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CLARE WATTS BSc Hons

THE PSYCHOLOGICAL BENEFITS OF SPECIAL OLYMPIC
INVOLVEMENT

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SALOMONS

CANTERBURY CHRIST CHURCH UNIVERSITY

DECLARATION FOR MAJOR RESEARCH PROJECT

DECLARATION

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Summary of portfolio

Section A is a review of the current literature on sports involvement with respect to people with learning disabilities. It begins by describing the health status of people with learning disabilities and provides a context of sport and wellbeing in the general population. It continues by describing four reviews of the literature exploring people with learning disabilities with respect to sports involvement. This section ends with a description of the Special Olympics research and suggests future research needs in this area.

Section B describes a quantitative cross-sectional study comparing two groups of sports active and non-active people with learning disabilities using several psychological measures. The results are discussed in relation to existing literature and in light of clinical implications. This section concludes with study limitations and further research recommendations.

Section C is a critical appraisal of the quantitative study that considers four aspects: research skills; amendments to the study if it were replicated; how the study may have influenced clinical practice; and finally, further research and methods relating to this area.

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Section A

A review of the literature on sport & people with
learning disabilities

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1 **ABSTRACT**

The aim of this review is to consider sports participation as a potential intervention to improve the psychological and physical wellbeing of people with learning disabilities.

Studies evaluating the affects of sport on mental, physical and social wellbeing in the general population are included to provide a context to the research within this area.

The research literature exploring the participation in sports of people with learning disabilities is described in light of the potential psychological benefits of such participation.

The general conclusions of the review are that whilst the role of sport in psychological and physical wellbeing has been well evidenced in the general population, the research within the learning disabled population, though supportive, is more limited, and mainly drawn from the Special Olympics (SO) population.

Given the potential physical and psychological vulnerabilities of this population, increased sports participation appears an appropriate intervention, but more research is required. The review concludes by suggesting further avenues for research.

2 **INTRODUCTION**

This review presents literature relevant to the physical and mental health of people with learning disabilities and considers sport as a potential intervention in improving physical and mental wellbeing. The literature search strategy is detailed in appendix A.

Learning disability is defined from the onset and the social, physical, and psychological context of people with learning disabilities is described. To provide a backdrop to the main topic of this review, an overview of sport and wellbeing in the general population is considered. The role of sport as an intervention physically, psychologically and socially is explored drawing upon the literature in this area. The complexities of sports engagement,

mental health and causality are then outlined before reviewing the research exploring sport within the learning disabled population. A sporting organisation for people with learning disabilities, the Special Olympics (SO) is then described including a review of the studies that have been conducted within the context of SO. The review concludes with suggestions for future research.

2.1 **Definition of a Learning Disability**

The Department of Health (DoH) (2001) defines a learning disability as including the presence of the following three factors;

- A significantly reduced ability to understand new or complex information, to learn new skills (impaired intelligence), with
- A reduced ability to cope independently (impaired social functioning), which
- Started before adulthood, with a lasting effect on development.

This definition is based on that determined by both the internationally accepted World Health Organisation (WHO) and The American Association of Intellectual and Developmental Disabilities (AADIDD). Globally, terms for learning disabilities are used interchangeably (for example intellectual disabilities, mental retardation and developmental disabilities). For the purposes of this review the term "learning disability" will be used as it is the accepted UK term.

According to research conducted in 2004 by the Institute for Health Research, about 985,000 people in England have a learning disability. These figures are expected to rise due to the improved survival rates among young people with severe and complex difficulties, reduced mortality among older people with learning disabilities and the rise in young adults belonging to certain ethnic communities from South Asia (Emmerson and Hatton, 2008).

3 **LEARNING DISABILITIES AND WELLBEING**

3.1 **Obesity rates and physical health**

Obesity is defined in adults as a body mass index (BMI) above 30. Whilst obesity is recognised as a major public health concern internationally (World Health Organisation, 2004), it has been well evidenced that people with learning disabilities are much more likely to be obese compared to the general population. According to The Disability Rights Commission, (2005) about one person in three with a learning disability is obese compared to one in five in the general population. People who are obese have higher risks of cardiovascular disease, type 2 diabetes, cancer, high blood pressure and osteoporosis (Draheim, 2006). Although the life expectancy for people with learning disabilities is increasing (Bittles and Glasson, 2004), it remains lower than for the rest of the population (Patja, Livanainen, Vesala, Oksanen, and Ruoppila, 2000).

Generally, there is extensive research to show that people with learning disabilities have poorer health outcomes than people without a learning disability (Emerson, et al. 2009). In addition to obesity rates, the largest health screening of people with learning disabilities took place in 2003 Special Olympics World Summer games in Dublin and found that over 30% of the 3500 sample failed a hearing test. 35% had obvious signs of tooth decay and one third required eyewear (Corbin, Malina, and Shepherd, 2005). It is also important to note that this study was carried out in a relatively active group of people participating in sports. It might therefore be expected that more sedentary groups may have even more physical health problems than was identified in this sports participating sample. These alarming findings suggest that the physical health needs of people with learning disabilities are largely going undetected. This report cited the lack of medical training specifically tailored to people with learning disabilities resulting in health problems not being identified and people with learning disabilities suffering without the necessary and basic primary care. This was further supported by an extensive UK survey exploring the health outcomes of

people with learning disabilities by Emerson et al. (2009). The results suggest that people with learning disabilities experience significantly poorer health outcomes than their non-disabled peers and link ill health to a subsequent decline in socio-economic status.

3.2 Mental Health

Estimations of the population that are likely to experience mental health problems at some point in their lives is largely accepted at between 16-25% (World Health Organisation, 2000). However, for people with learning disabilities, the prevalence of mental health problems has been found to be significantly higher than the general population at between 25-40% (Emerson et al. 2009). A number of reasons to account for these higher rates of mental health problems have been suggested, such as: many learning disability syndromes of genetic origin are associated with psychiatric disorders; people with a learning disability are more likely to experience traumatic events that are linked to resulting mental health problems; and that the social isolation experienced by people with learning disabilities leads to people being more susceptible to mental illness (Whitaker and Read, 2006). However, in a large sample of 670 individuals with learning disabilities Wilson, Armstrong, Furie and Walcot (2009) found that people with learning disabilities were more than twice as likely to report high levels of distress, depression, anxiety disorders, suicidal thoughts and poorer overall mental health than were persons without learning disabilities. Multivariate regression analyses determined that these significantly higher rates of mental health problems remained for all measures after controlling for confounding factors including income, education, social support and physical health.

