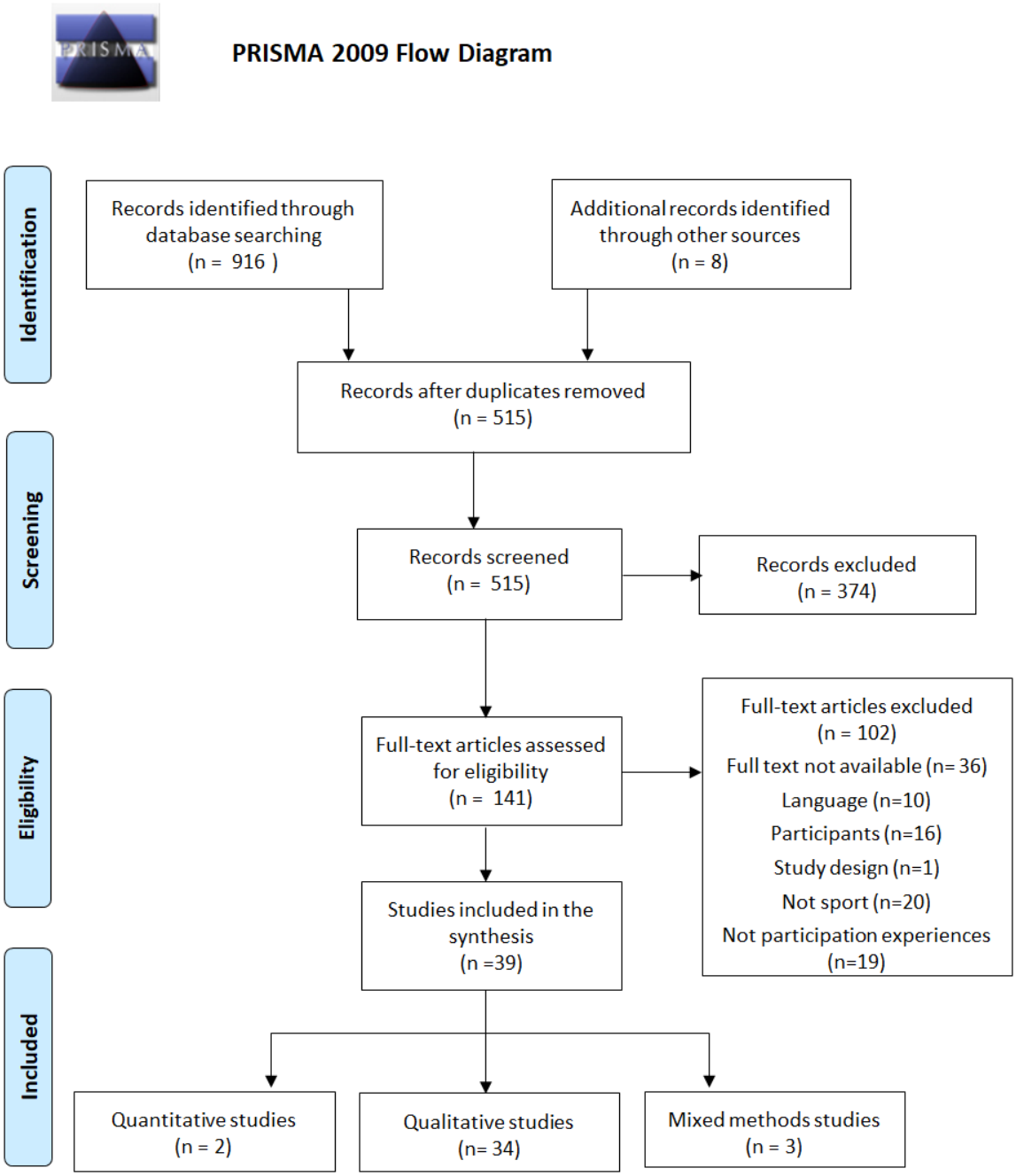

Figure 1: PRISMA Flow Diagram.

Table 3: Data extracted from included studies.

No.	Author and year	Pop.	Study design	Participants	Phenomenon of interest	Data collection method	Data analysis method
1	Arnold et al., 2017	EA	Qualitative	10M/8F Aged 17-39	The organisational stressors that athletes with a disability encounter.	Interviews.	Systematic procedures and grounded theory followed.
2	Aujla, 2019	C/A	Qualitative	4F (and 4 parents) Aged 15-16	The experiences and outcomes of an inclusive dance talent development programme and how such outcomes were facilitated.	Interviews and focus groups	Content analysis
3	Aytur et al., 2018	C/A	Qualitative	14M/1F Aged 9-16	The meaning given to the competitive sports experience by youth athletes with disabilities, and the outcomes, barriers and enablers associated with their participation.	Photovoice method and focus group	Template method
4	Bantjes, Swartz and Botha., 2019	A	Qualitative	17M/5F Aged 18-67	The participation experiences of a group of athletes in competitive disability sport in South Africa and the ways they talk about issues of identity and self- representation in the context of elite disability sport.	Interviews	Thematic analysis
5	Barfield and Malone, 2013	A	Mixed methods	19M/6F Mean age 28.	The perceived benefits and barriers to exercise among power wheelchair soccer players.	Survey and scale	Ranked responses and non-parametric tests
6	Bates et al., 2019	C/A and A	Qualitative	2M/1F Aged 12-22 (3 coordinators)	The team's experiences of wheelchair basketball and team membership.	Interviews and observational and participatory fieldwork	Identification and synthesis of key themes from the data collected
7	Bowers et al., 2016	A	Qualitative	15 athletes (11 family	The experiences and perspectives of people with intellectual disability, their families and	Focus groups and interviews	Thematic analysis

Table 3 continued

				members, 6 non-athletes, 7 family members of non-athletes, 8 staff members)	the staff who work with them, about Special Olympics Ireland		
8	Brittain, 2002	EA	Qualitative	9M/3F Aged 17-42	The factors that have an effect upon the lives of elite athletes from the time they first took up the sport of athletics to the present day.	Interviews	Critical approach
9	Carin-Levy and Jones, 2007	A	Qualitative	3M Aged 33-53	The psychological and social benefits of scuba diving as a recreational sport for people with physical impairments.	Interviews	Model suggested by Dey 1993
10	Carter et al., 2014	C/A	Qualitative	37 children Aged 3-13 (12 family members, 14 stakeholders)	Experiences and perceptions of 'The Cheetahs' and what benefits occur as a result of bringing children with disabilities and children without disability together	Observation, photographs, interviews and focus groups.	Thematic analysis
11	Cote-Leclerc et al., 2017	A	Mixed methods	25M/9W Aged 18-62	The influence of adapted sport on quality of life in adult wheelchair users.	Questionnaires and interviews	Statistical analysis and thematic content analysis
12	Dashper, 2010	EA	Qualitative	3M/2F Aged: 19-42	The embodied, gendered experiences of disabled horse riders.	Interviews	Social model of disability
13	Foster, Fitzgerald and Stride, 2019	EA	Qualitative	2M/2F Aged 24-45	The experiences of 4 deaf athletes who have competed in the Deaflympics and their socialisation into sport.	Interviews	Constant comparison method
14	Garci and Mandich, 2005	EA	Qualitative	10M/6F Age unknown	The meaning given to participating in elite-level wheelchair basketball by athletes with lower extremity physical disabilities.	Interviews and observations	Data coded for meaningful themes and comparative analyses completed
15	Goodwin et al., 2009	A	Qualitative	10M/1F Aged 22-48	The sense of community among WR players, how the sense of community is experienced and what gives meaning to that experience	Focus groups and photographs	Thematic analysis
16	Grandisson	C/A	Qualitative	6M/5F	The factors associated with the integration of	Interviews,	Content analysis

Table 3 continued

	Tetreault and Freeman, 2011			Aged 12-19 (20 parents, 9 non-sport children, 39 staff)	adolescents with intellectual disability in sports alongside their non-disabled peers	questionnaires and discussion group	
17	Green, 2013	V	Qualitative	9M/2F Age range 20-50	How participation in adaptive sport may contribute to personnel adapting their identity and re-establishing their meaning of life post-traumatic injury	Interviews	Emancipatory interpretative phenomenological analysis
18	Haslett, Fitzpatrick and Breslin, 2017	A and EA	Qualitative	10M Aged 22-53	The interplay of individual and societal facilitators and barriers to participation in Wheelchair Rugby.	Interviews	Thematic analysis
19	Huang, 2005	EA	Qualitative	11M/10F Aged 22-60	The experiences of elite male and female athletes in Taiwan and Britain	Interviews and documentary research	Immersion/ crystallisation
20	Hudson et al., 2018	A	Qualitative	7M/1F Aged 24-51	The experiences of individuals with learning disabilities detained in secure settings who have engaged in community football training programmes and identify the benefits of such provision	Interviews	Template analysis undertaken
21	Jaarsma et al., 2014	EA	Quantitative	30M/46F Mean age 30.5	The barriers and facilitators of sports in Dutch Paralympic athletes with a physical disability.	Questionnaire	Statistical analysis
22	Jeffress and Brown, 2017	C/A and A and EA	Qualitative	23M/11F Aged 10-52	The experiences of power soccer players with disabilities and to examine the perceived opportunities and benefits of their involvement with power soccer.	Interviews	Thematic analysis
23	Kirkby, 1995	A	Quantitative	16M/20F Mean age 21.3 (21 non-disabled)	The motives and reinforcements for participation in wheelchair netball and the role of a sport psychologist.	Questionnaire	Statistical analysis
24	Kristen, Patriksson and	C/A	Qualitative	13M/7F Aged 9-15	The conceptions of children and adolescents with physical disabilities about their participation in a sports programme	Interviews	Phenomenographic data analysis

Table 3 continued

	Fridlund, 2002						
25	Litchke et al., 2012	C/A and A	Qualitative	5M Aged 17-35	How a group of athletes perceived participation in WR as impacting their lives.	Interviews, observations and field notes	Phenomenological reduction
26	Macbeth, 2009	A	Qualitative	6M Aged 26-40	The challenges and constraints faced by partially sighted individuals when accessing football opportunities.	Interviews	Thematic analysis
27	Powis, 2017	EA	Qualitative	15M Aged 18-54	The lived experiences of the England visually impaired (VI) cricket team and their experiences of playing VI cricket	Interviews, observation and soundscape elicitation	Thematic analysis
28	Richardson et al., 2017	A and EA	Qualitative	14M/2F Aged 18-40	The impact of sport on psychosocial health in developing countries.	Interviews	Thematic analysis
29	Sayed Ahmed et al., 2018	C/A	Qualitative	19 (11 parents, 9 children) Children = 5M/6F Aged 6-14.	The perceived factors impacting participation in sports according to children with limb absence and their parents.	Interviews	Thematic analysis
30	Seth and Dhillon, 2019	A	Qualitative	8F Aged 18-21 (8 non-disabled)	The experiences of 2 groups of female athletes - those with and without disability - who participate in sport	Interviews	Thematic analysis
31	Silva, 2013	A and EA	Qualitative	20M/12F Age range 15-65 (5 staff)	The impact of sitting volleyball participation on the personal capabilities of athletes with impairments and the influence of personal, cultural and environmental contexts of participation on capabilities.	Interviews	Interpretative phenomenological analysis.
32	Stephens, Neil and Smith, 2012	A	Qualitative	6M/1F Aged 26-49	The perceived benefits of becoming involved in sport and identifies the barriers to participation for individuals with spinal cord injury.	Interviews	Inductive generalisation and frequency analysis
33	Stillson, 2007	A and EA	Qualitative	9M/2F Aged 20-54	Perceptions of wheelchair athletes concerning involvement and continuing participation in wheelchair sports.	Interviews and observations	Analysed for themes and concepts

Table 3 continued

34	Swartz, Bantjes and Bissett, 2018	A	Qualitative	1M/3F Aged 18-29	How do university students with visual impairment at a SA university experience their inclusion in ballroom dance with sighted students.	Interviews	Thematic analysis
35	Swartz et al. , 2018	A	Qualitative	16M/6F Aged over 18	How athletes with disabilities talk about their experiences of participating in competitive sport in South Africa.	Interviews	Thematic content analysis.
36	Weiss et al., 2017	C/A and A	Qualitative	1M/4F Aged 13-33	The experiences of participating in Special Olympics from the perspectives of athletes with ID.	Photo-elicitation and interviews	Thematic analysis
37	Wickman, 2015	C/A and A	Qualitative	5M/5F Aged 16-29	How young people with disabilities make sense of sport.	Interviews	Thematic content analysis
38	Wilhite and Shank, 2009	A	Qualitative	7M/5F Aged 29-58	How participating in sport helps persons with a disability achieve and maintain health and health-related components of wellbeing.	Interviews	Cross-case content analysis
39	Wilson and Khoo, 2013	EA	Mixed methods	95M/28F Aged 15-59	The benefits and barriers influencing participation for athletes with disabilities from a developing country.	Questionnaire and focus groups	Statistical analysis and coding of transcripts

Table 4: Quality scores and converted percentages for included studies.

No.	Author/Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Score	%
1	Arnold et al. 2017	3	2	2	1	3	2	2	2	x	x	0	3	0	0	2	2	24/42	57
2	Aujla, 2019	0	3	3	0	1	2	0	1	x	x	0	3	1	0	0	0	14/42	33
3	Aytur et al.2018	3	3	3	0	2	3	3	3	x	x	2	3	3	3	0	2	33/42	79
4	Bantjes, Swartz and Botha, 2018	2	3	3	0	3	1	0	2	x	x	3	3	3	2	0	2	27/42	64
5	Barfield and Malone 2013	0	2	2	0	2	2	1	1	1	3	1	2	0	0	0	1	18/48	38
6	Bates et al., 2019	2	1	2	0	1	2	0	1	x	x	3	3	0	3	0	1	19/42	45
7	Bowers et al. 2016	0	3	3	0	3	2	0	2	x	x	2	3	0	0	2	2	22/42	52
8	Brittain, 2002	3	3	3	1	3	3	3	3	x	x	2	3	3	0	0	2	32/42	76
9	Carin-Levy and Jones 2007	3	3	3	1	1	2	2	1	x	x	3	3	0	0	0	2	24/42	57
10	Carter et al. 2014	3	3	3	0	3	2	1	0	x	x	3	3	1	0	0	0	22/42	52
11	Cote-Leclerc et al. 2017	0	3	2	0	3	3	2	1	2	3	0	3	0	3	1	3	29/48	60
12	Dashper, 2010	3	2	2	0	1	1	0	0	x	x	0	2	0	0	0	1	12/42	29
13	Foster, Fitzgerald and Stride, 2019	0	3	3	1	2	1	0	2	x	x	0	3	0	0	0	0	15/42	36
14	Garci and Mandich, 2005	0	2	2	0	3	2	0	2	x	x	0	3	0	0	0	0	14/42	33
15	Goodwin et al., 2009	1	3	2	0	1	2	0	1	x	x	0	3	0	3	0	2	18/42	43
16	Grandisson, Tetreault and Freeman, 2011	2	3	2	0	3	2	1	3	x	x	0	2	1	3	2	3	27/42	64
17	Green, 2013	3	3	3	3	2	3	3	3	x	x	3	3	3	2	0	2	36/42	86
18	Haslett, Fitzpatrick and Breslin, 2017	3	3	2	0	1	2	0	1	x	x	3	3	1	2	2	2	25/42	60
19	Huang, 2005	3	2	3	3	3	3	3	2	x	x	2	3	3	0	0	0	30/42	71
20	Hudson et al. 2017	0	1	3	0	2	2	0	3	x	x	3	3	1	1	0	2	21/42	50
21	Jaarsma et al. 2014	3	3	3	0	3	2	2	1	1	3	x	3	0	x	0	2	26/42	62
22	Jeffress and Brown 2017	3	3	3	0	3	3	2	1	x	x	0	3	0	0	0	0	21/42	50
23	Kirbky, 1995	0	1	1	0	2	2	0	3	0	2	x	2	0	x	0	1	14/42	33
24	Kristen, Patriksson and Fridlund, 2002	3	3	2	0	3	3	2	2	x	x	0	3	2	1	0	3	27/42	64
25	Litchke et al., 2012	3	3	3	0	2	2	1	1	x	x	3	3	2	1	2	1	27/42	64
26	Macbeth 2009	2	1	2	1	1	1	0	1	x	x	0	3	0	0	0	0	12/42	29

Table 4 continued

27	Powis, 2017	3	3	3	0	3	3	3	1	x	x	2	3	3	0	0	1	28/42	67
28	Richardson et al., 2017	3	3	3	0	3	2	3	2	x	x	0	3	3	0	0	2	27/42	64
29	Sayed Ahmed et al. 2018	2	3	3	2	2	2	0	2	x	x	3	3	0	1	0	2	25/42	60
30	Seth and Dhillon, 2019	3	3	3	0	3	2	3	1	x	x	3	3	2	0	0	1	27/42	64
31	Silva, 2013	3	3	3	0	3	3	3	2	x	x	3	3	2	0	0	3	31/42	74
32	Stephens, Neil and Smith 2012	0	3	3	0	3	2	0	1	x	x	0	3	0	3	2	2	22/42	52
33	Stillson, 2007	0	3	3	0	3	3	2	2	x	x	2	3	0	0	0	2	23/42	55
34	Swartz, Bantjes and Bisset, 2018	3	2	3	0	1	1	0	0	x	x	3	3	0	3	0	0	19/42	45
35	Swartz et al. 2018	0	2	3	0	3	3	1	1	x	x	3	3	1	2	0	2	24/42	57
36	Weiss et al. 2017	0	3	3	0	1	2	3	3	x	x	0	3	2	3	0	3	26/42	62
37	Wickman, 2015	1	3	1	1	2	2	1	2	x	x	0	2	0	1	0	1	16/42	38
38	Wilhite and Shank, 2009	3	2	1	0	3	2	1	1	x	x	2	3	1	3	0	0	22/42	52
39	Wilson and Khoo 2013	0	3	3	0	3	2	0	1	0	0	0	1	0	0	1	0	14/48	29

Table 5: GRADE-CERQual summary of findings table.

Summary of review finding	Studies contributing to the review finding	CERQual assessment of confidence in the evidence	Explanation of CERQual assessment
Sport gave children and adolescents with a disability with the opportunity to make friends and socialise with others.	2, 3, 6, 10, 16, 22, 24, 25, 29, 36	High confidence	4 studies with minor methodological limitations and 5 studies with relatively superficial data. But finding is supported by large quantity of studies and there are no or very minor concerns about coherence and relevance.
Sport provided children and adolescents with a disability with the opportunity to experience pride in their achievements and abilities.	3, 6, 10, 16, 22, 25, 36, 37	High confidence	3 studies with minor methodological limitations and 4 studies with relatively superficial data. But finding is supported by large quantity of studies and there are no or very minor concerns about coherence and relevance.
Sport was inherently enjoyable and fun for children and adolescents with a disability.	1, 10, 16, 22, 24, 36	High confidence	4 studies with minor methodological limitations and 2 studies with relatively superficial data. But finding is supported by large quantity of studies and there are no or very minor concerns about coherence and relevance.
The main health benefits of sport perceived by children and adolescents with a disability included increased fitness, functionality and confidence.	10, 16, 24, 22, 25, 29, 37	Moderate confidence.	4 studies with minor methodological limitations and all 7 studies had superficial data. But finding is descriptive and supported by high quantity of studies.
Sport provided adults with a disability with a sense of freedom and facilitated self-acceptance.	4, 9, 15, 28, 32, 33, 35, 38	High confidence.	3 studies with minor methodological limitations and 1 with relatively superficial data. But finding is supported by a high quantity of studies and there are no or very minor concerns about coherence and relevance.
Sport provided adults with a disability with the opportunity to challenge stereotypes and social expectations.	4, 9, 11, 15, 25, 28, 30, 31, 32, 33, 34, 35, 38	High confidence.	5 studies with minor methodological limitations 2 with relatively superficial data. But finding is supported by high quantity of studies and there are no or very minor concerns about coherence and relevance.
Sport enabled a sense of belonging for adults with a	5, 6, 7, 9, 11,	High	8 studies with minor methodological limitations and 3 with

Table 5 continued.

disability, who enjoyed being part of a team.	15, 20, 23, 25, 28, 30, 31, 33, 35, 36, 37, 38	confidence.	relatively superficial data. But finding is supported by a larger quantity of studies and there are no or minor concerns about coherence and relevance.
Sport provided adults with a disability with a sense of purpose and enabled positive transformation of their attitude, personality and skill.	4, 6, 7, 9, 20, 25, 30, 31, 32, 33, 35, 36, 37, 38	High confidence.	5 studies with minor methodological limitations and 3 with relatively superficial data. But finding is supported by a larger quantity of studies and there are no or minor concerns about coherence and relevance.
The main health benefits of sport perceived by adults with a disability were increased fitness, functionality, strength and self-confidence.	5, 6, 7, 9, 11, 15, 20, 23, 25, 28, 30, 31, 32, 33, 37, 38	Moderate confidence.	8 studies with minor methodological limitations and 4 with relatively superficial data. But finding is supported by a larger quantity of studies and there are no or minor concerns about coherence and relevance.
Elite athletes with a disability had unique experiences with classification and funding.	1, 8, 12, 13, 18, 19, 27, 31, 39	High confidence	Although 6 studies had minor methodological limitations and 2 had moderate limitations, there were no or very minor concerns about coherence, adequacy, and relevance.
Elite athletes with a disability demonstrated pure passion and dedication to their sport.	12, 13, 14, 18, 19, 27, 28, 31, 33, 39	Moderate confidence	7 studies had minor methodological limitations and 2 had moderate limitations. There were 4 studies with relatively superficial data, however there were no or very minor concerns about coherence and relevance.
Elite athletes with a disability received varying support from their coaches, teammates and national governing bodies, with both positive and negative experiences noted.	1, 8, 13, 14, 18, 19, 27, 31, 33, 39	High confidence	8 studies had minor methodological limitations and 1 had moderate limitations, however there were no concerns about coherence, adequacy or relevance.
Elite athletes with a disability felt that there needs to be more awareness and appreciation for their abilities from the media and public.	8, 12, 13, 14, 18, 19, 27, 31, 33, 39	High confidence	7 studies had minor methodological limitations and 2 had moderate limitations, however there were no or very minor concerns about coherence, adequacy or relevance.
The main health benefits of sport perceived by elite athletes with a disability were improved self-confidence and self-esteem.	12, 18, 19, 27, 28, 31, 33	Moderate confidence	5 studies had minor methodological limitations and 1 had moderate limitations. All studies had relatively superficial data. However there were no or very minor concerns about coherence or relevance.
Sport provided veterans with a disability with a competitive outlet, sense of purpose and normalcy, and facilitated self-acceptance and rehabilitation	17	Low confidence	Although there were no concerns about the coherence and relevance of the finding, it was only supported by one study.

Table 5 continued

following traumatic injury.			
The health benefits perceived by veterans with a disability included improved self-esteem, self-confidence, independence, weight and pain management, increased functionality, improved mental health and stress release.	17	Low confidence	Although there were no concerns about the coherence and relevance of the finding, it was only supported by one study.

Table 6: Classes of evidence table.

Study	Class	Bias risk	Explanation of class
Barfield and Malone, 2013 (5)	IV	High risk	Study is cross sectional, did not include a comparison group and the survey response rate was not provided.
Jaarsma et al., 2014 (21)	IV	High risk	Although study had a representative sample, it was cross-sectional, did not include a comparison group and had less than 80% survey response rate.
Kirkby, 1995 (23)	III	Moderately high risk	Study had a representative sample and had a response rate of more than 80%.
Wilson and Khoo, 2013 (39)	IV	High risk	Although study had a representative sample, it was cross sectional and did not report a response rate.

2.3.4 Findings

Figures 2, 3 and 4 display the themes and sub-themes generated for the children and adolescent, adult and elite athlete population, answering the first objective of the review. With regards to the second objective, the perceived health benefits and the frequency counts for each of the four populations are displayed in Table 7. Not every study explored health benefits and in those which did, not all participants reported health benefits. Therefore the frequency counts are low and the analysis was limited.

Table 7: Perceived health benefits of participating in sport either directly reported or referred to by participants in the included studies for the four populations.

Children and Adolescents				**Adults**			
Physical	**#**	**Mental**	**#**	**Physical**	**#**	**Mental**	**#**
↑ strength	2	↑ independence	2	↑ functionality	6	↑ self-confidence	6
↑ muscle mass	1	↑ self-efficacy	1	↑ strength	6	↑self-esteem	5
↑ fitness	3	↑ confidence	3	↑ fitness	9	↑self-efficacy	1
↑ functionality	3	↑ self-esteem	1	↓ infection/illness	2	Stress release	4
↓ infection/illness	1			↑ sleep quality	3	↑ mental health	5
Pain management	1			Disability	4	↑ independence	5
Weight management	1			management			
↑ sleep quality				↑ muscle mass	1		
	1			Weight management	4		
Elite athletes				**Veterans**			
Physical	**#**	**Mental**	**#**	**Physical**	**#**	**Mental**	**#**
↑ fitness	2	↑ self-confidence	3	Weight management	1	↑ self-esteem	1
↑ strength	2	↑ independence	2	↑ functionality	1	↑ self-confidence	1
Weight management	1	↑ mental health	1	Pain management	1	↑ mental health	1
		↑ self-esteem	3			↑ independence	1
						Stress release	1

2.3.4.1 Children and Adolescents

Eleven studies were synthesised under the category of children and adolescents. Three themes and 4 sub-themes were generated. The themes were: (a) socialisation, (b) pride and (c) enjoyment and happiness.

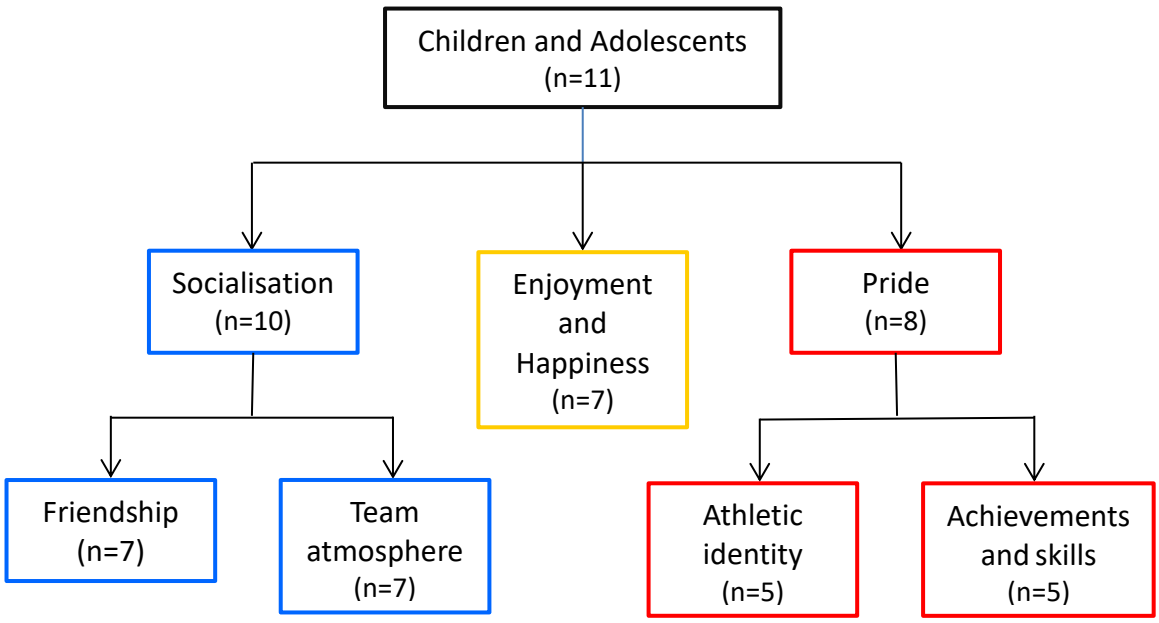

Figure 2: Themes and sub-themes generated for the children and adolescent population. The number in brackets is the number of studies which supported each theme and sub-theme.

Socialisation theme

Socialisation refers to interacting with similar others, making new friends, being part of a team and feeling a sense of belonging when involved in sport, demonstrating the social benefits that come with sport participation. Two sub-themes were identified: (a) friendship and (b) team atmosphere.

Friendship sub-theme

The importance of friendship was something that was expressed by the children and adolescents, including being able to socialise with other children and make friends. Friendship formed a big part of their overall experience of sport participation and was mentioned in seven of the eleven studies (Aujla, 2019; Aytur et al., 2018; Carter et al., 2014; Grandisson, Tetreault and Freeman, 2011; Kristén, Patriksson and Fridlund, 2002; Sayed Ahmed et al., 2017; Weiss et al., 2017).

'making friends' — (Carter et al., 2014*)*

'it's great fun both to meet friends and to play' — (Kristén, Patriksson and Fridlund, 2002)

'*I have made a lot of friends through NEP or the USA team that I play for… we are all close and tight knit, and we all communicate with each other, we hang out and bond*' — (Aytur et al., 2018).

There were also some negative experiences with peers:

'They tell me oh you can't do that you can't do it you have one arm you're weak and that kind of stuff and I let that get to me when I really shouldn't. So it holds me back' — (Sayed Ahmed et al., 2017).

Team atmosphere sub-theme

Participants expressed how they loved being part of a team and enjoyed the atmosphere that came with it. This again highlights how important it was for the children and adolescents to spend time with others, and suggests that sport participation facilitates a sense of belonging and inclusion. This sub-theme was identified in seven studies (Aytur et al., 2018; Bates et al., 2019; Carter et al., 2014; Jeffress and Brown, 2017; Litchke et al., 2012; Sayed Ahmed et al., 2017; Weiss et al., 2017). The importance and meaning of being part of a team was demonstrated by photographs of teammates taken by the participants (Weiss et al., 2017) and through being comfortable to ask teammates for advice on managing disability and sporting equipment (Litchke et al., 2012). There were no negative comments made by participants about being part of a team.

'During WheelStarz training] I can be myself, no one is judging me on my ability … I fit in'— (Bates et al., 2019)

'Feeling a connection with everybody' — (Aytur et al., 2018)

'I think my teammates expect that I work my hardest – that I work as a team – and I expect that back from them' — (Aytur et al., 2018)

> *'A sport where people in power wheelchairs, who may have not had a chance to play a sport before, can play a competitive sport and be on a team for maybe the first time'* — (Jeffress and Brown, 2017)

Pride theme

Pride demonstrates how sport can elicit feelings of self-esteem, pride, accomplishment and achievement. These feelings were experienced through tangible achievements, such as trophies and medals, and through improving skills and techniques. It refers to the pride participants expressed in being an athlete and having an athletic identity. Within this theme, two sub-themes were identified: (a) athletic identity and (b) achievements and skills.

Athletic identity sub-theme

Participants expressed pride in having an athletic identity, enabling them to feel a sense of normality and been seen as an athlete rather than someone with a disability. They expressed pride in participating in athlete-based activities, such as attending competitions, and having their own sporting equipment. This pride associated with an athletic identity was identified in five studies (Aytur et al., 2018; Grandisson, Tetreault and Freeman, 2011; Jeffress and Brown, 2017; Litchke et al., 2012; Weiss et al., 2017).

> *'I get to tell all of the people I meet that I play and how well I do, so I'm kinda like a normal athlete'* — (Jeffress and Brown, 2017)

> *'Every time we get ready for a game, we get dressed up together and look nice together. The NHL and regular hockey players get dressed up together too. I personally feel better about that because I feel like a real hockey player'* — (Aytur et al., 2018)

> *'Once I started getting good, playing more competitively, and started falling in love with the sport, my parents got me a sled for a holiday gift so I wouldn't have to keep using the team's sled. So I just got more stuff of my own so I could practice anywhere'* — (Aytur et al., 2018)

Achievements and skills sub-theme

Participants were very proud of and keen to show off the skills they had developed through sport and also their tangible achievements, such as trophies and medals. This sense of pride in achievements and skills was identified in five of the eleven studies (Aytur et al., 2018; Bates et al., 2019; Carter et al., 2014; Grandisson, Tetreault and Freeman, 2011; Wickman, 2015) and is supported by the following quotations:

> *'I've won 8 medals!*' — (Grandisson, Tetreault and Freeman, 2011),
>
> *'I like showing off my turns'* — (Carter et al., 2014)
>
> *'I'm good at going fast and doing zippy turns and throwing the ball, I didn't know I could go faster than [able-bodied friend] before I came to Cheetahs'* — (Carter et al., 2014).

Enjoyment and happiness theme

The final theme was that of the pure enjoyment and satisfaction experienced when participating in sport. Sport was inherently fun and the individuals experienced considerable happiness and joy when playing, represented in seven out of the eleven studies (Aujla, 2019; Carter et al., 2014; Grandisson, Tetreault and Freeman, 2011; Jeffress and Brown, 2017; Kristén, Patriksson and Fridlund, 2002; Sayed Ahmed et al., 2017; Weiss et al, 2017).

> *'I feel happy. I feel excited here actually and I like dancing here, it's really good … it's amazing'* — (Aujla, 2019)
>
> *'happy', 'excited', 'joyful'* — (Carter et al., 2014)
>
> *'feeling the cheers when you score a goal is just great'*— (Jeffress and Brown, 2017)
>
> *'it's the sport as such, shooting and so on that is great fun'* — (Kristén, Patriksson and Fridlund, 2002)
>
> *'I like everything [about track and field]!'* — (Grandisson, Tetreault and Freeman, 2011).

Health benefits:

The most frequently cited physical and mental health benefits by children and adolescents were increased fitness, functionality and confidence through sport participation. The quotations below are examples of how these three benefits were reported:

'I feel fitter' — (Carter et al., 2014)

'My hand has become more flexible . . . I don't know but I hope, my hand . . . you use your hands more, I mean, you swing too and gain strength . . . a bit jittery, so the hands, you're using them all the time, waving them' — (Kristén, Patriksson and Fridlund, 2002)

'I feel a bit more mature than three years ago. I've become a bit more self-confident, how I want my life to be' — (Kristén, Patriksson and Fridlund, 2002)

2.3.4.2 Adults

Within the category of adults, 22 studies were synthesised. Four themes and eight sub-themes were generated. The four themes were: (a) liberation, (b) inclusion, (c) breaking barriers and (d) life-changing.

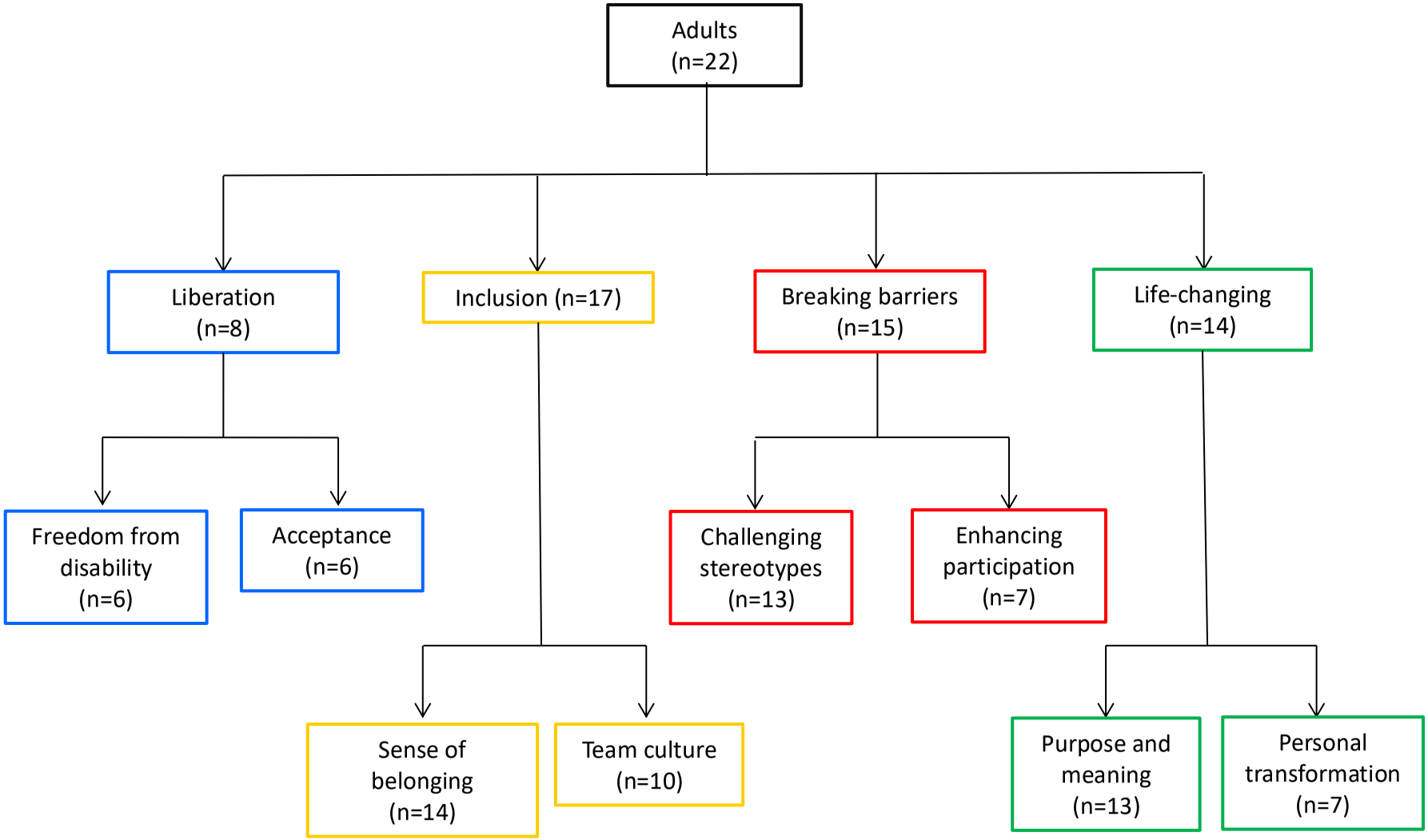

Figure 3: Themes and sub-themes generated for the adult population. The number in brackets is the number of studies which supported each theme and sub-theme.

Liberation theme

Liberation refers feeling a sense of freedom and escapism when participating in sport, forgetting about disability and focusing on the sport. This theme also refers to how sport provides a means to help individuals accept their disability, become accustomed to the perceived limitations that come with it and feel proud of who they are. Within this theme, two sub-themes were generated: (a) freedom from disability and (b) acceptance.

Freedom from disability sub-theme

Feeling free from disability, forgetting one's impairment and a experiencing a sense of escapism were evidenced across a wide range of sports including scuba diving, wheelchair rugby, dancing, cycling and rowing. This sub-theme was mentioned in six of the studies as a result of participating in sport (Bantjes, Swartz and Botha, 2018; Carin-Levy and Jones, 2007; Stephens, Neil and Smith, 2012; Stillson, 2007; Swartz et al., 2018; Wilhite and Shank, 2009).

> *'Once you're down there, you don't have to walk so you've got all the freedom. Diving turns me back into a human being, I go down there and I've got the freedom and I'm back to being a person'* — (Carin-Levy and Jones, 2007)
>
> *'When I'm playing sport I can forget about everything and focus on that [sport]'* — (Stephens, Neil and Smith, 2012)
>
> *'I forget the disability.'* — (Bantjes, Swartz and Botha, 2018)
>
> *'I really love the fact that I can get out.. .the fact that I'm in a wheelchair and the fact that I'm paralyzed.. .that I am able to jump into this little thing, this racing chair, out of my garage and go into the road and just go out and push.. .it's a freedom that I don't find in anything else in my life.'* — *(*Stillson, 2007)
>
> *'As a blind person, biking is very freeing. I feel very free, like, look at me, I'm on a bike'* — (Wilhite and Shank, 2009)

Acceptance sub-theme

Sports participation also enabled acceptance of disability and managing the perceived limitations that come with it. Participants felt proud of who they were and embraced their disability, feeling confident and comfortable in themselves. Comments suggested participants felt at peace with their disability and that sport helped them adapt and become accustomed to their new identity. This was also identified in six of the studies (Bantjes, Swartz and Botha, 2018; Carin-Levy and Jones, 2007; Goodwin et al., 2009; Richardson et al., 2017; Swartz et al., 2018; Wilhite and Shank, 2009).

> *'I am proud of myself now, you know. I cannot change. I do not–even if there was a way to change, you know, my way, the way I am, you know, I wouldn't change'* — (Bantjes, Swartz and Botha, 2018)
>
> *'You don't have to hide it. You can just embrace it for what it is. The fact that I accepted that I that–my disability–made that I'm no longer shy. All those things went away when I accepted it and it's so much better'* — (Bantjes, Swartz and Botha, 2018)
>
> *'There is no personal embarrassment about (my) body shape [when diving]…I was totally comfortable…something I never dreamt of'* — (Carin-Levy and Jones, 2007)
>
> *'You just gotta work, learn to deal with life, with what you've been given. Skills are limited and you've gotta figure a way around that'* — (Goodwin et al., 2009)
>
> *'For a person who has become newly disabled, participating in sports I think helps them become accustomed to their condition of being disabled and also helps them to be more than just integrated in society better; sports has that effect'* — (Richardson et al., 2017)
>
> *'It wasn't, 'Who did this to me?' It just happened and I'm fine about it. … We (you and I) are not different'* — (Swartz et al., 2018)

Inclusion theme

Inclusion refers to the sense of belonging, comfort and equality experienced when participating in sport and the formation of friendships through being with experientially similar others. It also includes the sense of community and connection created through

being part of a team, and the camaraderie between teammates. Two sub-themes were generated: (a) Sense of belonging and (b) Team culture.

Sense of belonging sub-theme

An important aspect of the sport experience was the sense of belonging and connection that the participants felt through being involved in sport. They referred to not feeling *'out of place or different'* (Bates et al., 2019, pg. 5), fitting in through being with similar others and feeling like themselves when playing sport. This sense of belonging was mentioned in 14 of the 21 studies (Barfield and Malone, 2013; Bates et al., 2019; Bowers et al., 2016; Carin-Levy and Jones, 2007; Côté -Leclerc et al., 2017; Goodwin et al., 2009; Hudson et al., 2018; Kirkby, 1995; Seth and Dhillon, 2019; Silva, 2013; Stillson, 2007; Swartz et al., 2018; Weiss et al., 2016; Wickman, 2015).