3.3 Self Esteem and Social Support

Self-esteem is the subject of growing literature, covering a range of issues and approaches. While it would prove complex to arrive at a consensus definition of self-esteem, it seems many researchers consider it as a form of evaluation of the self that guides future behavioral

choice and action (Leary and Baumeister, 2000). The subject of much of the self-esteem literature has been on the relationship between self-esteem and functioning across a range of factors (Emler, 2001; Tesser, 2001), with relationships found between low self-esteem and a range of outcomes, including mental illness (Markowitz, 2001), substance abuse (e.g. Guglielmo, Polak, and Sullivan, 1985) and social and adjustment problems (Longmore et al., 2004; Rosenberg, Schooler, and Schoenbach, 1989). One conclusion from these relationships is that self-esteem plays a causal role in life outcomes, and that an individual's level of self-esteem is critical in determining success and failure across a range of life tasks (Harter, 1993, 1999). Research has suggested that these relationships are equally transferable to the learning disabled population (Evans, 1998; Ntshangase, Mdikana and Cronk, 2008; Aleem, 2005; Salsali and Silverstone, 2003).

People with learning disabilities experience barriers to social interactions compared to the general non-learning disabled population. Valuing People Now (2009) ran a series of nationwide consultations with services, carers and people with learning disabilities. One of their key findings was that people with learning disabilities had few friendships, relationships and opportunities for social interaction. Reasons for these social restrictions have been explained as rejection, lack of social acceptance, educational failure, low school attendance, being bullied, segregated education and lack of job opportunities, (Emerson, et al. 2009).

Social relationships can be considered in terms of structures and function (Lunsky, 2006). Structure is the size of the network and interactions between members whereas function includes the quality and nature of the relationship such as providing practical need, reciprocity or emotional support (Lunsky, 2006). Research exploring the structure and function of social relationships of people with learning disabilities found they had smaller friendship groups, less reciprocity and tended to be made up of more service providers

compared to people without learning disabilities (Lippold and Burns, 2009; Forrester-Jones, Carpenter, Coolen-Schrijner, 2006).

Raskind, Goldberg, Higgins and Herman (2003) explored the predictors of success in individuals with learning disabilities over a 20 year period and demonstrated that one predictor of success was to be 'engaged in the world around them, politically, economically and socially'. Successful participants were linked to community activities, and took a role in their families, neighbourhoods and friendship groups. A further predictor for success in this study was the social networks that people had around them, to offer support and encouragement. Additionally, sport involvement has been linked to wellbeing in the general population, and research in this area will be considered further below.

4 SPORT AND WELLBEING IN THE GENERAL POPULATION

4.1 Socio-demographic profile of sports participation

Delaney and Keaney (2005) reported 21% of the UK population being actively involved in sport or exercise from a nationwide survey. They also found that women were less likely to participate in sport than men. The researchers found pronounced income effects those with higher incomes being significantly more likely to participate in sport. Further barriers to sport included belonging to an ethnic minority and low educational attainment.

4.2 Sports and obesity

It has been well established and accepted that sport and exercise is a key factor in maintaining a healthy weight. Lack of physical activity is an important factor contributing to the increasing prevalence of obesity. Physical activity benefits well-being, is necessary for good health and helps to play a role in disease prevention, having a beneficial effect on a wide number of diseases. Regular exercise helps with weight loss management, raises HDL cholesterol levels (beneficial cholesterol) and lowers LDL cholesterol levels (unhealthy cholesterol).

A report by the Department of Health in 2004 on physical activity emphasized the beneficial relationship between physical activity and health. It recommended that all individuals should participate in at least 30 minutes of moderate intensity activity on five or more days a week to maintain a healthy lifestyle.

4.3 Sports and mental health

In addition to the well documented physical benefits of exercise, strong evidence for psychosocial benefits have also been found, including the impact on specific clinical mental health issues.

The World Health Organisation (1998) asserted that sports participation improves self-esteem, self perception and psychological wellbeing. Following a review of literature, Mutrie and Parfitt (1998) supported this, concluding that physical activity is positively associated with good mental health generally. Exercise has been found to be an intervention for improving self-esteem in other studies (e.g. Fox, 1999; McGee, Williams, Howden-Chapman, Martin, and Kawachi, 2006). Self-esteem is especially significant in the field of mental health as it is associated with emotional stability and adjustment (Aleem, 2005). Low self-esteem is present in many forms of mental illness (Salsali and Silverstone, 2003), and has been found to be correlated with poor health behaviours (Baumeister, Campbell, Kreuger and Vohs, 2003). This was further supported by Bailey (2005), who found that a physical education programme had a powerful effect upon self-esteem, confidence and peer acceptance in a population of young people. From this study the authors suggested that the mental health benefits of sport involvement were also linked to the social factors that sports involvement facilitates.

Studies focusing upon specific clinical mental health issues have shown that weekly exercise lead to significantly lower levels of depression, anxiety, panic disorder, cynical distrust and anger compared to those who took less exercise (Hassmen, Koivula, and Uutela, 2000;

Paluska and Schwenk, 2000; Gilman, 2001). However, claims such as these have been criticised for ignoring the range of life experiences beyond sports and physical activity that can influence psychological wellbeing (Layman, 1974), and for lacking empirical foundations (Bailey, 2005). Despite these criticisms there is strong evidence for sport as an intervention for mental health problems. This includes a comprehensive review of the literature exploring exercise interventions for depression: Stathopoulou, Powers, Berry, Smits and Otto (2006) found a very large effect size for the advantages of exercise over control conditions. Additionally a review of 12 randomised controlled trials using physical activity for the treatment of depression found exercise to reduce depressive symptoms in a range of clinical populations (Tsang, Chan and Cheung, 2008). Mutrie (2000) suggested that there is sufficient evidence to suggest a causal link between exercise and reduced depression within clinically depressed groups. This is recognised in the NICE guidelines for depression that recommend health professionals to advise people with mild depression to follow a moderate exercise program (NICE, 2007).

In addition to depression, research has explored the effects of an exercise programme in the treatment of panic disorder (Brooks et al, 1998). This randomised control trial compared medication, a placebo pill and exercise in a group of 46 patients. By the end of ten weeks treatment, exercise resulted in clinical improvements across all measures, but medication was found to have a more pronounced effect than the exercise condition. The authors argued that exercise may be an alternative to those not wanting to take medication and that further research was needed in this area. Exercise has also been found to supplement the treatment of psychosis (Faulkner and Biddle, 1999; Tkachuk and Martin 1999; Beebe et al. 2005) and in the prevention of weight gain associated with antipsychotic medication (Alvarez-Jimenez et al, 2008; Wu et al., 2008).

Overall research provides some convincing evidence for exercise resulting in mental health benefits and in the treatment of clinical mental health illnesses.

4.4 **Sport and social networks**

It is reasonable to suggest that some of the positive benefits of exercise on mood may be due to social interaction when exercising (Plante et al. 2003). Sporting activities often involve team, class and club membership that may enhance the psychological experience due to the social relationships that are formed and nurtured in addition to the actual physical activity accomplished. However, very little research has been conducted on the exact relationship between mental health and how it relates to the social aspects of exercise. Plante et al (2003) found that mood was improved among 150 exercisers regardless of the social context of the exercise. However, the participants of this study were strangers in the social exercise conditions and it was a laboratory rather than a field study. This study was perhaps not representative of people who exercise with friends within a naturalistic environment (Dubbert, 2002). The social benefits of sport have been based on the hypothesis that physical activity promotes the development of pro social skills (Parker and Stiehl, 2005). Sports involvement has been found to increase the social networks and social support for those participating (Beets, Vogel, Forlaw, Pitetti, and Cardinal, 2006) and helps people develop resiliency against difficult life circumstances (Bailey, 2005). Research has provided support for the social benefits that can accrue from sports involvement, particularly in the development of skills such as cooperation, teamwork, empathy and a sense of personal responsibility (Ennis, 1999; Wright, White, and Gaebler-Spira, 2004).

Social support is an important factor that has been well evidenced as being a key protective factor for developing mental health problems in the general population (Cohen and Wills, 1985; Redwood, Alpass, Long, Pachana, and Blakley, 2004; Lunsky and Haverkamp, 1999; Cooper, Smiley, Morrison, Allan and Williamson, 2007). Delaney and Keaney (2005) explored

sport and social support in the UK and rest of Europe and found that members of sports organisations were more likely to have friends in those organisations compared with other types of organisations. In this study, sports groups across Europe consistently scored highly in social networks and social support, suggesting sports groups are likely to be sociable organisations no matter what the cultural context. These findings lend support to the notion that there are many social and psychological benefits for those who are physically active. However, precisely why and how psychological benefits occur with exercise is less clear (Hansen, Stevens and Coast, 2001) and this will be discussed in more detail below.

4.5 **Sports engagement, mental health and causality.**

Whilst there is convincing evidence for the psychological benefits of exercise in the general population, our understanding of the factors that influence these benefits is less clear. As Bailey, (2005) describe 'there is need to determine not only the product of participation but also the process of change' (p14). It is therefore important to consider the causality of the psychological benefits of sports involvement. It is possible that psychologically robust and well socially networked individuals tend to be involved in sport in the first place. This potentially results in a biased sample that is incorrectly attributing psychological benefits to the sports rather than the individual themselves independent of sport. Despite this it is largely accepted that sports involvement improves mood and body image. In a recent review Hausenblas and Fallon (2006) conducted a meta-analysis to integrate research findings examining the impact of exercise on body image. This included 121 studies that were grouped into interventions; (i.e., exercise *vs* non-exercise group post-exercise intervention body-image scores); single group (i.e., pre *vs* post exercise intervention body-image scores); and correlational (i.e., exercisers *vs* non-exercisers body-image scores). The findings of this review were that: (a) exercisers had a more positive body image than non-exercisers; (b) exercise intervention participants reported a more positive body image post

intervention compared to the non-exercising control participants; and (c) exercisers had a significant improvement in body image scores following an exercise intervention.

In addition to improving body image, sport has been shown to be an intervention for mental health change in studies using longitudinal designs. Firstly the introduction of sports programs has shown to increase people's self-esteem which in turn is positively correlated with mental health (Fox,1999; McGee, Williams, Howden-Chapman, Martin,and Kawachi, 2006). Additionally, studies have demonstrated that introducing sport improves psychological wellbeing in previously inactive people for both the general and clinical populations (Stathopoulou, Powers, Berry, Smits and Otto, 2006).

These reviews and studies suggest that, whilst the issue of sports engagement, mental health and causality is complex, there is a convincing research base that presents a strong argument for the mental health benefits of sports involvement. This will now be considered specifically in relation to the learning disabled population.

5 SPORT AND PEOPLE WITH LEARNING DISABILITIES

5.1 Sports participation profile

'The Active People Survey', (2008) compiled by Sport England, found that only 8.8% of people with a learning disability in the UK are participating in sport regularly and that 20% of those not involved in sport wished to do so. Only 10% cited lack of motivation as a reason not to be involved. This suggests that there is a high percentage of people with learning disabilities that wish to become involved in sports. Draheim, Williams and McCubbin (2002) suggest that since the deinstitutionalisation of adults with learning disabilities access to structured physical exercise has become further restricted. People with learning disabilities also have lower incomes and achieve lower academic attainment which results in further barriers to sports involvement (Delaney and Keaney, 2005). In addition Bartlo and

Klein (2011) asserted that activity programs are not readily available to this population and if a program is available, it may not be easily accessible or adaptable for people with various types and levels of learning disability.