> *'I feel like myself when I play wheelchair basketball because there are lots of different people with different abilities on the team, so I don't feel out of place or different'* — (Bates et al., 2019)
>
> *'I was glad I joined Special Olympics 'cause I was out of my comfort zone and then I got in my comfort zone with Special Olympics'* — (Bowers et al., 2016)
>
> *'You're closer to other people you dive with, you are in the same environment and you don't look physically different it's a big thing, you're out of your wheelchair you are the same as everybody else'* (Carin-Levy and Jones, 2007)
>
> *'In every day life you're kind of isolated 'cause you're in a chair. Coming together at tournaments and being amongst other people in chairs and seeing their abilities and disabilities, it makes you feel at ease.'* — (Goodwin et al., 2009)
>
> *'I can't wait to take my legs off and get on court. It's brilliant. I feel more natural with my legs off'* — (Silva, 2013)
>
> *'You can meet with others, communicate with other people so that you can find yourself being together with other people … Here we meet people who are also blind.'* — (Swartz et al., 2018)

Team culture sub-theme

The second sub-theme refers to being part of a team and feeling a strong team bond with teammates, likened to a family. Quotations focused on particular aspects associated with being part of a team including a sense of community, dedication to the team, camaraderie and support from teammates. A 'team culture' was identified in 10 of the studies (Carin-Levy and Jones 2007; Côté -Leclerc et al., 2017; Goodwin et al., 2009; Hudson et al., 2018; Litchke et al., 2012; Richardson et al., 2017; Silva, 2013; Stillson, 2007; Weiss et al., 2016; Wilhite and Shank, 2009).

> *'[My team] is like my family'* — (Côté -Leclerc et al., 2017)
>
> *'I would say it's just a bunch of people that all go through the same thing. We're all on the same page. It's just like a community, yeah, a community'* — (Goodwin et al., 2009)
>
> *'I don't want to let my team down. … We all have common ground, we work as a team, we have strong friendships … you don't feel alone when you're playing wheelchair basketball.'* — (Bates et al., 2019)
>
> *'In the last three years playing rugby, I have had more camaraderie, friendships. I am more confident in social settings because of my teammates. I am more confident even in situations that have nothing to do with rugby'* — (Litchke et al., 2012)
>
> *'By being disabled athletes, we're all a part of a team. We're supportive of one another, regardless of disability. We are able to assist others.'* — (Wilhite and Shank, 2009)
>
> *'It's part of me. It's part of what I owe – I owe it to the coaches and team – no skiving off. I owe it to them to be there to help in tournaments'* — (Hudson et al., 2018)

Breaking barriers theme

Breaking barriers refers to challenging the expectations of others regarding disability sport and resisting society-imposed limitations, proving others wrong through demonstrating abilities. It also refers to ways in which participation may be enhanced through reducing the

barriers to sport participation. Within this theme there were two sub-themes: (a) challenging stereotypes and (b) enhancing participation.

Challenging stereotypes sub-theme

Sport allowed individuals to challenge the stereotypical restraints and expectations placed on those with a disability. The use of sport to break stereotypes and social constructions of disability was very evident, with this sub-theme being identified in 13 of the 21 studies (Bantjes, Swartz and Botha, 2018; Carin-Levy and Jones, 2007; Côté -Leclerc et al., 2017; Goodwin et al., 2009; Litchke et al., 2012; Richardson et al., 2017; Seth and Dhillon, 2019; Silva, 2013; Stephens, Neil and Smith, 2012; Stillson, 2007; Swartz, Bantjes and Bissett, 2018; Swartz et al., 2018; Wilhite and Shank, 2009). This sub-theme also involved the concept of breaking one's self-imposed restrictions.

> *'[I participate in sport] to show them I'm not only a disabled person. I'm not only a disabled person who can just sit in the house … doing nothing. I'm a disabled person who can do something'* — (Bantjes, Swartz and Botha, 2018)
>
> *'So I just say … 'I can do it!'. I can prove to the abled people that disabled people can do it and they have the potential to do it.'* — (Swartz et al., 2018)
>
> *'You have two profiles: you have people in wheelchairs and you have athletes in wheelchairs. As soon as you get active in a sport, people look at you differently'* — (Côté -Leclerc et al., 2017)
>
> *'I suppose it helps when people asked me what do you do for a living type of thing and I can say "I sail and do wheelchair basketball", which is always good and quite nice to be able to say that rather than "I just sit at home and watch telly" or "I do nothing'* — (Stephens, Neil and Smith, 2012)
>
> *It's all on me. I just have to get out there. I think the more involved I get in all of these different things rugby, school I just realize so much of my life depends on how badly I want it. That's it. No one else is going to stop me except for me.* — (Wilhite and Shank, 2009)

Conversely, certain sports such as dance had expectations about what the dancers should look like, and participants expressed a desire to not be seen as disabled in order to look 'pretty', rather than to be seen as an athlete:

> *'… other people are able to see what that person does [when they dance]. And they can see, 'Oh! That looks prettier if you do your knee like that, or you do your foot like that, or you move your arm like that'. I do what people show me, and it might not always look as pretty as other people'* — (Swartz, Bantjes and Bissett, 2018)

Enhancing participation sub-theme

There were comments made around the barriers and facilitators experienced regarding sport participation, either limiting or promoting participants' involvement in sport. These comments could be taken into consideration to help improve the participation experiences of individuals with a disability in sport. This theme was mentioned in seven of the included studies (Bates et al., 2017; Bowers et al., 2016; Côté -Leclerc et al., 2017; Seth and Dhillon, 2019; Stephens, Neil and Smith, 2012; Stillson, 2007; Wilhite and Shank, 2009). Positive comments were made around the accessibility of sports centres and facilities, suggesting this is a facilitator, however adapted specialist equipment is expensive, acting as a barrier. Another barrier was being dependent on others for participation, such as volunteers and guide runners, and requiring transport to get to training. Finally, disability itself was a barrier to sport participation due to the increased time it takes to complete tasks, reducing the time available for sport.

> *'[The training venue is] good because it's accessible – there are no stairs, and all the resources, wheelchairs, balls, etc. we need are easily accessed'* — (Bates et al., 2019)

> *'Transport can make it difficult to participate. … I usually only go to training on a Saturday [because] it's on the way for the other players … [to] pick me up easily … whereas I have to find my own way to [school gymnasium] and that's harder'* — (Bates et al., 2019)

'Equipment is a massive barrier. It's just not as expensive in able-bodied sport. £2000 for a bike, it's a lot of money and it's always going to be a same because it is a small market.' — (Stephens, Neil and Smith, 2012)

'I've got a whole list of stuff I need to do but I would love to go out and do sport. Things take longer with the wheelchair, so that affects the amount of time I have available.' — (Stephens, Neil and Smith, 2012)

'Without volunteers, pretty much the sports program wouldn't run.'— (Wilhite and Shank, 2009)

'To be successful I depend on others and if I can't create that support system of guide runners, I'm nothing.' — (Wilhite and Shank, 2009)

Life-changing theme

Life-changing refers to the integral role of sport in providing a sense of purpose and meaning, providing structure and a focus, and eliciting feelings of elation, realness, passion and gratitude. It also denotes how sport can transform an individual's outlook, personality and abilities, contributing to self-development and acting as an overall positive influence on quality of life. There were two sub-themes: (a) purpose and meaning and (b) personal transformation.

Purpose and meaning sub-theme

Sport provided a sense of purpose and meaning to participants' lives, through providing something to do, a goal or a passion. Individuals were grateful to sport and spoke of sport providing a *'greater purpose'* and *'finding meaning'* through sport (Bantjes, Swartz and Botha, 2019, p. 826). Thirteen studies referred to sport providing purpose and meaning (Bantjes, Swartz and Botha, 2018; Bates et al., 2019; Bowers et al., 2016; Carin-Levy and Jones, 2007; Hudson et al., 2018; Litchke et al., 2012; Silva, 2013; Seth and Dhillon, 2019; Stephens, Neil and Smith, 2012; Stillson, 2007; Swartz et al., 2018; Weiss et al., 2016).

'Rugby is our life!' — (Litchke et al., 2012)

'So sport is a really wonderful thing and it can take you somewhere that you never thought that you'd be in your life.' — (Swartz et al., 2018)

'You know like the only time that life makes sense to me is when I play soccer. It's a great feeling. I feel alive. There's no other feeling that's better than me when I play soccer. I just love it. I feel like I'm on top of the world.' — (Swartz et al., 2018)

'I feel more real on the court than anywhere else. Wheelchair basketball is a place that provides a chance to showcase your skills and what you can do.' — (Bates et al., 2019)

'I think it's my thing to do' — (Hudson et al., 2018)

Personal transformation sub-theme

Sports participation also enabled study participants to transform themselves for the better, including their outlook on life, personality and skills. This was identified in seven of the studies (Bantjes, Swartz and Botha, 2018; Bates et al., 2019; Hudson et al., 2018; Silva, 2013; Swartz et al., 2018; Wickman, 2015; Wilhite and Shank, 2009).

'It [disability sport] made me very positive towards life.' — (Bantjes, Swartz and Botha, 2018)

'I'm a totally different person when I play football than I am in here [on the wards]' — (Hudson et al., 2018)

'I've realized I'm not as much of an idiot as I used to think I was. I've learned that I can lead people on and off the court, either as a captain or possibly as a coach. I've learned that when people see me working hard, they get a degree of respect for me, even if they don't necessarily follow my kind of influence' — (Silva, 2013)

'It gave me a different outlook on life…that I shouldn't hold back, that I should take on all challenges.' — (Swartz et al., 2018)

Health benefits:

The most frequently cited physical and mental health benefits were increased fitness, increased functionality, increased strength and improved self-confidence through

participation in sport. The quotations below provide examples of how these benefits were reported by participants in the studies:

> *'I have confidence in my own ability, it was a massive overcome for me, it's helped me grow in confidence it's given me a feeling of independence and you know, competence I never thought I would be able to do that kind of thing in a wheelchair'* — (Carin-Levy and Jones, 2007)

> *'I'm really strong and fit now ... I can do everything myself. I don't need anyone. I can sit in this chair, get in my bed and go to my university ... I don't need my mum to take me. I can do everything now'* — (Richardson et al., 2017)

> *'We are stronger physically, transfers are easier'* — (Côté -Leclerc et al., 2017)

> *'It takes me more energy to walk than an able-bodied person. Sports helped me to build up stamina'* — (Wilhite and Shank, 2009)

2.3.4.3 Elite Athletes

Thirteen studies included participants who were elite athletes. Four themes and nine sub-themes were generated. The themes were: (a) para-sport, (b) athlete lifestyle, (c) performance support and (c) recognition.

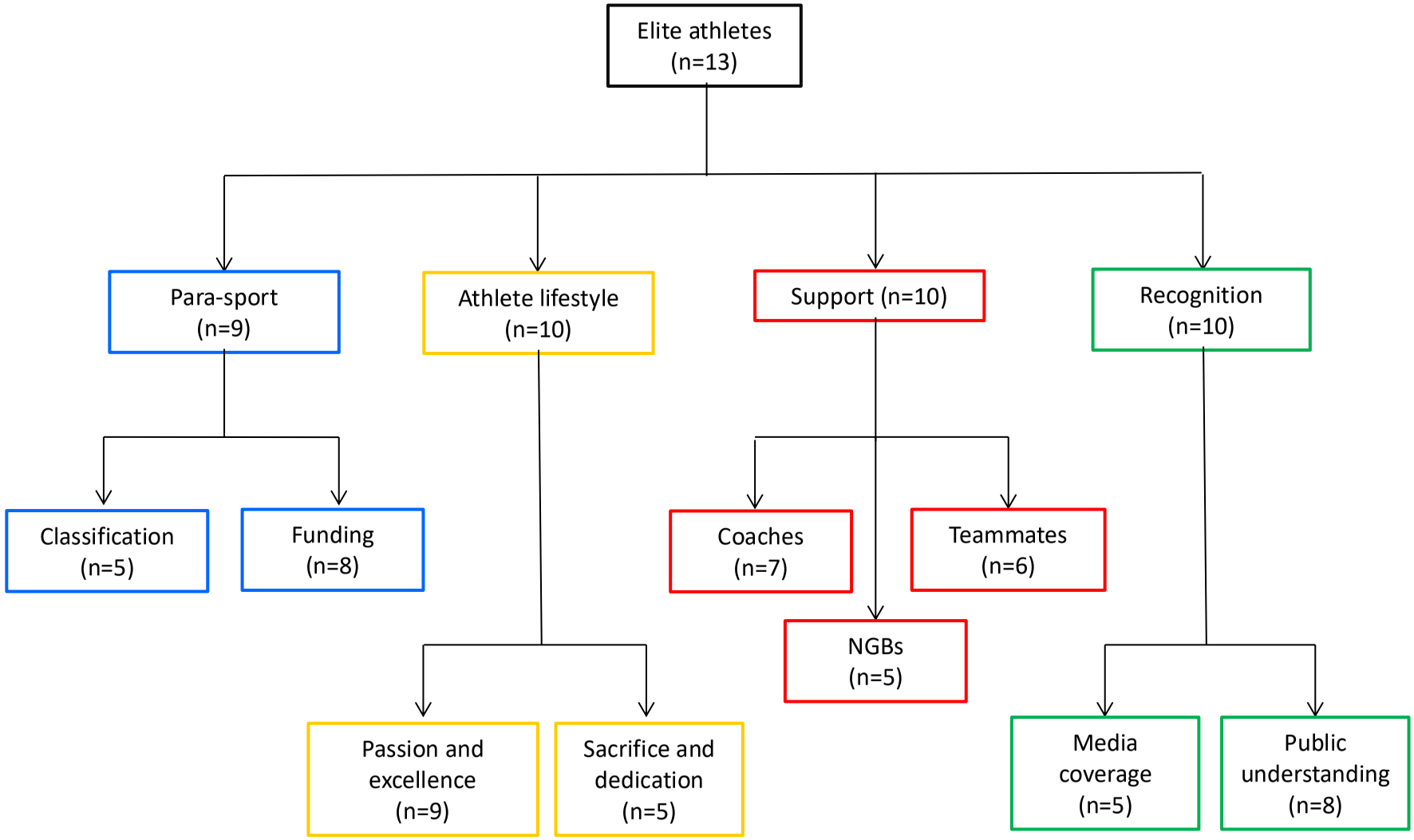

Figure 4: Themes and sub-themes generated for the elite athlete population. The number in brackets is the number of studies which supported each theme and sub-theme.

Para-sport theme

The theme 'para-sport' refers to the unique aspects of elite sport for individuals with a disability, namely classification and funding, which are more relevant to elite athletes rather than those participating recreationally or at the sub-elite level. Within this theme, two sub-themes were generated: (a) classification and (b) funding.

Classification sub-theme

Classification is a unique and relatively controversial aspect to sport for athletes with a disability, with different issues raised by those with different disabilities and in different sports. The issue of exaggerating the extent of disability was mentioned in visually impaired cricket and the involvement of 'minimally disabled' players was highlighted in sitting volleyball. Five studies spoke of classification within sport (Arnold et al., 2017; Dashper, 2010; Haslett, Fitzpatrick and Breslin, 2017; Powis, 2017; Silva, 2013).

> *'The classification system changed in Athletics post [name of Olympic host venue] so I wasn't eligible to compete in anything other than 400m'* — (Arnold et al., 2017)
>
> *'Why would anybody pretend that they couldn't see to play blind cricket?'* — (Powis, 2017)
>
> *'They are always having a moan either about players in different teams or players within our team or you hear it from different teams about our own players.[…] They know they've been through the same process, we all had to give in sight classification forms, we all had an ophthalmologist doing it, I don't know why it is an issue'* — (Powis, 2017)
>
> *'I was questioning myself: "Oh, should I be playing this game?" Because I don't classify myself as disabled. So, that was quite a challenge. When I put myself against some of the guys in the team, I am certainly not disabled. There´s almost an element of cheating, to some degree...'* — (Silva, 2013)
>
> *'Some people will not try to get bits of their bodies better, just in case suddenly they cannot take part in the Paralympics'* — (Silva, 2013)

Funding sub-theme

The financial support received by participants was provided in the form of funding and sponsors. Funding was generally seen as a positive influence on the participants' wellbeing and performance, however there were some negative experiences, such as additional pressure and difficulties obtaining sponsorship due to a lack of awareness of para-sport. This sub-theme was identified in eight studies (Arnold et al., 2017; Brittain, 2002; Daspher, 2010; Foster, Fitzgerald and Stride, 2019; Haslett, Fitzpatrick and Breslin, 2017; Huang 2005; Powis, 2017; Wilson and Khoo, 2013).

Positives:

> *'The funding provides you the opportunity to not work and focus on your sport' —* (Arnold et al., 2017)
>
> *'The lottery funding has been unbelievable […] It's opened all these new doors, which I think are all part and parcel of being an elite sportsperson and I think you need those to develop yourself.' —* (Brittain, 2002)
>
> *'The majority of my sponsorship has just been offered to me, which is cool' — (male participant)* (Dashper, 2010)
>
> *'It means obviously we are recognised for what we do and what we achieve because there are standards to meet to receive the lottery funding' —* (Huang, 2005)

Negatives:

> *'The pressure of thinking you've got to perform all the time, which isn't good for you as an athlete. You need to relax and run.' —* (Brittain, 2002)
>
> *'I'm always sending letters, sponsorship is the most difficult thing to find' — (female participant)* (Dashper, 2010)
>
> *'I sent numerous emails to try and get sponsorship but it feels like the Deaflympics is invisible' —* (Foster, Fitzgerald and Stride, 2019)
>
> *'Don't get me wrong. I do get funding, but not enough to live on. It covers the cost of training. It gives me freedom that way, but not enough to live on' —* (Huang, 2005)

Athlete lifestyle theme

This theme refers to the qualities and attitudes required from the individuals in order to be successful, including passion for their sport, their desire for excellence and the sacrifices and dedication required to achieve their goals. Within this theme there were two sub-themes: (a) passion and excellence and (b) sacrifice and dedication.

Passion and excellence sub-theme

This sub-theme demonstrates the pure passion, love and enjoyment the individuals had for their sport, as well as striving for excellence and aiming to be the best athlete possible. This concept of passion and excellence was identified in nine studies (Dashper, 2010; Foster, Fitzgerald and Stride, 2019; Haslett, Fitzpatrick and Breslin, 2017; Garci and Mandich, 2005; Huang, 2005; Powis, 2017; Richardson et al., 2017; Silva, 2013; Stillson, 2007).

> *'Deaf sport is definitely in my blood'* — (Foster, Fitzgerald and Stride, 2019)
>
> *'Like a gift from God wheelchair tennis fell into my life'* — (Richardson et al., 2017)
>
> *'I remember I managed to slow down and rotate and I remember I hit that ball and we won that point, and I just went down to my knees to celebrate. I had never done it to celebrate. I would just go, yeeessss... But on that occasion, I literally got on to my knees, screamed the loudest that I could, YEESSSSSSSSSSSSSSSS!'* — (Silva, 2013)
>
> *'Priceless'*— (Stillson, 2007)
>
> *'It's really just the desire to excel'* — (Garci and Mandich, 2005)
>
> *'At the end of the day I am still representing my country and that puts more on a par with somebody like Alistair Cook. We are playing for England, we wear the same shirt, just because I have a disability it doesn't make me any different'* — (Powis, 2017)
>
> *'I don't know, I just love to play. I just love it.'* — (Silva, 2013)

Sacrifice and dedication sub-theme

Participants mentioned the sacrifices made and the dedication required in elite sport, such as sacrificing appearance and family time to train or compete. This was identified in five studies (Garci and Mandich, 2005; Huang, 2005; Powis, 2017; Silva, 2013; Wilson and Khoo, 2013).

> *'Our arms become very big. People think all we have is strength and they don't really see us as women. But this is the sacrifice we have to make'.* — (Huang, 2005)
>
> *'For those eight years you have, you put up blinders because your always, your nose to the grind, train, train, train, and you have the blinders up, you don't want any distractions, see any distractions, you don't want to be around any distractions'* — (Garci and Mandich, 2005)
>
> *'It's practice, practice, practice and you will become as good as someone else'* — (Powis, 2017)
>
> *'Sitting volleyball has made me quite narrow minded, with my family life. Not that I don't really care but … my family life came second. Volleyball has precedence over everything else'* — (Silva, 2013)
>
> *'How about the sacrifice we make before we go [for competition]? We train … Sometimes we don't trade [work], at the end of the month we don't have enough money.'* — (Wilson and Khoo, 2013)

Support theme

The theme 'support' refers to the three forms of performance support consistently mentioned in the included studies and how the support provided both helped and hindered the athletes' performance and wellbeing. In this third theme of 'support' there were 3 sub-themes: (a) coach, (b) teammates and (c) National Governing Bodies (NGBs).

Coaches sub-theme

This sub-theme referred to the coaches with whom the participants had contact, which mainly comprised negative comments suggesting that they lacked knowledge on para-sport and coaching athletes with a disability. However good coaches were respected and appreciated. Seven of the included studies mentioned support from coaches (Arnold et al., 2017; Brittain, 2002; Foster, Fitzgerald and Stride, 2019; Huang, 2005; Silva, 2013; Stillson, 2007; Wilson and Khoo, 2013).

Negatives:

> *'I had this coach when I was at [Name of city] who told me that I was useless and pathetic, and that I was a drama queen. That really knocked me down and had a massive impact on me'* — (Arnold et al., 2017)
>
> *'My coach has not got the skill, there's no books, there's no manuals, you have to go and find someone that's even got the faintest idea of what they're doing'* — (Brittain, 2002)
>
> *'They know nothing about disability. No awareness whatsoever'* — (Silva, 2013)
>
> *'all the coaches is [are] not full time. All the coaches is aaa … is once per week. So they cannot commit … commit to us. They … they only can provide assistance during a major competition. Most of the time we have to depend on our own [ourselves]'* — (Wilson and Khoo, 2013)

Positives:

> *'Our powerlifting team's great performance nationally and internationally is mainly due to our coach. He has devoted himself to coaching powerlifters here for II years and never gets paid as a full-time coach. He comes here to train us five days a week, even if there is only one player here'* — (Huang, 2005)

Teammates sub-theme

Teammates played a key role in an athlete's experience, providing a sense of camaraderie, support and sharing knowledge. This was identified in six studies (Arnold et al., 2017; Garci

and Mandich, 2005; Haslett, Fitzpatrick and Breslin, 2017; Powis, 2017; Silva, 2013; Stillson, 2007).

> *'You spend so much time together it's like your brothers. You eat with them, you sleep with them, you play basketball with them, everything you do together.' —* (Garci and Mandich, 2005)
>
> *'I think that really helped out the team on the court is that we are so close off the court. I feel comfortable going up to any one of those guys that was there with me and talking about any personal problem I have and probably pretty much anything going on in my life' — (*Garci and Mandich, 2005)
>
> *'Socialising with other people in my eyesight category, if you like, people who've had it for longer than me, people who were just getting it like me. It was nice to be able to see and talk to other people who are in your situation' —* (Powis, 2017)
>
> *'It's played with a different level of camaraderie really. The banter within is different to what it would be outside. ……. I mean, in a nice way, it is sort of a mickey taking of sight but it is relation to what you are doing. It is meant not as a harmful, hard comment and I think everyone is aware of that because you are within that environment' —* (Powis, 2017)
>
> *'This is awesome, you would do anything for these guys and you like to think that they would do anything for you. And some people, even though they take the mickey out of me chronically. I know they are only doing it because they care.' —* (Silva, 2013)

National Governing Bodies sub-theme

NGBs or Disability Sport Organisations (DSO) referred to the sporting bodies, which were generally represented in a poor light and suggested to have a lack of understanding and appreciation of the athletes. NGBs and DSOs were mentioned in five studies (Arnold et al., 2017; Brittain, 2002; Huang, 2005; Silva, 2013; Wilson and Khoo, 2013).

> *'I don't feel that they [name of NGB] treat Paralympians and Olympians the same. Olympians get 100% more things – funding, opportunities, competitions – they have a great advantage. It's blatant discrimination . . . and their general attitude is ridiculous.' —* (Arnold et al., 2017)
>
> *'They think we're disabled and they tell us things, but they speak over us instead of speaking to us on their level' —* (Brittain, 2002)

'You've got people in there [name of NGB] that haven't got a clue what they are doing when it comes to working with disabled people' — (Brittain, 2002)

'I do not trust the higher structures, the guys [men] there. We tend to be very careful to not irritate people. Otherwise you could be deselected, I think. There was a player that spoke her mind and irritated management, so we tend to keep quiet.' — (Silva, 2013)

'Sometimes they have the attitude, like we should be grateful that they let us go abroad to compete so that we shouldn't complain about anything. It's very patronizing. They are not developing any athletes. There is no system, no practical support, no encouragement.' — (Huang, 2005)

Recognition theme

The theme 'recognition' refers to the need for: increasing the coverage and publicity of para-sport, raising the awareness and support for the athletes and counteracting the misunderstandings surrounding para-sport. In this theme there were two sub-themes: (a) media coverage and (b) public understanding.

Media coverage sub-theme

This sub-theme was centred on there being a lack of media coverage and support to promote the sports and athletes, and the presence of misunderstandings surrounding para-sport. This was identified in five studies (Brittain, 2002; Foster, Fitzgerald and Stride, 2019; Haslett, Fitzpatrick and Breslin, 2017; Huang, 2005; Wilson and Khoo, 2013).

'I feel sad that there is always coverage about the Olympic Games, but so little about the Paralympics or FESPIC Games. — (Huang, 2005)

'From the TV point of view, they [disability sport] are only really important every four years when the Paralympics come around. The BBC has tried to raise the profile over the four years. But people are only interested in the main Paralympics because it's a show case event' — (Huang, 2005)

'Each time we go for competition … international high level competition… you can hardly see any report in the papers … on news …. anything … If the [public] is not

exposed to our achievement, how can we manage to get sponsorship? There is no sponsorship coming in because the public is not exposed.' — (Wilson and Khoo, 2013)

'There's always this kind of 'super human' aspect of [disability sport], which is wrong' — (Haslett, Fitzpatrick and Breslin, 2017)

Public understanding sub-theme

Another aspect was the public's understanding and appreciation of para-sport and the athletes. Comments were made on counteracting public perceptions of disability and misunderstanding of para-sport. When the athletes received appreciation and respect from the public this was seen as very positive, demonstrating the need for more promotion. This sub-theme was identified in eight of the studies (Dashper, 2010; Garci and Mandich, 2005; Haslett, Fitzpatrick and Breslin, 2017; Huang, 2005; Powis, 2017; Silva, 2013; Stillson, 2007; Wilson and Khoo, 2013).

Positives:

'[people] kept giving me free stuff, it was really bizarre, and I've been asked to give loads of speeches and talks and I've opened two schools in the area' — (Dashper, 2010)

'I did some interviews for my local paper about being selected for England and it's amazing the response I've got from people. People hadn't realised that VI [visually impaired] cricket was even a sport and now they are aware of how it is played and people are always really interested to hear about that kind of stuff' — (Powis, 2017)

'I think most people take a genuine interest [in disability sport] and that's a huge chunk now I think of the general public. They know who these people are and what they are going for, even if it's only a few thousand people from your hometown or home area, you will be known' — (Huang, 2005)

Negatives:

'There's a general consensus of disability sport as tokenism. Like 'it's great that you're getting out and you're playing something and you're doing something'. Whereas that's not the reason we're doing it […] I've had a lot of people misunderstand disability sport, in particular Wheelchair Rugby'— (Haslett, Fitzpatrick and Breslin, 2017)

'A lot of time we get connected with the Special Olympics, which is hard to explain to someone what the difference is without putting one or the other down' — (Stillson, 2007)

'I would like athletes with disabilities being appreciated in the same way as normal athletes [athletes without disabilities]' — (Wilson and Khoo, 2013)

Health benefits:

The most frequently cited physical and mental health benefits by elite athletes were improved self-confidence and self-esteem through participation in sport. The quotations below demonstrate how the participants in the studies expressed these health benefits:

'Since I came to SV I like to think that I am getting back to what I was. And have the confidence to go and speak to people' — (Silva, 2013)

'I think it gave me a huge amount of self-confidence, which I am not exactly short of, to be fair, now! I think it definitely created in me that confidence in my own worth and my own abilities' — (Powis, 2017)

'But I have found myself in sport. It makes me a better person. I realise that I have some control of my body, myself, my destiny. I find the sense of self-worth from my body and I myself decide what I want to do' — (Huang, 2005)

2.3.4.4 Veterans

The majority of studies exploring the sporting experiences with veterans with a disability explored sport in the form of a weekend long sport camp or programme, such as the National Veteran Games or Paralympic military sport camp. Only one study explored the longer term experiences of participating in sport, looking at the rehabilitative and restorative capacity of sport for traumatically injured British military personnel (Green, 2013). Due to the paucity of literature in this population it was not possible to generate themes from the data however interesting quotations are provided below which give an insight into the experiences of sport participation in this population. They suggest that sport

aids rehabilitation following traumatic injury, provides a competitive outlet, facilitates acceptance of disability and provides a sense of purpose and normalcy:

> *'I've always found that in a mixed environment, you'll push yourself harder because you want to beat your mates ultimately. And they want to beat you and it gets more competitive, so you'll get fitter.'*
>
> *'When I started doing sports, it made me realise that my life wasn't over and that I can still do things. My attitude to life changed as soon as I started doing the sports. I could see a future and it wasn't all that bad.'*
>
> *'Sport helped me get rid of the frustration and accept what I can do today.'*
>
> *'And that was my life, sport, sport, sport. I needed to see how far I could go.'*
>
> *'The injury changed my life, and then sport changed my life, in a way. It's showed me that you can achieve something if you put your mind to it. It's been really good that way, I think.'*
>
> *'I think as time goes on it always gets better because things become more normal. And, if you do things long enough, it just kind of becomes a habit. So it's, now it's like, it's just normal for me.'*

Health benefits:

Several health benefits were cited by the veterans with a disability and included three physical benefits and five mental health benefits. As only one study was included in the veteran category, analysis of the most frequently cited benefits is not possible.

2.4 Discussion

2.4.1 Common themes across populations

Being part of a team

Sport provided all populations with the opportunity to socialise with others and experience a sense of belonging. This team culture was evidenced in the children and adolescent population through allowing the participants to make friends and be part of a team. This is consistent with other studies which have reported that sport provided social benefits for children with intellectual disabilities, allowing them to socialise, meet new people and feel part a community, increasing their physical and emotional wellbeing (Darcy and Dowse, 2013). This social aspect of sport plays a big role in the participation experiences of children with physical disabilities, allowing them to interact with their friends and learn from others (Orr et al., 2018). Adult participants experienced a sense of community, camaraderie and closeness through being part of a team. Feeling connected to others and being part of a community facilitates sport participation through eliciting feelings of comfort and equality, and also through receiving advice from similar others (Wilhite, Martin and Shank, 2016). Blinde and Taub (1999) reported that sport enables camaraderie between teammates and facilitates a sense of belonging and togetherness, further supporting the findings from this systematic review. Both personal and performance-based support from teammates was received by the elite athletes, including advice about managing disability and banter to boost the team spirit. In Olympic sport, team chemistry, cohesion, trust and confidence in teammates positively impact performance (Gould et al., 1999). Having a close team bond and strong interpersonal relationships with teammates have been linked to successful performance in Olympic and Paralympic athletes, further supporting the importance of

team spirit established in this systematic review (Gould et al., 1999; Burns, Weissensteiner and Cohen, 2018).

Challenging expectations

The second common theme was that of using sport to challenge stereotypes and societal expectations. The children and adolescents won trophies and developed their skills through sport, enjoyed showing off their abilities and used sport to prove others wrong. This is consistent with previous findings demonstrating that sport elicits feelings of pride in being an athlete and taking part in competitions, whilst also providing an opportunity to show off talent and ability (Groff and Kleiber, 2001; Anderson, 2009). In the adult population, using sport as a means to break stereotypes and society-imposed limitations was a prominent theme. In addition to this, other studies have reported individuals using sport as a means of managing stigma, challenging public perceptions and defying expectations of disability (Taub, Blinde and Greer; 1999; Lindemann and Cherney, 2008; Lundberg et al., 2011). Demonstration of abilities, skills and fitness suggests that sport is an ideal context in which disability stereotypes and expectations can be challenged. A lack of media coverage and support were the focus in the elite athlete population, with participants expressing a desire for more public awareness and understanding of para-sport. In support of these findings, a considerably lower coverage of the Paralympic Games has been reported compared to the Olympic Games, with female Paralympians receiving even less representation than their male counterparts (Rees, Robinson and Shields, 2019). Since 2000, the Paralympic Games has received increasingly more media reporting in Europe and there has been a greater focus on an athlete's athleticism rather than their disability (Pappous, Marcellini and de Léséleuc, 2011; Rees, Robinson and Shields, 2019). This suggests that although there is less

coverage of Paralympic sport, it appears to be on the rise. Misunderstandings of sport experienced by participants came in the form of the 'supercrip discourse' presented by the media and the tokenistic view of participation by the public. Analyses of Paralympic awareness campaigns and the Rio Paralympic Games media coverage have suggested that the 'supercrip discourse' positively focuses on athletic success, but can use potentially misrepresentative and offensive terms such as 'brave', which can also discourage others from participating in sport (Silva and Howe, 2012; McGillivray et al., 2019).

Passion

The final common theme was that of pure enjoyment and passion for sport. The happiness experienced by the children and adolescents when involved in sport was very evident in the findings. The fun element has been reported in many studies exploring young peoples' sport and physical activity experiences, and can act as a facilitator and motivator for participation, influencing commitment to sport (Martin, 2006; Jaarsma et al., 2015; Lauruschkus, Nordmark and Hallström, 2015; Nyquist, Moser and Jahnsen, 2016; Orr et al., 2018). Sport provided a sense of purpose and meaning for adults, with participants expressing how grateful they were for sport and the integral role it played in their lives. Similar findings have been reported suggesting that sport enables goal setting and provides a sense of accomplishment, providing both structure and purpose (Blinde and Taub, 1999). The passion and dedication for sport and the desire to succeed were very clear in the elite athlete population. Participants mentioned how sport was priceless and in their blood, feeling their happiest when playing, suggesting just how much they enjoyed participating and competing. A study investigating British Paralympians found that high levels of dedication and the ability to overcome challenges were key aspects of elite sport and were linked to mental toughness

which is important for success (Powell and Myers, 2017). This quality seems to be unique to elite level sport as no other populations referred to this as an important component of their sporting experiences, suggesting high levels of dedication and excellence are required to reach the top of sport.

Health benefits

The perceived physical and mental health benefits across the four populations were very similar and included increased independence, self-confidence and self-esteem and weight management. The similarities between populations suggest that the benefits experienced are consistent across all disability populations regardless of the individual experiences of participating. These findings are consistent with the literature investigating the benefits in adult populations, which also included increased strength, fitness and self-efficacy as described by participants (Hutzter and Bar-Eli, 1993; Cherney, Lindemann and Hardin, 2015; Smith et al., 2019). The findings suggest multiple health benefits of sport participation for these populations, contributing to improving overall physical and mental wellbeing. When encouraging sport participation these benefits and the positive aspects reported in sections 2.4.1 and 2.4.2 should be promoted. The analysis of these benefits was limited because not all studies explored health benefits and in those which did, not all participants mentioned any perceived health benefits. Future research should explore the health benefits of sport across the four populations to enable comparisons between populations, informing practice through aiding the promotion of population-specific health benefits of sport.

2.4.2 Population-specific themes

The three themes generated from the synthesis of studies with children and adolescents were included in the common themes across the three populations and are therefore discussed in more detail above (2.4.1).

Liberation was experienced by adults in two different ways: feeling free from impairment and not being restricted by the perceived limitations of disability, and being able to accept disability and move forward. Sport has been reported to facilitate feelings of wholeness, liberty and independence, allowing freedom of movement and an escape from the perceived restrictions that may come with disability (Lundberg et al., 2011). Freedom through sport has also been associated with a greater sense of control and empowerment, further demonstrating the benefits of being involved in sport for mental health and overall wellbeing (Blinde and McCallister, 1999). It is interesting how liberation was experienced in adulthood but not childhood, suggesting that adults are more aware of the expectations and limitations imposed and that sport provides a means to overcome this and experience freedom. Accepting, adapting and being at peace with disability were achieved by many participants through sport, enabling feelings of pride and self-confidence. Despite this, there is very little research exploring the role of sport in enabling these feelings of acceptance in adults with a disability. Qualitative exploration of sport and social acceptance has found the degree of acceptance from peers to be varied, and that greater acceptance by non-disabled teammates was associated with more friendships and increased participation (Taub and Greer, 1998; Devine and Lashua, 2002). More research is required into self-acceptance to determine how participation in sport may help individuals accept and adapt to their disability.

Athletes competing at the elite level were found to have different sporting experiences compared to those who participate recreationally or sub-professionally. Unique aspects to elite sport are funding and sponsorship, which come with stressors, such as pressure to perform, and benefits, such as new opportunities. These findings are consistent with research in Olympic sport, where funding has been found to place huge stress on athletes due to the fact that if an athlete fails to perform, their funding may be reduced or withdrawn (Hodge and Hermansson, 2007). Investigation of the influence of funding on the retirement of British Paralympians reported that receiving a reduction in funding and not having enough to continue training was an important reason for retirement (Bundon et al., 2018). This suggests that the pressure to perform felt by the participants may be partly due to their concerns regarding being able to continue sport, creating further stress and worries. No research to date has explored the role of financial support on Paralympic athlete performance and wellbeing, which is area worth further investigation due to the potential to maximise athlete success and happiness. The classification system categorises athletes into classes based on the extent to which their disability limits their activity (IPC, no date-e; Jones and Howe, 2005). Issues with classification included changes in the classification system, exaggerating disability and prolonging injuries to maintain disability classification. However no research was found directly exploring elite athletes' experiences with their sport classification system. This was surprising given the speculative claims in the media around 'classification doping': the notion of exaggerating disability to be categorised into a lower classification to give a performance advantage (Taylor, 2017). Both funding and classification are areas which warrant further research to determine the influence, and reduce the impact, that they may have on the wellbeing and performance of athletes.

The support provided to the elite athletes was of varying quality and only three sources of support were consistently mentioned by participants: coaches, teammates, NGBs. This finding was surprising as elite athletes have been found to have access to a whole contingency of support staff, ranging from physiotherapists to psychologists, who look after wellbeing and performance (Gould et al., 1999; Greenleaf et al., 2001; Burns, Weissensteiner and Cohen et al., 2019). A possible explanation for this is that half of the studies within this theme were conducted over 10 years ago, meaning that the increases in investment and awareness of Paralympic sport had yet to occur, so there was less support available to athletes (UK Sport, no date-d; Blauwet and Willick, 2012). No studies have directly explored the support available to elite para-athletes and the support staff they have contact with, making this an interesting area for further research to maximise athlete performance and wellbeing. Interviews with Olympic, Paralympic and World champions explored factors which contribute to success, highlighting the importance of strong interpersonal relationships within the athletes' support networks (Burns, Weissensteiner and Cohen, 2019). The interplay of psychological, lifestyle, physical and financial support has been found to play a key role in the sporting success of the athlete or team, further supporting the need for research in this area (Gould et al., 1999; Greenleaf, Gould and Diffenbach, 2001; Burns, Weissensteiner and Cohen, 2018).

Analysis of the findings from the veteran population was not possible due to the paucity of literature. The one included study suggested that there are many positives aspects and health benefits of participating, which was supported by another systematic review investigating the role of sport after physical or psychological trauma. All other research with this population has focused on experiences of sport camps or competitions, such as the

National Veterans Wheelchair Games or Invictus Games, which were also associated with many positives experiences and benefits (Sporner et al., 2009; Hawkins, Cory and Crowe, 2011; Lundberg, Bennet and Smith, 2011; Roberts et al., 2020). However, considerably more research is needed to explore the positive aspects of continued, long-term participation in sport, providing evidence for promoting the involvement of veterans with a disability in sport.

2.4.3 Strengths

An important strength to this systematic review was its novelty as it is the first to explore the experiences and perceived health benefits of participating in sport across four different populations. Rigorous methods were employed all stages of the review process, including using several information sources such as databases, grey literature, hand-searching and reference screening. Two reviewers (the researcher and a second reviewer) both completed the searches, screening and quality assessment independently, increasing the comprehensiveness of the process (Stoll et al., 2019; Waffenschmidt et al., 2019). Furthermore, well established research tools and methods were used for the data collection, quality assessment and data synthesis. An additional strength to this study was the involvement of a stakeholder group which increased rigour and benefitted the analysis process.

2.4.4 Limitations

The main limitation was the restricted analysis of the health benefits of sport participation for the populations. Very few studies reported the health benefits of participating in sport as demonstrated by the frequency counts in Table 7; therefore the analysis of these benefits

was very limited as a result. More research in this area would enable comparisons of the health benefits of sport participation across populations which will be valuable when promoting sport for the individual populations.

2.5 Conclusion

2.5.1 Key findings, implications and future research

Findings from the systematic review demonstrate how valuable sports participation can be for children, adolescents, adults and elite athletes with a disability and that it is an overall positive experience associated with many health benefits.

Children and adolescents:

- The importance of the social benefits of sport participation cannot be underestimated, including making friends and being part of a team, which are associated with improved communication skills and teamwork.
- Sport participation brings significant enjoyment and happiness to young people.
- Sport enables a sense of pride and accomplishment through winning trophies and medals, having an athletic identity and developing skills.
- The enjoyable and social aspects of sport should be emphasised to both young people and their parents when promoting their participation in sport.
- Further research should explore the perceived physical and mental health benefits of sport for children and adolescents with physical, visual and intellectual disability to see if health benefits differ between disabilities and allowing the promotion of specific benefits to increase participation.

Adults:

- There was abundant research exploring the experiences of sport participation for adults with a disability, which suggested that sport created feelings of freedom, belonging and purpose and enabled a means to challenge disability stereotypes.
- Further research into the experiences of sport may not be of vital need due to the quantity of research and clear positive outcomes of sport participation.
- The positive aspects of sport participation as noted above should be emphasised to encourage sport involvement and increase participation rates.
- However, further research into the perceived health benefits for specific disabilities, including physical, visual and intellectual, may allow the promotion of disability-specific health benefits of sport participation.