Mahy, Shields, Taylor and Dodd (2010) explored the facilitators and barriers to physical activity in a sample of 18 people with Down Syndrome. Their findings suggested that support people play a key role both as facilitators and as barriers to physical activity. In order to facilitate participation, in addition to support, they found that physical activity needed to be fun and within a structure that had a regular routine so that activities were familiar.

5.2 Research reviews and literature on sport and learning disabilities

There have been four reviews of the literature exploring people with learning disabilities and sports involvement.

Lancioni and O'Reilly (1998) reviewed the research on physical exercise and people with severe and profound learning disabilities. The most frequently reported benefits included: improved self concept; reduced maladaptive behaviour such as aggression; improved body image and popularity; and increased fitness and endurance. The authors made three recommendations from this review: Firstly that the intensity of exercise with this population should be built gradually; secondly that facilitators should consider reinforcing events that would encourage each individual's motivation to exercise; and finally that the person's individual opinion about their exercise preferences should be facilitated and supported. This review suggested that the structure around supporting people with learning disabilities needs to be considered and individually tailored to encourage enjoyment and commitment of exercise and sport. However, while the authors summarised the findings of the thirty studies included in their review, they did not include either the process of identifying the papers or inclusion criteria. Additionally, details regarding the methodological quality of the

papers reviewed were absent. As a result whilst this review was the first exploring this area, it is not possible to evaluate the overall quality of the studies included in the review.

Following from this, a systematic review of the literature exploring the benefits of physical activities for youth with learning disabilities was undertaken by Johnson (2009). This included 14 studies within the search criteria. The author found strong evidence that young people gained health benefits from participation in group exercise programs, treadmill training and therapeutic riding. Improvements included aerobic capacity, improved gross motor function and high levels of participant and parent satisfaction. The method of identifying studies and data sources and inclusion criteria were clearly detailed for this review. The author assessed for quality of each study using standardised tools such as 'A MeaSurement Tool to Assess Reviews' (AMSTAR), (Oxman, Schunemann and Fretheim, 2006) and 'Population, Intervention, Comparrisum, Outcome' (PICO), (Schunemann, Fretheim and Oxman, 2006) and the quality of this evidence was included within a table. Based on this, the author concluded that further research of greater scientific rigour was needed, including larger sample sizes, control groups and adopting a replicable methodology.

Hutzler and Korsensky (2010) carried out a systematic analysis of the literature exploring sports involvement of people with learning disabilities. This included 23 studies that had adopted cross section, experimental, longitudinal and qualitative designs. From this review they concluded that sport and physical exercise contributed generally to wellbeing, and to specifically physical fitness, elevated skill level and increased perceptions of self efficacy, self-esteem and social competence. The authors included a critique of each study within this review. This provided details of consent and levels of scientific quality of the evidence. They concluded that most of the studies were of a moderate level of scientific evidence

recommending that future research in this area may consider randomised trials and control group designs.

In a more recent systematic review of the literature pertaining to physical activity benefits of adults with learning disabilities, Bartlo and Klein (2011) found strong evidence of physical activity positively affected physical wellbeing (balance and muscle strength) and also the quality of life of those with learning disabilities. From this review they suggest that physical activity promotes an increased self-concept of wellbeing, as well as functional performance, leading to the improvement of quality of life in people with learning disabilities. Details of the literature search and inclusion criteria were provided for this review. Methodological rigor was rated using scales to assess validity and the strength of body of evidence was judged using method of qualitative analysis of results based on quality, quantity and consistency of studies. The authors of this review suggest that there are not an adequate number of studies examining physical activity for individuals with learning disabilities and as a result this limits greatly the formulation of practice guidelines.

Generally these reviews suggest that there are physical and mental health benefits of sports involvement for people with learning disabilities. However these reviews conclude that there is a lack of consistency in the methodologies used within these studies, which limits comparison, although intervention studies were described as being of moderate scientific quality (Hutzler and Korsensky, 2010). Additionally much of the qualitative research exploring the benefits of sports involvement for people with learning disabilities has focused upon parental and coach views, not the people themselves.

5.3 Psychological effects of sport for people with learning disabilities.

When we consider the effects of sport on physical, social or mental health it is evident that the psychological interactions between these factors are key. There has been strong evidence that low self-esteem can result in eating more and playing less sport, and that

increased self-esteem leads to a more healthy life-style and that this is likely to be a reciprocal relationship. In addition, studies have suggested that people with learning disabilities experience anxiety at least as much as or more so than the general population (Marshall, Crowther and Almaraz-Serrano, 2001). Anxiety has also been linked to leading a sedentary life which in turn can impact on the possibilities for social encounters. Carmeli, Barak, Morad and Kodesh (2009) researched the effects of exercise on anxiety in a group of 24 adults with learning disabilities. Using the psychometrically robust Hamilton Anxiety Scale (Hamilton, 1959) and Quality of Life questionnaire (Cragg and Harrison, 1986) the researchers found that an aerobic physical training programme with individuals with a learning disability significantly reduced their level of anxiety. However the exercise was performed in a group setting and the authors suggest that the social factors of the activity may also have had a beneficial effect.

When we consider participation in sport as an intervention we are in fact looking at a complex set of variables which range from the biological in terms of neuro-physiological changes to social variables. In addition there are many individual psychological factors implicated in the process of sports participation, such as a sense of accomplishment, competitiveness and self-esteem. Hence it is necessary for research in this area to take a wide, systems approach to fully understand the impact of sport on people with learning disabilities.

Several research studies exploring the impact of sports involvement within the learning disabled population have been carried out via the Special Olympics (SO). A description of this organisation and details of this literature are outlined below.

6 **SPECIAL OLYMPICS (SO)**

6.1 **Background of SO**

The SO was first developed in the USA by Eunice Kennedy Shriver in 1962. It is now the largest global organisation that invites people with learning disabilities to compete in sporting events regardless of skill level. The SO differs from the Paralympics in which athletes with disabilities only train and compete in adapted competitive athletic events like those seen in the traditional Olympic Games and at an elite level under the strict governance of International Paralympic Committee (IPC) regulation.

Formed in 1978, SO UK is the country's largest provider of year round sports training and competitions for people with learning disabilities. There are 135 SO groups within the UK involving over 8000 athletes. The philosophy of SO is to provide sports training 48 weeks of the year that encourages fitness, commitment and discipline through sport. In addition to offering athletes the opportunity to participate, train and compete in a variety of sports and events, they aim to provide quality coaching and to help develop social skills and friendships through the team spirit attached to training and events. Events are both national and global which extends experience to new cultures and travel. The SO encourages the philosophy of participation rather than winning and promotes the inclusion of people with learning disabilities into mainstream sport with the aim of combating the stigma currently experienced by many of this population.

6.2 **SO Sports and Learning Disabilities Research.**

The SO worldwide has been committed to supporting the positive effects of SO with evidence based research. A substantial report by Siperstein (2001) aimed to explore the characteristics of athletes involved in the SO and motivation for involvement. Coaches reported 33% participants as having a mild learning disability, 48% a moderate learning disability and 19% to have a severe learning disability, but it was unclear from the study how these were measured. Fun/enjoyment was reported by athletes, and their families, as

being the main motivating factor of being involved. Secondly, social aspects of the program and thirdly winning/competition were cited. Coaches' reports agreed with these three motives for participation. Family members were also asked to report their goal for athletes involvement in SO and to describe any subsequent benefits. 53% of family members cited improved self-esteem/self confidence as a key goal; this was also the area they had identified as a key area of improvement in addition to the areas of friendship and social skills.

In an earlier study, Dykens and Cohen (1996) were interested in the effects of the SO upon social competence. The participants comprised of US athletes and non-athletes with learning disabilities. They found that the length of time being involved in the SO was the most powerful predictor of social competence, citing more activities hobbies, clubs, friends and sports performance associated with longer term SO involvement. This study also found that the SO group scored higher on social competency compared to a control group not involved in the SO. However, the authors did not consider the possibility that more socially competent people joined the SO rather than the SO itself being the determining variable. As with studies of this nature it is not possible to infer a causal relationship as other variables have not been accounted for.

Evaluations of the SO program have also been sought from the perspective of parents of children involved and professionals working with people with learning disabilities (Klein, Gilman and Zigler, 1993). Using a survey for both groups, participants were asked to rate potential goals and to the extent to which these goals were met. Results suggested that parents and experts generally viewed the SO as beneficial, specifically in terms of building athletes' self confidence and self-esteem. In addition, the organisation's role in promoting public understanding and acceptance of people with learning disabilities was reported as a strength.

Weiss, Diamond, Demark and Lovald (2003), in a series of studies in North America, have suggested a relationship between specific components of SO involvement and participants' self-concepts and adaptive behaviours. Whilst their work on the SO established links between SO involvement and psychological benefits for people with learning disabilities, their study was unable to determine the causal influence of this relationship. 97 participants with learning disabilities were interviewed and a parental survey completed. They found that the total number of competitions in which the participant was involved was a significant predictor of general self worth (which was measured using the 'Perceived Competence Scale for Special Athletes', Riggen and Ulrich, 1993). Through this research they proposed that components of physical activity programs can effect psychological change with this client group. However this research was confined to only participants involved within the SO and did not therefore extend to the wider learning disabled population by including a control group. In addition the sample in this study consisted mainly of those living at home with at least one parent. The authors suggest that future research may also consider participants who are not living with a parent but in more independent settings and explore these variables in a controlled study to explore more causal relationships between sports involvement and self worth. This study did not measure self concept prior to and post SO involvement; it is therefore not possible to suggest a causal relationship.

In an extension of their previous study, Weiss and Diamond (2005) explored how SO involvement may also help to reduce stress in parents of children with intellectual disabilities. The aim of this study was to test whether parents who frequently watch their children at SO competitions report less stress than those who watch with less frequency.

The study suggested that parents who frequently attended their children's competitions reported less stress than those who attended with less frequency. The authors concluded that parents who frequently see their children compete in SO have a more positive parent–

child experience than those who do not attend with the same frequency. This suggested that the potential benefits of SO involvement extended further than that of the participating athletes. The authors of this study recommend that further experimental research, with controlled pre–post designs, was needed to directly assess any causal effect.

7 AREAS FOR FURTHER RESEARCH

This review results in emerging questions that may form further research investigations. Firstly there is a need to explore specific psychological factors in people with learning disabilities who are and are not involved in sport. This would aim to gain a better understanding of the complex variables that interplay to potentially contribute to the identified benefits of sports involvement. Such research may consider the social contributions that sport involvement may offer. Additionally this research would benefit from a longitudinal design in order to capture the causal effects of a sports program as a potential intervention. Such research is needed using well established psychological measures that are both psychometrically sound and have been designed for the learning disabled population.

An additional area for further research would be a qualitative approach to exploring people's experiences of the SO in the UK to investigate whether there are cultural differences in these experiences and to further expand on the research carried out overseas. This research may consider whether being involved in sport contributes to an individual's sense of identity and as a result improves factors such as self-esteem.

8 REVIEW SUMMARY

There is an increasing recognition in UK government policies that the physical and psychological wellbeing of people with learning disabilities is on the current agenda. This review has given an overview of the research that has been carried out to investigate the learning disabled population involvement in sport and the benefits found through sports

involvement. Currently there is limited methodologically rigorous research carried out exploring the potential psychological benefits of sport for people with learning disabilities and involvement in sport in the UK. Given this absence, gaining knowledge of such potential psychological benefits may contribute in facilitating people with learning disabilities in gaining future access to sports involvement and thus benefiting physically and psychologically from these opportunities.

This is especially timely given the forthcoming London 2012 Olympics where for the first time since 2000 people with learning disabilities are being re-integrated to compete in the Paralympics. This is an opportunity to raise the profile of sports for people with learning disabilities following this participation. Research that supports our understanding of the potential benefits of sport with people with learning disabilities may also facilitate this awareness. Finally it is important that people with learning disabilities are given the same opportunities in terms of reaching their full potential as others in broader society, and the literature suggests that sport maybe one avenue to achieve this but that there is a need for further research in this area.