Elite athletes:

- The passion and dedication to sport was clear and specific to this population, implying that a high level of excellence is required and sacrifices have to be made to compete in elite sport.
- There is a need for more recognition and appreciation of elite athletes with disabilities, suggesting that increased media attention is required to improve public understanding and awareness.
- More research is required into the experiences with funding and the classification system to determine how best to support athletes and reduce the pressure experienced, with an overall aim to improve performance.
- Only three sources of support were mentioned by the athletes, which is surprising given the wide range of sport practitioners involved in elite sport. An exploration of

athletes' experiences with social support is required to determine the support available and the ways in which the support can be improved to maximise athlete wellbeing and performance.

- Finally, more research is needed into the perceived health benefits of sport as it is possible that more in-depth investigation may reveal some elite athlete specific benefits which are not experienced in other populations.

Veterans:

- Considerably more research is needed into the experiences and perceived health benefits of regular sport participation for veterans with a disability. The findings from this review are based on just one study so it is not possible to make any strong conclusions regarding this population.
- An increased understanding of these phenomena would allow the promotion of the positive aspects and health benefits of sport in this population, with the aim of increasing participation rates and improving overall health.

CHAPTER 3

STUDY 2 – QUALITATIVE STUDY

3.1 Introduction

The findings from the systematic review suggested that there is a paucity of literature exploring the experiences of social support in elite para-athletes. Existing literature in para-sport has focused on just three forms of social support: the coach, teammates and the NGB. For current para-athletes there is considerable support available to enable them to achieve success, however the support accessed and the implications of this support on performance and wellbeing have yet to be explored. Therefore this qualitative study aims to contribute to filling the dearth of research around social support in elite para-sport, specifically para-swimming. The methods detailed below are an enhanced version of a protocol accepted for publication in the BMJ Open which can be found in Appendix 9.

3.2 Methodology

3.2.1 Theoretical framework and study design

A qualitative paradigm was determined as the most suitable approach to explore in-depth the experiences of social support (Finlay, 2000). The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was used to report this study and is located in Appendix 10.

Answering the objectives of this study required an in-depth investigation into the para-swimmers' experiences and an appreciation of the multiple, differing experiences of each

athlete. Therefore this investigation was suited to a subtle-realist and hermeneutic phenomenological paradigm and methodology approach. Subtle-realism considers that multiple non-contradictory and valid explanations exist for the same phenomena, assuming that knowledge is based on assumptions and human construction (Hammersley 2002; Duncan and Nichol 2004). This is because it is likely that different individuals will experience the same phenomena in different manners (Lincoln and Guba, 2000). Subtle-realism claims that there is no single way of knowing a phenomenon and rejects the opinion that beliefs are known with certainty (Hammersley, 2002). This approach considers that the aim of research should be to search for knowledge in which reasonable confidence can be placed based on the credibility, as the researcher cannot claim to have absolute certainty in their research findings (Murphy et al., 1998). Subtle-realism is consistent with a realist ontology which is the notion that a world exists independent from our knowledge of it (Sayer, 2000), and a subjectivist epistemology which is the belief that knowledge is subjective and the knower and the known are related (Sparkes and Smith, 2014). This research is in keeping with the ontological and epistemological foundations of subtle-realism through its exploration of the experiences of social support in elite para-swimmers.

Phenomenology is the study of lived experience or the life world, and enables the exploration of phenomena and individuals' perspectives (van Manen, 1997; Finlay, 2000; Kleiman, 2004; Reeves et al., 2008). Hermeneutic phenomenology, also known as interpretive phenomenology, was established by Heidegger in 1927 and further developed by Gadamer and van Manen (Sloan and Bowe, 2014). It is concerned with lived experience and the interpretation of text (Laverty, 2003; Webb and Pollard, 2006). The methodology involves the researcher discovering and interpreting phenomena through participating in

the ‘hermeneutic circle’ between part of the text and the whole text (Langdridge, 2007). Therefore hermeneutic phenomenology was chosen as it is ideal to give an insight into and explore the lived experiences of social support in elite para-swimmers. Hermeneutic phenomenology is of the belief that that the researcher cannot remove themselves from the phenomena, which contrasts the views of Husserlian phenomenology (Sloan and Bowe, 2014). Due to the researcher’s background in the research area (see 3.2.6), hermeneutic phenomenology was more appropriate as would have been naïve to assume that her experiences and pre-understanding would not influence the interpretations (Laverty, 2003). Reflexivity is an important aspect in hermeneutic phenomenology as it aids in the data analysis and interpretation, therefore the researcher kept a reflexive diary to support this notion (see 3.2.5) (Langdridge, 2007; Sloan and Bowe, 2014).

The interview is a very appropriate and common method used in qualitative research to collect data (Smith, Flowers and Larkin, 2009; Sloan and Bowe, 2014). It is thought to be the primary method of data collection for phenomenological studies as it allows an in-depth investigation into a particular phenomenon in a small population of individuals who have experience with the phenomenon (van Manen, 1997). Given the specific nature of the research objectives and the unique phenomena explored in this study, semi-structured interviews were chosen as the means of data collection.

3.2.2 Participants and setting

This study was focused on investigating the experiences of social support in elite British para-swimmers; so the participant population was very specific and niche. To be eligible, athletes had to meet the following criteria:

- Be a current British para-swimmer;
- Have an impairment which complies with the IPC regulations;
- Have competed at the Paralympic Games or other international senior competition;
- Be of any age or gender.

A phenomenological approach promotes the recruitment of participants from a homogeneous population who have had experience with the phenomenon, but who vary in their personal characteristics and experiences (Moser and Korstjens, 2018). Athletes were recruited using purposive sampling to select individuals who had the potential to provide rich, diverse data which was pertinent to the research objectives (Giacomini and Cook, 2000). The athletes were purposively sampled based on age, gender, impairment and international competition experience in order to provide diverse experiences of social support.

Athletes were approached and contacted via email and social media to determine interest in participation. Contacts in the authors' sporting networks were approached to aid recruitment. All athletes approached agreed to participate, giving a recruitment rate of 100%. The number of athletes recruited was based on the dimensions of information power, which proposes that the larger the information power of the sample, the fewer participants are needed (Malterud, Siersma and Guassora, 2016). This study had relatively high information power due to the narrow study aim, high sample specificity, theoretical framework basis and the research team's experience in sport and qualitative research. Based on this, a sample size of 8 was deemed to be a suitable number to explore the experiences of social support. The approximate number of British para-swimmers on the World Class Podium and World Class Podium Potential programmes, who receive funding

from UK Sport, was 37 at the time of this study (British Swimming, no date-g). Due to this relatively small population, limited information is provided on the demographics of the athletes in order to reduce the likelihood of identification in line with ethical considerations around anonymity of participants.

3.2.3 Procedure

Institutional ethical approval was obtained from the University of Birmingham in April 2020 prior to the commencement of the study (ERN_20-0344) (Appendix 11). Once the participant had confirmed their interest and willingness to participate, they were sent a participant information sheet detailing information about the study, what was required from them and the researchers' contact details should they require further information (Appendix 12). They were also provided with a consent form which was signed and dated prior to the start of the interview (Appendix 13). Prior to the interview participants were also provided with a document containing definitions and examples of social support as defined by Cutrona and Russell (1990) (Appendix 14). They were informed that they could refer back to this document during the interview where necessary to aid understanding of the four dimensions of social support. Once the informed consent was received, a time and date for the interview was arranged.

Semi-structured interviews were conducted by the researcher with a mean length of 61 minutes (SD=15.3 minutes), ranging in time from 48 minutes to 88 minutes. The interviews were carried out via video call between May and June 2020 at a time and date convenient for the participant. The use of video call provided high quality data and enabled the interviewer to observe non-verbal cues and gestures made by the participant, aiding data interpretation and analysis (Janghorban et al., 2014; Weller, 2017). Prior to the interview

the participant was reminded of the research purpose and focus. They were also reminded that the interview could be suspended or terminated at any point and they had the right to withdraw from the study completely. The researcher ensured to create a comfortable and relaxed environment and developed rapport with the participant through conversing prior to the start of the interview. This technique is recommended in phenomenological studies as it can encourage the participant to give a richer, more detailed account (Smith, Flowers and Larkin, 2009). Although the researcher had no formal training in interviewing, she had strong communication skills and undertook pilot and cognitive interviews prior to the data collection (see below).

A topic guide was used to guide the interviews (Appendix 15). It was developed based on existing literature and through discussions with elite para-sport practitioners in physiotherapy and PL about their roles and the support they provide (Rees and Hardy, 2000; Burns, Weissensteiner and Cohen, 2019). Pilot and cognitive interviews were conducted simultaneously with one recently retired British Paralympic swimmer and one current British Paralympic powerlifter. The purpose of this was to test the suitability of the topic guide, to assess the understanding of the questions and to refine the researcher's interview technique and skills (Griffee, 2005; Knafl et al., 2007). The feedback from these interviews was used to alter the topic guide to clarify the phrasing of questions. The topic guide consisted of introductory questions on sporting background, classification, impairment, international competition experience and the overall experience of being an elite para-swimmer. The main questions were focused on the participant's experiences of the four dimensions of social support, structural support and social networks. The questions asked were open-ended and allowed the participant to discuss any concepts or experiences they

felt were relevant. If required, prompts were given and clarification was sought from the participant to aid understanding.

The interviews were audio-recorded and uploaded directly to the Birmingham Transcription Services portal to be transcribed verbatim. The files were assigned an ID number to prevent identification of participants and ensure anonymity. Field notes were taken during the interviews to aid interpretation of participant responses through providing contextual details and noting non-verbal expressions (Fossey et al., 2002; Emerson, Fretz and Shaw, 2011). The interviewer kept a reflexive diary throughout the interview and interpretative process to record the details and origin of interpretations which emerged, aiding trustworthiness (Laverty, 2003). In hermeneutic phenomenological research, the biases, assumptions and experiences of the researcher are essential to the data interpretation and analysis, further supporting the use of the reflexive diary (Finlay, 2000; Laverty, 2003; Sloan and Bowe, 2014).

Following transcription, a copy of the transcript was emailed to each participant to enable member checking (Thomas, 2017). Participants could add further reflections, make alterations and remove responses if they wished, enabling an accurate representation of their experiences and perspectives (Fossey et al., 2002; Thomas, 2017). This is seen as an important component of quality assessment within the subtle-realist paradigm and enhances the transparency and credibility of the research (Mays and Pope, 2000; Fossey et al., 2002; Tracy, 2010). Four participants made minor alterations to their transcript and all approved the final transcripts.

3.2.4 Data analysis

Due to the researcher's experience and background in competitive swimming (see 3.2.6), she was responsible for the analysis of the interview data. Preliminary analyses of each interview were conducted immediately following the interview to enable initial data interpretation, and formed part of the ongoing analytical process (Ranney et al., 2015). It also enabled the review and refinement of the topic guide, improving the data collection process (Ranney et al., 2015). After the first two interviews, a slight change was made to the order of the questions in the topic guide, enabling a smoother transition between questions and improving the flow of the conversation.

The method employed for data analysis was based on the *Framework Method*, which is an established seven stage process used for qualitative data management and analysis (Gale et al., 2013). This method provides clear systematic stages for the researcher to follow and is most suitable for analysing interview data (Gale et al., 2013). Due to this method's focus on qualitative research, it was deemed appropriate to explore and understand the experiences of social support in elite para-swimmers. Microsoft Word and Microsoft Excel were used for data management. Figure 5 displays the stages undertook for the analysis process.

The Framework method highlights the importance of experienced qualitative researcher involvement throughout the process (Gale et al., 2013). Therefore several stakeholder meetings were held during June and July 2020 which allowed the generated framework to be presented and generated themes and sub-themes to be discussed. Data were first analysed and interpreted using the theoretical basis of social support (Cutrona and Russell, 1990). However following discussions at the stakeholder meetings, it was determined that the four types of social support were quite restrictive when it came to expressing the

experiences of elite athletes. Therefore the data were then analysed with a focus on the direct themes generated from the interviews rather than trying to place generated sub-themes within a social support categories. This provided much more freedom with the data and allowed elite sport-specific themes and sub-themes to be generated which better represented the perspectives of the participants. A detailed description of the origin of interpretations and themes can be found in the audit trail (Appendix 16).

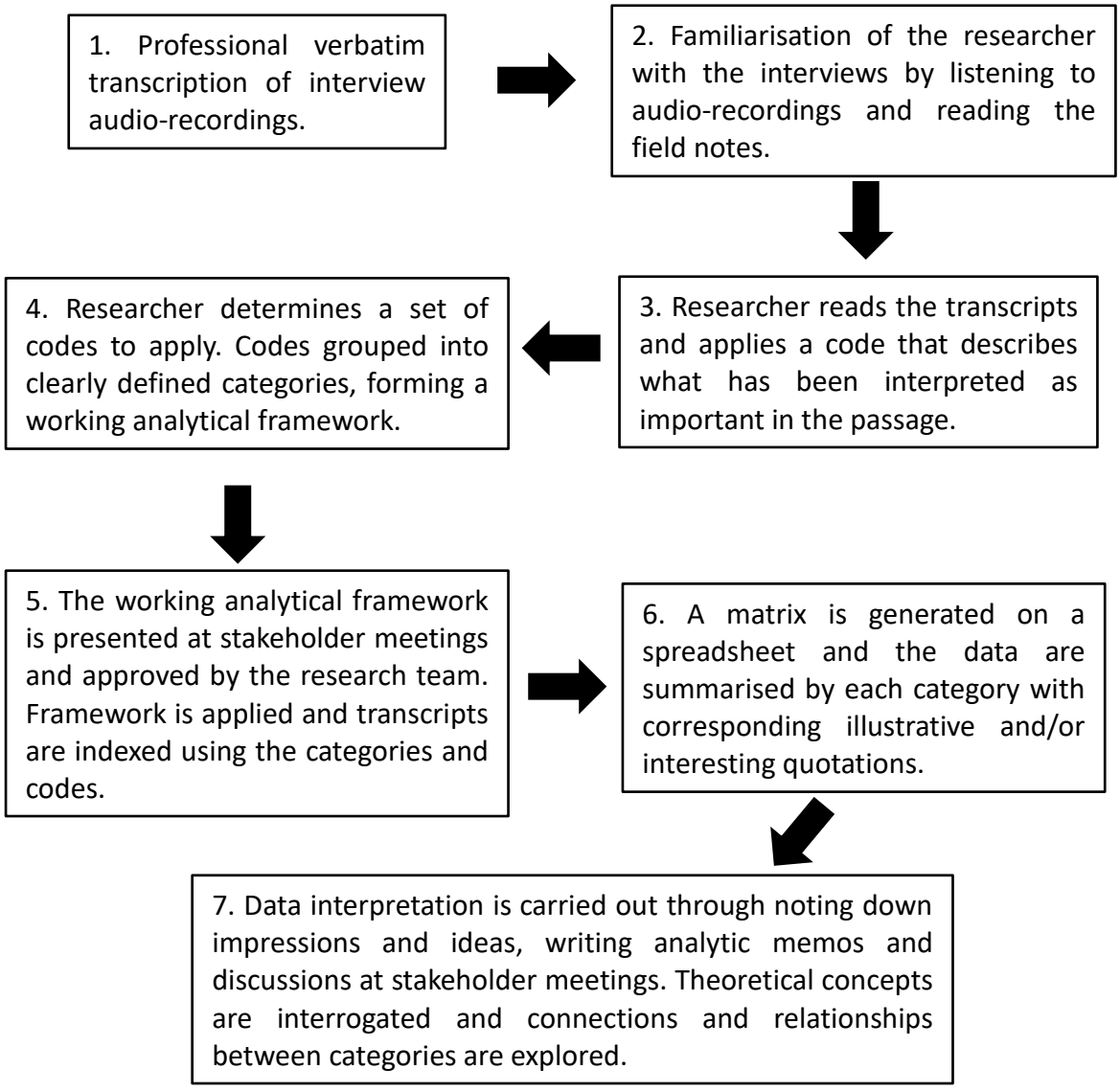

Figure 5: The Framework Method.

3.2.5 Quality in qualitative research

Measures to achieve rigour and trustworthiness have been suggested by Morse (2015) and Mays and Pope (2000) which are consistent with subtle-realism. Several of these measures were undertaken during the research process to ensure the high quality of the findings:

i. Clear exposition of methods – all stages of the methods employed in this study are reported clearly and in great detail. Thorough reporting and justification of the data collection and data analysis sections are provided, enabling the reader to determine if the interpretations and conclusions are supported by the data (Mays and Pope, 2000).

ii. Prolonged engagement and persistent observation – the researcher spent time communicating with participants prior to the interviews to establish trust and a level of intimacy, increasing the richness of the data (Morse, 2015). An appropriate sample size was chosen based on the concept of information power, enabling rich, thick data collection (Morse, 2015; Malterud, Siersma and Guassora, 2016).

iii. Audit trail – an audit trail was maintained throughout the data analysis process and is provided in Appendix 16. This allows the reader to examine how data were interpreted and analysed, and provides enough detail to enable them to repeat the process (Mays and Pope, 2000).

iv. Background of the researcher – the researcher's background and experience is explained in detail below (3.2.6). The researcher is also prone to forms of researcher bias, the first of which is the 'pink elephant' bias which is where anticipation affects what is seen in the research (Morse and Mitcham, 2002; Morse, 2015). This was reduced through having a thick data set and obtaining multiple examples of the

same phenomenon (Morse and Mitcham, 2002). Research design bias was reduced through conducting pilot and cognitive interviews with Paralympians and discussing methodology with experienced qualitative researchers.

v. Reflexivity – throughout the process the researcher kept a reflexive diary which was used to record interpretations after each data collection session, emerging ideas throughout the process and the generated themes (3.2.3) (Mays and Pope, 2000). Reflexivity also involves reducing bias and enhancing the credibility of the findings through acknowledging the researcher's prior experiences and assumptions regarding the phenomenon and their personal characteristics (3.2.6).

vi. Triangulation – data triangulation was employed to understand experiences and perspectives from a wide range of individuals (Mays and Pope, 2000; Morse 2015). The participants in this study comprised a range of ages, swimming classifications, impairments and international competition experience, increasing the comprehensiveness and scope of the data gathered (Mays and Pope, 2000; Morse, 2015).

vii. Member checking – is *'giving the transcribed interview (or the completed analysis) back to the participant to obtain additional information or to correct the data'* (Morse, 2015, pg. 1216). The participants in this study received their transcript and made any changes or additions they felt were necessary. This is seen as an important method to provide an accurate representation of participants' experiences and increases the transactional validity and reflexivity of the research process (Mays and Pope, 2000; Thomas, 2017).

viii. Peer review – frequent discussions were held between the researcher and the stakeholder group which enabled the researcher to present findings and test ideas

and interpretations (Morse 2015). It aided in the data analysis process through allowing exploration of the thoughts of others in the stakeholder group and receiving feedback to assist interpretations (Morse, 2015).

3.2.6 Researcher's background:

The researcher was a 23 year-old female MSc by research student with a BSc degree. Her interest in exploring and understanding the objectives of this study came from her background in elite sport. She is a former swimmer with over 15 years' experience in the sport and competed at a national level for 10 years. She also spent many years of her career training alongside elite para-swimmers who were supported by British para-swimming. Therefore she has a good overall understanding of the organisation British Swimming. Through her own career she had contact with a wide range of support staff and also received considerable support from family and friends, giving an understanding of the types and sources of support that are available to elite athletes. It was of interest to her to investigate the social support available to elite para-swimmers due to the novelty of the research area. She also wanted to gain a better understanding of the specific support that is available for para-swimmers and to determine the ways in which the support available could be enhanced in order to support the careers and wellbeing of elite British para-swimmers, improving their performance and international success.

3.2.7 Ethical considerations

Prior to the commencement of this study, the methods and topic guide were approved by the research ethics committee at the University of Birmingham (ERN_20-0344). All participants provided written consent prior to participation. They were given time to

consider their participation and ask the researcher questions about the study (Richards and Swartz, 2002; Brinkmann and Kvale, 2005). Participants were fully and correctly informed of the study purpose and requirements through a participant information sheet and verbally prior to the interview (Richards and Swartz, 2002; Brinkmann and Kvale, 2005). The ethical principle of autonomy was employed as participants were informed of their right to withdraw from the study or suspend the interview at any point via the participant information sheet and prior to the interview (Orb, Eisenhauer and Wynaden, 2001; Brinkmann and Kvale, 2005). One-to-one interviews were carried out at a time and date convenient for the participant so they were as comfortable as possible. During the interviews no reference was made to any other athlete so as to not enable identification of others. Only the researcher had access to the interview data to ensure participant confidentiality. The interviews were recorded using a password-protected Dictaphone and then transferred to a password-protected computer and deleted from the Dictaphone. Following professional verbatim transcription by the Birmingham Transcription Services, the transcripts were stored on a password-protected computer. Data was stored in accordance with the University of Birmingham's research governance framework.

There are many ethical considerations which must be taken into account when conducting interview-based research. Richards and Schwartz (2002) identified four potential risks to individuals participating in qualitative research. These include anxiety and distress caused by the research questions and personal experiences, and exploitation through feeling pressurised to participate (Richards and Schwartz, 2002). The questions asked in this study were not considered to be of a sensitive nature, and the potential for exploitation was counteracted by reminding the participants that participation was voluntary and they could

withdraw at any point. The risks also included misrepresentation of the participant's experiences or responses, which was alleviated through member-checking; and the risk of participant identification which was considerably reduced through providing minimal demographic data and using ID numbers (Orb, Eisenhauer and Wynaden, 2001; Richards and Schwartz, 2002). This was very important due to the relatively small number of current elite British para-swimmers meaning participants may have been identifiable if any further information was provided. As these interviews were conducted via video call and lasted for an average of 61 minutes, there was little participant inconvenience in terms of cost and time (Richards and Schwartz, 2002).

3.3 Results

Five themes and 11 sub-themes were generated and are presented in Figure 6. The sample comprised 8 British para-swimmers (5 female, 3 male), with an age range of 18 – 38 years (mean = 24.9, SD = 5.74). This gender distribution is fairly representative of the British para-swimming WCP, which comprises 21 females and 16 males (British Swimming, no date-g). Athletes reported a range of disabilities including physical, visual and intellectual and competed in the swimming classes: S5, S6, S9, S12 and S14. Seven athletes were Paralympians and one had competed at the World Championships. The disabilities reported represented all 10 of the Paralympic Movement eligible impairments types. In two of the interviews, an additional person (1 parent and 1 partner) was present with the participant and made a few remarks supporting the participants' comments. However their comments were discarded and not included in the analysis because the sole focus was the participants' experiences.

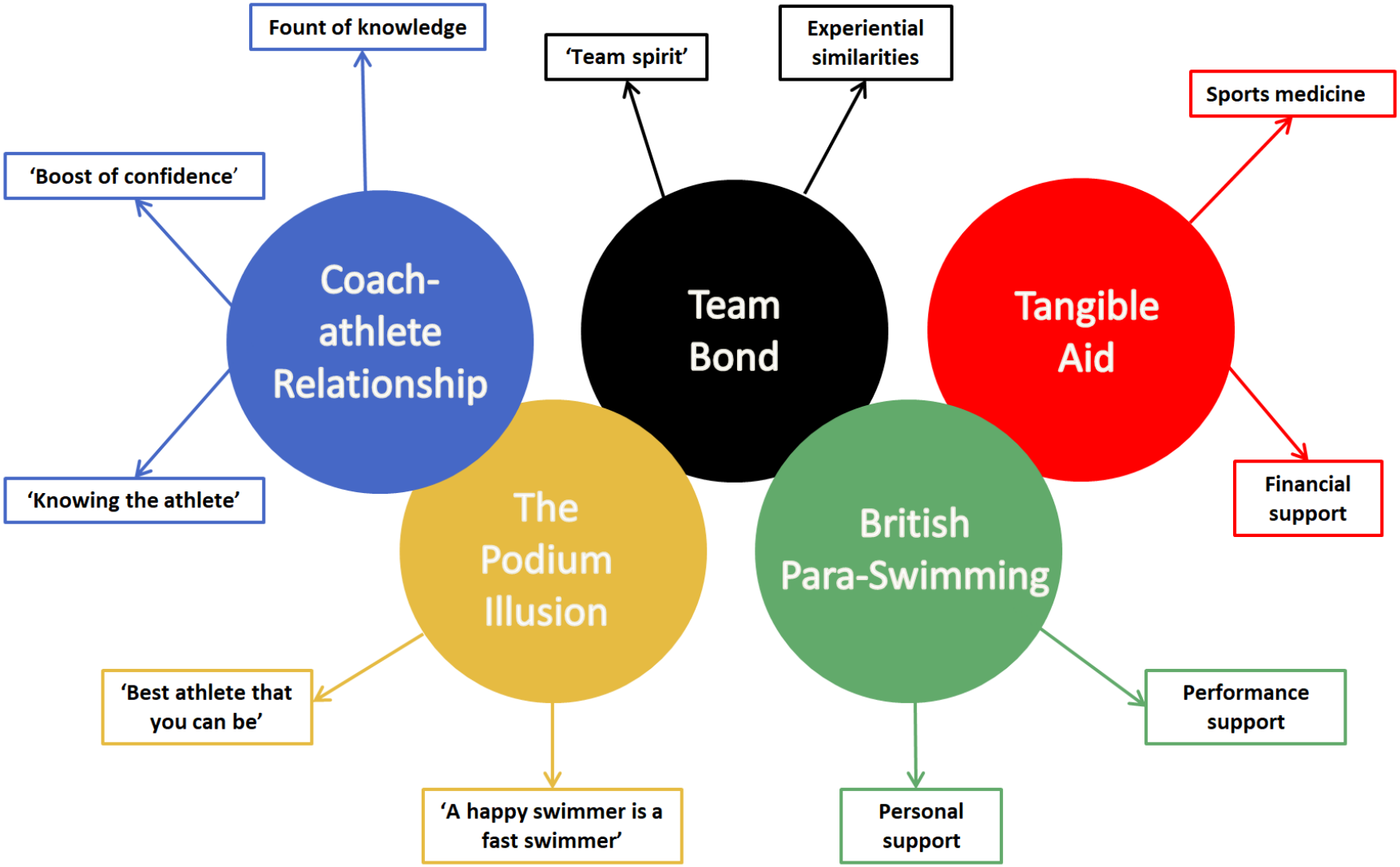

Figure 6: Themes and sub-themes generated from the interviews with the elite para-swimmers displayed in the format of the Olympic rings.

3.3.1 Coach-athlete relationship theme

The participants spoke very highly of their coach and emphasised that the coach-athlete relationship was *'huge'* (P5) and of *'paramount importance'* (P6). An interesting point was made about how the coach-athlete relationship *'changes throughout the athlete's career'* (P4) where at the beginning it is more coach-driven but as the athlete grows in experience the athlete takes more ownership for their swimming. Participant 6 said that *'it's essential that a swimmer has, or an athlete has, a good relationship with their coach'*. This participant also commented on the nature of the relationship, and how it could be viewed as a *'business transaction'* but that it was really much more than that due to time spent together and emotions involved in high performance sport. These comments evidence the unique nature of the relationship between a coach and their athlete. This theme includes the sub-themes: (a) 'knowing the athlete', (b) 'boost of confidence' and (c) fount of knowledge.

'Knowing the athlete' sub-theme

This sub-theme focuses on the strong relationship between the coach and athlete, and demonstrates how important it is that the coach has a sense of emotional intuition when it comes to their athlete. Participant 5 highlighted the tightness of their relationship when saying *'I'm super close to my coach'* and that she sees him as a best friend. The participants demonstrated a high level of closeness and trust between them and their coach:

> *'she [coach] understands*' — P1
>
> *'I can tell him [coach] absolutely everything'* — P5
>
> *'he [coach] understands me. I'm not just an athlete. I'm not a robot who can swim top sessions all the time […] Like, I'm a human being as well, like, I'm a girl, like, I, I have shitty moods when I'm on periods and stuff, and he's, like, he's, he's so understanding of that'* — P5

> '*he [coach] can help me talk through it [problems] or sort it out*' — P8
>
> *'I can have a good cry with my coach and then I just feel like a million times better after because it feels like a weight has been lifted off your shoulders*' — P2
>
> *'My coach is probably a good listener and he kind of gets rid of all my worries, 'cause my worries are normally around the sport*' — P2

Participant 2 mentioned that sometimes she has *'shouted at him [coach] and he shouts back*' perhaps demonstrating the high pressure situations which can arise in performance sport and how the closeness of their relationship can be fiery. During tough times the coach was also there for the participants and provided emotional support:

> *'he [coach] was very good during the period where I wasn't swimming, in supporting me*' — P6
>
> *'there was a time where I was, like, so emotional we just stopped the session and we [coach and participant] just talked*' — P5

In some cases the coach can know their athlete even better than the athlete themselves, as demonstrated by these comments from Participant 2: *'sometimes he'll pick up that I'm not right and then he'll call me for a chat*' and *'sometimes I don't even know there's something bothering me until he tells me'*.

'Boost of confidence' sub-theme

The coach was also a source of esteem support for participants, praising them and building confidence. This support was provided by the coach in both training and competition environments, praising the participant for a good swimming session and reminding them of their hard work to boost their confidence before races:

> *'there might be times where you need somebody just to, kind of, big you up a little bit*' — P4

> *'praises you when sessions have gone well… gives you that extra boost of confidence'* — P5
>
> *'"Oh, that was a good training session. That will help you in however many months"'* — P3
>
> *'they [coaches] reassure me that I've put all the work in that I possibly could have done and then that makes me feel better'* — P2

At competitions, Participant 1 said how she can be quite negative and that her coach can pick up on negativity and counteract it by providing esteem support to exhibit a positive response in the athlete.

Fount of knowledge

The participants expressed how their coach was very knowledgeable when it came to swimming and was seen as *'the first point of contact'* (P4). The comment below gives an idea of the breadth of informational support provided by a coach:

> *'All the stuff that's swimming related they just like feed it back to you like. There's a lot, there's a lot under that umbrella.'* — P6

The coaches provided informational support when asked by their swimmers for advice on pacing, technique and race plans. The support given directly translated into improved swimming performance in some cases.

> *'with my pacing for my [swimming event] "Do you think, if I go out a bit slower, it might help?"'* — P4
>
> *'I felt like I was a bit heavy on my right arm, I could say "Oh, does it look like it's heavy?"'* — P4
>
> *'Coaches have helped me structure race plans, um; what should be in my race plan, what I should be thinking about during the race. That really helps with the execution of a good race'* — P6

'I found out that, um, my catch was lagging for a few years, so obviously I'd just got a bit sloppy with it, um, and then we've [coach and participant] been working really hard on keeping my elbow high' — P2

3.3.2 Team Bond theme

'Team spirit' sub-theme

The uniqueness of the bond between teammates was highlighted by this comment by Participant 2: *'you're getting up at 5:00 in the morning and you see each other at 5:00 in the morning looking horrendous, and you've all gotta get in the pool together'.* The team spirit present at the participants' swimming clubs was clear, with teammates providing a high level of esteem support, positivity and camaraderie. Additionally, participants commented on how they were close to their teammates and how their presence made training sessions more enjoyable and pushed them to train harder.

'just having that kind of camaraderie and that team spirit just, kind of helps motivate you' — P4

'when you're going into a pool and your team mates have banter, like, it's a laugh, like, it's so much fun, they're pushing you, you're racing against each other, the competition, like, it makes a fun environment, like, that two hour session actually goes really fast' — P5

'sometimes they [teammates] say little comments, remarks to pick you up and get you going again' —P2

'when it comes to competitions […] if you've got a good relationship with your, your teammates, um, you, you can kind of trust that they are gonna want the best for you' — P4

'they [teammates] say "Oh, you looked good, (name of participant), in the water" […] little things like that that, again, it gives you that big confidence booster and that positivity' — P5

'they [teammates] definitely push you on as well, especially, sometimes if you see someone else doing well it makes you do well' — P2

> *'I really like having a lot of people [teammates] because you have so many different personalities and I think when you have a lot of people, say if there's a few people missing, you still kind of have enough people to kind of really bounce off'* — P3

A negative experience was recounted by Participant 2 when she described situations where she has had other swimmers try to 'psych her out' with negative comments. It was interesting how she said *'it normally makes me swim harder, to be fair because I'm annoyed'*, suggesting she defies the negativity and uses it to benefit her performance.

Experiential similarities sub-theme

Participants commented on the strong sense of belonging and bond between teammates due to the experiences they share:

> *'you're all in this together'* — P2
>
> *'your teammates are your closest friends too. You see them morning and evening'* — P5

Having '*a text from her [teammate] at least once a day'* (P7) where the teammate is just checking up on the participant shows the caring nature between team members. Informational support was received from teammates when speaking to those who *'have had different experiences along their journey'* (P4). Speaking to more experienced teammates about major competitions or visiting new countries provided advice and reassurance to athletes and was seen as beneficial for future situations:

> *'You can probably just stick it to the back of your mind, you know if you ever come across that experience, you'll know how to kind of deal with it'* — P2

Speaking to retired teammates about training, competition and what they did when they were professional athletes was helpful as it *'makes you sometimes step away from that*

bubble' (P5)*,* referring to the bubble that is performance sport. These comments show how athletes may go to different teammates when they want different kinds of advice, showing the versatility of informational support that teammates can provide.

3.3.3 Tangible aid theme

Sports medicine sub-theme

Sports medicine is a form of tangible support provided to athletes by a physiotherapist, soft tissue therapist or doctor (British Swimming, no date-f). The access that the participants had to soft tissue and physiotherapy treatment was seen as *'super important'* (P6) and *'amazing'* (P5). Soft tissue therapy helped with recovery and maintenance, keeping the body ticking over and reducing injury risk. This support was sought more around competition time or during periods of heavy training. The soft tissue therapists also provided emotional support in some cases.

> *'all helps with the recovery – physically and mentally'* — P4
>
> *'she's [soft tissue therapist] the one that I just like rant to, she just listens'* — P1
>
> *'it's [soft tissue therapy] something that I really look forward to once a week'* — P5
>
> *'the access we have to soft tissue treatment and physio treatment, are also super important […] access massage treatment more as you get closer to racing. The week before racing. Um. Or in like very very heavy training just to aid with recovery'* — P6

The physiotherapy treatment provided maintenance, helped to heal injuries and improved strength to allow the participants to train. Participants also went to the physiotherapist for advice about injury prevention and recovery, and some received emotional support,

demonstrating how a physiotherapist can provide tangible, informational and emotional support.

> *'[physiotherapy is] just to kind of keep myself relatively loose during a heavy training period just so I don't get too tight and trying to prevent injuries then kind of heal them once I get it'*— P3
>
> *'his [physiotherapist] role is basically to get my shoulder strong enough to swim […] keep me in the water as long as possible* — P1
>
> *'you could go to the physio and say, "Look, this is recurring. What can I do to, to help it not happen?"'* — P4
>
> *'he [physiotherapist] does give a bit of emotional support. He is one of, there's only a couple of people I trust to go to, but he can always spot when I'm having a bad day or, like he just knows straight away'* — P1

Particularly interesting comments were about how physiotherapy should be used as an educational tool to teach athletes and coaches about injury prevention:

> *'prevention rather than cure'* — P3
>
> *'the more coaches are aware of what's proper pre-sport, post-sport, and uh, how to kind of prevent their swimmers from getting injured, the better'* — P8

A chiropractor provided one participant with a physical aid which directly translated into an improvement in strength in the gym due to increased functionality, benefitting swimming performance.

Financial support sub-theme

There was a high level of gratitude and appreciation of the funding received from UK Sport. The comments showed how important it is to have the financial backing to enable the participants to swim, let alone to a high level:

> *'I'm really grateful for the funding because if I didn't have it I wouldn't be able to swim'* — P2

'I think having that support from UK Sport is, is extremely valuable. […]I feel extremely fortunate to be in this position' — P8

'obviously a massive, massive, um, weight off your shoulder and you can just, kind of, focus on, on your performance' — P4

'it [funding] allows athletes to be full time athletes; without the funding you're not a full-time athlete you're just someone that swims' — P6

'I think a lot of professional athletes don't realise how lucky we actually are to get that support' — P5

There were some occasions where the participants received additional financial support to supplement or replace the UK Sport funding, in some cases because the support they received was not enough for them to live off without seeking more.

'the 'Bank of Mum'' — P2

'sponsors' — P4 and P5

'[writing to] businesses asking for donations or sponsorship' — P2

'I wouldn't be able to live off what I get from British swimming, there's no way' — P7

One comment suggested an unequal treatment of funded athletes, however this was the only one mentioned throughout all interviews: *'the most frustrating thing, is that we're all on funding, obviously, some are at different levels, but the rules should be the same for everyone and it's not'* (P1).

Suggestions for improvement of the funding system included making the criteria for funding clearer and providing more financial security for athletes who receive funding. However, overall the funding system was seen as fair and transparent, with the majority of participants feeling happy with the way the system worked.

'*there's no discrepancy between able-bodied and para'* — P8

'you know like what times you're gonna have to swim to get such and such level of funding' — P6

'it's very clear to everyone… like every year they set out um, either times or rankings that you need to do to qualify for a certain band of funding' — P8

'it might be quite useful if they could make like the criteria and everything a fair bit clearer' — P3

'if you maintain world ranking your funding will remain the same, if you world ranking falls by X amount then funding will decrease by X amount. But not have that X amount be half. And if they could, if they could have a cap on how much funding could be decrease year on year, then that might be great' — P6

3.3.4 British para-swimming theme

'A happy swimmer is a fast swimmer' sub-theme

Participants were insistent on fact that if they were happy in their programme, there was no need to change things. Despite the facilities and support at the NPC in Manchester, those based in home programmes were adamant that they were in the right place for them.

'when I'm training well, I'm happy; but also, when I'm happy, I'm training well, if that makes sense' — P3

'if you're happy where you are and if you've got a good programme, obviously it's got a good track record and good coach, um, then there's, there's no need to change it, really' — P4

'I think 'I'm very lucky that, like, I know what works best for me' — P5

'I'd never move because I really like that I have here' — P2

'Best athlete that you can be' sub-theme

There were many positive comments made about British para-swimming, support staff and the NPC. This suggests the high quality of the support provided and how important this form of support is in maximising the participants' swimming performances. The NPC is also home

to the Kistler Performance Analysis System, which assesses swimmers' starts, turns, finishes and relay takeovers, and which participants were appreciative of.

> *'the facilities in Manchester were amazing, the coaching was amazing, like we had everything we needed […] you basically couldn't ask for a better training environment'* — P6
>
> *'anything I needed they [British Swimming] provided […] it was very kind of bespoke to what I needed'* — P8
>
> *'their [British Swimming] support there is helping you be that best athlete that you can be'* — P5
>
> *'I think in some areas we're very lucky because we've got people [support staff] who, in my opinion, are second to none'* — P8

The participants were also suggestive of ideas to improve the support they are provided with by British Swimming. One idea was to employ staff who are experienced in their roles, with sporting backgrounds and an understanding of para-sport, to counteract the high turnover of certain staff suggested by this comment*: 'we go through lifestyle and psych people like there's no tomorrow'* (P2). Participants commented on how the NPC and the English Institute of Sport (EIS) bases were far from their home programme bases, limiting their contact with support staff:

> *'it would be nice if there was an EIS closer'* — P2
>
> *'it'd be useful if they [support staff] were a little bit closer'* — P3

There is the possibility that if the participants were based closer to the NPC, then they may use the support available to them more often, as suggested by Participant 5. There were references to occasions where the participants did not feel supported or understood by staff from British Swimming concerning situations such as poor race performance, mental

health issues and re-classifications. Another aspect which was commented on in terms of improving the support was to maintain a high level of communication:

> *'keeping people in the know all the time is, is something so important and having that trustworthy communication and respect, I think it's something that they can be a bit better on'* — P5

Findings also suggested that there needs to be more clarity around what support is available to a British WCP para-swimmer:

> *'there's quite a lot of support there if you want it, but you have to, you have to get it. You have to chase it.* — P7

3.3.5 The Podium Illusion theme

During the interviews 25 different sources of support were mentioned by the participants, with certain comments suggesting just how many people can have an impact on an athlete's career:

> *'It's a whole ballgame and all of them to help you'* — P5
>
> *'Everyone you meet, you touch, like, has had a part to play'* — P5

Reference was made to the iceberg analogy which displays how only a person's success is seen and that the hard work and sacrifices made to achieve that success are not visible. The researcher decided to adapt this analogy to make it applicable and appropriate to performance sport and social support. 'The Podium Illusion' (Figure 7) was developed as a result of the researcher's realisation of the magnitude of support provided to athletes to enable them to achieve success. It reflects how people only see the athlete's success and medals they win (i.e. the top of the podium), and don't see all the staff and people who

support the athlete in achieving these feats. Every source of support named in Figure 7 was mentioned by the participants in this study. The use of the podium makes this model potentially generalisable to all types of performance sport, and signifies just how many people can play a role in an athlete's success.

Figure 7: The Podium Illusion: a model created as a result of this study demonstrating the magnitude of support that the participants received to help them achieve success.