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Major Research Project

SECTION B

Journal Paper

An Empirical Exploration of the Psychological benefits of
Special Olympic Involvement

Word Count: 7189

For submission to the British Journal of Clinical
Psychology

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1 **ABSTRACT**

Objectives. There is evidence that people with learning disabilities have poorer mental and physical wellbeing compared with that of the wider population. The aim of this study was to explore whether a group of people with learning disabilities involved in sport differed in terms of psychological well-being compared with a group not involved in sport.

Design. A cross sectional design was employed comparing two groups, sports active and non-active on the variables: Self-esteem, quality of life, stress levels and social networks.

Methods. Seventy four participants were recruited across South East England. They completed a number of psychological measures.

Results. Analysis revealed that self-esteem, quality of life, social networks and stress were all significantly correlated with Special Olympics involvement. A logistic regression analysis was used to explore whether scores on these variables were able to predict sport membership. Self-esteem was found to be a high predictor of group membership, those in the Special Olympics having higher self-esteem.

Conclusions. The findings provide further evidence of a positive association between sport involvement and increased psychological wellbeing. The implications of these findings for theory and future research into the relationship between sport and psychological wellbeing within the learning disabled population is considered.

Key words: Learning disability, sport, self-esteem, stress, social networks, quality of life.

2 INTRODUCTION

2.1 The health status of people with learning disabilities

The Disability Rights Commission's report 'Equal Treatment: Closing the Gap' (2005) reported international evidence that people with learning disabilities have a shorter life expectancy than the broader population. They experience poorer health and receive poorer health care, which stops them participating in their communities and in the economy.

There are extensive studies which demonstrate the significantly poorer health outcomes that people with learning disabilities experience (Emmerson, et al, 2009; Michael, 2008; Emmerson and Hatton, 2008; Batty, et al, 2009). In addition to poorer physical health outcomes, people with learning disabilities are estimated to experience significantly more mental health problems (30-50%) than the general population (Smiley, 2005).

Emmerson and Hatton (2008) conducted a large-scale audit of the mental health of young people with learning disabilities in Britain and found that the high levels of mental health problems in this population were 'not a consequence of their learning disability, but simply because of their increased chances of being exposed to poverty, social exclusion and more challenging family environments' (p.7).

From this and other research it is possible to suggest a pathway which leads to reduced quality of life for people with learning disabilities:

(1) It is well recognised that people with learning disabilities are often socially isolated due to reduced social networks and subsequently experience lower levels of social support than the wider population.

(2) These life circumstances lead to intra-personal psychological vulnerabilities such as low self-esteem.

(3) Lower levels of self-esteem and reduced social support can result in higher levels of stress for individuals

(4) These psychosocial experiences can therefore result in an overall reduced quality of life.

2.2 **Social Networks**

There is evidence to show that people with learning disabilities are disadvantaged in accessing key factors that are integral with the development of social networks. Schooling is a central platform on which to form social networks, social mobility and to develop social skills but has associated challenges for this population. People with learning disabilities are more likely to be segregated, and to have significantly impeded social networks, and are also more likely to be absent from school, to experience bullying and to reach lower academic attainment compared to their non learning disabled peers (Office for Disability Issues, 2008; Audit Commission, 2007).

Moreover, social networks and support, including ties with friends and neighbours, are related to indices of psychological well-being, such as self-esteem and satisfaction with life (Bargh and McKenna, 2004; Helliwell and Putnam, 2004). Within the context of the general population, sport involvement leads to engaging with networks of others (coaches, family, peers, and officials) which form a multifaceted and complex social network, influencing the experiences athletes gain from participating in sport (Babkes and Weiss, 1999; Brustad and Partridge, 2002; Côté, 1999; Weiss and Smith, 2002).

2.3 **Self-esteem**

People with learning disabilities have been found to be vulnerable to low self-esteem compared with the general population (Evans, 1998). Risk factors for lower self-esteem have been cited as perceived intellectual inadequacy, repeated failures in academic and social situations and prolonged stigmatization (Ntshangase, Mdikana and Cronk, 2008).

Maintaining positive levels of self-esteem is important because it has been found to be associated with emotional stability and good adjustment (Aleem, 2005), reduces the risks of mental health problems (Salsali and Silverstone, 2003), and poor health behaviours (Baumeister, Campbell, Kreuger and Vohs, 2003). In the general population, self-esteem has been found to be positively correlated with physical activity and sports involvement (Fox, 1999; McGee, Williams, Howden-Chapman, Martin and Kawachi, 2006). Bailey (2005) found that physical education programmes had a powerful effect upon self-esteem, confidence and peer acceptance in a population of young people, suggesting that the mental health benefits of sport involvement interplay strongly with social factors as well as individual factors.

Likewise sport has been found to have a positive effect on self-esteem within the learning disabled population (Weiss, Diamond, Denmark and Lovald, 2003). These researchers were interested in the development of theoretical models of how physical activity programs can be implemented to effect psychological change and found that both competition and sport were positively correlated with positive self-esteem. A more recent study also suggests that physical training has a positive impact on improving self image in people with learning disabilities (Carmeli, Orbach, Zinger-Vaknin, Morad and Kodesh (2008).

2.4 Life Stress

Studies have reported elevated stress and anxiety levels in people with learning disabilities (Hales, 2001; Heiman and Precel, 2003; Wilson, Armstrong, Furrie and Walcot, 2009), and that this group have fewer resources (internal and external) to manage their stress, (Lunsky and Neely, 2000). These higher levels of stress have been attributed to vulnerabilities commonly experienced by people with learning disabilities such as difficulties of academic life, (Shaywitz et al., 2004), school drop out, (Deshler, 2005), unemployment, social isolation, (Bryan, Burstein and Ergul, 2004), stigma, neglect and abuse (Doyle and Mitchell, 2003).

In the general population there have been numerous studies that show the benefits of exercise in reducing stress and anxiety in individuals (e.g Hassmen, Koivula, and Uutela, 2000; Paluska and Schwenk, 2000; Gilman, 2001). Carmeli, Barak, Morad and Kodesh (2009) found in a sample of 24 participants with learning disabilities that the implementation of an aerobic physical training programme significantly and clinically reduced levels of stress and anxiety. The authors also highlight the group setting of the programme and suggested that this, in addition to the physical training, may have had a beneficial effect.

2.5 Quality of Life

Skea (2008) compared a sample of people with learning disabilities with a non-disabled population using the Life Experiences Checklist (LEC), (Ager, 1990). Skea found that the learning disabled population showed overall significantly poorer quality of life compared to a non-learning disabled population. In terms of measured indices of 'relationships', 'opportunities' and 'freedom', the learning disabled population scored lower; however on the 'leisure' indices they scored higher than the non-disabled group. The researcher attributed this to the supported community accommodation in which this sample was living and therefore the nature of this service focused heavily upon activities; however the research demonstrated that 'presence' is not enough for full integration and inclusion to occur.

2.6 Sport, health and people with learning disabilities

It is recognised within the wider population that sport is an effective intervention with specific psychological issues. Studies have shown that those engaged in weekly exercise reported significantly lower levels of depression, anxiety, panic disorder, cynical distrust and anger compared to those who took less exercise (Hassmen, Koivula and Uutela 2000; Paluska and Schwenk, 2000; Gilman, 2001). In a comprehensive review of the literature exploring exercise interventions for depression, Stathopoulou, et al. (2006) found convincing

evidence for the advantages of exercise over control conditions. However, only 8.8% of people in the UK with a learning disability are participating in sport regularly according to the Sports England Active People Survey (2010) compared with 21% of the total UK population (Delaney and Keaney, 2005), and there is limited research on the impact of sport as an effective intervention for specific psychological issues with respect to people with learning disabilities.

There are four key reviews that have captured the studies exploring sports within the learning disabled population: Lancioni and O'Reilly, 1998; Johnson, 2009; Hutzler and Korsensky, 2010; and Bartlo and Klein, 2011. These reviews described similar benefits that included:

- (1) Physical factors such as improved aerobic capacity; improved gross motor function; increased physical fitness and endurance; elevated skill level; balance and muscle strength.
- (2) Psychological factors including: improved self concept; reduced maladaptive behaviour such as aggression; improved body image; increased perceptions of self efficacy; self-esteem; satisfaction; and quality of life.
- (3) Social factors: increased social competence; popularity; and high levels of parent satisfaction.

Despite these reviews the researchers concluded that the literature exploring sports involvement for people with learning disabilities is narrow, and that further research of greater scientific rigour is needed, including larger sample sizes and adopting a replicable methodology. A lack of consistency of the methodologies used within these studies has been described as limiting comparison although intervention studies were described as being of moderate scientific quality (Hutzler and Korsensky, 2010). Additionally much of the qualitative research exploring the benefits of sports involvement for people with learning disabilities has focused upon parental and coach views, not the people themselves. The

reviews also suggest that there is not an adequate number of studies examining physical activity for individuals with learning disabilities and that as a result this greatly limits the formulation of practice guidelines.

In contrast to the evidence base there is an organisation for people with learning disabilities which attracts an international and growing membership, namely the Special Olympics (SO).

The Special Olympics is the main international movement for sport and people with learning disabilities. The SO welcomes both children and adults with learning disabilities, inviting them to compete in events regardless of skill level. The aims of the SO are to provide quality sports training, and to encourage fitness, commitment and discipline through sport, with the opportunity to participate, train and compete in a wide variety of sports and events. Additionally the organisation promotes the inclusion of people with a learning disability in mainstream sport.¹

In terms of the UK the SO is the main way in which people with learning disabilities are likely to become involved in sport and currently has over 8000 members. Hence, the SO provided a highly relevant context in which to investigate the psychological benefits of participation in sport for people with learning disabilities.

¹ The SO differs from the Paralympics in which athletes with physical, learning and sensory disabilities train and compete in adapted competitive athletic events like those seen in the traditional Olympic Games at an elite level.

3 **METHOD**

3.1 **Design**

The study employed a cross-sectional design comparing two groups, a sample of people with learning disabilities involved in sport via the Special Olympics (SO) and those not. The dependent variables were: levels of stress, quality of life and self-esteem, and the levels of engagement in social networks. The independent variable was group membership (sport or non-sport).

The study hypotheses were:

- (1) Self-esteem will be higher in the SO group compared with those not involved.
- (2) Levels of engagement in social networks will be higher for the SO group compared to the non SO group.
- (3) Stress levels will be lower in people involved in SO compared with those who are not.
- (4) Quality of life will be higher in those involved in SO compared with those who are not.
- (5) There is a significant association between psychosocial factors and involvement, or non-involvement, in SO.
- (6) Psychosocial factors independently predict involvement, or non-involvement, in SO.

3.2 **Analysis**

All data was checked for normality before either parametric or non-parametric statistical analyses were used to explore the difference between means or medians (hypotheses 1, 2, 3 and 4). Correlations were calculated to explore the relationships between the variables (hypothesis 5) and in preparation for the logistic regression analysis. All significantly correlated variables were entered into the binary logistic regression model to establish whether any were predictive of membership to the SO group (hypothesis 6).

3.3 **Participants**

3.3.1 Sample size

Power calculations were conducted to establish the appropriate sample sizes given the research questions. Past studies comparing two groups of people with similar populations suggested a medium effect size of 0.5 (Clarke - Carter, 2010). The minimum number of participants deduced from each of the power calculations was 30 for each group. It has been recommended that a minimum ratio of ten participants to one variable is used for logistical regression analyses (Tabachnick and Fidell, 2001). Additionally minimum sample sizes of 50 or 100 have been recommended for such analyses (Buchner, Erdfelder and Faul, 1997).