Performance support sub-theme

Participants were keen to highlight that how important the strength and conditioning (S&C) support was to their performance:

> *'The purpose of the S&C programme is to link into swimming, so it's to help the swimming, first and foremost'* — P4
>
> *'He [S&C coach] relates the stuff in the water to land-based stuff'* — P5
>
> *'The S&C work that you do translates to the swimming work that you do'* — P6
>
> *'There are very few people who can get to high level sport without a strong S&C'* — P8

> *'if I didn't have the equipment [used in S&C], I wouldn't be able, um, kind of build strength and power and really work on specific parts of my race'* — P3

A specific reference was made to how S&C training can improve certain aspects of a race: *'I think a lot of people underestimate how important a start is, uh a dive start is. And I think the best way to develop that is one, practice, and two, strength [from S&C]'* (P8). The support provided by an S&C coach is also important during competition. The last person Participant 8 sees before his race is the S&C coach, who helps with his pre-race routine and helps get his body physically ready. It was also important that the S&C coaches were knowledgeable in both swimming and land-based training:

> *'Because it's so hard to translate, uh, strength on land to strength in the pool, uh, I think having an S&C coach who knows how to translate that strength into the water is incredibly important'* — P8

Psychologists provided both performance and wellbeing support to the participants when needed. They were seen as someone *'to talk to'* (P4) and *'who will kind of support you and kind of look after you emotionally'* (P3). On a similar level, one participant's contact with a counsellor helped put her in a good head space, enabling her to train better and positively affecting performance. During particularly difficult times in their careers athletes sought more support from the psychologist:

> *'They gave me a lot of kind of advice, a lot of methods to help me um, when I was having a bit of a kind of plateau year'* — P3

> *'Post-Paralympics or Olympics there's generally kind of a period where a lot of the athletes get a bit down, you don't really know what to do with yourself, you've had this goal built for so many years and now it's just finished, what do you do now? So I came back and was kind of a bit all over the place, didn't really know what I wanted to do'* — P6

Physiologists provided advice and practical data to the participants and their coaches. In terms of advice, specific questions posed to the physiologists included '*should I eat this before I swim'* (P4) and *'What's the best kind of warm up for this set?'* (P4). During training sessions, the physiologists took the participants' stroke counts, lactate levels and heart rates and the data was used determine training zones to help performance. Physiologists were also involved in monitoring participants through aerobic and anaerobic tests:

> *'When I got back into the pool, I was then starting a different phase of training that I hadn't done before, and what we were doing was we were monitoring how effective the gym programme had been. And seeing how, seeing if that translated well into the water'* — P8

Nutritionists provided informational support in the form of advice on diet and race day nutrition, and took body measurements which provided targets for the participants to aim for to maximise their performance.

> *'she's [nutritionist] been really helpful with me trying to expand my diet and like come up with better meal plans'* — P1
>
> *'she [nutritionist] kind of gave me some more education on the diet I was wanting to do'* — P8
>
> *'what I should be eating on a race day, I can use the nutritionist'* — P3
>
> *'There's like a range that you should really be within when it comes to like skin folds and like power to weight. Um. So she [nutritionist] just helps me kind of get as close to that as possible'* — P6

The participants also mentioned biomechanists and race analysts who provided specific data to help improve performance. They created a race report after each race which contains information on swimming-specific parameters which are then evaluated with the coach and athlete.

'the biomechanics team; they're involved in a lot of data analysis when we're at major meets. All the swimmers will be videoed and a race report will be created post-swim um so we can go back and um, evaluate that. It just has like the kind of bog-standard stuff that you would expect like stroke rates and splits, rotation time at the wall' — P6

'using kind of race analysts to work on technical parts, so, like, stroke rate' — P3

'Every para competition, uh, pretty much and breaks down all your splits, stroke rates and things like that. So it just gives you a wider understanding of how you, how you swim the race, and what's the best way to swim the race' — P8

The Home Programme Liaison (HPL) was mentioned, whose role was previously unknown to the researcher. Their responsibility was to act as a means of communication between athletes and British Swimming, and comments suggested that they were a trusted member of staff who participants felt they could talk to.

'they [HPL] communicate between the Performance Centre and people in their home programmes' — P3

'he's [HPL] kind of like a bridge between us [athlete and coach] and the rest of British Swimming' — P8

'they're [HPL] a good person to talk to as well if you want anything, if you want to kind of say something' — P3

Personal support sub-theme

Participants emphasised that they couldn't have achieved what they have without the support of their family and friends. Participant 4 said how they *'obviously know you best and, um, want the best for you, like away from the sport as well'* and that *'you couldn't do it on your own'*. When going through difficult times, family and friends were even more important:

'My mum and my friends keep me in the right head space to train, especially when I'm going through like injuries' — P1

The participants were very appreciative of and close to their parents and some mentioned how having friends who understood the demands of swimming was really important:

> *'I'm so lucky that I've got that support system around where I can talk and it, it helps me, like, really think about things and it's huge, yeah, support system to have, to have them in place'* — P5

> *'We're [mum and athlete] really close. I tell her like everything. Um. And I think if there was ever a time where I felt stressed or vulnerable or upset she would probably be the first person I spoke to'* — P6

> *'Really kind of understanding of like, "These are all the commitments that [athlete name]." They [friends] understand if I can't make something, if I can't do something then it's because of swimming'* — P3

Those with siblings involved in Paralympic sport mentioned that the informational support they provided was very value and informative for them. Those from a non-swimming family seemed to enjoy that their personal support network lacked an understanding of swimming:

> *'[my partner] doesn't know nothing about swimming and he's just like, "Oh, yeah, you're gonna do so well!"'* — P2

> *'[after a race] I'm already kind of looking at my times and kind of picking apart races and things like that, and my coaches also do that as well. So, to have like a third party [parents] doing that, it'd just be too much'* — P3

The performance lifestyle (PL) advisor is a relatively new role introduced to British para-swimming which involves supporting athlete wellbeing and personal and professional development alongside their sporting career (Ashfield, Harrison and Giles, 2018). They helped athletes plan for the future and prepare for life after swimming, as well as providing reassurance and helping participants make big decisions regarding their career. The PL advisors also sent participants emails about different opportunities available, supporting their personal development outside of sport.

> *'I think it's nice having a performance lifestyle advisor because they can really help you put something in place, they can help you find a bit of a career, so you never feel like, you never feel lost'* — P3

> *'To have someone [PL] there to kind of reassure you, and just kind of provide you with all the information, and just say it's okay'* — P8

Participant 5 and 7 also had agents who helped to organise aspects of their lives and arrange appearances to fulfil sponsorship contract obligations. Having an agent relieved them of other commitments that come with being an elite athlete, freeing up more time to focus on swimming.

> *'He [agent] knows when I can do stuff, when I can't due to competitions. So, again, it frees me of one less job to do, so I can actually go out there and, uh, do my training and perform, so I'm not having to think about replying to all these emails'* — P5

> *'He'll [agent] come back and say, "Have you done this? Have you done that? Have you done that?" So he'll keep me on, on track, make sure I've done everything'* — P7

3.4 Discussion

This is the first study to explore social support in elite para-swimmers, which led to the development of a new model visually reflecting the sources of support available to elite athletes. Key insights gained will provide understanding of the social support available to elite athletes to inform future advancements in the quality and quantity of support provided, ultimately maximising athlete wellbeing and performance.

3.4.1 Coach-athlete relationship theme

The athletes were close to their coaches who provided emotional, esteem and informational support to look after their wellbeing and performance. A strong coach-athlete relationship is of vital importance in elite sport and has been linked with athlete development, success and

high level performances (Gould et al., 1999; Greenleaf, Gould and Dieffenbach, 2001; Jowett and Cockerill, 2003). All athletes in this study spoke very highly of their coaches and it was clear how important it was to them to have a good coach-athlete relationship. They were very close to their coach, and there was a level of respect, trust and intimacy which is important for an effective working relationship and sport performance (Trzaskoma- Bicsérdy et al., 2007). Trust, friendship, emotional closeness and respect have been found to underline successful coach-athlete relationships, along with a shared goal (Gould et al., 1999; Greenleaf, Gould and Dieffenbach, 2001; Gould et al., 2001; Jowett and Cockerill, 2003) Conversely, a lack of trust, communication and closeness between the coach and athlete has been associated with reduced effectiveness of the relationship and poorer performance (Gould et al., 1999; Greenleaf, Gould and Dieffenbach, 2001; Jowett and Cockerill, 2003).

A conceptual model of the coach-athlete relationship created by Jowett (2001) contains the constructs of 'closeness', 'co-orientation' and 'complementarity'. The responses by the athletes in this study reflect this model, referring to the closeness, high levels of communication and trust, a shared goal and effective relationship interactions. The athletes made reference to the coach being approachable, a good listener and emotionally in tune with their needs. This shows how the coaches provided a form of emotional support through expressing caring and wanting what's best for their athlete. It also suggests that social skills such as communication, listening and empathy are an indispensable aspect of the coach-athlete relationship, as was also found with elite non-disabled male swimmers (Philippe and Seiler, 2005).

Coaches also provided esteem support to the athletes, giving them positive feedback during both training sessions and competitions. Praising the athletes after good training sessions and reassuring them of their hard work before races resulted in boosting the athletes' self-confidence and self-competence, improving performance. Studies with Olympians have found that high levels of confidence are associated with an improved performance, whereas experiencing a lack of self-confidence and questioning the coach's confidence in them has a negative impact on performance (Gould et al., 2001). This positive feedback and esteem support from coaches also impacted on athletes' self-esteem, improving their overall wellbeing as well as swimming performance. This highlights the value of a coach being able to motivate and inspire their athletes as well as boost their confidence and esteem.

Technical advice, such as improving swimming technique and developing race plans, was also seen as important to the execution of a good race. This suggests that it is important for the coach to have a high level of sporting technical and tactical expertise and understanding to be able to advise their swimmer and provide informational support. This was also found by Philippe and Seiler (2005) in their study with elite non-disabled swimmers. Providing inaccurate advice or changing technique has been associated with poorer performance, further showing the importance of the coach being knowledgeable about their sport (Greenleaf, Gould and Dieffenbach, 2001).

3.4.2 Team bond theme

Swimming is a unique sport in that nature that it involves early morning training sessions in order to fit in two workouts in one day, creating a special bond between the teammates as highlighted by Participant 2 (Swimming World, 2020a). Many studies have demonstrated the value of having a good set of teammates around you, in terms of both wellbeing and

performance (Garci and Mandich, 2005; Stillson, 2007; Powis, 2017). Teammates act as a second family due to the time spent together, making training more enjoyable and allowing close friendships to develop (Garci and Mandich, 2005; Stillson, 2007; Powis, 2017). This closeness can also mean that athletes are able to confide in and seek advice from teammates, which the participants in this study also experienced (Garci and Mandich, 2005; Silva, 2013; Haslett, Fitzpatrick and Breslin, 2017; Powis, 2017). Participants made comments about how close they were to certain members of their team and felt they could talk to them about anything, seeking sport-specific advice from teammates, both past and present. Teammates provided informational support in the form of advice about competitions, training and visiting new countries, allowing the athletes to prepare better for such experiences and improving their performance. There were also remarks about how the team spirit present at their clubs was motivating and the banter made the long training sessions enjoyable and pass by quickly. This sense of camaraderie has also been found to be a crucial part of sport and team atmosphere in other sports including cricket, sitting volleyball, wheelchair basketball and badminton (Garci and Mandich, 2005; Silva, 2013; Powis, 2017; Foster, Fitzgerald and Stride, 2019).

Teammates also provided esteem support for the athletes, motivating them during tough training sessions with positive remarks and complementing athletes on their performance and technique. These actions boosted athletes' self-esteem and self-confidence, and the support provided was greatly appreciated by the athletes. On the other hand, Arnold et al. (2017) reported some stressors which were associated with being part of a team, including the negative attitudes of others and communication issues. This negativity of others was supported by a comment from Participant 2 in this study about her experience with other

swimmers trying to put her down and 'psych her out' to affect her performance. All other comments were very positive, suggesting that negative experiences like this may be few and far between at the elite level of para-sport.

These findings were particularly interesting because swimming, in essence, is an individual sport, with less than 5% of events at the Paralympic Games being relays (Tokyo 2020, no date). Although the aim of swimming is to improve on individual personal best times, the huge role that teammates play in a swimmer's career and experience is evident, providing camaraderie during tough training sessions and cheering each other on at competitions (Swimming World, 2020b). The findings clearly demonstrate the importance of being part of a team comprising a close bond between teammates, a sense of belonging and a motivating atmosphere. These aspects contribute to improved esteem, confidence and competence, maximising the athletes' wellbeing and performance.

3.4.3 Tangible aid theme

Sports medicine support is used by para-swimmers to enhance their training and performance through maximising recovery and reducing injury risk (Malcolm, 2017; British Swimming, no date-f). The sport medicine support available to the British para-swimmers is provided by physiotherapists, soft tissue therapists and doctors (British Swimming, no date-f). The participants in this study used both physiotherapy and soft tissue therapy frequently, mainly for maintenance and injury management. Both forms of treatment were seen as a very important form of tangible support as it provided physical and mental recovery, aiding both swimming performance and athlete wellbeing. In some cases physiotherapists also provided emotional and informational support by showing caring for the athletes and giving them advice on injury management. The diverse nature of the role has been highlighted

previously, with physiotherapists providing treatment to heal injuries, provide maintenance and aid recovery, as well as providing general advice (Grant et al., 2014). A key idea within this sub-theme was about how sports medicine should be used educationally and be about the prevention of injury rather than the remediation. This suggests that the educational power of physiotherapy should be harnessed to teach both athletes and coaches about injury prevention. This could be via British para-swimming physiotherapists travelling to clubs or regions occasionally to teach swimmers or providing online courses to coaches, delivering material around pre-pool activation and post-pool recovery. It is unknown whether this currently happens – if not, it is something that should be considered because increased knowledge and understanding in this area can only be beneficial to athletes, reducing injury and boosting performance.

An integral component of elite sport is funding, which enables athletes to focus full time on their sport. The funding system in the UK is provided the National Lottery and Exchequer income and invested by UK Sport (UK Sport, no date-a). All athletes in this study were on the WCP and therefore in receipt of an APA from UK Sport (UK Sport, no date-a). They were all grateful for the financial support they received as it enabled them to focus on swimming and be full-time athletes, removing the pressure of having to get a job. Some studies have suggested that there are stressors that come with being a funded athlete, such as the expectation to perform and additional responsibilities (Brittain, 2002; Huang, 2005; Arnold et al., 2017). However no athletes in this study mentioned any pressures or expectations related to funding, which may have been because they were ranked highly globally so felt secure in their position and funding status. In some cases the athletes had to seek additional financial support as the funding was not enough for them to live off, which has also been

the case for other British athletes in the past (Huang, 2005). Each athlete has individual requirements and specific living costs so it is unlikely that the standardised funding amount would be sufficient to cover everyone's needs. To increase the financial security of swimming as a career it was suggested that there is a cap on how much funding is decreased after a poor performance or season. This would mean rather than a swimmer moving down WCP levels from 'podium' to 'podium potential', which is a considerable drop in funding, they would receive a reduction in funding proportional to the reduction in their performance standard (British Swimming, no date-g). This idea would pose considerable monetary and logistically challenges, not to mention requiring the involvement and agreement of organisations including UK Sport. After all, the nature of performance sport is cut-throat.

3.4.4 British Para-swimming theme

'A happy swimmer is a fast swimmer' is a frequently used phrase in the swimming world and one which the researcher has heard often. It refers to the concept that if an athlete is happy with their coach, their programme and in themselves, then they will perform well. Responses of this nature were given when the athletes were asked if they would move to the NPC, adamant that there's no need to fix what's not broken.

The NPC for British para-swimming is located in Manchester and acts as the training base for the British swimmers (British Swimming, no date-d; British Swimming, no date-h). The NPC is home to the Kistler Performance Analysis System – an advanced piece of technology which analyses a swimmer's starts, turns and relay takeovers (British Swimming, no date-e; Kistler, 2019). Biomechanical analysis of parameters including reaction time, power, angles and split times are available instantly along with video recordings. The data provides

coaches and athletes with the information needed to improve start and turn technique, and therefore overall swimming performance (Kistler, 2019). Having access to this unique technology was appreciated by the athletes, as was the training environment as a whole, including the facilities and staff.

There were however some suggestions made by the athletes about how the NPC could be improved, which discussed below. Most athletes in this study were not based at the NPC and lived a considerably distance away. Therefore they did not have frequent access to the support staff employed by British Swimming. They felt that if the resources were more accessible then they would use the support more frequently, which would potentially result in an improved performance. The athletes also mentioned how face-to-face contact was preferred over phone conversations. Both logistically and financially it is assumed it would not be possible to create a second NPC located in the south. Therefore a suggestion to increase face-to-face contact would be for certain NPC support staff (e.g. PL advisors, psychologists and nutritionists) to visit the WCP athletes on a monthly basis in their home programmes, providing a regular means of support for these athletes.

Some athletes in this study referred to the high turnover of staff at British Swimming due to the employment of young individuals who moved on quickly to *'bigger and better things'* (P2). A suggestion to improve this and create stability for the swimmers is to employ individuals who are more experienced in their roles, have an understanding of swimming and an interest in para-sport. Employing someone with these qualities and encouraging job retention may improve the support for athletes. One athlete also highlighted the importance of communication between British Swimming and the swimmers, giving the recent example regarding COVID-19 and the postponement of the Paralympic Games (BBC

News, 2020). Keeping athletes in the know about all aspects of para-swimming would provide reassurance and comfort, enabling athletes to focus on their swimming without additional stressors.

Finally, some athletes mentioned a lack of support when dealing with mental health concerns, re-classifications and poor races. Although staff from British Para-Swimming have completed Mental Health First Aid training, a suggestion to improve this is to keep the training up to date to ensure all staff can employ techniques to best support athletes mentally (British Swimming, 2018). A sufficient understanding of the classification process would also prove useful to better support athletes who are undergoing the stress and anxiety of re-classification. The process of re-classification can be isolating and traumatic, supporting the claims made by an athlete in this study, and para-swimmers and their coaches should be provided with more information about the process (Bundon et al., 2018; Van Dornick and Spencer, 2019). Elite para-athletes experience both sport and disability-specific stressors, such as re-classification, which have the potential to affect both wellbeing and performance, further highlighting the need for appropriate mental health support for the athletes (Macdougall, O'Halloran, Shields and Sherry, 2015; Swartz et al., 2019).

3.4.5 The Podium Illusion

'The Podium Illusion' was a model developed as a result of the realisation of the magnitude of support provided to athletes throughout their career and the impact it has on their wellbeing and performance. The Podium Illusion' (Figure 7) illustrates every form of support mentioned by the participants in this study – 25 in total. Elite athletes in all sports receive at least some of the forms of support represented in the model, and therefore this new model

can potentially be transferable to all performance sports. It clearly demonstrates just how many individuals play a role in an athlete's success on the international stage.

In terms of performance-based support, S&C coaches prescribed the athletes in this study with dry-land exercises which were specific to the demands of swimming and directly translated into performance in the water. This training provided, such as resistance and plyometric, is essential to the improvement of swimming performance and reduction in injury risk (Bishop, Smith, Smith and Rigby, 2009; Bishop et al., 2013; Fig, 2005; Batalha et al., 2015; Amaro et al., 2019).

Sport psychology helps athletes prepare psychologically for the demands of elite sport and involves psychological skills training, such as goal setting and visualisation, which have been demonstrated to improve performance in national level swimmers (EIS, no date-a; Sheard and Golby, 2006). The participants sought psychology support during difficult points in their careers, receiving advice to help them overcome mental challenges. An example of this was when experiencing 'post-Paralympic blues' – a period involving intense emotions and mood fluctuations, such as disappointment, depression and euphoria, and a loss of identity as a result of success or underperforming at the Games (Howells and Lucassen, 2018; Henriksen et al., 2020). More support was sought during a 'plateau year', where an athlete does not experience an improvement in their performance, which can be frustrating and confusing (Mosewich, Crocker and Kowalski, 2014). The participants in this study also received wellbeing and emotional support from their psychologists who acted as someone to talk to, showing the diversity of support that can be provided by these practitioners.

Physiologists conduct tests and measure physiological swimming-specific parameters, advising coaches and athletes on training and competition to improve performance (EIS, no

date-b). Similarly, they measured participants' heart rates, stroke counts and lactate levels, using the data generated to inform training. Nutritionists educate and advise athletes on diet to ensure effective performance and to reduce the risk of injury and illness (EIS, no date-c; Martin, Zimmerman and Ciotto, 2015). The nutritionists provided informational support to improve diet and advised on optimal fuelling for training sessions and race day performance, supporting previous findings (Martin, Zimmerman and Ciotto, 2015). They also recorded body measurement data in the form of skin folds, which provide insight into the optimal body composition for maximal performance specific to each athlete (Sport Medicine and Science Council of Saskatchewan, no date). The purpose of performance analysis for the participants was to record and improve their technique, pacing and specific race components. The objective statistical and visual feedback generated enables the effectiveness of training and race pacing to be evaluated and has been found to improve Paralympic swimming performance through allowing race strategies to be adjusted (Burkett and Mellifont, 2008; Puce et al., 2018).

The personal support received was also seen as crucial to the participants' success and ability to continue swimming. The importance of emotional support provided by friends and family has been demonstrated in many studies and involves helping athletes cope with stress, recover from injury and transition to retirement from sport (Bianco, 2001; Greenleaf, Gould and Dieffenbach, 2001; Brown, Webb, Robinson and Cotgreave, 2018). The support provided was no different in this study, with participants expressing a sense of closeness, trust and understanding with their family and friends, as well as receiving mental health support.

PL practitioners *'support athletes and sports to create environments and ways of living where an athlete's sporting and non-sporting lives work together and complement each other for the benefit of the individual long term as well as their current sporting performance'* (Ashfield, Harrison and Giles, 2018, p. 204). They help athletes with their career and personal development, adopting mentoring techniques to support their wellbeing as well as sporting career (Ashfield, Harrison and Giles, 2018; EIS, no date-d). In para-sport the additional stressors of classification may affect athlete wellbeing and is something that should be supported by both the PL advisor and psychologist (Ashfield, Harrison and Giles, 2018). The participants in this study received careers advice to help plan for the future and manage the transition from sport. One participant also mentioned receiving personal and professional development opportunities from his PL advisor, helping him to progress outside of sport. Despite the novelty of this role, it plays a vital part in ensuring the balance between the overall wellbeing and development of athletes and the pursuit of high performance sport (Ashfield, Harrison and Giles, 2018; EIS, no date-d).

3.4.6 Strengths

There were several strengths to this study. Firstly, the sample used was representative of elite British para-swimmers as a whole as it comprised a range of ages, swimming classification categories, IPC impairments and international competition experience. This meant all that participants had experience with social support but there was diversity in their experiences, providing thick, rich data and allowing an in-depth investigation into social support (Giacomini and Cook, 2000; Moser and Korstjens, 2018).

Secondly, semi-structured interviews were used for data collection which is the most common methodology to collect data pertaining to phenomena, and therefore was

appropriate to answer the aim and objectives of this study (Smith, Flowers and Larkin, 2009; Carter et al., 2014; Sloan and Bowe, 2014). Additionally, the topic guide was informed by existing literature, discussions with elite para-sport practitioners and pilot and cognitive interviews with two Paralympians (Griffee, 2005; Knafl et al., 2007). This meant that the measures were appropriate for the participants and pertinent to the research objectives.

Thirdly, several measures were undertaken throughout the process to ensure high quality research including: clear exposition of methods, reflexivity, triangulation and member checking (see 3.2.5) (Mays and Pope, 2000; Morse, 2015; Thomas, 2017). Employment of these methods, along with a detailed description of the researcher's interests and background (see 3.2.6), ensured the high quality and trustworthiness of the results.

Finally, another key strength of this study was the involvement of the stakeholder group, with who many meetings were held which enabled the researcher to discuss ideas and interpretations, benefitting the analysis process.

3.4.7 Limitations

The first limitation to consider was that the data collection was limited to one means: semi-structured interviews. If method triangulation had been employed, such as also collecting data via observations, this may have resulted in a deeper insight and understanding of the participants experiences of social support (Shenton, 2004; Carter, N. et al., 2014).

In terms of the sample, there was no variation in the nationality or ethnicity of the participants as all eight were white British. Therefore it is assumed that the findings from this study are only applicable to those of the same nationality and ethnicity. Although all 10 of the IPC impairment categories were represented, as were the 3 types of swimming

classification categories, only five classifications were represented: S5, S6, S9, S12 and S14. It is possible that if a wider range of classification categories were included there may have been additional variation or unique experiences reported.

The Framework Method was deemed most appropriate to analyse the data in this study, however there was a limitation to its use. As stated by Gale et al. (2013), a skilled, experienced qualitative researcher should ideally lead the analysis and receive support from other members of the research team. The researcher was not overly experienced in qualitative research; however she received a good level of support from the stakeholder group in the analysis of the data, reducing the impact of this limitation.

3.5 Conclusion

3.5.1 Implications of qualitative study

Several performance support staff were mentioned who covered all aspects of performance and provided all forms of social support, suggesting that having a contingency of knowledgeable and specialised support staff contributes substantially to athletic success. A new model was created called 'The Podium Illusion' which visually and succinctly represents the support an athlete receives and has the potential to be transferable to other elite sports. Participants sought more support around competitions, suggesting that the aim of the support available is focused on successful performances and that the support offered by support staff should be increased around these times to reflect this.

The findings demonstrate that a strong coach-athlete relationship is essential to elite sporting success, and that should an athlete seek success, they must also seek a coach with

whom they can form a close bond. Similarly, the camaraderie and team spirit provided by teammates implies they are an essential component of success and an athlete should look for these qualities in a team when choosing a club. A clear message was that without funding, high level performances would not be possible. This is something that a NGB should consider when contemplating reducing an athletes' funding and the subsequent impact on performance outcomes. The importance of receiving personal support was clear and implies that without good overall health and wellbeing it is unlikely that an athlete will perform to such a high standard. Finally the suggestions for British para-swimming, including ensuring staff retention and mental health training, could be considered by other NGBs should they wish to improve the support they provide.

3.5.2 Recommendations for future research

Further research is needed to build on the findings of this study and provide a greater depth of knowledge in the field of social support in para-sport. This phenomenon should be explored in elite para-swimming populations in other countries, allowing the comparison of the availability and quality of social support across swimming nations. The experiences of social support should also be explored in other para-sports within Great Britain to investigate and compare the support available to athletes between sports. Specific investigations should be made into team sports, such as wheelchair basketball, and individual sports, such as powerlifting, to allow comparison of social support experiences between a team environment and individual sport. An understanding of this phenomenon would enable identification of the areas for improvement in specific sports and allow sports to build on their successes, maximising the performance and wellbeing of their athletes.

Future studies could also focus specifically on the performance and personal support available to athletes, allowing a more in-depth investigation into the role of these forms of support on athlete success and wellbeing. Studies could also consider specifically the role of financial support on performance and wellbeing as it appears to be multi-faceted, with athletes receiving support from funding, sponsorship, donations and family.

3.5.3 Conclusions

The coach-athlete relationship is of paramount importance to athletic success and this is something that cannot be understated. Teammates provide social support, boosting athletes' self-esteem, providing motivation and offering sport-related advice despite swimming essentially being an individual sport. The financial support in the form of APA and sponsorship is another key aspect of elite sport, enabling the participants to focus fully on swimming. The personal support provided by family, friends, PL advisors and agents is also vital in ensuring overall athlete wellbeing, which is linked to swimming success. There is a whole network of social support on offer which contributes to the performances and wellbeing of an elite para-athlete, reflected in the new model 'The Podium Illusion'.

CHAPTER 4 - DISCUSSION

This chapter presents a discussion of the findings from the systematic review and the qualitative study in relation to social support and elite para-sport.

4.1 Social support

The first aspect of this thesis which needs to be considered is the large contrast in the quantity of social support reported by the elite athletes in the systematic review compared to the para-swimmers in the qualitative study. The synthesis of the systematic review studies highlighted three forms of support consistently mentioned: the coach, teammates and NGBs. However, research has demonstrated that elite athletes have access to a large team of support staff who work together to support the athlete's performance and wellbeing (Gould et al., 1999; Greenleaf et al., 2001; Burns, Weissensteiner and Cohen et al., 2019). It should be taken into consideration that half of the studies comprising the 'Support' theme in the systematic review were conducted over 10 years ago. A possible explanation for this lack of support could be that there was less support available to elite athletes at that time, as the more recent increases in investment and awareness of Paralympic sport had yet to occur (UK Sport, no date-d; Blauwet and Willick, 2012). Nonetheless, this dearth of support reported in the systematic review was surprising, and provided the rationale for the qualitative study exploring further the phenomenon of social support in elite para-sport. Investigation of the experiences of social support in elite para-swimmers demonstrated 25 forms of support, all of which contributed to their wellbeing and performance and encompassed the four forms of social support described by Cutrona and Russell (1990). This

large difference in social support is likely to be due to the qualitative study being the first to explore in-depth the experiences of social support in elite para-athletes.

4.1.1 Common forms of social support

The coaches were mostly portrayed negatively in the systematic review and there were no instances in which a coach was described as providing a good level of social support to the participants. The clear message was that the coaches did not have a suitable knowledge of para-sport or an understanding of para-athletes, which affected the participants' performance and wellbeing (Brittain, 2002; Silva, 2013; Arnold et al., 2017). A coach lacking in communication skills, empathy and technical expertise is not beneficial for the coach-athlete relationship and has the potential to negatively affect an athlete's performance (Greenleaf, Gould and Dieffenbach, 2001; Philippe and Seiler, 2005). This finding was in complete contrast to the qualitative study where there was a high degree of closeness, trust and respect between the coach and para-swimmer. The coaches provided emotional, esteem and informational support through being a good listener and showing empathy, giving praise and reassurance, and offering technical and tactical knowledge. The findings demonstrated the wide variety of skills and knowledge a coach must have to deliver these forms of support. It also highlighted the importance and benefits of having a strong coach-athlete relationship in enabling para-swimmer success and happiness, supporting the findings in non-disabled athletes (Gould et al., 1999; Greenleaf, Gould and Dieffenbach, 2001; Jowett and Cockerill, 2003).

Teammates were an important part of the sport experience in the systematic review and they also provided several forms of social support to the para-swimmers. Both sets of participants received advice from their teammates, regarding preparation for future

competitions or dealing with personal problems, suggesting a closeness and trust between members of an elite team (Garci and Mandich, 2005; Haslett, Fitzpatrick and Breslin, 2017). Camaraderie was an important aspect of the sport experience for the elite athletes in the systematic review and the para-swimmer population, comprising an integral component of the overall sport experience and creating a strong team spirit and intimacy between team members. Despite this, to the best of the researcher's knowledge no studies have investigated the role of camaraderie on sport performance and overall wellbeing of elite para-athletes. This would be of interest to explore further in 'individual' sports, such as para-swimming, where although teammates spend a lot of time together training and competing, it is essential an individual sport (Swimming World, 2020b). The para-swimmers also received esteem support from their teammates in the form of complements on technique and motivating comments to push them on during tough training sessions. Both the systematic review and qualitative study highlighted the significance of having a good set of teammates in terms of wellbeing and performance, and is something that should be considered by an athlete when choosing a new training programme or club (Garci and Mandich, 2005; Stillson, 2007; Powis, 2017).

The final common form of support was the NGBs who were represented very negatively in the systematic review findings, which suggested that they did not have an understanding of para-sport and treated the athletes in an inferior and patronising manner (Brittain, 2002; Huang, 2005). In some cases the athletes felt discriminated against, receiving less opportunities and funding than non-disabled athletes (Huang, 2005; Arnold, 2017). Again, these findings contrast those of the qualitative study, where the para-swimmers were appreciative of the many forms of support they received and the technology they had

access to through British para-swimming (British Swimming, no date-d; British Swimming, no date-e; British Swimming, no date-f). Certain instances of insufficient support were mentioned by the para-swimmers, such as after poor race performances and when experiencing re-classification anxieties, which have the potential to affect wellbeing due to the increased stress (Bundon et al., 2018; Swartz et al., 2019). However their overall experience with the NGB was positive and the para-swimmers felt well supported, opposing the systematic review findings.

4.1.2 Para-swimming social support

Several sources of support and performance support staff were discussed by the para-swimmers which were not mentioned in the systematic review findings. Treatment from the physiotherapists and soft tissue therapists provided the para-swimmers with a form of mental and physical recovery, and helped to heal injuries, provide maintenance and aid recovery following training or competition (Grant et al., 2014). The S&C coaches delivered gym programmes to increase muscle strength and reduce injury risk, playing a vital role in improving swimming performance (Bishop, Smith, Smith and Rigby, 2009; Bishop et al., 2013; Fig, 2005; Batalha et al., 2015; Amaro et al., 2019). Psychology support prepares athletes psychologically for the demands and stressors associated with training and competition, and was of particular value to the para-swimmers during difficult times in their careers, such as when experiencing 'post-Paralympic blues' or a 'plateau year' (see 3.4.5) (Mosewich, Crocker and Kowalski, 2014; Howells and Lucassen, 2018; Henriksen et al., 2020). Physiologists conducted tests to measure swimming-specific parameters, such as heart rate and blood lactate levels, providing data to inform training and improve overall performance (EIS, no date-b). The para-swimmers also had access to nutritionists who

provided education on new diets and advice on optimal fuelling for swimming races, which is important for maximising performance and recovery, and reducing the risk of injury and illness (EIS, no date-c; Martin, Zimmerman and Ciotto, 2015). The final forms of performance-based support mentioned by the para-swimmers were performance analysts and biomechanists, who collected and analysed data on specific race components to determine areas of improvement for the next race. This support enables the effectiveness of a race strategy to be evaluated and adjusted if required, ultimately improving swimming performance (Burkett and Mellifont, 2008; Puce et al., 2018).

Friends and family provided vital emotional support throughout the para-swimmers' careers but particularly during difficult times, such as recovering from injury, demonstrating the significance of their role (Bianco, 2001; Greenleaf, Gould and Dieffenbach, 2001; Brown et al., 2018). PL advisors were also important in helping the para-swimmers plan for the future and progress with their personal skills, which is an important aspect of being an elite athlete (Ashfield, Harrison and Giles, 2018; EIS, no date-d). Finally, agents helped to manage the administrative side of being an elite athlete, such as answering emails and tending to sponsorship agreements, which reduced the pressure on the para-swimmers and allowed them to focus fully on swimming.

4.2 Funding

Financial support is an essential component of elite sport, and enables athletes to train full-time and not have to worry about getting a job alongside their sporting career. The para-swimmers received funding in the form of an APA from UK Sport and were all very appreciative of the support they received, feeling fortunate and lucky to be in that position (UK Sport, no date-a). It allowed them to be full-time athletes and focus fully on their sport,

taking a weight off their shoulders. The systematic review findings were in agreement with this and funding was generally viewed in a positive light (Arnold et al., 2017). The systematic review findings also suggested that funding created more opportunities for and recognition of the athletes, which were not mentioned by the para-swimmers (Brittain, 2002; Huang, 2005). This is possibly due to the 'Paralympic Movement' which has led to increased awareness and appreciation of para-sport and para-athletes, meaning the para-swimmers did not require the funding to feel valued or receive more opportunities (IPC, no date-c; Thomas and Smith, 2008; Blauwet and Willick, 2012).

However, there were some stressors mentioned by participants which are worth discussing. In both studies, there were some cases where the funding received was not enough to live off and the athletes had to actively seek more financial support from other sources to supplement the funding (Huang, 2005). A possible explanation is that each athlete has individual requirements and living costs which are specific to their situation and disability, and therefore the standard amount of funding may not be sufficient to cover all athletes' needs. Interestingly, the systematic review findings suggested that the athletes experienced additional pressure to perform and reach certain achievements or times as a result of the funding, which is not conducive to a good performance (Brittain, 2002). No para-swimmers reported feeling any pressure to perform, but this may have been because they were all ranked relatively highly globally and felt that their position within the funding system was secure.

4.3 Strengths of thesis

There are many strengths to this thesis, the first being the employment of rigorous methods at every stage of the process in both studies. The systematic review followed a pre-defined

protocol and was reported in accordance with PRISMA and ENTREQ, increasing the transparency of the research. Several literature sources were searched and well-established appropriate methods were used for data synthesis and quality assessment which were specific to the study designs. The qualitative study was reported in accordance with COREQ and employed rigorous methods including reflexivity, member checking and pilot and cognitive interviews. The sample used was representative of British para-swimmers and data triangulation was employed through the inclusion of participants with a range of swimming classifications, impairments and international competition experience.

Secondly, a stakeholder group was involved in both the systematic review and qualitative study, which comprised three experienced qualitative researchers and a para-sport practitioner. Meetings with the stakeholder group greatly benefitted the analysis process of both studies through enabling the discussion of ideas and receiving multiple perspectives on the data.

Thirdly, an audit trail was maintained throughout the systematic review and the qualitative study and is located in Appendices 8 and 16. This enables the reader to observe how the data were interpreted and analysed, enabling examination of how the researcher generated the themes and reached the conclusions of each study.

4.4 Limitations of thesis

In terms of limitations, the analysis of the second objective of the systematic review was limited. This is because very few of the included studies explored the perceived health benefits of sport participation, and in those which did, not all participants discussed the benefits. Therefore it is necessary to consider that the second objective may not have been

met sufficiently. However it did demonstrate the need for further research in this area to determine the population-specific health benefits of sport participation which can be used by health professionals and policy makers to encourage participation in these populations.

Finally, another limitation to this thesis was the qualitative study sample. Although it was representative of British para-swimmers in terms of gender and ethnicity, the findings may not be transferable to other sports and countries. Therefore more research is needed into the phenomenon of social support in different sports and across other countries to enable comparisons of social support experiences, enabling identification of areas of improvement and allowing sports to build on successful areas, improving the support for their athletes.

4.5 Conclusions

The two studies conducted in this thesis were both novel in exploring areas which have not been investigated before. The systematic review highlighted the many positive aspects and health benefits associated with sport participation across three populations. Sport provided children and adolescents with an opportunity to socialise and experience happiness and pride. For adults, sport enabled feelings of freedom, belonging and purpose, and provided a means to challenge disability stereotypes. These positive aspects should be promoted when encouraging the participation of these individuals in sport. The elite athletes demonstrated passion and dedication, and desired more recognition and appreciation of their achievements. Considerably more research is required to explore the experiences and perceived health benefits of sport for veterans with a disability. The qualitative study built on the findings of the systematic review and explored the experiences of social support in elite para-swimmers, aiming to fill the dearth of literature in this field. The findings established the social support available to elite athletes, particularly highlighting the

importance of the coach-athlete relationship, supportive and motivational teammates and sufficient financial backing. A new model was developed called 'The Podium Illusion' which reflects the many different sources of support an elite athlete receives in order to achieve success, and is potentially transferrable to other elite sports. There were substantially more sources of support mentioned by the elite para-swimmers in comparison to the systematic review, which is likely to be as a result of this study being the first to explore in-depth the experiences of social support in elite para-sport. Overall, this thesis has highlighted the value of sport participation for individuals with a disability, as well as demonstrating the quantity and quality of support that elite para-athletes receive in order to reach the pinnacle of their sport.

Activity alliance (2020) *Fears for the future generation as report shows disabled children miss out.* Available at: http://www.activityalliance.org.uk/news/5668-fears-for-future-generation-as-report-shows-disabled-children-miss-out (Accessed 3 March 2020).

Amaro, N.M., Morouco, P.G., Marques, M.C., Batalha, N., Neiva, H. and Marinho, D.A., 2019. A systematic review on dry-land strength and conditioning training on swimming performance. *Science & Sports*, *34*(1), pp.e1-e14.

Anderson, D., 2009. Adolescent girls' involvement in disability sport: Implications for identity development. *Journal of Sport and Social Issues*, *33*(4), pp.427-449.

Arnold, R., Wagstaff, C.R., Steadman, L. and Pratt, Y., 2017. The organisational stressors encountered by athletes with a disability. *Journal of Sports Sciences*, *35*(12), pp.1187-1196.

Aujla, I.J., 2020. 'It's my dream come true': experiences and outcomes of an inclusive dance talent development programme. *British Journal of Special Education*, *47*(1), pp.48-66.

Aytur, S., Craig, P.J., Frye, M., Bonica, M., Rainer, S., Hapke, L. and McGilvray, M., 2018. Through the lens of a camera: exploring the meaning of competitive sport participation among youth athletes with disabilities. *Therapeutic recreation journal*, *52*(2), pp.95-125.

Bantjes, J., Swartz, L. and Botha, J., 2019. Troubling stereotypes: South African elite disability athletes and the paradox of (self-) representation. *Journal of community psychology*, *47*(4), pp.819-832.

Barefield, S. and McCallister, S., 1997. Social support in the athletic training room: athletes' expectations of staff and student athletic trainers. *Journal of Athletic Training*, *32*(4), p.333.

Barfield, J.P. and Malone, L.A., 2013. Perceived exercise benefits and barriers among power wheelchair soccer players. *Journal of rehabilitation research and development, 50(2),* pp.231-238.

Batalha, N., Raimundo, A., Tomas-Carus, P., Paulo, J., Simão, R. and Silva, A.J., 2015. Does a land-based compensatory strength-training programme influences the rotator cuff balance of young competitive swimmers?. *European journal of sport science*, *15*(8), pp.764-772.

Bates, L., Kearns, R., Witten, K. and Carroll, P., 2019. 'A level playing field': Young people's experiences of wheelchair basketball as an enabling place. *Health & place*, *60*, p.2-9.

BBC News (2020) *Tokyo 2020: Olympic and Paralympic Games postponed because of coronavirus.* Available at: https://www.bbc.co.uk/sport/olympics/52020134#:~:text=The%20Tokyo%202020%20Olympic%20and,no%20later%20than%20summer%202021%22. (Accessed: 1 August 2020).

Bianco, T., 2001. Social support and recovery from sport injury: Elite skiers share their experiences. *Research quarterly for exercise and sport*, *72*(4), pp.376-388.

Bishop, C., Cree, J., Read, P., Chavda, S., Edwards, M. and Turner, A., 2013. Strength and conditioning for sprint swimming. *Strength & Conditioning Journal*, *35*(6), pp.1-6.

Bishop, D.C., Smith, R.J., Smith, M.F. and Rigby, H.E., 2009. Effect of plyometric training on swimming block start performance in adolescents. *The Journal of Strength & Conditioning Research*, *23*(7), pp.2137-2143.

Blauwet, C. and Willick, S.E., 2012. The Paralympic Movement: using sports to promote health, disability rights, and social integration for athletes with disabilities. *PM&R*, *4*(11), pp.851-856.

Blinde, E.M. and McCallister, S.G., 1999. Women, disability, and sport and physical fitness activity: The intersection of gender and disability dynamics. *Research quarterly for exercise and sport*, *70*(3), pp.303-312.

Blinde, E.M. and Taub, D.E., 1999. Personal empowerment through sport and physical fitness activity: Perspectives from male college students with physical and sensory disabilities. *Journal of Sport Behavior*, *22*(2), p.181.

Bowers, K., Corby, D., Lambert, V., Staines, A., McVeigh, T., McKeon, M., Hoey, E., Belton, S., Meegan, S., Walsh, D. and Trepel, D., 2016. People with intellectual disability and their families' perspectives of Special Olympics Ireland: Qualitative findings from the SOPHIE study. *Journal of Intellectual Disabilities*, *20*(4), pp.354-370.

Bramer, W.M., de Jonge, G.B., Rethlefsen, M.L., Mast, F. and Kleijnen, J., 2018. A systematic approach to searching: an efficient and complete method to develop literature searches. *Journal of the Medical Library Association: JMLA*, *106*(4), p.531.

Brinkmann, S. and Kvale, S., 2005. Confronting the ethics of qualitative research. *Journal of constructivist psychology*, *18*(2), pp.157-181.

British Swimming (no date-a). *Paralympic Swimming.* Available at: https://www.britishswimming.org/browse-sport/para-swimming/paralympic-swimming/ (Accessed: 3 July 2020).

British Swimming (no date-b) *Classification.* Available at: https://www.britishswimming.org/performance/para-swimming/classification/ (Accessed: 3 July 2020).

British Swimming (no date-c). *Para-swimming selection policies.* Available at: https://www.britishswimming.org/performance/para-swimming/para-swimming-selection-policies/ (Accessed: 3 July 2020).

British Swimming (no date-d). *National performance centre.* Available at: https://www.britishswimming.org/performance/para-swimming/national-performance-centre/ (Accessed: 3 July 2020).

British Swimming (no date-e). *Para-swimming leads the way with kistler.* Available at: https://www.britishswimming.org/performance/para-swimming/kistler-british-para-swimming/ (Accessed: 3 July 2020).

British Swimming (no date-f). *Training and sports science.* Available at: https://www.britishswimming.org/performance/para-swimming/training-and-sports-science/ (Accessed: 3 July 2020).

British Swimming (no date-g) *World class pathway.* Available at: https://www.britishswimming.org/performance/para-swimming/world-class-pathway/ (Accessed: 10 July 2020)

British Swimming (no date-h) *History of para-swimming.* Available at: https://www.britishswimming.org/browse-sport/para-swimming/about-para-swimming/history-para-swimming/#:~:text=Para-Swimming%20is%20governed%20by,International%20Paralympic%20Committee%20(IPC).&text=Para-Swimming (Accessed 20 July 2020).

British Swimming (2018). *British swimming and mental health.* Available at: https://www.britishswimming.org/news/general-swimming-news/british-swimming-and-mental-health/#:~:text=Staff%20from%20each%20discipline%20and,raising%20awareness%20of%20mental%20health. (Accessed: 21 July 2020).

Brittain, I. (2002) *Perspectives of elite athletes with disabilities: problems and possibilities.* PhD Thesis. Brunel University London. Available at: https://bura.brunel.ac.uk/handle/2438/6632 (Accessed: 10 June 2020).

Britten, N., Campbell, R., Pope, C., Donovan, J., Morgan, M. and Pill, R., 2002. Using meta ethnography to synthesise qualitative research: a worked example. *Journal of health services research & policy*, *7*(4), pp.209-215.

Broadhead, W.E., Gehlbach, S.H., DeGruy, F.V. and Kaplan, B.H., 1989. Functional versus structural social support and health care utilization in a family medicine outpatient practice. *Medical care*, pp.221-233.

Brown, C.J., Webb, T.L., Robinson, M.A. and Cotgreave, R., 2018. Athletes' experiences of social support during their transition out of elite sport: An interpretive phenomenological analysis. *Psychology of Sport and Exercise*, *36*, pp.71-80.

Bundon, A., Ashfield, A., Smith, B. and Goosey-Tolfrey, V.L., 2018. Struggling to stay and struggling to leave: The experiences of elite para-athletes at the end of their sport careers. *Psychology of Sport and Exercise*, *37*, pp.296-305.

Burkett, B. and Mellifont, R., 2008. Sport science and coaching in Paralympic swimming. *International Journal of Sports Science & Coaching*, *3*(1), pp.105-112.

Burns, L., Weissensteiner, J.R. and Cohen, M., 2019. Lifestyles and mindsets of Olympic, Paralympic and world champions: is an integrated approach the key to elite performance?. *British journal of sports medicine*, *53*(13), pp.818-824.

Caddick, N. and Smith, B., 2014. The impact of sport and physical activity on the well-being of combat veterans: A systematic review. *Psychology of sport and exercise*, *15*(1), pp.9-18.

Carin-Levy, G. and Jones, D., 2007. Psychosocial aspects of scuba diving for people with physical disabilities: an occupational science perspective. *Canadian Journal of Occupational Therapy*, *74*(1), pp.6-14.

Carroll, D.D., Courtney-Long, E.A., Stevens, A.C., Sloan, M.L., Lullo, C., Visser, S.N., Fox, M.H., Armour, B.S., Campbell, V.A., Brown, D.R. and Dorn, J.M., 2014. Vital signs: disability and physical activity—United States, 2009–2012. *MMWR. Morbidity and mortality weekly report*, *63*(18), p.407.

Carter, B., Grey, J., McWilliams, E., Clair, Z., Blake, K. and Byatt, R., 2014. 'Just kids playing sport (in a chair)': Experiences of children, families and stakeholders attending a wheelchair sports club. *Disability & Society*, *29*(6), pp.938-952.

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J. and Neville A.J., 2014. The use of triangulation in qualitative research. *Methods and meanings, 41*(5), pp.545-547.

Cavanagh, S., 1997. Content analysis: concepts, methods and applications. *Nurse researcher*, *4*(3), pp.5-16.

Cherney, J.L., Lindemann, K. and Hardin, M., 2015. Research in communication, disability, and sport. *Communication & Sport*, *3*(1), pp.8-26.

Clarivate (no date). *EndNote X9.* Available at: https://endnote.com/ (Accessed: 7th January 2020).

Cooke, A., Smith, D. and Booth, A., 2012. Beyond PICO: the SPIDER tool for qualitative evidence synthesis. *Qualitative health research*, *22*(10), pp.1435-1443.

Côté-Leclerc, F., Duchesne, G.B., Bolduc, P., Gélinas-Lafrenière, A., Santerre, C., Desrosiers, J. and Levasseur, M., 2017. How does playing adapted sports affect quality of life of people with mobility limitations? Results from a mixed-method sequential explanatory study. *Health and Quality of Life Outcomes*, *15*(1), p.1-8.

Cutrona, C.E. and Russell, D.W., 1990. Type of social support and specific stress: Toward a theory of optimal matching.

Darcy, S. and Dowse, L., 2013. In search of a level playing field–the constraints and benefits of sport participation for people with intellectual disability. *Disability & Society*, *28*(3), pp.393-407.

Dashper, K., 2010. 'It's a Form of Freedom': The experiences of people with disabilities within equestrian sport. *Annals of Leisure Research*, *13*(1-2), pp.86-101.

Deaflympics (no date-a). *Technical regulations – swimming.* Available at: https://www.deaflympics.com/sports/SW/regulations (Accessed: 31 July 2020).

Deaflympics (no date-b). *About the ICSD.* Available at: https://www.deaflympics.com/icsd (Accessed: 31 July 2020).

Deakin, H. and Wakefield, K., 2014. Skype interviewing: Reflections of two PhD researchers. *Qualitative research*, *14*(5), pp.603-616.

De Cruz, N.P., Spray, C.M. and Smith, B., 2019. Implicit beliefs of disability and elite sport: the para-athlete experience. *Qualitative Research in Sport, Exercise and Health*, *11*(1), pp.69-91.

Definition of classes of evidence and overall strength of evidence, 2013. Definition of classes of evidence and overall strength of evidence. *Evidence based spine care journal, 4*(2), pp.167.

Devine, M.A. and Lashua, B., 2002. Constructing social acceptance in inclusive leisure contexts: The role of individuals with disabilities. *Therapeutic recreation journal*, *36*(1), p.65.

Dowling, S.F., McConkey, R. and Hassan, D. (2011). *Special Olympics athletes and the world games experience: the influence of coaching, training and competing on the world stage.* Available at: https://www.academia.edu/20490101/Special_Olympics_Athletes_and_the_World_Games_Experience (Accessed: 22 June 2020).

Downe-Wamboldt, B., 1992. Content analysis: method, applications, and issues. *Health care for women international*, *13*(3), pp.313-321.

Duncan, E.A. and Nicol, M.M., 2004. Subtle realism and occupational therapy: An alternative approach to knowledge generation and evaluation. *British Journal of Occupational Therapy*, *67*(10), pp.453-456.

Einarsson, I.O., Olafsson, A., Hinriksdóttir, G., Jóhannsson, E., Daly, D. and Arngrímsson, S.A., 2015. Differences in physical activity among youth with and without intellectual disability. *Med Sci Sports Exerc*, *47*(2), pp.411-418.

Elo, S. and Kyngäs, H., 2008. The qualitative content analysis process. *Journal of advanced nursing*, *62*(1), pp.107-115.

Emerson, R.M., Fretz, R.I. and Shaw, L.L., (2011). *Writing ethnographic fieldnotes*. 2nd edn. Chicago: University of Chicago Press.

English Institute of Sport (no date-a) *Psychology.* Available at: https://www.eis2win.co.uk/service/psychology/ (Accessed 21 July 2020).

English Institute of Sport (no date-b) *Physiology.* Available at: https://www.eis2win.co.uk/service/physiology/ (Accessed 21 July 2020).

English Institute of Sport (no date-c) *Nutrition.* Available at: https://www.eis2win.co.uk/service/nutrition/ (Accessed 21 July 2020).

English Institute of Sport (no date-d) *Performance lifestyle.* Available at: https://www.eis2win.co.uk/service/performance-lifestyle/ (Accessed 21 July 2020).

Fenton, L., Lauckner, H. and Gilbert, R., 2015. The QATSDD critical appraisal tool: comments and critiques. *Journal of Evaluation in Clinical Practice*, *21*(6), pp.1125-1128.

Fig, G., 2005. Strength training for swimmers: Training the core. *Strength & Conditioning Journal*, *27*(2), pp.40-42.

Finlay, L., 2000. Multiple voices, multiple paths: choosing between qualitative traditions. *British Journal of Occupational Therapy*, *63*(12), pp.580-582.

Fossey, E., Harvey, C., McDermott, F. and Davidson, L., 2002. Understanding and evaluating qualitative research. *Australian & New Zealand Journal of Psychiatry*, *36*(6), pp.717-732.

Foster, R., Fitzgerald, H. and Stride, A., 2018. The socialization and participation of Deaflympians in sport. *Sport in Society*.

Gale, N.K., Heath, G., Cameron, E., Rashid, S. and Redwood, S., 2013. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC medical research methodology*, *13*(1), pp.1-8.

Garci, T.H. and Mandich, A., 2005. Going for Gold: Understanding occupational engagement in elite-level wheelchair basketball athletes. *Journal of occupational science*, *12*(3), pp.170-175.

Giacomini, M.K., Cook, D.J. and Evidence-Based Medicine Working Group, 2000. Users' guides to the medical literature: XXIII. Qualitative research in health care A. Are the results of the study valid?. *Jama*, *284*(3), pp.357-362.

Goodwin, D., Johnston, K., Gustafson, P., Elliott, M., Thurmeier, R. and Kuttai, H., 2009. It's okay to be a quad: Wheelchair rugby players' sense of community. *Adapted physical activity quarterly*, *26*(2), pp.102-117.

Gould, D., Greenleaf, C., Guinan, D., Dieffenbach, K. and McCann, S., 2001. Pursuing performance excellence: Lessons learned from Olympic athletes and coaches. *Journal of Excellence*, *4*(4), pp.21-43.

Gould, D., Guinan, D., Greenleaf, C., Medbery, R. and Peterson, K., 1999. Factors affecting Olympic performance: Perceptions of athletes and coaches from more and less successful teams. *The sport psychologist*, *13*(4), pp.371-394.

Grandisson, M., Tétreault, S. and Freeman, A.R., 2012. Enabling integration in sports for adolescents with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*, *25*(3), pp.217-230.

Grant, M.E., Steffen, K., Glasgow, P., Phillips, N., Booth, L. and Galligan, M., 2014. The role of sports physiotherapy at the London 2012 Olympic Games. *British journal of sports medicine*, *48*(1), pp.63-70.

Grbich, K. (2013) Qualitative data analysis: an introduction. London: Sage.

Green, S. (2013) *"I didn't even know if my life was worth fighting of": an exploration of the restorative power of adaptive sport for traumatically injured British military personnel.* PhD Thesis. Coventry University. Available at: https://curve.coventry.ac.uk/open/file/a3d4cf11-2a04-4936-ae97-0452da5be739/1/Green%202013.pdf (Accessed: 10 May 2020).

Greenleaf, C., Gould, D. and Dieffenbach, K., 2001. Factors influencing Olympic performance: interviews with Atlanta and Negano US Olympians. *Journal of applied sport psychology*, *13*(2), pp.154-184.

Griffee, D.T., 2005. Research Tips: Interview Data Collection. *Journal of Developmental Education*, *28*(3), pp.36-37.

Groff, D.G. and Kleiber, D.A., 2001. Exploring the identity formation of youth involved in an adapted sports program. *Therapeutic Recreation Journal*, *35*(4), p.318.

Hammersley, M. (2002) 'Ethnography and Realism', in: Huberman, AM. and Miles, MB. (eds) *The qualitative researcher's companion.* 1st edn. Thousand Oaks: Sage, pp. 65-80.

Haslett, D., Fitzpatrick, B. and Breslin, G., 2017. The psychological influences on participation in wheelchair rugby: A social relational model of disability. *Acta Universitatis Carolinae: Kinanthropologica*, *53*(1), pp.60-78.

Hawkins, B.L., Cory, A.L. and Crowe, B.M., 2011. Effects of participation in a paralympic military sports camp on injured service members: Implications for theraputic recreation. *Therapeutic Recreation Journal*, *45*(4), p.309.

Henriksen, K., Schinke, R., McCann, S., Durand-Bush, N., Moesch, K., Parham, W.D., Larsen, C.H., Cogan, K., Donaldson, A., Poczwardowski, A. and Noce, F., 2020. Athlete mental health

in the Olympic/Paralympic quadrennium: a multi-societal consensus statement. *International Journal of Sport and Exercise Psychology*, *18*(3), pp.391-408.

Hodge, K. and Hermansson, G., 2007. Psychological preparation of athletes for the Olympic context: The New Zealand summer and winter Olympic teams. *Athletic Insight*, *9*(4), pp.1-14.

Howells, K. and Lucassen, M., 2018. 'Post-Olympic blues'–The diminution of celebrity in Olympic athletes. *Psychology of Sport and Exercise*, *37*, pp.67-78.

Huang, C. (2005). *Discourses of disability sport: experiences of elite male and female athletes in Britain and Taiwan.* PhD Thesis. Brunel University London. Available at: https://bura.brunel.ac.uk/handle/2438/5401 (Accessed 10 June 2020).

Hudson, N.A., Mrozik, J.H., White, R., Northend, K., Moore, S., Lister, K. and Rayner, K., 2018. Community football teams for people with intellectual disabilities in secure settings:"They take you off the ward, it was like a nice day, and then you get like medals at the end". *Journal of Applied Research in Intellectual Disabilities*, *31*(2), pp.213-225.

Hutzter, Y. and Bar-Eli, M., 1993. Psychological benefits of sports for disabled people: A review. *Scandinavian Journal of Medicine & Science in Sports*, *3*(4), pp.217-228.

Hwang, K.O., Etchegaray, J.M., Sciamanna, C.N., Bernstam, E.V. and Thomas, E.J., 2014. Structural social support predicts functional social support in an online weight loss programme. *Health Expectations*, *17*(3), pp.345-352.

Inside the games, (no date). *The history of parasport.* Available at: https://www.insidethegames.biz/articles/1010777/the-history-of-parasport (Accessed: 3 July 2020).

IPC, (no date-a). *Summer Paralympic Games Overview.* Available at: https://www.paralympic.org/paralympic-games/summer-overview (Accessed: 3 July 2020).

IPC, (no date-b). *About the International Paralympic Committee.* Available at: https://www.paralympic.org/ipc/who-we-are (Accessed 3 July 2020).

IPC, (no date-c). *History of the Paralympic movement.* Available at: https://www.paralympic.org/ipc/history (Accessed 3 July 2020).

IPC, (no date-d). *Paralympic sport.* Available at: https://www.paralympic.org/sports (Accessed 3 July 2020).

IPC, (no date-e). *Classification Explained.* Available at: https://www.paralympic.org/classification (Accessed: 3 July 2020).

Irvine, A., Drew, P. and Sainsbury, R., 2013. 'Am I not answering your questions properly?'Clarification, adequacy and responsiveness in semi-structured telephone and face-to-face interviews. *Qualitative Research*, *13*(1), pp.87-106.

Jaarsma, E.A., Dijkstra, P.U., de Blécourt, A.C., Geertzen, J.H. and Dekker, R., 2015. Barriers and facilitators of sports in children with physical disabilities: a mixed-method study. *Disability and rehabilitation*, *37*(18), pp.1617-1625.

Jaarsma, E.A., Geertzen, J.H., de Jong, R., Dijkstra, P.U. and Dekker, R., 2014. Barriers and facilitators of sports in Dutch Paralympic athletes: An explorative study. *Scandinavian journal of medicine & science in sports*, *24*(5), pp.830-836.

Janghorban, R., Roudsari, R.L. and Taghipour, A., 2014. Skype interviewing: The new generation of online synchronous interview in qualitative research. *International journal of qualitative studies on health and well-being*, *9*(1), p.24152.

JBI (no date-a) *Introduction to mixed methods systematic reviews.* Available at: https://wiki.jbi.global/display/MANUAL/8.1+Introduction+to+mixed+methods+systematic+reviews (Accessed: 25 July 2020).

JBI (no date-b) *JBI qualitative data extraction tool.* Available at: https://wiki.jbi.global/display/MANUAL/Appendix+2.3%3A+JBI+Qualitative+data+extraction+tool (Accessed: 25 July 2020).

Jeffress, M.S. and Brown, W.J., 2017. Opportunities and benefits for powerchair users through power soccer. *Adapted Physical Activity Quarterly*, *34*(3), pp.235-255.

Johnson, C.C., 2009. The benefits of physical activity for youth with developmental disabilities: a systematic review. *American Journal of Health Promotion*, *23*(3), pp.157-167.

Jones, C. and David Howe, P., 2005. The conceptual boundaries of sport for the disabled: Classification and athletic performance. *Journal of the Philosophy of Sport*, *32*(2), pp.133-146.

Jowett, S. (2001) *The psychology of interpersonal relationships in sport: the coach-athlete relationship.* PhD Thesis. University of Exeter. Available at: https://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.342012 (Accessed: 20 July 2020).

Jowett, S. and Cockerill, I.M., 2003. Olympic medallists' perspective of the athlete–coach relationship. *Psychology of sport and exercise*, *4*(4), pp.313-331.

Kemper, H.G.C., Ooijendijk, W.T.M. and Stiggelbout, M., 2000. Consensus about the Dutch Standard for healthy Excercise. *Tijdschrift voor Gezondheidswetenschappen/TSG*, *78*, pp.180-183.

Kirkby, R.J., 1995. Wheelchair netball: Motives and attitudes of competitors with and without disabilities. *Australian Psychologist*, *30*(2), pp.109-112.

Kistler (2019) *Performance analysis system for swimming starts, turns and relay changeovers.* Available at: https://www.kistler.com/files/document/003-134e.pdf?callee=frontend (Accessed: 20 July 2020).

Kleiman, S., 2004. Phenomenology: To wonder and search for meanings. *Nurse researcher*, *11*(4).

Knafl, K., Deatrick, J., Gallo, A., Holcombe, G., Bakitas, M., Dixon, J. and Grey, M., 2007. The analysis and interpretation of cognitive interviews for instrument development. *Research in nursing & health*, *30*(2), pp.224-234.

Kristén, L., Patriksson, G. and Fridlund, B., 2002. Conceptions of children and adolescents with physical disabilities about their participation in a sports programme. *European Physical Education Review*, *8*(2), pp.139-156.

Kristiansen, E. and Roberts, G.C., 2010. Young elite athletes and social support: Coping with competitive and organizational stress in "Olympic" competition. *Scandinavian Journal of Medicine & Science in Sports*, *20*(4), pp.686-695.

Langdridge, D., 2007. *Phenomenological psychology: Theory, research and method*. Pearson education.

Lauruschkus, K., Nordmark, E. and Hallström, I., 2015. "It's fun, but…" Children with cerebral palsy and their experiences of participation in physical activities. *Disability and Rehabilitation*, *37*(4), pp.283-289.

Laverty, S.M., 2003. Hermeneutic phenomenology and phenomenology: A comparison of historical and methodological considerations. *International journal of qualitative methods*, *2*(3), pp.21-35.

Lincoln, Y. S. and Guba, E. G. (2000) 'Paradigmatic controversies, contradictions and emerging confluences', in: Denzin, KN. and Lincoln, YS. (eds) *Handbook of qualitative research*. 2nd edn. Thousand Oaks: Sage, pp. 163-188.

Lindemann, K. and Cherney, J.L., 2008. Communicating in and through "Murderball": Masculinity and disability in wheelchair rugby. *Western Journal of Communication*, *72*(2), pp.107-125.

Litchke, L.G., Hodges, J.S., Schmidt, E.A., Lloyd, L.K., Payne, E. and Russian, C.J., 2012. Personal meaning of wheelchair rugby participation by five male athletes. *Therapeutic recreation journal*, *46*(1), p.26.

Lundberg, N., Bennett, J. and Smith, S., 2011. Outcomes of adaptive sports and recreation participation among veterans returning from combat with acquired disability. *Therapeutic Recreation Journal*, *45*(2), pp.105-120.

Lundberg, N.R., Taniguchi, S., McCormick, B.P. and Tibbs, C., 2011. Identity negotiating: Redefining stigmatized identities through adaptive sports and recreation participation among individuals with a disability. *Journal of Leisure Research*, *43*(2), pp.205-225.

Macbeth, J.L., 2009. Restrictions of activity in partially sighted football: Experiences of grassroots players. *Leisure Studies*, *28*(4), pp.455-467.

Macdougall, H., O'Halloran, P., Shields, N. and Sherry, E., 2015. Comparing the well-being of para and Olympic sport athletes: a systematic review. *Adapted Physical Activity Quarterly*, *32*(3), pp.256-276.

Malcolm, D. (2017) *Sport, medicine and health.* Oxon: Routledge.

Malterud, K., Siersma, V.D. and Guassora, A.D., 2016. Sample size in qualitative interview studies: guided by information power. *Qualitative health research*, *26*(13), pp.1753-1760.

Martin, J.J., 2006. Psychosocial aspects of youth disability sport. *Adapted physical activity quarterly*, *23*(1), pp.65-77.

Martin, J.J. and Mushett, C.A., 1996. Social support mechanisms among athletes with disabilities. *Adapted Physical Activity Quarterly*, *13*(1), pp.74-83.

Martin, M.R., Zimmerman, R. and Ciotto, C., 2015. Sport nutritionist: a new sport education role. *Strategies*, *28*(3), pp.40-45.

McGillivray, D., O'Donnell, H., McPherson, G. and Misener, L., 2019. Repurposing the (super) crip: media representations of disability at the Rio 2016 Paralympic Games. *Communication & Sport*, p.2167479519853496.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G. and Prisma Group, 2009. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS med*, *6*(7), p.e1000097.

Morse, J.M., 2015. Critical analysis of strategies for determining rigor in qualitative inquiry. *Qualitative health research*, *25*(9), pp.1212-1222.

Morse, J.M. and Mitcham, C., 2002. Exploring qualitatively-derived concepts: Inductive—deductive pitfalls. *International Journal of Qualitative Methods*, *1*(4), pp.28-35.

Moser, A. and Korstjens, I., 2018. Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European Journal of General Practice*, *24*(1), pp.9-18.

Mosewich, A.D., Crocker, P.R. and Kowalski, K.C., 2014. Managing injury and other setbacks in sport: Experiences of (and resources for) high-performance women athletes. *Qualitative Research in Sport, Exercise and Health*, *6*(2), pp.182-204.

Murphy, E., Dingwall, R., Greatbatch, D., Parker, S. and Watson, P., 1998. Qualitative research methods in health technology assessment: a review of the literature, *Health technology assessment, 2(16),* pp.1-276.

Nyquist, A., Moser, T. and Jahnsen, R., 2016. Fitness, fun and friends through participation in preferred physical activities: achievable for children with disabilities?. *International Journal of Disability, Development and Education*, *63*(3), pp.334-356.

Orb, A., Eisenhauer, L. and Wynaden, D., 2001. Ethics in qualitative research. *Journal of nursing scholarship*, *33*(1), pp.93-96.

Orr, K., Tamminen, K.A., Sweet, S.N., Tomasone, J.R. and Arbour-Nicitopoulos, K.P., 2018. "I've had bad experiences with team sport": Sport participation, peer need-thwarting, and need-supporting behaviors among youth identifying with physical disability. *Adapted Physical Activity Quarterly*, *35*(1), pp.36-56.

Pack, S., Kelly, S. and Arvinen-Barrow, M., 2017. "I think I became a swimmer rather than just someone with a disability swimming up and down:" paralympic athletes perceptions of self and identity development. *Disability and rehabilitation*, *39*(20), pp.2063-2070.

Pan, C.Y., Liu, C.W., Chung, I.C. and Hsu, P.J., 2015. Physical activity levels of adolescents with and without intellectual disabilities during physical education and recess. *Research in Developmental Disabilities*, *36*, pp.579-586.

Pappous, A., Marcellini, A. and De Léséleuc, E., 2011. From Sydney to Beijing: the evolution of the photographic coverage of Paralympic Games in five European countries. *Sport in society*, *14*(03), pp.345-354.

Paralympics GB, (no date). *Para Swimming.* Available at: https://paralympics.org.uk/sports/para-swimming (Accessed: 3 July 2020).

Philippe, R.A. and Seiler, R., 2006. Closeness, co-orientation and complementarity in coach–athlete relationships: What male swimmers say about their male coaches. *Psychology of sport and exercise*, *7*(2), pp.159-171.

Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., Britten, N., Roen, K. and Duffy, S., 2006. Guidance on the conduct of narrative synthesis in systematic reviews. *A product from the ESRC methods programme Version*, *1*, p.b92.

Powell, A.J. and Myers, T.D., 2017. Developing mental toughness: lessons from paralympians. *Frontiers in Psychology*, *8*, p.1270.

Powis, B.J. (2017) *An embodied approach to disability sport: the lived experience of visually impaired cricket players.* PhD Thesis. University of Brighton. Available at: https://research.brighton.ac.uk/en/studentTheses/an-embodied-approach-to-disability-sport-the-lived-experience-of- (Accessed: 10 June 2020).

Puce, L., Marinelli, L., Pierantozzi, E., Mori, L., Pallecchi, I., Bonifazi, M., Bove, M., Franchini, E. and Trompetto, C., 2018. Training methods and analysis of races of a top level Paralympic swimming athlete. *Journal of exercise rehabilitation*, *14*(4), p.612-620.

Ranney, M.L., Meisel, Z.F., Choo, E.K., Garro, A.C., Sasson, C. and Morrow Guthrie, K., 2015. Interview-based qualitative research in emergency care part II: Data collection, analysis and results reporting. *Academic Emergency Medicine*, *22*(9), pp.1103-1112.

Rees, T. and Hardy, L., 2000. An investigation of the social support experiences of high-level sports performers. *The sport psychologist*, *14*(4), pp.327-347.

Rees, L., Robinson, P. and Shields, N., 2019. Media portrayal of elite athletes with disability–a systematic review. *Disability and rehabilitation*, *41*(4), pp.374-381.

Reeves, S., Albert, M., Kuper, A. and Hodges, B.D., 2008. Why use theories in qualitative research?. *Bmj*, *337*.

Richards, H.M. and Schwartz, L.J., 2002. Ethics of qualitative research: are there special issues for health services research?. *Family practice*, *19*(2), pp.135-139.

Richardson, E.V., Papathomas, A., Smith, B. and Goosey-Tolfrey, V.L., 2017. The psychosocial impact of wheelchair tennis on participants from developing countries. *Disability and rehabilitation*, *39*(2), pp.193-200.

Rio 2016, (no date). *Results archive Rio 2016.* Available at: https://www.paralympic.org/rio-2016/results/swimming (Accessed: 3 July 2020).

Roberts, G.A., Arnold, R., Gillison, F., Colclough, M. and Bilzon, J., 2020. Military veteran athletes' experiences of competing at the 2016 Invictus Games: a qualitative study. *Disability and Rehabilitation*, pp.1-10.

Rosenfeld, L.B., Richman, J.M. and Hardy, C.J., 1989. Examining social support networks among athletes: Description and relationship to stress. *The sport psychologist*, *3*(1), pp.23-33.

Sayed Ahmed, B., Lamy, M., Cameron, D., Artero, L., Ramdial, S., Leineweber, M. and Andrysek, J., 2018. Factors impacting participation in sports for children with limb absence: a qualitative study. *Disability and rehabilitation*, *40*(12), pp.1393-1400.

Sayer, A., (2000) *Realism and social science*. London: Sage.

Seth, N. and Dhillon, M., 2019. Intersections of Disability and Gender in Sports: Experiences of Indian Female Athletes. *Disability, CBR & Inclusive Development*, *30*(3), pp.65-81.

Sheard, M. and Golby, J., 2006. Effect of a psychological skills training program on swimming performance and positive psychological development. *International journal of sport and exercise psychology*, *4*(2), pp.149-169.

Shenton, A.K., 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for information*, *22*(2), pp.63-75.

Shephard, R.J., 1991. Benefits of sport and physical activity for the disabled: implications for the individual and for society. *Scandinavian journal of rehabilitation medicine*, *23*(2), pp.51-59.

Shumaker, S.A. and Brownell, A., 1984. Toward a theory of social support: Closing conceptual gaps. *Journal of social issues*, *40*(4), pp.11-36.

Silva, C.F. (2013) *Forbidden to stand: the impact of sitting volleyball participation on the lives of players with impairments.* PhD Thesis. Loughborough University. Available at: https://repository.lboro.ac.uk/articles/The_impact_of_sitting_volleyball_participation_on_the_lives_of_players_with_impairments/9609656 (Accessed: 10 June 2020).

Silva, C.F. and Howe, P.D., 2012. The (in) validity of supercrip representation of Paralympian athletes. *Journal of Sport and Social Issues*, *36*(2), pp.174-194.

Silver, J.R., 2012. Ludwig Guttmann (1899–1980), Stoke Mandeville Hospital and the Paralympic Games. *Journal of medical biography*, *20*(3), pp.101-105.

Sirriyeh, R., Lawton, R., Gardner, P. and Armitage, G., 2012. Reviewing studies with diverse designs: the development and evaluation of a new tool. *Journal of evaluation in clinical practice*, *18*(4), pp.746-752.

Sit, C.H., McKenzie, T.L., Cerin, E., Chow, B.C., Huang, W.Y. and Yu, J., 2017. Physical activity and sedentary time among children with disabilities at school. *Med. Sci. Sports Exerc*, *49*, pp.292-297.

Sit, C., Li, R., McKenzie, T.L., Cerin, E., Wong, S., Sum, R. and Leung, E., 2019. Physical Activity of Children with Physical Disabilities: Associations with Environmental and Behavioral Variables at Home and School. *International journal of environmental research and public health*, *16*(8), p.1394.

Sit, C.H., McManus, A., McKenzie, T.L. and Lian, J., 2007. Physical activity levels of children in special schools. *Preventive medicine*, *45*(6), pp.424-431.

Slater, D. and Meade, M.A., 2004. Participation in recreation and sports for persons with spinal cord injury: Review and recommendations. *NeuroRehabilitation*, *19*(2), pp.121-129.

Sloan, A. and Bowe, B., 2014. Phenomenology and hermeneutic phenomenology: The philosophy, the methodologies, and using hermeneutic phenomenology to investigate lecturers' experiences of curriculum design. *Quality & Quantity*, *48*(3), pp.1291-1303.

Smith, B., Kirby, N., Skinner, B., Wightman, L., Lucas, R. and Foster, C., 2019. Infographic. Physical activity for disabled adults. *British journal of sports medicine*, *53*(6), pp.335-336.

Smith JA, Flowers P, Larkin M., 2009. Interpretative Phenomenological Analysis; Theory, Method and Research. Los Angeles: Sage.

Sparkes, A.C. and Smith, B. (2014). *Qualitative research methods in sport, exercise and health: From process to product*. 1st edn. Oxon: Routledge.

Special Olympics, no date. *Our mission.* Available at: https://www.specialolympics.org/about/our-mission (Accessed 15 April 2020).

Sporner, M.L., Fitzgerald, S.G., Dicianno, B.E., Collins, D., Teodorski, E., Pasquina, P.F. and Cooper, R.A., 2009. Psychosocial impact of participation in the national veterans wheelchair games and winter sports clinic. *Disability and rehabilitation*, *31*(5), pp.410-418.

Sport England (2019a) *Trends* (*UK active lives survey).* Available at: https://activelives.sportengland.org/Result?queryId=34030# (Accessed: 3 March 2020).

Sport England (2019b) *Active lives children and young people survey academic year 2018/19.* Available at: https://sportengland-production-files.s3.eu-west-2.amazonaws.com/s3fs-public/2020-01/active-lives-children-survey-academic-year-18-19.pdf?cVMsdnpBoqROViY61iUjpQY6WcRyhtGs (Accessed 3 March 2020).

Sport medicine and science council of Saskatchewan (no date) *Guidelines for skinfold testing in young athletes.* Available at: http://www.smscs.dreamhosters.com/wp-content/uploads/2016/01/skinfoldguidelines.pdf (Accessed 21 July 2020).

Stephens, C., Neil, R. and Smith, P., 2012. The perceived benefits and barriers of sport in spinal cord injured individuals: a qualitative study. *Disability and rehabilitation*, *34*(24), pp.2061-2070.

Stillson, V. G. (2006) *Case study of participation and perceptions of wheelchair athletes in wheelchair sports.* PhD Thesis. Rutgers The State University of New Jersey. Available at: https://search.proquest.com/docview/304940192?pq-origsite=gscholar&fromopenview=true (Accessed 10 June 2020).

Stoll, C.R., Izadi, S., Fowler, S., Green, P., Suls, J. and Colditz, G.A., 2019. The value of a second reviewer for study selection in systematic reviews. *Research Synthesis Methods*, *10*(4), pp.539-545.

Swanson, S.R., Colwell, T. and Zhao, Y., 2008. Motives for participation and importance of social support for athletes with physical disabilities. *Journal of clinical sport psychology*, *2*(4), pp.317-336.

Swartz, L., Bantjes, J. and Bissett, F., 2018. Fitting in and looking pretty: Experiences of students with visual impairment participating in 'inclusive'ballroom dance classes. *Disability & Society*, *33*(7), pp.1087-1102.

Swartz, L., Bantjes, J., Knight, B., Wilmot, G. and Derman, W., 2018. "They don't understand that we also exist": South African participants in competitive disability sport and the politics of identity. *Disability and rehabilitation*, *40*(1), pp.35-41.

Swartz, L., Hunt, X., Bantjes, J., Hainline, B. and Reardon, C.L., 2019. Mental health symptoms and disorders in Paralympic athletes: a narrative review. *British journal of sports medicine*, *53*(12), pp.737-740.

Swim England (no date) *Para-swimming classification.* Available at: https://www.swimming.org/sport/para-swimming-classification/ (Accessed 10 July 2020).

Swimming World (2020a). *Why morning workouts are the secret pride of swimmers.* Available at: https://www.swimmingworldmagazine.com/news/why-morning-workouts-are-the-secret-pride-of-swimmers/ (Accessed: 15 July 2020).

Swimming World, (2020b). *Is swimming a team or individual sport?* Available at: https://www.swimmingworldmagazine.com/news/is-swimming-a-team-or-individual-sport/ (Accessed: 15 July 2020).

Taub, D.E., Blinde, E.M. and Greer, K.R., 1999. Stigma management through participation in sport and physical activity: Experiences of male college students with physical disabilities. *Human relations*, *52*(11), pp.1469-1484.

Taub, D.E. and Greer, K.R., 1998. Sociology of acceptance revisited: Males with physical disabilities participating in sport and physical fitness activity. *Deviant Behavior*, *19*(3), pp.279-302.

Taylor, D. (2017) 'Classification controversy marks terrible coming of age for Paralympic sport', *The Guardian,* 31 October.

Thomas, D.R., 2017. Feedback from research participants: are member checks useful in qualitative research?. *Qualitative Research in Psychology*, *14*(1), pp.23-41.

Thomas, J. and Harden, A., 2008. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC medical research methodology*, *8*(1), p.45.

Thomas, J., Harden, A., Oakley, A., Oliver, S., Sutcliffe, K., Rees, R., Brunton, G. and Kavanagh, J., 2004. Integrating qualitative research with trials in systematic reviews. *Bmj*, *328*(7446), pp.1010-1012.

Thomas, N. and Smith, A., 2008. *Disability, sport and society: An introduction*. Oxon: Routledge.

Tokyo 2020 (no date) *Swimming.* Available at: https://tokyo2020.org/en/paralympics/sports/swimming/#:~:text=Paralympic%20swimmers%20at%20Tokyo%202020,process%20known%20as%20'classification'. (Accessed: 15 July 2020).

Tong, A., Flemming, K., McInnes, E., Oliver, S. and Craig, J., 2012. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC medical research methodology*, *12*(1), p.181.

Tracy, S.J., 2010. Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative inquiry*, *16*(10), pp.837-851.

Trzaskoma-Bicsérdy, G., Bognár, J., Révész, L. and Géczi, G., 2007. The coach-athlete relationship in successful Hungarian individual sports. *International Journal of Sports Science & Coaching*, *2*(4), pp.485-495.

UK Sport (no date-a). *How UK Sport funding works.* Available at: https://www.uksport.gov.uk/our-work/investing-in-sport/how-uk-sport-funding-works#:~:text=Enter%20to%20Search-,How%20UK%20Sport%20funding%20works,global%20events%20which%20precede%20them.&text=Direct%20to%20athlete%20funding%20in,Athlete%20Performance%20Award%20(APA). (Accessed: 10 July 2020).

UK Sport (no date-b). *Current funding figures.* Available at: https://www.uksport.gov.uk/our-work/investing-in-sport/current-funding-figures (Accessed: 10 July 2020).

UK Sport (no date-c). *Para swimming.* Available at: https://www.uksport.gov.uk/sports/paralympic/para-swimming (Accessed: 10 July. 2020).

UK Sport (no date-d). *Historical funding figures.* Available at: https://www.uksport.gov.uk/our-work/investing-in-sport/historical-funding-figures (Accessed: 15 July 2020).

Vaismoradi, M., Turunen, H. and Bondas, T., 2013. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences*, *15*(3), pp.398-405.

Van Dornick, K. and Spencer, N.L., 2019. What's in a Sport Class? The Classification Experiences of Paraswimmers. *Adapted Physical Activity Quarterly*, *1*(aop), pp.1-19.

Van Manen, M., 1997. *Researching lived experience: Human science for an action sensitive pedagogy*. Routledge.

Waffenschmidt, S., Knelangen, M., Sieben, W., Bühn, S. and Pieper, D., 2019. Single screening versus conventional double screening for study selection in systematic reviews: a methodological systematic review. *BMC medical research methodology*, *19*(1), p.132.

Webb, P. and Pollard, C., 2006. Demystifying a hermeneutic approach to IS research. *Australasian Journal of Information Systems*, *13*(2).

Webborn, A.D., 1999. Fifty years of competitive sport for athletes with disabilities: 1948-1998. *British journal of sports medicine*, *33*(2), p.138.

Webborn, N. and Van de Vliet, P., 2012. Paralympic medicine. *The Lancet*, *380*(9836), pp.65-71.

Weiss, J.A., Burnham Riosa, P., Robinson, S., Ryan, S., Tint, A., Viecili, M., MacMullin, J.A. and Shine, R., 2017. Understanding Special Olympics experiences from the athlete perspectives using photo-elicitation: A qualitative study. *Journal of Applied Research in Intellectual Disabilities*, *30*(5), pp.936-945.

Weller, S., 2017. Using internet video calls in qualitative (longitudinal) interviews: Some implications for rapport. *International Journal of Social Research Methodology*, *20*(6), pp.613-625.

Wickman, K., 2015. Experiences and perceptions of young adults with physical disabilities on sports. *Social inclusion*, *3*(3), pp.39-50.

Wilhite, B., Martin, D. and Shank, J., 2016. Facilitating physical activity among adults with disabilities. *Therapeutic Recreation Journal*, *50*(1), p.33.

Wilson, N.C. and Khoo, S., 2013. Benefits and barriers to sports participation for athletes with disabilities: the case of Malaysia. *Disability & Society*, *28*(8), pp.1132-1145.

Yang, J., Peek-Asa, C., Lowe, J.B., Heiden, E. and Foster, D.T., 2010. Social support patterns of collegiate athletes before and after injury. *Journal of athletic training*, *45*(4), pp.372-379.

Appendix 1 – Systematic review protocol submitted to BMJ Open

The experiences and perceived health benefits of individuals with a disability participating in sport: a systematic review protocol

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ABSTRACT

Introduction: Sports participation has many physical and mental health benefits for individuals with a disability including improved functionality and reduced anxiety. Despite this, a large proportion of individuals with a disability are inactive. This review will be the first to synthesise the literature on the experiences and perceived health benefits of sport participation for children, adolescents, adults, elite athletes and veterans with a disability. Investigation of these phenomena will enable an understanding of the positive aspects and benefits of sport participation specific to each population, which may help to improve participation rates and ultimately improve health through promotion of these benefits. This research hopes to add to the growing body of literature in this field and will make suggestions for further research to add to this.

Methods and PRISMA-P: The phenomena of interest are the experiences and perceived health benefits of individuals with a disability participating in sport. There will be no age limit on participants and all study designs, besides reviews, will be included. Studies in languages other than English will be excluded. Two independent reviewers will conduct the searches, study selection, data collection and quality assessment independently. The online databases MEDLINE, EMBASE, PsychINFO, CINAHL Plus, Web of Science and SportDiscus will be electronically searched from database inception to February 2020. Grey literature will be searched and several sport-related journals will be hand-searched. The Quality Assessment Tool for Studies with Diverse Designs (QATSDD) will be used for quality assessment of included studies. Thematic synthesis will be used to analyse the qualitative studies, narrative synthesis will be used to analyse the quantitative studies and the perceived health benefits will be analysed using content analysis. The strength of the overall body of evidence will be assessed and reported using GRADE-CERQual (Grading of Recommendations, Assessment, Development and Evaluation – Confidence in the Evidence from Reviews of Qualitative research) for qualitative studies and GRADE for quantitative studies. These approaches will be applied to mixed-methods studies respectively where necessary.

Ethics and dissemination: This systematic review raises no ethical issues. Results will be published in a peer reviewed journal and disseminated to key stakeholders to inform practice.

PROSPERO registration number: CRD42020169224

Keywords: sport, experience, disability, systematic review

ARTICLE SUMMARY

Strengths and Limitations of this Study

- This is the first systematic review to synthesise evidence on the experiences and perceived health benefits of individuals with a disability participating in sport
- The research team includes researchers and practitioners with methodological and subject specific expertise.
- Only articles written in English will be included in the analysis.

INTRODUCTION

Sport provides individuals with a disability with the opportunity to experience the many physical and mental health benefits associated with being physically active.[1] These benefits include improved functionality, endurance and muscle tone, increased socialisation opportunities and a reduction in anxiety and depression across a range of disabilities and age-groups.[2-4] Despite the positive factors associated with sport participation, over 40% of adults with a disability are inactive in the UK, with similar figures reported in the USA (44.3%).[5-7] Furthermore, individuals with a disability also have higher rates of chronic disease: >40% of Americans with a disability develop heart disease, cancer, diabetes or have experienced a stroke compared to <14% of those without a disability.[6]

The awareness of and participation in sport for individuals with a disability has grown in recent years as a result of the 'Paralympic Movement', which has been responsible for an increase in sporting opportunities, inclusion of individuals with a disability in sport and raising the profile of elite disability sport.[7-9]. This review will focus solely on sport participation, which will be defined as an activity involving physical exertion with or without a game or competition element, where skills and physical endurance are either required or to be improved.[10].

Adults

Over the past three years the activity levels of adults with a disability have increased.[11] Those completing ≥150 minutes per week have increased from 43.6% to 47.3%, and those completing <30 minutes per week have decreased from 42.4% to 39.8%.[11] Similarly, in the USA approximately 30% of adults with a disability have been found to regularly participate in sports or physical activity.[12]. Despite these positive trends in activity levels, surprisingly the proportion of adults with an active sports club membership has decreased from 29.4% in 2017-2018 to 21.4% in 2018-2019.[11]

Children

Children with a disability are more likely to be less active than their non-disabled peers, with one third taking part in less than 30 minutes of physical activity per day.[13-14] (Sport England, 2019b; Activity Alliance, 2020). Additionally, several studies in a range of countries have reported low physical activity levels and high sedentary levels in children with a disability, suggesting that more needs to be done to promote their participation in sporting activities to improve overall health.[15-19] However, statistics published in the UK in 2019 have shown that the inactivity levels of children with a disability aged 11-16 years have decreased compared to 12 months ago, from 38.1% to 34%, suggesting an increase in participation.[13]

Elite athletes

At the elite level of sport there has been a steady growth in participation at the Paralympic Games, increasing from around 3000 athletes and 83 countries at Barcelona in 1992 to over 4300 athletes and 160 countries in Rio 2016.[20] The funding for Paralympic sport has also grown, with UK Sport investing almost £73 million in the four year cycle leading up to the Rio Paralympic Games compared to just £10 million for the Sydney Paralympic Games cycle (2000).[21] This greater awareness of and investment into elite disability sport has prompted research in this area, with studies exploring the beliefs, identities and self-perceptions of elite disability athletes.[22-24] Despite this, there is still a relatively small body of research in elite sport, with limited research exploring the experiences of elite athletes with a disability.

Veterans

Sport participation has been shown to improve quality of life, increase confidence and provide a source of motivation for veterans with a disability.[25] A systematic review has reported that sport and physical activity play a role in improving the wellbeing and rehabilitation of veterans after trauma and facilitating personal development.[26] The authors of the systematic review proposed a potentially essential difference between 'sport' and 'physical activity' and the impact this may have on wellbeing, and suggested that future research should take this into consideration. Furthermore, this review focused on the experiences of disability sport camps and competitions, with no review to date exploring the experiences and benefits of longer term sport participation in this population.

A review is required to synthesise the literature in this area as there is a limited understanding of the range of experiences and perceived health benefits of participation in these four populations. Understanding of these phenomena will enable the promotion of the health benefits and positive aspects of sport tailored to the specific populations. This may help to improve participation rates, ultimately improving the health and wellbeing of children, adolescents, adults and veterans. This review will also provide an insight into athletes' experiences at the elite level of sport, contributing to the small body of research, making recommendations for future research and enabling suggestions to improve performance.

Objectives

Aim: To explore the experiences and perceived health benefits of individuals with a disability participating in sport.

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1. To explore the experiences of children and adolescents, adults, elite athletes and veterans with a disability participating in sport.
2. To examine the perceived health benefits of participating in sport for children and adolescents, adults, elite athletes and veterans with a disability.

METHODS

This systematic review protocol follows the Preferred Reporting Items of Systematic Review and Meta-analysis Protocols (PRISMA-P) 2015 statement (supplementary file 1).[27] This protocol and search has been designed involving subject-specific expertise in the form of an expert in the field of elite disability sport (PM) and methodological expertise in the form of extensive systematic review publications (AR, NH, AS). The protocol was registered with the International Prospective Register of Systematic Reviews (PROSPERO registration number: CRD42020169224).

Eligibility criteria:

Eligibility criteria are informed using the Sample, Phenomenon of Interest, Design, Evaluation and Research (SPIDER) concept which is designed for qualitative evidence synthesis.[28] Studies will be eligible for inclusion in this review if they meet the following criteria:

Sample: Studies which include individuals with a physical, visual or intellectual impairment who participate in sport, either competitively or recreationally. For studies with children and adolescents, the participants will be under 18; for studies with adults, the participants will be aged over 18; for studies with elite athletes, the participants will be of international standard or on the respective national team; and for studies with veterans the participants will be ex-armed forces members. Studies which include individuals who are classed as disabled through old age or a medical condition in isolation (e.g. diabetes) will be excluded. There is no age limit on participants.

Phenomenon of Interest: The experiences of individuals with a disability participating in sport where experience includes aspects such as the meaning of sport, the support for participation and the barriers and facilitators to sport. The second phenomenon of interest is the perceived health benefits of sport, which include a participant's self-reported benefits and comments suggesting the benefits of sport. Perceived health benefits include physical health benefits such as increased muscle tone and weight management, and mental health benefits such as improved confidence and reduced anxiety. Studies investigating experiences and/or health benefits of a competition or sport programme less than 6 months in duration were excluded.

Designs: All types of study designs will be considered. Reviews will be excluded. Studies written in languages other than English will be excluded.

Evaluation: Any reported experience by individuals with a disability in sport will be explored such as overall experiences, meaning, barriers and facilitators experienced in sport. The perceived health benefits of sport participation will be explored via studies which have reported participant perceived health benefits in form of a questionnaire or verbally reported benefits.

Research type: Mixed methods research.

Information sources

The databases Medline (Ovid interface), EMBASE (Ovid interface), PyschINFO (Ovid interface), Web of Science (Clarivate Analytics interface), CINAHL Plus (EBSCO interface) and SportDiscus (EBSCO interface) will be searched from database inception to February 2020. Grey literature sources, including OpenGrey, will be searched. Hand searching of the following journals will be conducted to complement the search strategy: *Qualitative Research in Sport, Exercise and Health*, *Psychology of Sport and Exercise, Disability and Rehabilitation, British Journal of Sports Medicine, European Journal of Sports Science* and *International Journal of Sports Science*. The screening of the references of included studies will also take place. Active researchers who have published literature in this field will be contacted.

Search strategy

The search will be conducted independently by the lead author (BA, also the first reviewer) and a second reviewer. Initial scoping searches have refined the search terms for the databases which will be kept broad to ensure a sensitive search strategy. Free text searches and subject heading searches will be carried out to ensure completeness of the search. The main body of the search strategy will be consistent across databases however specific search terms will be adjusted for each database to reflect syntax differences (see supplementary file 2 for MEDLINE search strategy).[29]

Study records

Data management

The results of the literature search will be imported into EndNote X9 which will be used for data management and reference storage.[30] The reference, abstract and full text for all potentially eligible studies will be stored to allow effective screening. Any duplicates will be removed prior to the selection process.

Selection process

The lead author and a second reviewer will independently screen the titles and abstracts of studies at the same time to determine inclusion using the pre-determined eligibility criteria. The eligibility criterion of eligible/not eligible/might be eligible will be used to assess the studies. Studies will be excluded if it is clear from the title and abstract that the content is not relevant to the objectives. When a study cannot be excluded based on the information provided in the title and abstract it will be graded as 'might be eligible'. After title and abstract screening, full-text copies of the potentially relevant studies will be obtained and eligibility determined. Studies will also be removed if the information available is insufficient for assessment and synthesis, such as full-text copies not being available. These studies will not be included in the synthesis but may be referenced in the discussion section. Consensus between the reviewers regarding study selection will be reached through a discussion and in the case where an agreement is not reached a third reviewer will be consulted. The kappa statistic will be used to test inter-rater reliability as it assesses the chance-corrected agreement between the two reviewers in assessing the eligibility of articles at the title/abstract stage and the full-text screening stage.[31] The study selection process will be carried out according to the PRISMA flow diagram and reported visually.[32]

Data collection process

Data will be extracted independently by the lead author and second reviewer from included studies using the standardised qualitative data extraction tool from the Joanna Briggs Institute (see supplementary file 3).[33] Piloting on five studies ahead of the main study will ensure completeness and suitability of the form. The form will be revised if necessary to include a section for study design, allowing the recording of whether the study is qualitative, quantitative or mixed methods in design. In the event of a disagreement between the two reviewers in data extracted, a third reviewer will be consulted.

Data items

Data extracted from the included studies will be presented in a table and the data items will include: participant information, data collection methods, data analysis methods and phenomenon of interest.

Outcomes and prioritisation

The experiences and perceived health benefits of children and adolescents, adults, elite athletes and veterans with a disability participating in sport constitute the phenomena of interest. All experiences reported by these individuals, including experiences of the benefits, barriers and facilitators to sports participation, will be explored provided that there is sufficient evidence.

Quality assessment

Initial scoping searches have suggested that studies with a range of designs will be eligible for inclusion in this systematic review. Therefore the Quality Assessment Tool for Studies with Diverse Designs (QATSDD) will be used to create a quality rating score for all included studies (see supplementary file 4).[34] This tool is suitable for quality assessment because it allows the quality assessment of qualitative, quantitative and mixed-methods designs.[34] The QATSDD allows the appraisal of qualitative research which is vital for the qualitative research to contribute appropriately to the systematic review findings.[35] Additionally, good validity, inter-rater reliability and test-retest reliability have been established with this tool and it allows an in-depth understanding of the included review papers.[34,-36] A summary of the quality score and converted percentage score for each study will be reported in a table. The lead author and second reviewer will independently carry out the quality assessment and if there is a lack of consensus between the two after a discussion, the third reviewer will be consulted. If additional information is required from authors, such as an interview topic guide, the authors will be contacted for this information to facilitate quality assessment.

Data synthesis

Studies will be categorised into one of the four population categories for analysis based on the participants. For mixed populations, if the ages of participants can be aligned with specific quotations or results then the findings will be analysed in the respective population. The initial scoping searches demonstrated to the authors that both qualitative and quantitative studies would likely be included in the systematic review. Due to the potential heterogeneity in study designs, appropriate analysis methods will be required specific to the design. If mixed methods studies are included, they will be analysed qualitatively and/or quantitatively according to the relevance of each phase to the review objectives.

Thematic synthesis is an appropriate method for the synthesis of qualitative evidence and is based on thematic analysis, which is used for the analysis of primary research.[37-38] Therefore included qualitative studies will be analysed following the stages suggested by Thomas et al.[37] for qualitative evidence synthesis in systematic reviews. The lead author (BA) will undertake line-by-line coding of the text of included studies according to the content and meaning.[37] Translation will be employed, which is the process of identifying concepts and ideas in one study and recognising them in another.[39] A bank of codes will be created and maintained, which will then be grouped into descriptive themes based on connections between codes[37]. The final stage will involve generating

analytical themes through discussing findings with the research team and generating concepts which answer the review questions.[37, 39]

A narrative synthesis will be conducted to analyse the quantitative studies.[40] This will involve a preliminary synthesis of the results of included studies and an exploration of the relationships within and between studies by comparing the results and generating common themes.[40] An integration matrix will be used to juxtapose the qualitative and quantitative data to determine agreement or disagreement within identified themes.[41-43]

The perceived health benefits of sport participation will be extracted either from questionnaires or verbally reported interview responses. The benefits will be analysed through content analysis, which involves coding and categorising data to determine the frequency and patterns of the health benefits across the different populations.[44] The lead author will immerse herself in the data and focus on the manifest content of the data.[44] This will involve analysing exactly what is said in the text and developing categories, which will be 'physical health benefits' and 'mental health benefits'.[44-45] The thematic synthesis, narrative synthesis and content analysis will be conducted by the lead author and checked by two other authors with experience in these fields.

Confidence in cumulative evidence

To assess the overall quality and strength of evidence two different approaches will be utilised. The GRADE-CERQual ('Grading of Recommendations, Assessment, Development and Evaluation'-'Confidence in the Evidence from Reviews of Qualitative research') will be used to assess how much confidence to place in the findings from the qualitative studies.[46] This approach helps provide a transparent, systematic framework to guide the confidence in qualitative synthesis findings and has the potential to increase the usability of the findings from this systematic review.[46] To assess the confidence in the findings from quantitative studies, the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) will be used.[47] GRADE is used rate the body of evidence at the outcome level, and is appropriate for use in this systematic review as it has been widely adopted to grade the quality of evidence, make recommendations and present summaries of evidence.[48-49] The lead author will assess the overall body of evidence which will be rated as 'high', 'moderate', 'low' or 'very low' based on the GRADE certainty ratings.[48] A high rating would conclude that further research is not likely to greatly impact on confidence of findings and a low rating would suggest an uncertainty of effect and the need for further research.[46, 48]

DISCUSSION

This systematic review will be the first to synthesise the literature on the experiences and perceived health benefits of individuals with a disability participating in sport. It will explore the sport experiences and health benefits in different populations including children and adolescents, adults, elite athletes and veterans with a disability. At the end of the review we will have some insight into both the positive and negative aspects experienced by individuals with a disability when participating in sport. It will provide more information about the meaning of sport, and the barriers and facilitators faced by individuals with a disability. This systematic review will also provide insight into how the sporting experience can be improved for each population based on the experiences reported, with the potential to increase participation in sport through awareness of the barriers faced and the promotion of the positive aspects of sport participation. The findings from this review will provide a clear basis and direction to guide further research based on the areas which are determined to require more investigation following data synthesis. Due to the four populations which will be included in this review, the future research directions and recommendations for practice will be population specific. This will enable specific research groups to take the findings and move forward with future research. This protocol provides a detailed account of the rationale and methods to be used in the proposed systematic review to ensure full transparency of the process. This study raises no ethical issues and any potential biases in the review process will be reported in the discussion section of the final review paper. Any required amendments to this protocol will be reported in the final systematic review and on PROSPERO along with the date, description and rationale for amendment.

Patient and public involvement

This study and protocol have been informed through extensive contact with key stakeholders in the field in both a professional physiotherapy and clinical capacity, and in an athletic capacity through contact with athletes with a disability. Since no individual data is needed, individuals with a disability will not be involved in data collection or analysis. Key stakeholders may be contacted for their input to the synthesis and interpretation of findings to inform results.

Implications

It is anticipated that the findings from this systematic review will provide an insight into the experiences and health benefits of participating in sport for individuals with a disability. It will provide insight into the meaning of sport, the barriers faced, facilitators increasing participation, and

the physical and mental health benefits. Due to the exploration of these phenomena in the different population groups, the findings will be population-specific and relevant to specific research groups, personalising the research needed going forward. This review will identify gaps in the evidence and suggest future research, and the findings may underpin policy decision making for the provision of sport for individuals with a disability.

DECLARATIONS

Ethics and Dissemination

No ethical approval is required for this systematic review. The findings from this systematic review will be published in peer reviewed journals and disseminated to key stakeholders in disability sport.

Author Contributions

BA is an MSc by Research student at the University of Birmingham. AR, AS and NH are supervisors. PM is an expert in the field of disability sport. BA, AR, AS, PM and NH contributed to the systematic review topic. BA drafted the protocol with guidance and feedback from AR, AS and NH. AR, PM, AS and NH reviewed the manuscript and commented on the protocol. All authors have approved and contributed to the final manuscript.

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Competing interests

None declared.

Provenance and peer review

Not commissioned; externally peer reviewed.

Patient consent for publication

Not required.

REFERENCES

1. Slater D, Meade MA. Participation in recreation and sports for persons with spinal cord injury: review and recommendations. *NeuroRehabilitation*. 2004;19:121-129.
2. Shephard RJ. Benefits of sport and physical activity for the disabled: implications for the individual and for society. *Scandinavian journal of rehabilitation medicine*. 1991;23:51-59.
3. Barfield JP, Malone LA. Perceived exercise benefits and barriers among power wheelchair soccer players*. Journal of rehabilitation research and development.* 2013;50:231-238.
4. Johnson CC. The benefits of physical activity for youth with developmental disabilities: a systematic review. *Am J Health Promot.* 2009;23:157-167.
5. Sport England. *Active Lives Adult Survey May 18/19 Report.* Available from: https://www.sportengland.org/media/14239/active-lives-adult-may-18-19-report.pdf [Accessed 27th November 2019].
6. Carroll DD, Courtney-Long EA, Stevens AC. Et al. Vital signs: disability and physical activity—United States, 2009–2012. *Morbidity and mortality weekly report.* 2014;63:407-413.
7. International Paralympic Committee. *History of the Paralympic Movement.* Available from: https://www.paralympic.org/ipc/history [Accessed 29th November 2019].
8. Blauwet C, Willick SE. The Paralympic Movement: using sports to promote health, disability rights, and social integration for athletes with disabilities. *PM&R.* 2012;4:851-856.
9. Thomas N, Smith A. Disability, sport and society: An introduction. Oxon: Routledge; 2008.
10. Kemper HG, Ooijendijk WT, Stiggelbout M. Consensus about the Dutch Standard for healthy Excercise*. Tijdschrift voor Gezondheidswetenschappen*. 2000;78:180-183.
11. Sport England. *Trends* (*UK active lives survey).* Available at: https://activelives.sportengland.org/Result?queryId=34030# [Accessed: 3 March 2020].
12. Krane D., Orkis, K. *Sports and employment among Americans with disabilities.* Available at: https://www.moveunitedsport.org/wp-content/uploads/2015/11/Sports-and-Employment-Among-People-With-Disabilities-2.pdf [Accessed: 3 March 2020].
13. Sport England. *Active lives children and young people survey academic year 2018/19.* Available at: https://sportengland-production-files.s3.eu-west-2.amazonaws.com/s3fs-public/2020-01/active-lives-children-survey-academic-year-18-19.pdf?cVMsdnpBoqROViY61iUjpQY6WcRyhtGs [Accessed: 3 March 2020].
14. Activity alliance. *Fears for the future generation as report shows disabled children miss out.* Available at: http://www.activityalliance.org.uk/news/5668-fears-for-future-generation-as-report-shows-disabled-children-miss-out [Accessed: 3 March 2020].

15. Sit, C.H., McManus, A., McKenzie, T.L. et al. Physical activity levels of children in special schools. *Preventive medicine*. 2007;45:424-431.
16. Sit, C.H., McKenzie, T.L., Cerin, E. et al. Physical activity and sedentary time among children with disabilities at school. *Med. Sci. Sports Exerc*. 2017;49:292-297.
17. Sit, C., Li, R., McKenzie, T.L. et al. Physical Activity of Children with Physical Disabilities: Associations with Environmental and Behavioral Variables at Home and School. *Int J Environ Res Public Health* 2019;16*:*1394.
18. Pan, C.Y., Liu, C.W., Chung, I.C. et al. Physical activity levels of adolescents with and without intellectual disabilities during physical education and recess. *Res Dev Disabil*. 2015;36*:*579-586.
19. Einarsson, I.O., Olafsson, A., Hinriksdóttir, G. et al. Differences in physical activity among youth with and without intellectual disability. *Med Sci Sports Exerc*. 2015;47:411-418.
20. International Paralympic Committee. *Summer Paralympic Games Overview.* Available from: https://www.paralympic.org/paralympic-games/summer-overview [Accessed 29th November 2019].
21. UK Sport. *Historical Funding Figures.* Available from: https://www.uksport.gov.uk/our-work/investing-in-sport/historical-funding-figures [Accessed 29th November 2019].
22. Pack S, Kelly S, Arvinen-Barrow M. "I think I became a swimmer rather than just someone with a disability swimming up and down:" paralympic athletes perceptions of self and identity development. *Disabil Rehabil*. 2017;39:2063-2070.
23. Kasum G, Mladenović M. The self-perception of athletes with disability. *Fizička kultura*. 2017;71(1):43-54.
24. De Cruz NP, Spray CM, Smith B. Implicit beliefs of disability and elite sport: the para-athlete experience. *Qualitative Research in Sport Exercise and Health*. 2019;11:69-91.
25. Sporner ML, Fitzgerald SG, Dicianno BE. et al. Psychosocial impact of participation in the national veterans wheelchair games and winter sports clinic. *Disabil Rehabil.* 2009;31:410-418.
26. Caddick N, Smith B. The impact of sport and physical activity on the well-being of combat veterans: A systematic review. *Psychology of Sport and Exercise*. 2014;15:9-18.
27. Moher D, Shamseer L, Clarke M. et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Syst rev*. 2015;4:1.
28. Cooke A, Smith D, Booth A. Beyond PICO: the SPIDER tool for qualitative evidence synthesis. *Qual Health Res*. 2012;22:1435-1443.
29. Bramer, W.M., de Jonge, G.B., Rethlefsen, M.L. et al. A systematic approach to searching: an efficient and complete method to develop literature searches. *J Med Libr Assoc*. 2018;*106:*531-541.

30. Clarivate. *EndNote X9.* Available from: https://endnote.com/ [Accessed: 2nd December 2019].
31. McHugh ML. Interrater reliability: the kappa statistic. *Biochem Med*. 2012;22:276-282.
32. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Ann Intern Medicine*. 2009;151:264-269.
33. Lockwood C, Porritt K, Munn Z, Rittenmeyer L, Salmond S, Bjerrum M, Loveday H, Carrier J, Stannard D. *Joanna Briggs Institute Qualitative data extraction tool.* Available from: https://wiki.joannabriggs.org/display/MANUAL/Appendix+2.3%3A+JBI+Qualitative+data+extraction+tool [Accessed 2nd December 2019].
34. Sirriyeh R, Lawton R, Gardner P. et al. Reviewing studies with diverse designs: the development and evaluation of a new tool. *J Eval Clin Pract*. 2012;18:746-752.
35. Dixon-Woods M, Sutton A, Shaw R. et al. Appraising qualitative research for inclusion in systematic reviews: a quantitative and qualitative comparison of three methods. *J Health Serv Res Policy*. 2007;12:42-47.
36. Fenton L, Lauckner H, Gilbert R. The QATSDD critical appraisal tool: comments and critiques. *J Eval Clin Pract.* 2015;21:1125-1128.
37. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Med Res Methodol*. 2008;8.
38. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology*. 2006;3:77-101.
39. Britten, N., Campbell, R., Pope, C. et al. Using meta ethnography to synthesise qualitative research: a worked example. *J Health Serv Res Policy*. 2002;*7:*209-215.
40. Popay J, Roberts H, Sowden A. et al. Guidance on the conduct of narrative synthesis in systematic reviews. Available from: https://www.researchgate.net/profile/Mark_Rodgers4/publication/233866356_Guidance_on_the_conduct_of_narrative_synthesis_in_systematic_reviews_A_product_from_the_ESRC_Methods_Programme/links/02e7e5231e8f3a6183000000/Guidance-on-the-conduct-of-narrative-synthesis-in-systematic-reviews-A-product-from-the-ESRC-Methods-Programme.pdf [Accessed: 10 January 2020].
41. Thomas J, Harden A, Oakley A. et al. Integrating qualitative research with trials in systematic reviews. *BMJ*. 2004 Apr 22;328(7446):1010-2.
42. Sandelowski M, Voils CI, Barroso J. Defining and designing mixed research synthesis studies. Research in the schools: a nationally refereed journal sponsored by the Mid-South Educational Research Association and the University of Alabama. 2006;13:29.

43. Caracelli VJ, Greene JC. Data analysis strategies for mixed-method evaluation designs. *Education Evaluation and Policy Analysis*. 1993;15:195-207.
44. Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nurs Health Sci*. 2013;15:398-405
45. Elo, S. and Kyngäs, H. The qualitative content analysis process. *J Adv Nurs.* 2008;62:107-115.
46. Lewin S, Booth A, Glenton C. et al. Applying GRADE-CERQual to qualitative evidence synthesis findings: introduction to the series. *Implement Sci.* 2018;13:1-10.
47. Guyatt G, Oxman AD, Akl EA. et al. GRADE guidelines: 1. Introduction—GRADE evidence profiles and summary of findings tables. *J Clin Epidemiol*. 2011;64:383-394.
48. Siemieniuk R, Guyatt G. *What is GRADE?* Available from: https://bestpractice.bmj.com/info/toolkit/learn-ebm/what-is-grade/ [Accessed 5th February 2020].
49. Guyatt GH, Oxman AD, Vist GE. et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. *BMJ*. 2008;336:924-926.

Appendix 2 – PRISMA 2009 checklist– Preferred reporting items of systematic review and meta-analysis

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	10
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	N/A
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	10-11
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	8
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	11-12
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	12-13
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	14
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Appendix 4
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	14-15

Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	15
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	12-13
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	15-16
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	N/A
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	16-19
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	19
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N/A
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	20 Figure 1
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	20 Table 3
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	20 Table 4
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	33 – 59
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	N/A
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	Table 5 and Table

			6
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	N/A
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	60 – 67
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	67
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	68 – 70
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	N/A

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: www.prisma-statement.org.

Appendix 3 – ENTREQ – enhancing transparency in reporting the synthesis of qualitative research

No.	Item	Guide and description	Location in thesis
1	Aim	State the research question the synthesis addresses.	1.4
2	Synthesis methodology	Identify the synthesis methodology or theoretical framework which underpins the synthesis, and describe the rationale for choice of methodology	2.2.1
3	Approach to searching	Indicate whether the search was pre-planned	2.2.3
4	Inclusion criteria	Specify the inclusion/exclusion criteria	2.2.2
5	Data sources	Describe the information sources used and when the searches conducted; provide the rationale for using the data sources.	2.2.3
6	Electronic search strategy	Describe the literature search	2.2.3
7	Study screening methods	Describe the process of study screening and sifting	2.2.4
8	Study characteristics	Present the characteristics of the included studies	Table 3
9	Study selection results	Identify the number of studies screened and provide reasons for study exclusion	Figure 1
10	Rationale for appraisal	Describe the rationale and approach used to appraise the included studies or selected findings	2.2.6
11	Appraisal items	State the tools, frameworks and criteria used to appraise the studies or selected findings	2.2.6
12	Appraisal process	Indicate whether the appraisal was conducted independently by more than one reviewer and if consensus was required.	2.2.6
13	Appraisal results	Present results of the quality assessment and indicate which articles, if any, were weighted/excluded based on the assessment and give the rationale.	Table 4
14	Data extraction	Indicate which sections of the primary studies were analysed and how were the data extracted from the primary studies?	2.2.5
15	Software	State the computer software used, if any.	2.2.4
16	Number of reviewers	Identify who was involved in coding and analysis.	2.2.7
17	Coding	Describe the process for coding of data	2.2.7

18	Study comparison	Describe how were comparisons made within and across studies	2.2.7
19	Derivation of themes	Explain whether the process of deriving the themes or constructs was inductive or deductive.	2.2.7
20	Quotations	Provide quotations from the primary studies to illustrate themes/constructs, and identify whether the quotations were participant quotations of the author's interpretation.	2.3.4
21	Synthesis output	Present rich, compelling and useful results that go beyond a summary of the primary studies	2.4

Appendix 4 – Systematic review example search strategy

1	Experience*.ti,ab.
2	Benefit*.ti,ab.
3	Involve*.ti,ab.
4	Participa*.ti,ab.
5	1 or 2 or 3 or 4
6	Disab*.ti,ab.
7	Impair*.ti,ab.
8	Wheelchair*.ti,ab.
9	Exp Disabled Persons/
10	(disab* adj5 veteran*).ti,ab.
11	(disab* adj3 athlete*).ti,ab.
12	(para* adj3 athlete*).ti,ab.
13	Paralympi*.ti,ab.
14	6 or 7 or 8 or 9 or 10 or 11 or 12 or 13
15	Sports for Persons with Disabilities/
16	Sports/
17	15 or 16
18	5 and 14 and 17

Appendix 5 - Modified version of the Joanna Briggs qualitative data extraction tool used for data extraction

JBI QARI Data Extraction Tool for Qualitative Research

Reviewer:
Date:
Title:
Author:
Year:
Journal:
Record number:
Study design (qualitative, quantitative, mixed-methods):

Study Description
Methodology:

Method:

Phenomena of interest:

Setting:

Geographical:

Cultural:

Participants:

Data analysis:

Author's conclusions:

Comments:

Findings	Illustration form publication (pg)	Evidence		
		Unequivocal	Credible	Unsupported

Data extraction complete:

Appendix 6 - Quality assessment tool for studies with diverse designs

Criteria	0 = Not at all	1 = Very slightly	2 = Moderately	3 = Complete
Explicit theoretical framework	No mention at all.	Reference to broad theoretical basis.	Reference to a specific theoretical basis.	Explicit statement of theoretical framework and/or constructs applied to the research.
Statement of aims/objectives in main body of report	No mention at all.	General reference to aim/objective at some point in the report including abstract.	Reference to broad aims/objectives in main body of report.	Explicit statement of aims/objectives in main body of report.
Clear description of research setting	No mention at all.	General description of research area and background, e.g. 'in primary care'.	General description of research problem in the target population, e.g. 'among GPs in primary care'.	Specific description of the research problem and target population in the context of the study, e.g. nurses and doctors from GP practices in the east midlands.
Evidence of sample size considered in terms of analysis	No mention at all.	Basic explanation for choice of sample size. Evidence that size of the sample has been considered in study design.	Evidence of consideration of sample size in terms of saturation/information redundancy or to fit generic analytical requirements.	Explicit statement of data being gathered until information redundancy/saturation was reached or to fit exact calculations for analytical requirements.
Representative sample of target group of a reasonable size	No statement of target group.	Sample is limited but represents some of the target group or representative but very small.	Sample is somewhat diverse but not entirely representative, e.g. inclusive of all age groups, experience but only one workplace. Requires discussion of target population to determine what sample is required to be representative.	Sample includes individuals to represent a cross section of the target population, considering factors such as experience, age and workplace.
Description of procedure for data collection	No mention at all.	Very basic and brief outline of data collection procedure, e.g. 'using a questionnaire distributed to staff'.	States each stage of data collection procedure but with limited detail, or states some stages in details but omits others.	Detailed description of each stage of the data collection procedure, including when, where and how data were gathered.
Rationale for choice of data collection tool(s)	No mention at all.	Very limited explanation for choice of data collection tool(s).	Basic explanation of rationale for choice of data collection tool(s), e.g. based on use in a prior similar study.	Detailed explanation of rationale for choice of data collection tool(s), e.g. relevance to the study aims and assessments of tool quality either statistically, e.g. for reliability & validity, or relevant qualitative assessment.
Detailed recruitment data	No mention at all.	Minimal recruitment data, e.g. no. of questionnaire sent and no. returned.	Some recruitment information but not complete account of the recruitment process, e.g. recruitment figures but no information on strategy used.	Complete data regarding no. approached, no. recruited, attrition data where relevant, method of recruitment.
Statistical assessment of reliability and validity of measurement tool(s) (Quantitative only)	No mention at all.	Reliability and validity of measurement tool(s) discussed, but not statistically assessed.	Some attempt to assess reliability and validity of measurement tool(s) but insufficient, e.g. attempt to establish test–retest reliability is unsuccessful but no action is taken.	Suitable and thorough statistical assessment of reliability and validity of measurement tool(s) with reference to the quality of evidence as a result of the measures used.
Fit between stated research question and method of data collection (Quantitative)	No research question stated.	Method of data collection can only address some aspects of the research question.	Method of data collection can address the research question but there is a more suitable alternative that could have been used or used in addition.	Method of data collection selected is the most suitable approach to attempt answer the research question
Fit between stated research question and format and content of data collection tool e.g. interview schedule (Qualitative)	No research question stated.	Structure and/or content only suitable to address the research question in some aspects or superficially.	Structure & content allows for data to be gathered broadly addressing the stated research question(s) but could benefit from greater detail.	Structure & content allows for detailed data to be gathered around all relevant issues required to address the stated research question(s).
Fit between research question and method of analysis	No mention at all.	Method of analysis can only address the research question basically or broadly.	Method of analysis can address the research question but there is a more suitable alternative that could have been used or used in addition to offer greater detail.	Method of analysis selected is the most suitable approach to attempt answer the research question in detail, e.g. for qualitative IPA preferable for experiences vs. content analysis to elicit frequency of occurrence of events, etc.
Good justification for analytical method selected	No mention at all.	Basic explanation for choice of analytical method	Fairly detailed explanation of choice of analytical method.	Detailed explanation for choice of analytical method based on nature of research question(s).
Assessment of reliability of analytical process (Qualitative only)	No mention at all.	More than one researcher involved in the analytical process but no further reliability assessment.	Limited attempt to assess reliability, e.g. reliance on one method.	Use of a range of methods to assess reliability, e.g. triangulation, multiple researchers, varying research backgrounds.
Evidence of user involvement in design	No mention at all.	Use of pilot study but no involvement in planning stages of study design.	Pilot study with feedback from users informing changes to the design.	Explicit consultation with steering group or statement or formal consultation with users in planning of study design.
Strengths and limitations critically discussed	No mention at all.	Very limited mention of strengths and limitations with omissions of many key issues.	Discussion of some of the key strengths and weaknesses of the study but not complete.	Discussion of strengths and limitations of all aspects of study including design, measures, procedure, sample & analysis.

Appendix 7: Evidence profile for GRADE-CERQual

Summary of review finding	Studies contrib-uting to the review finding	Methodological limitations	Coherence	Adequacy	Relevance	CERQual assessment of confidence in the evidence	Explanation of CERQual assessment
Sport gave children and adolescents with a disability with the opportunity to make friends and socialise with others.	2, 3, 6, 10, 16, 22, 24, 25, 29, 36	6 studies with no or very minor methodological limitations. 4 studies with minor limitations (little discussion of credibility).	No or very minor concerns about coherence.	Minor concerns about adequacy. 5 studies with relatively superficial data however finding supported by high quantity of studies.	No or very minor concerns about relevance.	High confidence	4 studies with minor methodological limitations and 5 studies with relatively superficial data. But finding is supported by large quantity of studies and there are no or very minor concerns about coherence and relevance.
Sport provided children and adolescents with the opportunity to experience pride in their achievements and abilities.	3, 6, 10, 16, 22, 25, 36, 37	5 studies with no or very minor methodological limitations. 3 studies with minor limitations (little discussion of credibility).	No or very minor concerns about coherence.	Minor concerns about adequacy. 4 studies with relatively superficial data however finding supported by high quantity of studies.	No or very minor concerns about relevance.	High confidence	3 studies with minor methodological limitations and 4 studies with relatively superficial data. But finding is supported by large quantity of studies and there are no or very minor concerns about coherence and relevance.
Sport was inherently enjoyable and fun for children and adolescents.	1, 10, 16, 22, 24, 36	2 studies with no or very minor methodological limitations. 4 studies with minor limitations (little discussion of credibility).	No or very minor concerns about coherence.	Minor concerns about adequacy. 2 studies with relatively superficial data however finding supported by high quantity of studies.	No or very minor concerns about relevance.	High confidence	4 studies with minor methodological limitations and 2 studies with relatively superficial data. But finding is supported by large quantity of studies and there are no or very minor concerns about coherence and relevance.

The main health benefits of sport perceived by children and adolescents with a disability included increased fitness, functionality and confidence.	10, 16, 24, 22, 25, 29, 37	3 studies with no or very minor methodological limitations. 4 studies with minor limitations (little discussion of credibility).	No or very minor concerns about coherence.	Moderate concerns. All 7 studies had superficial data but finding is supported by a high quantity of studies and is a descriptive finding.	No or very minor concerns about relevance.	Moderate confidence.	4 studies with minor methodological limitations and all 7 studies had superficial data. But finding is descriptive and supported by high quantity of studies.
Sport provided adults with a disability with a sense of freedom and facilitated self-acceptance.	4, 9, 15, 28, 32, 33, 35, 38	5 studies with no or very minor methodological limitations. 3 studies with minor limitations (little discussion of credibility).	No or very minor concerns about coherence.	No or very minor concerns. 1 study with relatively superficial data but finding is supported by high quantity of studies.	No or very minor concerns about relevance.	High confidence.	3 studies with minor methodological limitations and 1 with relatively superficial data. But finding is supported by a high quantity of studies and there are no or very minor concerns about coherence and relevance.
Sport provided adults with a disability with the opportunity to challenge stereotypes and social expectations.	4, 9, 11, 15, 25, 28, 30, 31, 32, 33, 34, 35, 38	8 studies with no or very minor methodological limitations. 5 studies with minor limitations (little discussion of credibility).	No or very minor concerns about coherence.	No or very minor concerns. 2 studies with relatively superficial data but finding is supported by high quantity of studies.	No or very minor concerns about relevance.	High confidence.	5 studies with minor methodological limitations 2 with relatively superficial data. But finding is supported by high quantity of studies and there are no or very minor concerns about coherence and relevance.
Sport enabled a sense of belonging for adults with a disability, who enjoyed being part of a team.	5, 6, 7, 9, 11, 15, 20, 23, 25, 28, 30, 31, 33, 35, 36,	9 studies with no or minor methodological limitations. 8 studies with minor limitations (little discussion of	No or very minor concerns about coherence.	No or very minor concerns. 3 studies with relatively superficial data but the finding is supported by a high quantity of studies.	No or very minor concerns about relevance.	High confidence.	8 studies with minor methodological limitations and 3 with relatively superficial data. But finding is supported by a larger quantity of studies and there are no or minor

	37, 38	credibility).					concerns about coherence and relevance.
Sport provided adults with a disability with a sense of purpose and enabled positive transformation of their attitude, personality and skill.	4, 6, 7, 9, 20, 25, 30, 31, 32, 33, 35, 36, 37, 38	9 studies with no or minor methodological limitations. 5 studies with minor limitations (no discussion of credibility).	No or very minor concerns about coherence.	No or very minor concerns. 3 studies with relatively superficial data, but finding is supported by a high quantity of studies.	No or very minor concerns about relevance.	High confidence.	5 studies with minor methodological limitations and 3 with relatively superficial data. But finding is supported by a larger quantity of studies and there are no or minor concerns about coherence and relevance.
The main health benefits of sport perceived by adults with a disability were increased fitness, functionality, strength and self-confidence.	5, 6, 7, 9, 11, 15, 20, 23, 25, 28, 30, 31, 32, 33, 37, 38	8 studies with no or minor methodological limitations. 8 studies with minor limitations (no discussion of credibility)	No or very minor concerns about coherence.	Moderate concerns. 4 studies had superficial data but finding is supported by a high quantity of studies and is a descriptive finding.	No or very minor concerns about relevance.	Moderate confidence.	8 studies with minor methodological limitations and 4 with relatively superficial data. But finding is supported by a larger quantity of studies and there are no or minor concerns about coherence and relevance.
Elite athletes with a disability had unique experiences with classification and funding.	1, 8, 12, 13, 18, 19, 27, 31, 39	1 study with no or very minor methodological limitations. 6 with minor limitations (no discussion of credibility). 2 studies with moderate limitations (little description of data collection and	No or very minor concerns about coherence.	No or very minor concerns about adequacy.	No or very minor concerns about relevance.	High confidence	Although 6 studies had minor methodological limitations and 2 had moderate limitations, there were no or very minor concerns about coherence, adequacy, and relevance.

		analysis methods, no discussion of credibility).					
Elite athletes with a disability demonstrated pure passion and dedication to their sport.	12, 13, 14, 18, 19, 27, 28, 31, 33, 39	1 study with no or very minor methodological limitations. 7 with minor limitations (no discussion of credibility). 2 with moderate concerns (little description on data collection and analysis methods, no discussion of credibility.	No or very minor concerns about coherence.	4 studies had relatively superficial data, however this finding is supported by a high quantity of studies.	No or very minor concerns about relevance.	Moderate confidence	7 studies had minor methodological limitations and 2 had moderate limitations. There were 4 studies with relatively superficial data, however there were no or very minor concerns about coherence and relevance.
Elite athletes with a disability received varying support from their coaches, teammates and national governing bodies, with both positive and negative experiences noted.	1, 8, 13, 14, 18, 19, 27, 31, 33, 39	1 study with no or very minor methodological limitations. 8 with minor limitations (no discussion of credibility). 1 with moderate limitations (no discussion of credibility and limited detail of data collection and analysis).	No or very minor concerns about coherence.	No or very minor concerns about adequacy.	No or very minor concerns about relevance.	High confidence	8 studies had minor methodological limitations and 1 had moderate limitations, however there were no concerns about coherence, adequacy or relevance.
Elite athletes with a disability felt that there	8, 12, 13, 14,	1 with no or very minor	No or very minor	No or very minor concerns about	No or very minor	High confidence	7 studies had minor methodological limitations

needs to be more awareness and appreciation for their abilities from the media and public.	18, 19, 27, 31, 33, 39	methodological limitations. 7 with minor limitations (no discussion of credibility) and 2 with moderate limitations (little detail of data collection and analysis, no discussion of credibility.	concerns about coherence.	adequacy.	concerns about relevance.		and 2 had moderate limitations, however there were no or very minor concerns about coherence, adequacy or relevance.
The main health benefits of sport perceived by elite athletes with a disability were improved self-confidence and self-esteem.	12, 18, 19, 27, 28, 31, 33	1 study with no or very minor methodological limitations. 5 with minor limitations (no discussion of credibility). 1 with moderate limitations (little detail of data collection and analysis, no discussion of credibility)	No or very minor concerns about coherence.	All 7 studies had relatively superficial data, but finding is quite descriptive.	No or very minor concerns about relevance.	Moderate confidence	5 studies had minor methodological limitations and 1 had moderate limitations. All studies had relatively superficial data. However there were no or very minor concerns about coherence or relevance.
Sport provided veterans with a disability with a competitive outlet, sense of purpose and normalcy, and facilitated self-acceptance and rehabilitation following	17	1 study with no or very minor methodological limitations.	No or very minor concerns about coherence.	Only 1 study contributed to this finding so concerns about the richness of data.	No or very minor concerns about relevance.	Low confidence	Although there were no concerns about the coherence and relevance of the finding, it was only supported by one study.

traumatic injury.							
The health benefits perceived by veterans with a disability included improved self-esteem, self-confidence, independence, weight and pain management, increased functionality, improved mental health and stress release.	17	1 study with no or very minor methodological limitations.	No or very minor concerns about coherence.	Only 1 study contributed to this finding so concerns about the richness of data.	No or very minor concerns about relevance.	Low confidence	Although there were no concerns about the coherence and relevance of the finding, it was only supported by one study.

Appendix 8 – Systematic review audit trail

Initial themes generated: (01/06/20 – 07/06/20)

Children and Adolescents	Adults	Elite athletes
Friendship • Socialising • Part of a team • Sense of belonging	Freedom from disability • Accepting and managing disability • Person before disability	Classification system • Positive outlook • controversy
Sense of pride and achievement • Being an athlete • Showing off • Realising potential	Finding your niche • Sense of belonging and acceptance • Sense of inclusion • Team atmosphere	Financial support • Funding • sponsorship
Pure enjoyment • Positive experience • Happiness	Breaking barriers • Challenging stereotypes and social constructions • Breaking imposed limitations	Support • Coaches • Teammates • National governing bodies
	Purposive and transformative • Sport providing purpose and meaning • Personal transformation	Promoting awareness • Media coverage • Public appreciation

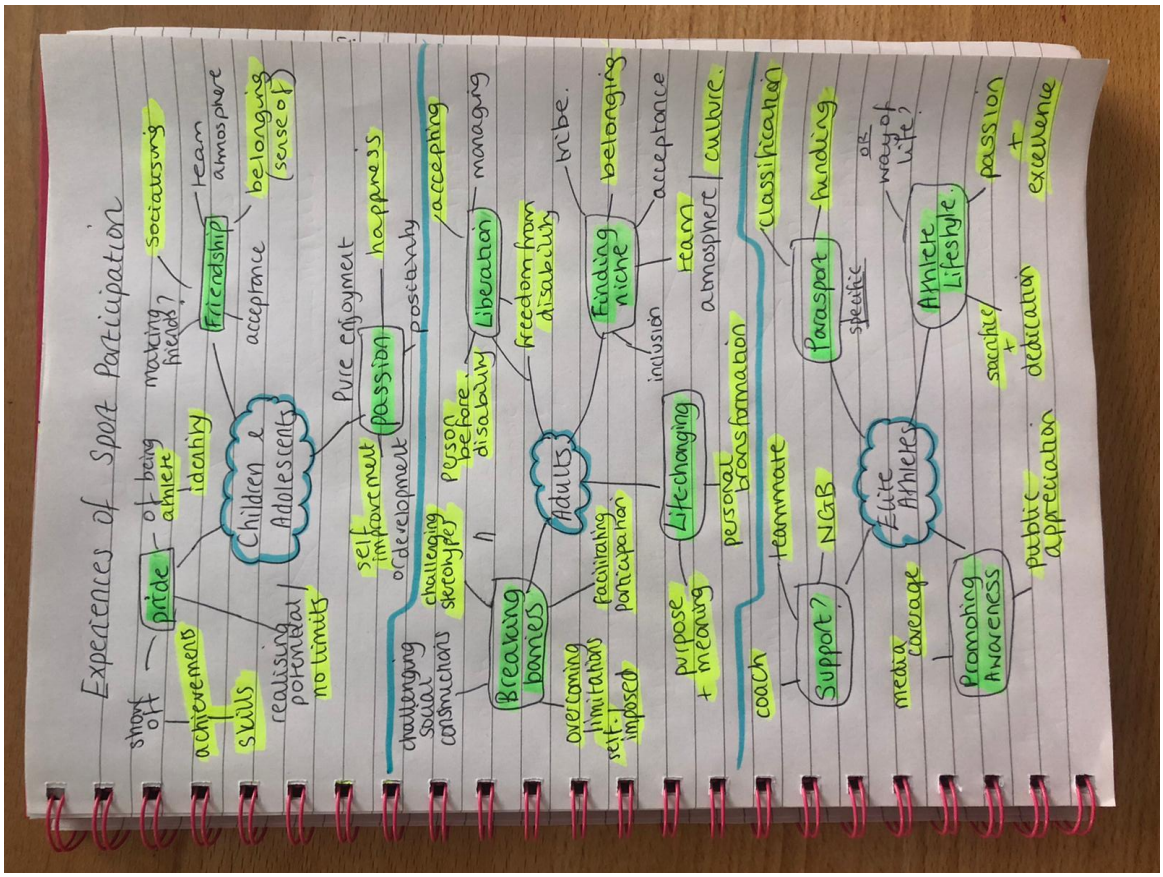
Stakeholder meeting (26/06/20)

- Discussion of themes
- Ideas for reduction and reorganisation

Reduction and reorganisation of themes: (26/06/20 – 01/07/20)

Children and Adolescents	**Adults**	**Elite athletes**
Friendship • Socialising • Sense of belonging	Liberation • Freedom from disability • Accepting disability • Person before disability	Para-sport • Classification • Funding
Pride • Athletic identity • Achievements and skills • No limits	Finding your niche • Sense of belonging • Team culture	Athlete lifestyle • Passion and excellence • Sacrifice and dedication
Passion • Happiness and positivity • Self-improvement	Breaking barriers • Challenging stereotypes • Overcoming limitations • Facilitating participation	Support • Coaches • Teammates • National governing bodies
	Life-changing • Purposive and meaningful • Personal transformation	Promoting awareness • Media coverage • Public appreciation

Brainstorm of themes and sub themes (27/06/20)

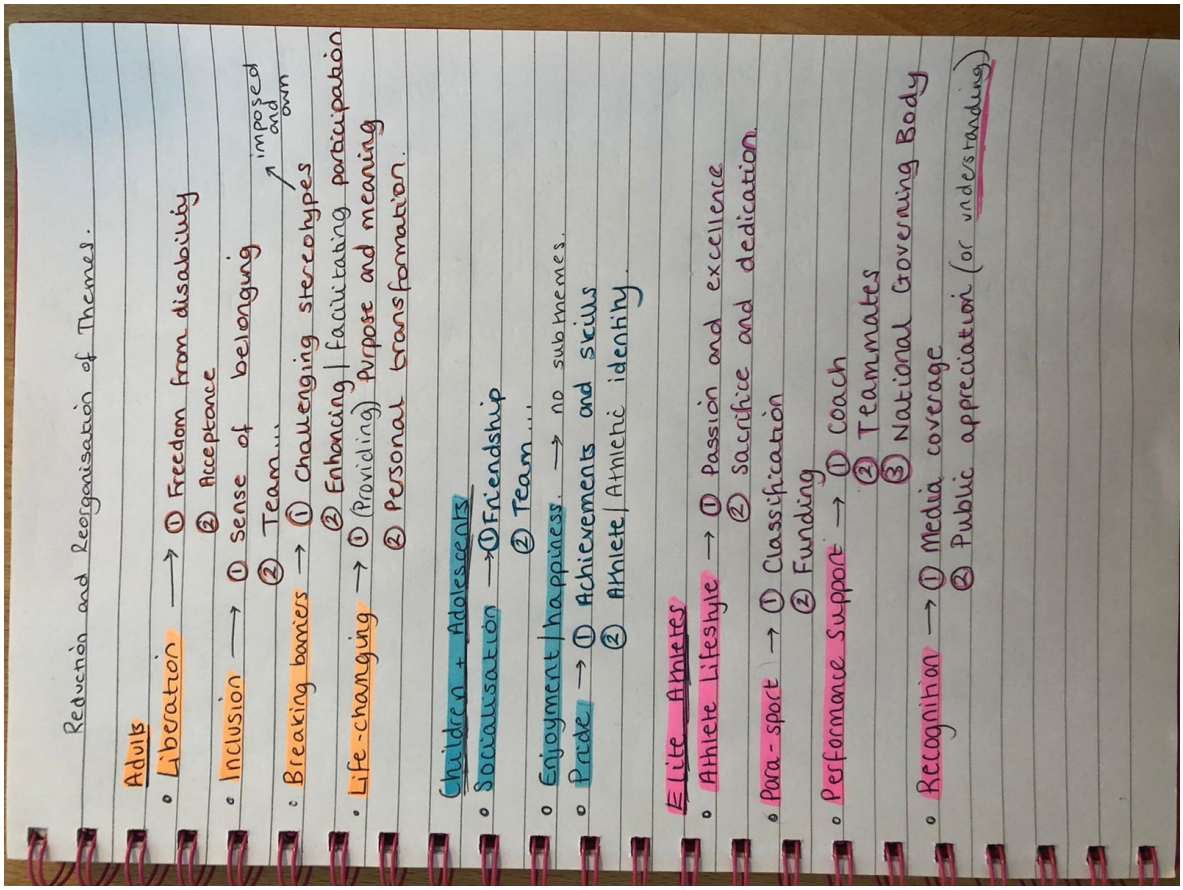


Further reduction and reorganisation of themes (01/07/20 – 05/07/20)

Children and Adolescents	Adults	Elite athletes
Socialisation • Friendship • Team atmosphere	Liberation • Freedom from disability • Acceptance	Para-sport • Classification • Funding
Pride • Athletic identity • Achievements and skills	Inclusion • Sense of belonging • Team culture	Athlete lifestyle • Passion and excellence • Sacrifice and dedication
Enjoyment and happiness • No sub themes	Breaking barriers • Challenging stereotypes • Enhancing participation	Support • Coaches • Teammates • National governing bodies
	Life-changing • Purpose and meaning • Personal transformation	Recognition • Media coverage • Public understanding

Stakeholder meeting (06/07/20)

- Discussion of newly generated themes and sub-themes



Appendix 9 - Qualitative study protocol accepted for publication in the BMJ Open

Lived experiences of social support in Paralympic swimmers: a protocol for a qualitative study

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Word count: 2,369

ABSTRACT

Introduction:
Over the past decade there has been an increase in awareness of and investment into disability sport as a result of the 'Paralympic Movement'. The provision of personal and professional support to elite athletes is important for the wellbeing and success of the athlete, with various studies advocating a holistic approach to performance enhancement. However little is known about social support experiences in elite para-swimming. Swimming is a popular Paralympic sport and the British para-swimmers have been very successful in recent years, most recently winning 47 medals at Rio 2016. This study will be the first to explore the lived experiences of British Paralympic swimmers with respect to the personal and professional support available, perceived use of the support network and the influence it has on wellbeing and performance.

Methods and analysis:
A hermeneutic phenomenological study will be undertaken using a subtle-realist paradigmatic view. A purposive sample of British Paralympic swimmers will be recruited to enable exploration of social support experiences. In-depth semi-structured interviews will explore participants' experiences of being an elite para-athlete, their support network, the social support available and how they perceive it relates to their wellbeing and performance. Strategies including reflexivity and member checking will be utilised to ensure trustworthiness. Data will be analysed following the *Framework Method*; a seven stage process used for qualitative data analysis.

Ethics and dissemination:
This study has ethical approval (ERN_20-0344) granted by the University of Birmingham. Findings will be published in a peer reviewed journal and disseminated to key stakeholders in elite para-sport to inform support services.

INTRODUCTION

Rationale

The Paralympic Games is a quadrennial global multi-sport event for athletes with impairments, referred to here as para-athletes.[1-2] Since inception in 1960, the number of para-athletes competing at the Paralympic Games has increased 10-fold, with >4300 participants at Rio 2016.[3] The 'Paralympic Movement', credited in part to the International Paralympic Committee (IPC), has led to an increase in sporting opportunities for individuals with disabilities and raised the profile of elite para-sport.[4-6] Para-athletes are classified for their sport based on eligible impairments, minimum disability criteria and sport classes,[7] ensuring that the impact of impairment is minimised and that sporting excellence determines the success of an individual or team.[8] The increase in para-sport awareness is concurrent with an increase in Paralympic Sport funding, with UK Sport investing almost £75 million into the Tokyo 2020 Paralympic Games four year cycle compared to £10 million for the Sydney Paralympic Games 20 years ago.[9-10]

Swimming has been featured at every Paralympic Games since inception.[11] Para-swimmers are classified into 3 impairment groups: physical (S1-S10), visual (S11-S13) and intellectual (S14); with a lower number corresponding to a greater impairment and greater impact on performance.[11] Second only to para-athletics, almost 600 swimmers competed at Rio 2016.[12] British para-swimmers have achieved considerable success, finishing 3rd in the medal table at Rio 2016,[12] and are in receipt of significant funding from UK Sport - just under £11 million for the most recent Paralympic cycle.[13]

Research in disability sport has emerged over the past decade with several studies investigating the benefits,[14-17] barriers,[15-22] facilitators [19-23] and motivations [24-25] for sport participation across a range of ages, impairments and performance levels. Specifically in Paralympians, studies have examined athletic identity,[26-28] retirement,[29] injury experiences,[30] and the barriers and facilitators to participation in elite sport.[20]. However, there is a paucity of evidencing exploring the role of social support and the support network for Paralympians.

Four dimensions of support have been proposed comprising emotional, esteem, informational and tangible support; demonstrating the importance of different forms of support in elite sport.[31]
Sources of support have increased considerably over the years, from family, friends and coaches,[32-34] to a whole contingency of support staff including nutritionists, physiotherapists and psychologists.[35-37] The value of a holistic approach to performance enhancement has been

highlighted in Olympic athletes, consisting of mental preparation, nutrition education and strength training, as well as having the support of friends, family and national governing bodies.[35-36] The relatively new introduction of Performance Lifestyle (PL) advisors to sports including para-swimming highlights the importance that is being placed on athlete wellbeing and personal development, as well as performance.[38-39]

Exploration of the lifestyle and psychological factors impacting performance found that both personal and professional support were considered important to athletic success in Olympic and Paralympic athletes.[37] However, as only two para-athletes participated in this study, definitive conclusions to inform practice in Paralympic sport were not possible. In non-elite para-swimmers, the providers of social support and their perceived importance have been investigated quantitatively, yet no research has explored the social support experiences of para-swimmers.[33] Significant increases in para-sport funding and resources have occurred since this study,[4-6, 9-10] therefore it is of interest to explore in-depth social support in Paralympic swimmers.

This protocol outlines the methods of a phenomenological qualitative study which will be the first to explore the lived experiences of Paralympic swimmers and their support network. It is anticipated that the findings from this study will provide a deeper understanding of this phenomenon, enabling better support for Paralympic athletes, ultimately improving wellbeing and maximising performance outcomes.

Aim

To explore the lived experiences of social support in Paralympic swimmers.

Objectives

1. To determine the members of the Paralympic swimmers' support network and examine the personal and professional support available.
2. To explore the Paralympic swimmers' perceptions of the use of the support network and available support.
3. To explore the influence this support has on Paralympic swimmer wellbeing and performance.

METHODS AND ANALYSIS

Theoretical framework and study design

The philosophical position underpinning this qualitative study is that of subtle realism. This is consistent with a realist ontology (the belief that a world exists independently from our knowledge of it)[40] and subjectivist epistemology (knowledge is subjective, and the knower and the known are inter-dependent.[41] Subtle realism considers that multiple non-contradictory and equally valid explanations exist for the same phenomena, and assumes that knowledge is based on assumptions and is a human construction.[42-43] This framework rejects the view that beliefs are known with certainty, and claims there is not a single way of knowing.[43]

A hermeneutic phenomenological approach employing framework analysis is in keeping with these beliefs. Hermeneutic phenomenology was first proposed by Heidegger in 1927 and later developed further by Gadamer and van Manen.[44-45] Finlay [46] states that this approach aims to *'evoke lived experience through the explicit involvement of interpretation'* (pg. 110) and involves the researcher participating in the 'hermeneutic circle' between the whole text and parts of the text.[44-45] This methodology is appropriate for this study as it aims to understand and interpret phenomena from the individual's perspective, allowing an insight into the experiences of British Paralympic swimmers.[46] The methodology was informed by, and the study will be reported in accordance with, the Consolidated Criteria for Reporting Qualitative Studies to enable comprehensive reporting of this study.[47]

Participant inclusion criteria

Participants will be para-swimmers who have competed at a Paralympic Games for Great Britain and are actively training and competing. They will have an impairment that complies with the International Paralympic Committee (IPC) classification code.[48] Participants will be able to communicate fluently in English and able and willing to give informed consent. There will be no age limit and both males and females will be included.

Participant recruitment

Phenomenology promotes the recruitment of participants from a homogeneous population who have had experience with the phenomenon, but who vary in characteristics and their personal experience.[49] Therefore, purposive sampling will be used to identify potential participants based on age, gender, impairment and Paralympic experience, because the will enable the provision of rich, diverse data pertinent to the research objectives of social support experiences.[50] Athletes will

be approached and contacted via email and social media to determine interest in participation. Contacts in the authors' sporting networks will be approached to aid the recruitment of participants.

Sample size will be informed by information power as proposed by Malterud, Siersma and Guassora.[51] This is a tool used in qualitative interview studies and is based on the concept that the larger the information power of a sample, the fewer participants are needed.[51] The study aim is narrow, there is high sample specificity and the case analysis strategy suggests few participants are required. This study will follow the theoretical framework and four dimensions of social support including emotional, esteem, informational and tangible support, proposed by Rees and Hardy.[31] The lead researcher (BA) has strong communication skills, competed nationally as a swimmer for 10 years and has experience training alongside elite para-swimmers. The research team also comprised expert qualitative researchers (NH, AR, AS) and a para-sport practitioner (PM). Based on these dimensions of information power, it is estimated that the sample size will be approximately 8 participants.[51]

Study setting

Video calls will be conducted from the researcher's and participants' homes. Given the current restrictions on contact and social distancing as a result of COVID-19 the ethics committee support the use of an electronic video platform to conduct interviews.

Data collection

Data will be collected via semi-structured interviews conducted by the lead researcher, a female MSc student, enabling participants to give a detailed first-person account of their experiences.[44] One interview will be conducted with each participant via video call between May and July 2020 at a date and time convenient for the participant. This method of online face-to-face interviewing is often more convenient for participants whilst still enabling observation of verbal and non-verbal cues.[52] It has also been suggested that there is little difference in the data quality between online and face-to-face interviews, further supporting the use of video interviews.[53] At least 24 hours prior to participation, informed consent will be obtained for the interview and for audio-recording. As is recommended in phenomenological studies, the interviewer will endeavour to create a relaxed, comfortable environment for the participant and engage them in conversation prior to the interview. This will facilitate the development of rapport and make the participant feel more comfortable and more likely to give a rich account.[54] Prior to the interview the participant will be reminded of the purpose of the research, that participation is voluntary and that they can with suspend the interview at any point.

A topic guide (supplementary file 1) informed by existing evidence [31,37] and conversations with elite para-sport practitioners in Performance Lifestyle and Physiotherapy has been created to guide the interviews. Questions are open-ended and participants will be invited to discuss any concepts or thoughts they feel are relevant. The guide includes introductory questions on sporting background, classification, achievements, Paralympic games and overall experience of being a Paralympic swimmer. The main section comprises questions on the experiences of emotional, esteem, informational and tangible support, structural support and social networks. Prompts will be given if necessary and clarification sought if required.

The interviews are estimated to last between 45-60 minutes and will be audio recorded and transcribed verbatim. Cognitive and pilot interviews will be undertaken with approximately two Paralympians from individual sports to assess the understanding and interpretation of the interview questions and refine interview techniques.[55-56] Based on feedback amendments will be to the topic guide if necessary. Field notes will be taken throughout the interviews to provide contextual details and to note non-verbal expressions, aiding data analysis and interpretation.[57-58] A reflexive diary will be used to record the details of the nature and origin of any interpretations which emerge through the interview process; aiding trustworthiness.[45] A copy of the transcript will be emailed to each participant to enable member checking. Each participant will be able to add any further reflections or make alterations, ensuring an accurate representation of their perspectives and experiences, adding to the transparency of the research.[57,59]

Data analysis

The lead researcher will be responsible for analysing the interview data because of her experience in competitive swimming and training alongside para-swimmers. In hermeneutic phenomenology, the researchers' biases, assumptions and experiences are essential to data analysis and interpretation, [44-46] supporting the reflexive diary. Participant quotations will be used to illustrate key findings, making the results more credible.[60] Analysis will be carried out immediately after interviews and after approximately 2-3 interviews it will be determined whether the topic guide needs adapting depending on responses to provide more focus.

The *Framework Method* (a seven stage process for qualitative data management and analysis) is an established approach commonly used to analyse qualitative data; hence it is appropriate in examining and understanding lived experience of phenomena.[61] The method highlights the importance involvement of individuals with experience in qualitative research, therefore

experienced qualitative researchers will be involved at every stage of analysis (NH, AR, AS).[61] The seven stage procedure based on that proposed by Gale et al. [61] will be adopted to analyse the data (Figure 1). It is possible that the analysis approach may be subject to change due to the inductive nature of qualitative work and the multiple types of analysis which involve the immersion of text and initial open coding. Following these stages, the themes or focus may be towards other concepts or phenomena due to the unique environment and sample that is being considered.

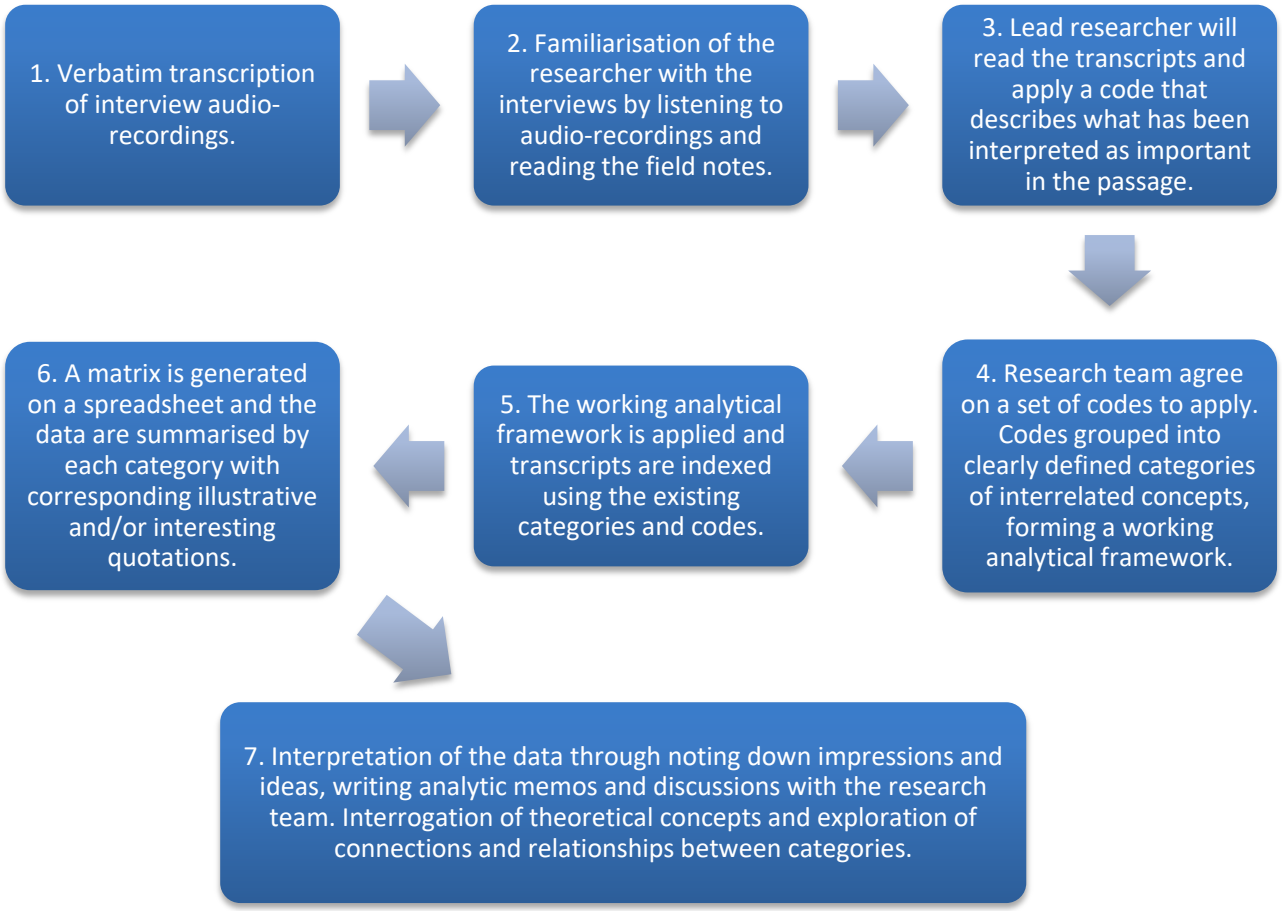

Figure 1. The Framework Method

PATIENT AND PUBLIC INVOLVEMENT

This qualitative study and protocol have been informed through contact with elite para-athletes and practitioners working in elite para-sport. Elite para-athletes will contribute to the topic guide content and structure through cognitive interviews. Key stakeholders in elite para-sport and para-swimming may be contacted for their contribution and insight to help aid analysis and interpretation of results.

ETHICS AND DISSEMINATION

Participants will sign a consent form and receive a participant information sheet prior to the interview. They will have the right to withdraw from the study prior to the interview and within four weeks after the interview. There are minimal risks associated with this study. In the unlikely event that a participant feels distressed or the interviewer is concerned for the participant's wellbeing, the interview will be suspended and the participant informed of relevant support services. Participant data will be stored confidentially for 10 years on password-protected computers that can only be accessed by the researchers, and in accordance with General Data Protection Regulation (GDPR), the Data Protection Act 2018 and University of Birmingham's research governance frameworks. When presenting the study findings, pseudonyms will be used to protect the participants' identities due to the relatively small population of current British Paralympic swimmers. Participation in the study will be entirely voluntary and no incentives will be offered. Any protocol deviations will be documented. The findings from this research will be disseminated to key stakeholders in elite para-sport and communicated to participants as a summary report.

DISCUSSION

This protocol outlines the rationale and methodology of a qualitative study which will investigate the lived experiences of social support in British Paralympic swimmers. The lead researcher has experience of competitive swimming and training with elite para-swimmers, therefore it is expected that there will be some element of researcher bias. One limitation to this study is that the researcher does not have experience in conducting interviews; however pilot interviews will enable the practice and refinement of interview techniques. Also, limiting the sample to British Paralympic swimmers may reduce the generalisability and applicability of the results. The results from this qualitative study will serve to inform researchers about the lived experiences of Paralympic swimmers. It is anticipated that the findings from this study will give a deeper understanding of what it is like to be an elite-para athlete and will facilitate increased support for para-athletes in order to maximise their wellbeing and performance.

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[2]English Institute of Sport, the Manchester Institute of Health and Performance, Manchester, UK.

Contributors: BA is an MSc by research student at the University of Birmingham and NH, AR and AS are supervisors. PM is an expert in elite para-sport. BA, NH, AR, AS and PM all contributed to the topic. BA drafted the protocol with guidance and feedback from NH, AR and AS. NH, AR, AS and PM reviewed the manuscript and commented where necessary. All authors approved the final protocol.

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Competing interests: None declared.

Provenance and peer review: Not commissioned; externally peer reviewed.

References

1. Kim KT, Lee S, Oh ES. Athletes with disabilities in the Paralympic Games: a framing analysis of television news. Managing Sport and Leisure. 2017 Jul 4;22(4):255-75.
2. McPherson G, O'Donnell H, McGillivray D, Misener L. Elite athletes or superstars? Media representation of para-athletes at the Glasgow 2014 Commonwealth Games. Disability & society. 2016 May 27;31(5):659-75.
3. International Paralympic Committee. *Summer Paralympic Games Overview.* Available from: https://www.paralympic.org/paralympic-games/summer-overview [Accessed 3rd January 2020].
4. Blauwet C, Willick SE. The Paralympic Movement: using sports to promote health, disability rights, and social integration for athletes with disabilities. PM&R. 2012 Nov 1;4(11):851-6.
5. Thomas N, Smith A. *Disability, sport and society: An introduction*. London: Routledge; 2008.
6. International Paralympic Committee. *History of the Paralympic Movement.* Available from: https://www.paralympic.org/ipc/history [Accessed 3rd January 2020].
7. International Paralympic Committee. *Classification Explained.* Available from: https://www.paralympic.org/classification [Accessed 3rd January 2020].
8. International Paralympic Committee. *IPC Athlete Classification Code.* Available from: https://www.paralympic.org/sites/default/files/document/170704160235698_2015_12_17%2BClassification%2BCode_FINAL2_0.pdf [Accessed 3rd January 2020].
9. UK Sport. *Current Funding Figures.* Available from: https://www.uksport.gov.uk/our-work/investing-in-sport/current-funding-figures [Accessed 3rd January 2020].
10. UK Sport. *Historical Funding Figures.* Available from: https://www.uksport.gov.uk/our-work/investing-in-sport/historical-funding-figures [Accessed 3rd January 2020].
11. World para swimming. *History of para swimming.* Available from: https://www.paralympic.org/swimming/about [Accessed 3rd April 2020].
12. Rio 2016 Paralympic games. *Results archive Rio 2016.* Available from: https://www.paralympic.org/rio-2016/results/swimming [Accessed 3rd April 2020].
13. UK Sport. *Para-swimming.* Available from: https://www.uksport.gov.uk/sports/paralympic/para-swimming [Accessed 3rd April 2020].
14. Hudson NA, Mrozik JH, White R, Northend K, Moore S, Lister K, Rayner K. Community football teams for people with intellectual disabilities in secure settings:"They take you off the ward, it was like a nice day, and then you get like medals at the end". Journal of Applied Research in Intellectual Disabilities. 2018 Mar;31(2):213-25.

15. Darcy S, Dowse L. In search of a level playing field–the constraints and benefits of sport participation for people with intellectual disability. Disability & Society. 2013 Apr 1;28(3):393-407.
16. Bowers K, Corby D, Lambert V, Staines A, McVeigh T, McKeon M, Hoey E, Belton S, Meegan S, Walsh D, Trépel D. People with intellectual disability and their families' perspectives of Special Olympics Ireland: Qualitative findings from the SOPHIE study. Journal of Intellectual Disabilities. 2016 Dec;20(4):354-70.
17. Barfield JP, Malone LA. Perceived exercise benefits and barriers among power wheelchair soccer players. Journal of Rehabilitation Research and Development 2013;50(2):231-8.
18. Wilson NC, Khoo S. Benefits and barriers to sports participation for athletes with disabilities: the case of Malaysia. Disability & Society. 2013 Dec 1;28(8):1132-45.
19. Jaarsma EA, Dekker R, Koopmans SA, Dijkstra PU, Geertzen JH. Barriers to and facilitators of sports participation in people with visual impairments. Adapted Physical Activity Quarterly. 2014 Jul 1;31(3):240-64.
20. Jaarsma EA, Geertzen JH, de Jong R, Dijkstra PU, Dekker R. Barriers and facilitators of sports in Dutch Paralympic athletes: An explorative study. Scandinavian journal of medicine & science in sports. 2014 Oct;24(5):830-6.
21. Jaarsma EA, Dijkstra PU, de Blécourt AC, Geertzen JH, Dekker R. Barriers and facilitators of sports in children with physical disabilities: a mixed-method study. Disability and rehabilitation. 2015 Aug 28;37(18):1617-25.
22. Hutzler Y, Bergman U. Facilitators and barriers to participation while pursuing an athletic career. Therapeutic Recreation Journal. 2011;45(1):1-6.
23. Bragaru M, Van Wilgen CP, Geertzen JH, Ruijs SG, Dijkstra PU, Dekker R. Barriers and facilitators of participation in sports: a qualitative study on Dutch individuals with lower limb amputation. PloS one. 2013;8(3).
24. Farrell RJ, Crocker PR, McDonough MH, Sedgwick WA. The driving force: Motivation in special Olympians. Adapted physical activity quarterly. 2004 Apr 1;21(2):153-66.
25. Kirkby RJ. Wheelchair netball: Motives and attitudes of competitors with and without disabilities. Australian Psychologist. 1995 Jul;30(2):109-12.
26. Swartz L, Bantjes J, Knight B, Wilmot G, Derman W. "They don't understand that we also exist": South African participants in competitive disability sport and the politics of identity. Disability and rehabilitation. 2018 Jan 2;40(1):35-41.
27. Pack S, Kelly S, Arvinen-Barrow M. "I think I became a swimmer rather than just someone with a disability swimming up and down:" paralympic athletes perceptions of self and identity development. Disability and rehabilitation. 2017 Sep 25;39(20):2063-70.
28. De Haan D, Sotiriadou P, Henry I. The lived experience of sex-integrated sport and the construction of athlete identity within the Olympic and Paralympic equestrian disciplines. Sport in society. 2016 Oct 20;19(8-9):1249-66.
29. Bundon A, Ashfield A, Smith B, Goosey-Tolfrey VL. Struggling to stay and struggling to leave: The experiences of elite para-athletes at the end of their sport careers. Psychology of Sport and Exercise. 2018 Jul 1;37:296-305.
30. Fagher K, Forsberg A, Jacobsson J, Timpka T, Dahlström Ö, Lexell J. Paralympic athletes' perceptions of their experiences of sports-related injuries, risk factors and preventive possibilities. European journal of sport science. 2016 Nov 16;16(8):1240-9.

31. Rees T, Hardy L. An investigation of the social support experiences of high-level sports performers. Sport Psychologist. 2000 Dec; 14(4):327-347.
32. Rosenfeld LB, Richman JM, Hardy CJ. Examining social support networks among athletes: Description and relationship to stress. The sport psychologist. 1989 Mar 1;3(1):23-33.
33. Martin JJ, Mushett CA. Social support mechanisms among athletes with disabilities. Adapted Physical Activity Quarterly. 1996 Jan 1;13(1):74-83.
34. Barefield S, McCallister S. Social support in the athletic training room: athletes' expectations of staff and student athletic trainers. Journal of Athletic Training. 1997 Oct;32(4):333.
35. Gould D, Guinan D, Greenleaf C, Medbery R, Peterson K. Factors affecting Olympic performance: Perceptions of athletes and coaches from more and less successful teams. The sport psychologist. 1999 Dec 1;13(4):371-94.
36. Greenleaf C, Gould D, Dieffenbach K. Factors influencing Olympic performance: interviews with Atlanta and Negano US Olympians. Journal of applied sport psychology. 2001 Mar 1;13(2):154-84.
37. Burns L, Weissensteiner JR, Cohen M. Lifestyles and mindsets of Olympic, Paralympic and world champions: is an integrated approach the key to elite performance?. British journal of sports medicine. 2019 Jul 1;53(13):818-24.
38. English Institute of Sport. *Performance Lifestyle.* Available from: https://www.eis2win.co.uk/service/performance-lifestyle/ [Accessed 3rd April 2020].
39. Ashfield A, Harrison J, Giles S. Performance lifestyle in Olympic and Paralympic sport. In: Brady A, Grenville-Cleave B. (eds.) *Positive psychology in sport and physical activity. An introduction.* London: Routledge; 2017. p.XXX
40. Sayer A. *Realism and social science*. London:Sage; 2000 Available from: https://pdfs.semanticscholar.org/a852/2bad59dd5b62b2b3b0bd4b11621561fa0327.pdf [Accessed 4th April 2020].
41. Sparkes A C, Smith B. *Qualitative research methods in sport, exercise and health: from process to product.* Oxon: Routledge; 2014 Available from: https://ebookcentral.proquest.com/lib/bham/reader.action?docID=1480779&ppg=10 [Accessed 4th April 2020].
42. Duncan EA, Nicol MM. Subtle realism and occupational therapy: An alternative approach to knowledge generation and evaluation. British Journal of Occupational Therapy. 2004 Oct;67(10):453-6.
43. Hammersley M. *Ethnography and realism.* In: Huberman A M, Miles M B. (eds.) *Qualitative researchers companion*. Thousand Oaks, USA: Sage; 2002. p.65-80.
44. Sloan A, Bowe B. Phenomenology and hermeneutic phenomenology: The philosophy, the methodologies, and using hermeneutic phenomenology to investigate lecturers' experiences of curriculum design. Quality & Quantity. 2014 May 1;48(3):1291-303.
45. Laverty SM. Hermeneutic phenomenology and phenomenology: A comparison of historical and methodological considerations. International journal of qualitative methods. 2003 Sep;2(3):21-35.
46. Finlay L. *Phenomenology for therapists: researching the lived world.* Chichester, UK: Wiley-Blackwell; 2011 Available from: https://ebookcentral.proquest.com/lib/bham/reader.action?docID=819252[Accessed 4th April 2020].

47. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. International journal for quality in health care. 2007 Dec 1;19(6):349-57.
48. International Paralympic Committee. *Explanatory guide to Paralympic classification.* Available from: https://www.paralympic.org/sites/default/files/document/150915170806821_2015_09_15%2BExplanatory%2Bguide%2BClassification_summer%2BFINAL%2B_5.pdf [Accessed 4th January 2020].
49. Moser A, Korstjens I. Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. European Journal of General Practice. 2018 Jan 1;24(1):9-18.
50. Giacomini MK, Cook DJ, Evidence-Based Medicine Working Group. Users' guides to the medical literature: XXIII. Qualitative research in health care A. Are the results of the study valid?. Jama. 2000 Jul 19;284(3):357-62.
51. Malterud K, Siersma VD, Guassora AD. Sample size in qualitative interview studies: guided by information power. Qualitative health research. 2016 Nov;26(13):1753-60.
52. Janghorban R, Roudsari RL, Taghipour A. Skype interviewing: The new generation of online synchronous interview in qualitative research. International journal of qualitative studies on health and well-being. 2014 Jan 1;9(1):24152.
53. Weller S. Using internet video calls in qualitative (longitudinal) interviews: Some implications for rapport. International Journal of Social Research Methodology. 2017 Nov 2;20(6):613-25.
54. Smith JA, Flowers P, Larkin M. *Interpretative Phenomenological Analysis; Theory, Method and Research.* Los Angeles: Sage; 2009.
55. Griffee DT. Research Tips: Interview Data Collection. Journal of Developmental Education. 2005;28(3):36-7.
56. Knafl K, Deatrick J, Gallo A, Holcombe G, Bakitas M, Dixon J, Grey M. The analysis and interpretation of cognitive interviews for instrument development. Research in nursing & health. 2007 Apr;30(2):224-34.
57. Fossey E, Harvey C, McDermott F, Davidson L. Understanding and evaluating qualitative research. Australian and New Zealand journal of psychiatry. 2002 Jan 1;36(6):717-32.
58. Emerson RM, Fretz RI, Shaw LL. *Writing ethnographic fieldnotes*. 2nd ed. Chicago: University of Chicago Press; 2011.
59. Thomas DR. Feedback from research participants: are member checks useful in qualitative research?. Qualitative Research in Psychology. 2017 Jan 2;14(1):23-41.
60. Côté L, Turgeon J. Appraising qualitative research articles in medicine and medical education. Medical teacher. 2005 Jan 1;27(1):71-5.
61. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC medical research methodology. 2013 Dec;13(1):117.

Appendix 10 – COREQ – consolidated criteria for reporting qualitative research

No. Item	Guide questions	Description	Location in thesis
Domain 1: research team and reflexivity			
Personal characteristics			
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	BA	3.2.3
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	BSc	3.2.6
3. Occupations	What was their occupation at the time of the study?	MSc by research student	3.2.6
4. Gender	Was the researcher male or female?	Female	3.2.6
5. Experience and training	What experience or training did the researcher have?	No formal training in interviewing but the researcher had strong communication skills and had undertaken pilot and cognitive interviews.	3.2.3
Relationship with participants			
6. Established relationship	Was a relationship established prior to study commencement?	Yes the researcher conversed with participants prior to the interview and developed rapport.	3.2.3
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Participants were informed of the purpose of the study and that it formed part of the researcher's MSc.	3.2.3
8. Interviewer characteristics	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Interviewer characteristics and interests were reported.	3.2.6
Domain 2: study design			
Theoretical framework			
9. Methodological orientation and theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Hermeneutic phenomenology	3.2.1
Participant selection			
10. Sampling	How were participants selected? e.g. purposive,	Purposive sampling	3.2 Participants

	convenience, consecutive, snowball		and setting.
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Email and social media.	3.2.2
12. Sample size	How many participants were in the study?	Eight	3.3
13. Non-participation	How many people refused to participate or dropped out? Reasons?	Eight participants were invited to participant and all gave informed consent and completed the interview. No participants refused participation or dropped out.	3.2.2 and 3.3
Setting			
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Interviews were conducted over video call e.g. skype and zoom.	3.2.2
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	One additional person was present in two interviews; however their comments were discarded and not included in the analysis.	3.3
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	The sample comprised five females and 3 males aged 18-38 years. They represented five swimming classifications and had varying international competition experience. Data was collected between May-June 2020.	3.3 and 3.2.3
Data collection			
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	A topic guide was used to conduct the interviews. It was informed by literature and discussions with para-sport practitioners about the social support available. Pilot and cognitive interviews were conducted with two Paralympians prior to the study.	3.2.3 Appendix 15.
18. Repeat interviews	Were repeat inter views carried out? If yes, how many?	No.	N/A
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Interviews were audio-recorded.	3.2.3
20. Field notes	Were field notes made during and/or after the interview or	Field notes were made during the interview when	3.2.3

	focus group?	necessary.	
21. Duration	What was the duration of the interviews or focus group?	48-88 minutes.	3.2.3
22. Data saturation	Was data saturation discussed?	No.	N/A
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	Yes member checking was carried out.	3.2.3.
Domain 3: analysis and findings			
Data analysis			
24. Number of data coders	How many data coders coded the data?	One – BA.	3.2.4
25. Description of the coding tree	Did authors provide a description of the coding tree?	An audit trail displaying the origin and development of themes is located in Appendix 16.	3.2.4 Appendix 16
26. Derivation of themes	Were themes identified in advance or derived from the data?	Themes were derived from the data.	3.2.4
27. Software	What software, if applicable, was used to manage the data?	Microsoft word.	3.2.4
28. Participant checking	Did participants provide feedback on the findings?	No.	N/A
Reporting			
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	Yes comments made were supported by quotations from the participants. Each quotation was identified using a participant number.	3.3
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes.	N/A
31. Clarity of major themes	Were major themes clearly presented in the findings?	Yes.	3.3
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes.	3.3 and 3.4

Appendix 11 – Ethical approval from the University of Birmingham

UNIVERSITY OF BIRMINGHAM

Application for Ethics Review Form

Guidance Notes:

What is the purpose of this form?

This form should be completed to seek ethics review for research projects to be undertaken by University of Birmingham staff, PGR students or visiting/emeritus researchers who will be carrying out research which will be attributed to the University.

Who should complete it?

For a staff project – the lead researcher/Principal Investigator on the project.
For a PGR student project – the student's academic supervisor, in discussion with the student.

Students undertaking undergraduate projects and taught postgraduate (PGT) students should refer to their Department/School for advice

When should it be completed?

After you have completed the University's online ethics self-assessment form (SAF), **IF** the SAF indicates that ethics review is required. You should apply in good time to ensure that you receive a favourable ethics opinion prior to the commencement of the project and it is recommended that you allow at least 60 working days for the ethics process to be completed.

How should it be submitted?

An electronic version of the completed form should be submitted to the Research Ethics Officer, at the following email address: aer-ethics@contacts.bham.ac.uk.

What should be included with it?

Copies of any relevant supporting information and participant documentation, research tools (e.g. interview topic guides, questionnaires, etc) and where appropriate a health & safety risk assessment for the project (see section 10 of this form for further information about risk assessments).

What should applicants read before submitting this form?

Before submitting, you should ensure that you have read and understood the following information and guidance and that you have taken it into account when completing your application:

- The information and guidance provided on the University's ethics webpages (https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-

Ethics/Ethical-Review-of-Research.aspx)

- The University's Code of Practice for Research (https://www.birmingham.ac.uk/Documents/university/legal/research.pdf)

- The guidance on Data Protection for researchers provided by the University's Legal Services team at https://intranet.birmingham.ac.uk/legal-services/What-we-do/Data-Protection/resources.aspx.

Section 1: Basic Project Details

Project Title: Lived experiences of Paralympic athletes.

Is this project a:

University of Birmingham Staff Research project ☐
University of Birmingham Postgraduate Research (PGR) Student project ☒
Other (Please specify below) ☐
Click or tap here to enter text.

Details of the Principal Investigator or Lead Supervisor (for PGR student projects):

Title: Dr
First name: Nicola
Last name: Heneghan

Position held: Senior lecturer
School/Department: Centre of Precision Management for Spinal Pain, School of Sport, Exercise and Rehabilitation Sciences, College of Life and Environmental Sciences, University of Birmingham

Telephone: 0121 4158367
Email address: n.heneghan@bham.ac.uk

Details of any Co-Investigators or Co-Supervisors (for PGR student projects):

Title: Dr
First name: Alison
Last name: Rushton

Position held: Senior Lecturer
School/Department Centre of Precision Management for Spinal Pain, School of Sport, Exercise and Rehabilitation Sciences, College of Life and Environmental Sciences, University of Birmingham

Telephone: 0121 4158597
Email address: a.b.rushton@bham.ac.uk

Title: Mr
First name: Paul

Last name: Martin

Position held: EIS Technical Lead for Paralympic Sport
School/Department English Institute of Sport

Telephone: Click or tap here to enter text.
Email address: Paul.Martin@eis2win.co.uk

Details of the student for PGR student projects:

Title: Miss
First name: Beth
Last name: Aitchison

Course of study: Sport, Exercise and Rehabilitation Sciences (MSc by research)
Email address: bla923@student.bham.ac.uk

Project start and end dates:

Estimated start date of project: 06/04/2020
Estimated end date of project: 01/09/2020

Funding:

Sources of funding: None.

Section 2: Summary of Project

Describe the purpose, background rationale for the proposed project, as well as the hypotheses/research questions to be examined and expected outcomes. This description should be in everyday language that is free from jargon - please explain any technical terms or discipline-specific phrases. Please do not provide extensive academic background material or references.

Over recent years there has been an increase in awareness and investment into disability sport as a result of the 'Paralympic movement'. This has led to increased research focus on elite para-sport, namely into the beliefs, injury experiences and self-perceptions of para-athletes. However there still remains considerably less research in this population in comparison to elite non-disabled athletes. The aim of this study is to explore the lived experiences of GB Paralympic swimmers and their experiences with their support network, something that has not been examined before. It is anticipated that the findings from this study will give a deeper understanding of this phenomenon and enable better support for Paralympic athletes, improving wellbeing and maximising performance outcomes.

Section 3: Conduct and location of Project

Conduct of project

Please give a description of the research methodology that will be used. If more than one methodology or phase will be involved, please separate these out clearly and refer to them consistently throughout the rest of this form.

A hermeneutic phenomenological study employing the framework method and using a subtle-realist paradigmatic view.

Geographic location of project

State the geographic locations where the project and all associated fieldwork will be carried out. If the project will involve travel to areas which may be considered unsafe, either in the UK or overseas, please ensure that the risks of this (or any other non-trivial health and safety risks associated with the research) are addressed by a documented health and safety risk assessment, as described in section 10 of this form.

All research will be carried out at the researcher's and participants' homes via Skype. .

Section 4: Research Participants and Recruitment

Does the project involve human participants?

Note: 'Participation' includes both active participation (such as when participants take part in an interview) and cases where participants take part in the study without their knowledge and consent at the time (for example, in crowd behaviour research).

Yes ☒
No ☐

If you have answered NO please go on to Section 8 of this form. If you have answered YES please complete the rest of this section and then continue on to section 5.

Who will the participants be?

Describe the number of participants and important characteristics (such as age, gender, location, affiliation, level of fitness, intellectual ability etc.). Specify any inclusion/exclusion criteria to be used.

The participants will be Paralympic swimmers in receipt of an Athlete Performance Award (APA). There will be no age limit on participants and both males and females will participate. Participants must have an impairment that complies with the International Paralympic Committee classification code. They must be able to communicate fluently in English due to the nature of data collection. They must be able and willing to give informed consent. Approximately 8 participants will be recruited.

How will the participants be recruited?

Please state clearly how the participants will be identified, approached and recruited. Include any relationship between the investigator(s) and participant(s) (e.g. instructor-student). Please ensure that you attach a copy of any poster(s), advertisement(s) or letter(s) to be used for recruitment.

Awareness of the project will be raised through networks and via a recruitment poster which will help to promote the study and aid participant recruitment. Individuals will be invited to contact the lead researcher if they are interested in participating. The co-investigator will support recruitment through briefings and networks. Prior to confirming participation, individuals will be given the opportunity to read the participant information sheet and to ask any questions about the study.

Section 5: Consent

What process will be used to obtain consent?

Describe the process that the investigator(s) will be using to obtain valid consent. If consent is not to be obtained explain why. If the participants are under the age of 16 it would usually be necessary to obtain parental consent and the process for this should be described in full, including whether parental consent will be opt-in or opt-out.

Prior to the interviews, participants will sign a consent form regarding interview participation and the audio recording of interview.

Please be aware that if the project involves over 16s who lack capacity to consent, separate approval will be required from the Health Research Authority (HRA) in line with the Mental Capacity Act.

Please attach a copy of the Participant Information Sheet (if applicable), the Consent Form (if applicable), the content of any telephone script (if applicable) and any other material that will be used in the consent process.

Note: Guidance from Legal Services on wording relating to the Data Protection Act 2018 can be accessed at https://intranet.birmingham.ac.uk/legal-services/What-we-do/Data-Protection/resources.aspx.

Use of deception?

Will the participants be deceived in any way about the purpose of the study?

Yes ☐
No ☒

If yes, please describe the nature and extent of the deception involved. Include how and when the deception will be revealed, and the nature of any explanation/debrief will be provided to the participants after the study has taken place.

N/A

Section 6: Participant compensation, withdrawal and feedback to participants

What, if any, feedback will be provided to participants?

Explain any feedback/ information that will be provided to the participants after participation in the research (e.g. a more complete description of the purpose of the research, or access to the results of the research).

Participants will receive an email thanking them for their participation and contribution to the research. Once the study has been completed, participants will receive a summary of the results written in lay language.

What arrangements will be in place for participant withdrawal?

Describe how the participants will be informed of their right to withdraw from the project, explain any consequences for the participant of withdrawing from the study and indicate what will be done with the participant's data if they withdraw.

The participants will receive a participant information sheet contains information of the withdrawal process. There will be no consequences for withdrawal from the study. The participant's data will be removed and destroyed if they withdraw from the study.

Please confirm the specific date/timescale to be used as the deadline for participant withdrawal and ensure that this is consistently stated across all participant documentation. This is considered preferable to allowing participants to 'withdraw at any time' as presumably there will be a point beyond which it will not be possible to remove their data from the study (e.g. because analysis has started, the findings have been published, etc).

The participants will have until 4 weeks after their interview took place to withdraw from the study. Participants will be made aware of this on the participant information sheet along with the reason for the withdrawal timescale.

What arrangements will be in place for participant compensation?

Will participants receive compensation for participation?

Yes ☐
No ☒

If yes, please provide further information about the nature and value of any compensation and clarify whether it will be financial or non-financial.

No compensation will be provided as data collection is via Skype. .

If participants choose to withdraw, how will you deal with compensation?

N/A

Section 7: Confidentiality/anonymity

Will the identity of the participants be known to the researcher?

Will participants be truly anonymous (i.e. their identity will not be known to the researcher)?

Yes ☐
No ☒

In what format will data be stored?

Will participants' data be stored in identifiable format, or will it be anonymised or pseudo-anonymised (i.e. an assigned ID code or number will be used instead of the participant's name and a key will kept allowing the researcher to identify a participant's data)?

Audio data will be encrypted and destroyed once transcribed. Transcribing will be carried out by the recognised service, Birmingham Transcription Services, so data will be uploaded directly to their portal. Transcribed documents will be kept in electronic version only. Participant data will be pseudo-anonymised or referred to using an ID code.

Will participants' data be treated as confidential?

Will participants' data be treated as confidential (i.e. they will not be identified in any outputs from the study and their identity will not be disclosed to any third party)?

Yes ☒
No ☐

If you have answered no to the question above, meaning that participants' data will not be treated as confidential (i.e. their data and/or identities may be revealed in the research outputs or otherwise to third parties), please provide further information and justification for this:

N/A

Section 8: Storage, access and disposal of data

How and where will the data (both paper and electronic) be stored, what arrangements will be in place to keep it secure and who will have access to it?

Please note that for long-term storage, data should usually be held on a secure University of Birmingham IT system, for example BEAR (see https://intranet.birmingham.ac.uk/it/teams/infrastructure/research/bear/index.aspx).

Data will be stored confidentially on password-protected computers which can only be accessed by the researchers. Data will be stored in accordance with GDPR, the Data Protection Act 2018 and the University of Birmingham's research governance framework.

Data retention and disposal

The University usually requires data to be held for a minimum of 10 years to allow for verification. Will you retain your data for at least 10 years?

Yes ☒
No ☐

If data will be held for less than 10 years, please provide further justification:

N/A

What arrangements will be in place for the secure disposal of data?

Data will be destroyed by the lead supervisor after 10 years.

Section 9: Other approvals required

Are you aware of any other national or local approvals required to carry out this research?

E.g. clearance from the Disclosure and Barring Service (DBS), Local Authority approval for work involving Social Care, local ethics/governance approvals if the work will be carried out overseas, or approval from NOMS or HMPPS for work involving police or prisons? If so, please provide further details:

No.

For projects involving NHS staff, is approval from the Health Research Authority (HRA) needed in addition to University ethics approval?

If your project will involve NHS staff, please go to the HRA decision tool at http://www.hra-decisiontools.org.uk/research/ to establish whether the NHS would consider your project to be research, thus requiring HRA approval in addition to University ethics approval. Is HRA approval required?

Yes ☐
No ☒

Please include a print out of the HRA decision tool outcome with your application.

Section 10: Risks and benefits/significance

Benefits/significance of the research

Outline the potential significance and/or benefits of the research

It is anticipated that the findings from this study will enable a deeper understanding of the lived experiences of Paralympic swimmers and enable better support for future Paralympians and para-athletes, maximising their wellbeing and performance.

Risks of the research

Outline any potential risks (including risks to research staff, research participants, other individuals not involved in the research, the environment and/or society and the measures that will be taken to minimise any risks and the procedures to be adopted in the event of mishap.) ***Please ensure that you include any risks relating to overseas travel and working in overseas locations as part of the study, particularly if the work will involve travel to/working in areas considered unsafe and/or subject to travel warnings from the Foreign and Commonwealth Office (see*** https://www.gov.uk/foreign-travel-advice)***. Please also be aware that the University insurer, UMAL, offers access to RiskMonitor Traveller, a service which provides 24/7/365 security advice for all travellers and you are advised to make use of this service (see https://umal.co.uk/travel/pre-travel-advice/).***

The outlining of the risks in this section does not circumvent the need to carry out and document a detailed Health and Safety risk assessment where appropriate – see below.

There is one minimal risk associated with the study. In the unlikely event that a participant feels distressed or the interviewer is concerned with the participant's wellbeing, the interview will be suspended and the participant will be informed of relevant wellbeing services.

University Health & Safety (H&S) risk assessment

For projects of more than minimal H&S risk it is essential that a H&S risk assessment is carried out and signed off in accordance with the process in place within your School/College and you must provide a copy of this with your application. The risk may be non-trivial because of travel to, or working in, a potentially unsafe location, or because of the nature of research that will carried out there. It could also involve (irrespective of location) H&S risks to research participants, or other individuals not involved directly in the research. Further information about the risk assessment process for research can be found at https://intranet.birmingham.ac.uk/hr/wellbeing/worksafe/policy/Research-Risk-Assessment-and-Mitigation-Plans-RAMPs.aspx.

Please note that travel to (or through) 'FCO Red zones' requires approval by the University's Research Travel Approval Panel, and will only be approved in exceptional circumstances where sufficient mitigation of risk can be demonstrated.

Section 11: Any other issues

Does the research raise any ethical issues not dealt with elsewhere in this form?

If yes, please provide further information:

No.

Do you wish to provide any other information about this research not already provided, or to seek the opinion of the Ethics Committee on any particular issue?

If yes, please provide further information:

No.

Section 12: Peer review

Has your project received scientific peer review?

Yes ☒
No ☐

If yes, please provide further details about the source of the review (e.g. independent peer review as part of the funding process or peer review from supervisors for PGR student projects):

Peer reviewed by supervisors and co-investigators.

Section 13: Nominate an expert reviewer

For certain types of project, including those of an interventional nature or those involving significant risks, it may be helpful (and you may be asked) to nominate an expert reviewer for your project. If you anticipate that this may apply to your work and you would like to nominate an expert reviewer at this stage, please provide details below.

Title: Click or tap here to enter text.
First name: Click or tap here to enter text.
Last name: Click or tap here to enter text.
Email address: Click or tap here to enter text.
Phone number: Click or tap here to enter text.

Brief explanation of reasons for nominating and/or nominee's suitability:

Click or tap here to enter text.

Section 14: Document checklist

Please check that the following documents, where applicable, are attached to your application:

Recruitment advertisement ☒
Participant information sheet ☒
Consent form ☒
Questionnaire ☐
Interview/focus group topic guide ☒

Please proof-read study documentation and ensure that it is appropriate for the intended audience before submission.

Section 15: Applicant declaration

Please read the statements below and tick the boxes to indicate your agreement:

I submit this application on the basis that the information it contains is confidential and will be used by the University of Birmingham for the purposes of ethical review and monitoring of the research

project described herein, and to satisfy reporting requirements to regulatory bodies. The information will not be used for any other purpose without my prior consent. ☒

The information in this form together with any accompanying information is complete and correct to the best of my knowledge and belief and I take full responsibility for it. ☒

I undertake to abide by University Code of Practice for Research (https://www.birmingham.ac.uk/Documents/university/legal/research.pdf) alongside any other relevant professional bodies' codes of conduct and/or ethical guidelines. ☒

I will report any changes affecting the ethical aspects of the project to the University of Birmingham Research Ethics Officer. ☒

I will report any adverse or unforeseen events which occur to the relevant Ethics Committee via the University of Birmingham Research Ethics Officer. ☒

Re: "Lived experiences of Paralympic athletes"
Application for Ethical Review ERN_20-0344

Thank you for your application for ethical review for the above project, which was reviewed by the Science, Technology, Engineering and Mathematics Ethical Review Committee.

On behalf of the Committee, I confirm that this study now has full ethical approval.

I would like to remind you that any substantive changes to the nature of the study as described in the Application for Ethical Review, and/or any adverse events occurring during the study should be promptly brought to the Committee's attention by the Principal Investigator and may necessitate further ethical review.

Please see further information about any amendments necessary as a result of the ongoing COVID-19 situation at https://intranet.birmingham.ac.uk/finance/documents/public/UoB-Sponsor-position-COVID-19-20th-March-2020-FINAL.pdf.

Please also ensure that the relevant requirements within the University's Code of Practice for Research and the information and guidance provided on the University's ethics webpages (available at https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Links-and-Resources.aspx) are adhered to and referred to in any future applications for ethical review. It is now a requirement on the revised application form (https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Ethical-Review-Forms.aspx) to confirm that this guidance has been consulted and is understood, and that it has been taken into account when completing your application for ethical review.

Please be aware that whilst Health and Safety (H&S) issues may be considered during the ethical review process, you are still required to follow the University's guidance on H&S and to ensure that H&S risk assessments have been carried out as appropriate. For further information about this, please contact your School H&S representative or the University's H&S Unit at healthandsafety@contacts.bham.ac.uk.

Kind regards

Susan Cottam
Research Ethics Manager

Appendix 12 – Participant information sheet

UNIVERSITY OF BIRMINGHAM

Participant Information Sheet

Study title:

Lived experiences of social support in Paralympic swimmers.

What is the purpose of the study?

The purpose of this study is to investigate the lived experiences of social support in Paralympic swimmers. It will explore the members of your support network and the personal and professional support available to you. It will also explore your perceptions of the use of this support and the influence it has on your wellbeing and performance. The findings from this study will inform our understanding of the Paralympic swimmer experience and the role of personal and professional support, enabling better support for para-swimmers, ultimately improving wellbeing and maximising performance.

Why have I been chosen?

You have been chosen to participate because you have expressed interest in participating in this study. You are a British Paralympic swimmer who is actively training and competing, and you have an impairment that complies with the International Paralympic Committee classification code.

Do I have to take part?

Participation in this study is entirely voluntary. If you decide to participate, you will be given this information sheet to keep and be asked to sign a consent form. You are able to withdraw fully from the study prior to the interview. After the interview takes place you will be given the opportunity to review your transcript and have any specific comments removed. From this point, you will have a time limited right to withdrawal of 4 weeks for either all the data or individual comments. This is not uncommon as once data analysis is complete it is very difficult to extract an individual's data and it may affect the outcome. Withdrawal can be done by using the contact details provided below.

What does participation involve?

Participation involves one interview lasting approximately 45-60 minutes which will be audio-recorded. The interview will involve some introductory questions around yourself, swimming background, classification and experience as an elite athlete. We will then move on to the main focus of the interview which is the members of your support network, your experiences of personal and professional support and the influence this support has on your wellbeing and performance. You will be encouraged to talk openly about your experiences and to mention anything you feel is relevant or important.

The interview will take place at a time and date convenient for you via Skype or similar. If you wish, you may have a chaperone with you during the interview, however they will be there only for your support and no consultation or construction is permitted.

What are the potential benefits and risks of taking part?

Although there are no direct benefits for you, your contribution and responses will help us to understand the Paralympic swimmer experience and will contribute to the relatively small body of research in elite disability sport, providing information which may be of benefit to the wellbeing and performance of para-swimmers. There are no risks to participation. However, in the unlikely event that you do not wish to continue with the interview and want to withdraw from the study due to emotional distress, you will be referred to your sport psychologist.

What will happen with my data?

All your data will be stored confidentially on password-protected computers which are only accessed by the research team and handled in accordance with the terms of the General Data Protection Regulation (2019) and the Data Protection Act (2018). The data will be kept for 10 years in accordance with University verification requirements and will be destroyed after this period. Your data will be anonymised and you will not be directly identifiable in any publication or reports. Audio-recordings will be deleted once transcribed.

What will happen at the end of the study?

This research is part of a post-graduate research project and so it is possible that it could be published in the public domain. A summary of the study findings will be emailed to all participants detailing the results and implications of the findings, and thanking you for your participation.

What if I have any questions?

If you have any further questions about the study or if there is anything you don't understand, please do not hesitate to contact one of the researchers on the details provided below.

Contact details:

Beth Aitchison	Nicola Heneghan
[redacted]	0121 4158367
bla923@student.bham.ac.uk	n.heneghan@bham.ac.uk
Principle investigator	Lead supervisor

Appendix 13 – Consent form

UNIVERSITY OF BIRMINGHAM

Participant Consent Form

Title of project: Lived experiences of social support in Paralympic swimmers.

	Please initial box
1. I confirm that I have read and understood the participant information sheet for this study. I have had the opportunity to ask questions if necessary and have had these answered satisfactorily.	☐
2. I understand that my participation is voluntary and that I am free to withdraw within 4 weeks of the interview taking place, without giving any reason. If I withdraw my data will be removed from the study and destroyed.	☐
3. I consent to the storage and processing of my personal information for the purposes explained to me in the information sheet. I understand that such information will be handled in accordance with the terms of the General Data Protection Regulation (2019) and the Data Protection Act 2018.	☐
4. I understand that confidentiality and anonymity will be maintained, and it will not be possible to identify me in any research outputs.	☐
5. I understand that my information may be subject to review by responsible individuals from the University of Birmingham for monitoring and audit purposes.	☐
6. Based upon the above, I agree to take part in this study.	☐

Name of participant:	Date:	Signature:
Name of researcher or individual obtaining consent:	Date:	Signature:

Appendix 14 – social support definitions sheet

Social Support Definitions

Taken from the research of Cutrona and Russell (1990).

The below are just examples - they are not a definitive list of social support providers or services.

Emotional support

- Support given to provide comfort to an individual for them to feel that they are cared for and can feel secure at times of stress.
- Eg. Support from anyone close to you in the form of listening, comfort, encouragement and demonstrations of caring and love.

Esteem support

- Support that helps bolster or encourage an individual's self-esteem or sense of competence. Provisionally through providing positive feedback on an individual's skills or abilities and expressing that an individual is capable of achieving and coping with a stressful event or task.
- Eg. Feedback from coach about training, performance or technique. Support of family, friends, teammates or others. Support designed to improve your self-esteem and confidence.

Informational support

- Support that provides a person with advice or guidance concerning possible solutions to a problem.
- Eg. Advice from coaches and support staff to improve training and performance. Talking to teammates with experiential similarities. Guidance or feedback from family, friends or others.

Tangible support

- Support that provides some instrumental or concrete assistance to an individual.
- Eg. Seeing and working with support staff for physical treatment or training. Receiving performance-related assistance from support staff, such as nutritional and psychological. Receiving financial aid.

Research Aim	Lived experiences of social support in Paralympic swimmers.		
Interview Section	**Questions/Content**	**Prompts**	**Aims**
Ethics Statement	Firstly, I would like to thank you for participating in this interview. Just a reminder that it will be audio-recorded but all information shared will be kept strictly confidential. You are entitled to stop the interview and the recording at any point or terminate the interview altogether if you wish. You also have the right not to answer a question if you do not wish to. There are no right or wrong answers. I am interested in your own personal experiences, thoughts and perceptions, with the aim of today being to understand your experiences of being an elite para-athlete and your support network. Before we start do you have any further questions?	• *Can I confirm that you have read and understand the information sheet and signed the consent form?* • *Are you comfortable?*	• To ensure full understanding of what is expected of the participant during this interview. • Make sure the participant is comfortable and ready to begin.
	We're going to start with a few introductory questions so that I can get to know you a little more. This section will just take a few minutes.		
Introductory Questions	1. Can you tell me a bit about yourself?	• *Age, where you come from, studying, job, personality. What 3 words or phrases would you use to describe yourself?*	• Make participant relax and feel comfortable with talking and opening up. • Build rapport. • To gain an insight into the participant's background and their sporting career.
	2. Can you tell me about your sporting background?	• *When did you start? How you became involved? What made you start? What support did you have getting involved in swimming? Were there any barriers to getting involved? Why do you swim? Your achievements?*	
	3. Can you tell me about your classification, impairment and main event/s?	• *What are you best swimming events? What classification? What impairment? How does it affect you day to day? Use of any aids or prosthesis. In short, how do you feel about the current classification system?*	
	4. Can you tell me about your previous Paralympic Games/International competition experiences?	• *What Games/International competitions have you been to? What support did you receive in getting there, during and after? Positives/negatives/successes. Have you found this experience has changed across the years? (If been to more than one).*	

Transition Questions	1. What is your overall experience of being an elite swimmer? 2. What does you daily/weekly training schedule look like? Can you run me through it?	• *What does being a swimmer mean to you?* • *What aspects of being an athlete do you enjoy?* • *Any challenges with being an elite athlete?* • *Benefits/positives/negatives* • *Best experience and worst experience? (If struggling to answer)* • *Have you seen any changes in the support available to swimmers change over time?* • *How many times a week do you train? For how long? Any land based training?* • *How frequently do you have competitions?* • *Do you go on any training camps?* • *Who goes with you to competitions and training camps in terms of support staff?* • *What support do you have access to as a GB funded swimmer?* • *What do you like to do in your spare time to relax and de-stress?*	• Start to guide the interview towards experiences of being a Paralympic athlete. • To get an idea of training schedule. • May prompt athlete to bring up support staff (eg. Seeing physiotherapist, psychologist, sports massage).
	To start with, earlier you mentioned X (support staff) who you have contact with as part of your social network. Could you tell me a bit about their role and the support they give you?	• *How often do you see this person/use this support?* • *In what way do they support/help you? In terms of performance? In terms of wellbeing?* • *Do you feel there are any benefits to seeing this person?* • *Are there any negatives associated with seeing this person? Any negative experiences?* • *What influence, if any, do other people have on your seeking of this support?* • *Do you access different support/go to different people for support in different situations?* • *Who else supports you in achieving your performance goals?* • *What role do teammates play in support?*	• To determine who provides (structural) support and the members of the social network. • To determine the benefits that each person provides to the participant's wellbeing and performance. • Then move on to the next person mentioned by the athlete.
Social support background	We will now move on to the main research questions focused on social support. Many studies have demonstrated the importance of social support in maintaining and improving physical and psychological health. Social support is split into functional support and structural support. There are 4 different types of functional support: emotional, esteem, informational and tangible. Structural support is concerned with your support network and who you	• *Do you have any questions?* • *If you are unsure at any point regarding the types of support, please ask.* • *Use the social support definitions sheet provided to guide you if needed.*	• Inform the participant of the background of the study • Ensure the participant knows they can ask questions if they are unsure.

	talk to and see on a regular basis. These types of support can be provided by different people. They could include family, close friends, partner, teammates, support staff and coaches. Before each question I will define what is meant by each type of support. If you are not clear on what is meant, then please let me know.		
Main questions	1. Emotional support is defined as 'the ability to turn to others for comfort and security during times of stress, leading the person to feel that he or she is cared for by others'. Is there anyone who provides this type of support to you?	• *In what way do they provide support?* • *Can you tell me how important is this form of support to you?* • *How often do you use this support?* • *Why do you use/need this support?* • *In what way does this support benefit your performance? What about wellbeing?* • *Are there situations where you access this support more? Why?* • *Does your impairment and/or heath influence your seeking of this support?* • *What influence, if any, do other people have on your seeking of this support?* • *Have you had any negative experiences with this form of support? Can you give an example of this?* • *Is there any way this support could be improved?*	• To determine who provides emotional support to the participant. • To determine how important emotional support is. • To determine in what way emotional support benefits performance and wellbeing. • To determine the situations and factors that influence the seeking of emotional support.
	2. Esteem support is 'the bolstering to a person's sense of competence or self-esteem by other people. Giving an individual positive feedback on his or her skills and abilities or expressing a belief that the person if capable of coping with a stressful event'. Is there anyone who provides this type of support to you?	• *In what way do they provide support?* • *Can you tell me how important is this form of support to you?* • *How often do you use this support?* • *Why do you use/need this support?* • *In what way does this support benefit your performance? What about wellbeing?* • *Are there situations where you access this support more? Why?* • *Does your impairment and/or heath influence your seeking of this support?* • *What influence, if any, do other people have on your seeking of this support?* • *Have you had any negative experiences with this form of support? Can you give an example of this?* • *Is there any way this support could be improved?*	• To determine who provides esteem support to the participant. • To determine how important esteem support is. • To determine in what way esteem support benefits performance and wellbeing. • To determine the situations and factors that influence the seeking of esteem support.

	3. Informational support is 'providing the individual with advice or guidance concerning possible solutions to a problem'. Is there anyone who provides this type of support to you?	• *In what way do they provide support?* • *Can you tell me how important is this form of support to you?* • *How often do you use this support?* • *Why do you use/need this support?* • *In what way does this support benefit your performance? What about wellbeing?* • *Are there situations where you access this support more? Why?* • *Does your impairment and/or heath influence your seeking of this support?* • *What influence, if any, do other people have on your seeking of this support?* • *Have you had any negative experiences with this form of support? Can you give an example of this?* • *Is there any way this support could be improved?*	• To determine who provides informational support to the participant. • To determine how important informational support is. • To determine in what way informational support benefits performance and wellbeing. • To determine the situations and factors that influence the seeking of informational support.
	4. Tangible support is 'concrete instrumental assistance in which a person in a stressful situation is given the necessary resources to cope with the stressful event' (eg. Financial assistance, physical help). Is there anyone who provides this type of support to you?	• *In what way do they provide support?* • *Can you tell me how important is this form of support to you?* • *How often do you use this support?* • *Why do you use/need this support?* • *In what way does this support benefit your performance? What about wellbeing?* • *Are there situations where you access this support more? Why?* • *Does your impairment and/or heath influence your seeking of this support?* • *What influence, if any, do other people have on your seeking of this support?* • *Have you had any negative experiences with this form of support? Can you give an example of this?* • *Is there any way this support could be improved?* • *What are your thoughts on the funding available to you and what you receive?*	• To determine who provides tangible support to the participant. • To determine how important tangible support is. • To determine in what way tangible support benefits performance and wellbeing. • To determine the situations and factors that influence the seeking of tangible support.
	Is there anything else around your support network or experiences of support that we haven't covered which you would like to add or you think is of relevance?		
Conclusion	That's all the questions I have so the interview has now finished. Thank you for participating in this study, I really appreciate your time and input.	• *Is there anything you would like to ask regarding the analysis of the data or the next steps of the process?* • *Ensure participant does not need signposting towards any wellbeing services, do so if necessary.*	• Ensure the participant is comfortable with what has been discussed.

Appendix 16 – Audit trail for qualitative study

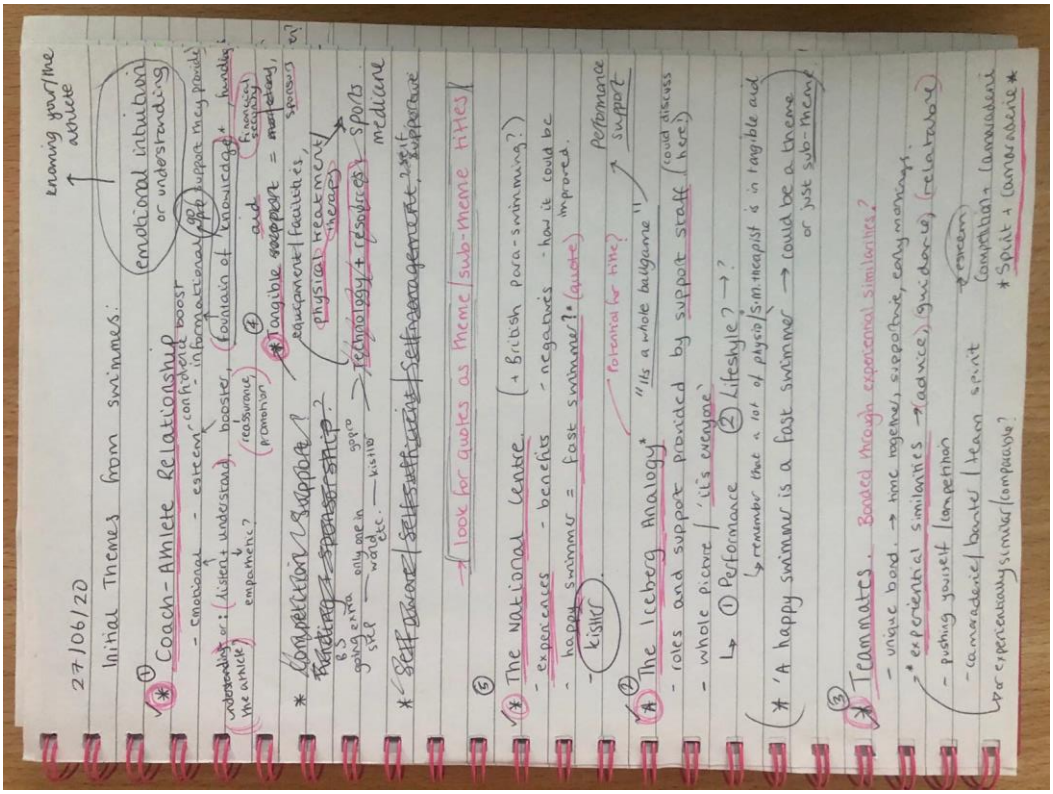
Initial theme generation (08/06/20)

Theme	Sub-theme
Emotional support	Successes and struggles
	The coach-athlete relationship
Esteem support	Teammates
	Competition and training
Informational support	Performance advice
	Lifestyle advice
Tangible support	Financial aid
	Physical treatment
	Equipment and facilities
Other	The National Centre
	Competition support
	Family and friends

Stakeholder meeting (26/06/20)

- Attendees – BA, NH, AS, AR, PM
- Discussion of initial themes
- Ideas for reduction and reorganisation

Brain storming (27/06/20 – 29/06/20)

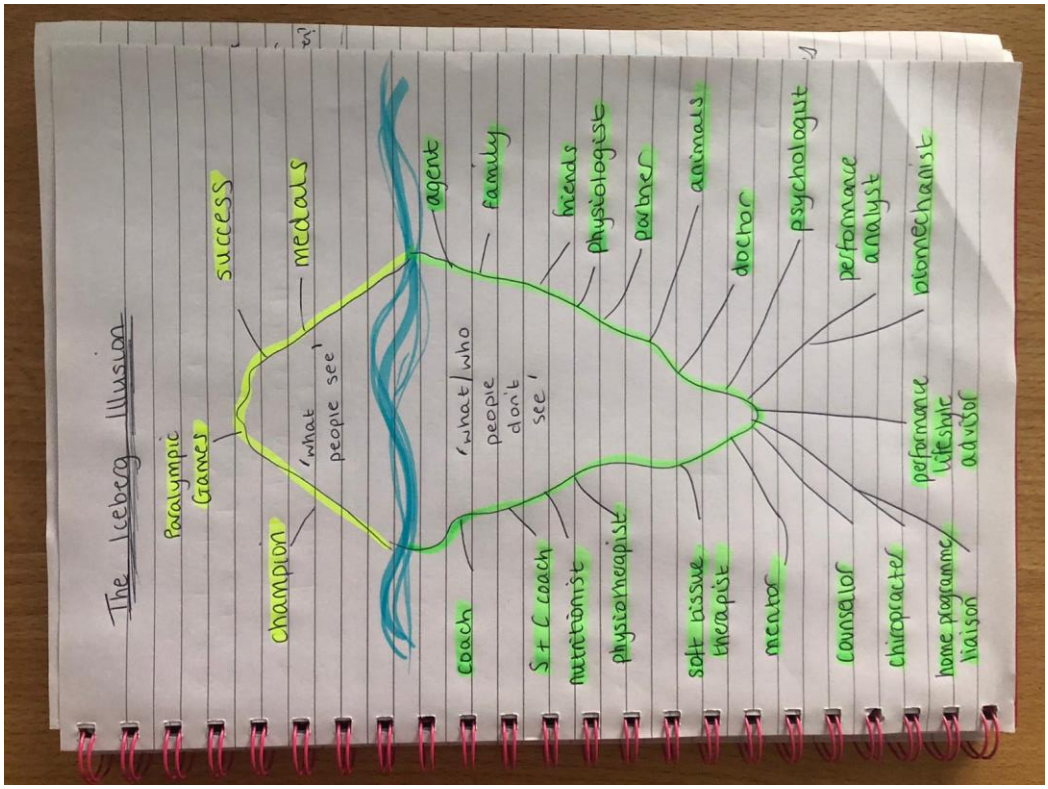


Theme reduction and reorganisation (30/06/20 – 03/07/20)

Theme	Sub-theme
Coach-athlete relationship	Knowing the athlete OR emotional intuition
	Confidence boost OR esteem building
	Fountain of knowledge
Teammates	Team spirit and camaraderie
	Experiential similarities
The iceberg illusion	Performance
	Personal
Tangible aid	Sports medicine
	Financial support
National centre OR British para-swimming	'A happy swimmer is a fast swimmer'
	Positives
	Building the support

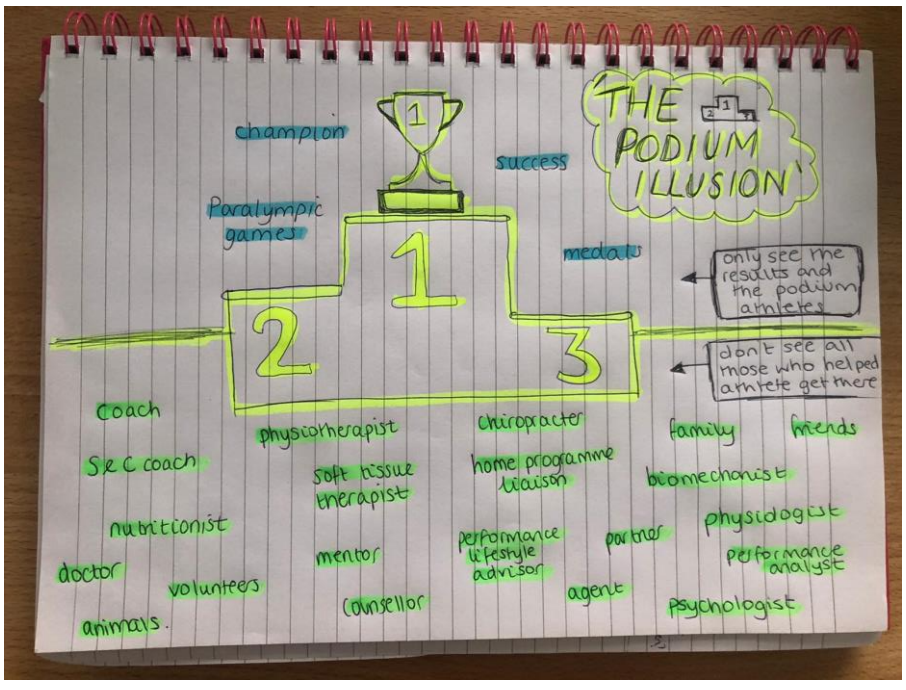
The 'Iceberg Illusion' (30/06/20 – 02/07/20)

- An athlete mentioned an iceberg analogy when talking about her general experiences of support. This prompted more research into the iceberg analogy.
- It is a popular analogy used to describe how people only see someone's success and don't see the hard work, dedication and sacrifices etc. which happened to allow the person to get to where they are.
- Adapted this to fit performance sport and the people who support an athlete in achieving their success.



Origin of the 'Podium Illusion' (03/07/20 – 05/07/20)

- Adapted the 'iceberg illusion' to make it more specific to athletes and performance sport, creating the 'podium illusion'.
- This refers to how people only see the athlete on the podium with their medal/trophy and don't see all the support staff and people who supported the athlete in achieving this.
- Potential title of 'The Podium Illusion' as this displays very well the support an athlete receives in achieving their goals and success.
- The use of the podium makes this analogy generalisable to all types of sport and it not swimming specific, as it may have been if a diving block and swimming pool were used for example.



Further reduction of themes and subthemes (04/07/20 – 05/07/20)

Theme	**Sub-theme**
Coach-athlete relationship	'Knowing the athlete'
	'Boost of confidence'
	Fount of knowledge
Team Bond	'Team spirit' *(and 'camaraderie')*
	Experiential similarities *(subject to change/refinement)*
The Podium Illusion	Performance support
	Personal support
Tangible aid	Sports medicine
	Financial support/backing
British Para-Swimming	'A happy swimmer is a fast swimmer'
	Positives *(subject to change/refinement)*
	Building the support *(subject to change/refinement)*

Stakeholder meeting (06/07/20)

- Attendees – BA, NH, AS
- Discussion of new themes and subthemes
- Discussion of 'podium illusion'
- Discussion of potential title of: The Podium Illusion: lived experiences of social support in Paralympic swimmers

Final themes and sub-themes agreed on by research team:

Theme	**Sub-themes**
Coach-athlete relationship	'Knowing the athlete'
	'Boost of confidence'
	Fount of knowledge
Team Bond	'Team spirit'
	Experiential similarities
Tangible aid	Sports medicine
	Financial support
British Para-Swimming	'A happy swimmer is a fast swimmer'
	'Best athlete you can be'
The Podium Illusion	Performance support
	Personal support