3.3.2 Inclusion criteria

Inclusion criteria for participants in the study were: (1) aged 18 and over; (2) identified as having a learning disability and attending either SO, (if in the SO group) or services for people with learning disabilities (if in the non SO group); (3) an IQ measured by the WASI of less than 85; (4) able to give informed consent; (5) engaging in regular weekly sporting activities via SO if in the SO group; and (6) engaging in less than regular weekly sporting activities if in the non-SO group.

3.4 **Measures**

3.4.1 Demographic questionnaire

To compare the two groups a demographic questionnaire was developed for the purposes of this study (see appendix B). This collected data regarding age, gender, accommodation status, whether participants had paid carers, and employment. Data regarding time per week spent taking part in sport was also gathered in order to assess group membership against inclusion criteria.

To ensure that the two groups were comparable in terms of cognitive functioning a measure of IQ was used both to establish that participants could be deemed to have a learning disability but also to ensure that the SO group was not more cognitively able than the non-SO group.

3.4.2 IQ Measure

To measure participants' IQ, the Wechsler Abbreviated Scale of Intelligence (WASI) (Wechsler, 1997) was used (Appendix C). The WASI is a short, four-subtest version of the WAIS-III battery, allowing clinicians to form a validated estimate of verbal performance and full scale IQ. It includes subtests similar to those of the WAIS to provide an estimate of full scale IQ in approximately 30 minutes. Standardization data is available from a large nationally representative sample of children and adults aged from 6 to 89 years (Wechsler, 1997). An estimate of general intellectual ability can be obtained from the two-subtest form, which was administered in about 15 minutes, providing only the FSIQ scores.

This measure has shown to have good internal consistency, with reliability coefficients ranging from .93 to .98 for the abbreviated two-subtest version, and has been shown as sufficiently sensitive to act as a screening tool for learning disabilities (Garland, 1999). Interrater reliability yielded coefficients of .98 and .99 (Garland, 1999). Concurrent validity is good, with $r=.87$ shown in a correlation study between the WASI and WAIS-III (Garland, 1999).

Axelrod (2002) compared the WASI to the WAIS-III scores and suggested that the WASI scores were consistently higher than the WAIS-III. This suggests that the WASI may provide an over-estimate of IQ. Additionally the WASI manual supports this suggesting that a WASI IQ score of 85 gives a 90% confidence of scoring between 74-97 on the WAIS. As a result an IQ of 85, at the higher end of the confidence level was included in the sample to allow for this over-estimate and not incorrectly exclude those with a learning disability.

To compare the two groups in terms of quality of life, self-esteem, stress and social networks the four following outcome measures were used:

3.4.3 Quality of life

The Life Experiences Checklist (LEC; Ager, 1990) is a measure that rates an individual's quality of life by gauging the range and extent of life experiences an individual has and compares it with that of the general population (Appendix D). The standard measure has five sub-sections: Home, Leisure, Relationships, Freedom, and Opportunities. For this study only three of the sub-sections were used (Leisure, Relationships, and Opportunities) as they were considered most relevant to the research question and kept the interview time to an acceptable duration. Questions include 'do you have a meal with friends at least once per month?' The 30 questions are read to the participants who respond by stating either 'yes' or 'no'. A pictorial representation of a tick and cross was developed to support this response based on feedback from an initial pilot of the questionnaire. Following completion of the LEC, subsection scores are computed by totalling the 'yes' responses. The measure has been shown to possess good psychometric properties, with an inter-rater reliability of $r=.80$ and a test-retest of $.93$ (Forrester-Jones, 2004). The LEC demonstrates validity against objective indices of community involvement and has been shown to be sensitive to differences between environments (Cummins, 2002).

3.4.4 Self-esteem

To measure self-esteem, the Rosenberg Self-esteem Scale (RSE; Rosenberg, 1965) (Appendix E) was used. The RSE has been translated into various languages and is extensively used on cross-cultural studies in up to 53 different nations and is used frequently with the learning disabled population (Schmitt and Allik, 2005). The RSE aims to measure a

unidimensional and global sense of self-esteem using a Guttman scale². The measure includes such items as 'I take a positive attitude towards myself' and 'At times I think I am no good at all'. The ten statements are responded to with four options ranging from 'strongly agree' to 'strongly disagree'. Pictorial representations of the response options were created to support this measure. The total score range from 0 to 30, the higher the score indicates higher self-esteem.

Previous researchers have reported adequate levels of internal consistency for their samples with Cronbach's alphas of between .72 and .88 (Byrne, 1996). The test-retest correlation on 28 participants after a two-week interval was .85 (Silber and Tippett, 1965). Rosenberg (1965) reported substantial evidence of the construct/predictive validity of the scale, relating poor self-esteem to behavioural and social outcomes such as loneliness, depression and anxiety. The satisfactory convergent and discriminate validity of the Rosenberg Self-Esteem Scale has been well documented (Blascovich and Tomaka, 1993; Rosenberg, 1986).

3.5 **Stress**

The Life Stress Inventory (LSI; Bramston and Bostock, 1994) is a self-report measure of daily events or life situations developed for adults with learning disabilities (Appendix F). The measure consists of 30 items pertaining to life events. Respondents are asked to listen to each statement and decide if the event has happened to them over recent weeks. If it has, then they are asked to comment on how much stress it caused ('no stress', 'a little', 'a fair bit' or 'a lot'). If the event had not happened then the participant is asked the next question. Pictorial images were designed by the authors of the measure to facilitate participants' responses to items. Total scores range between 0 and 90 - high scores indicate high levels of stress. The measure possesses adequate psychometric properties, with an internal

² A Guttman scale presents a number of items to which the person is requested to agree or not agree. This is typically done in a 'Yes/No' dichotomous format.

consistency of $\alpha=.8$ and was found to be valid and factorially stable (Fogarty, Bramston and Cummins, 1997). Additionally the LSI has been reported as having adequate internal consistency, and evidence for concurrent and criterion validity among people with mild learning disabilities has been found (Bramston and Bostock, 1994; Lunsky and Bramston, 2006).

3.6 **Social networks**

To measure individuals' social networks the Social Support Self Report (SSSR) (Lunsky and Benson, 1997) was used. The SSSR (Appendix G) was adapted by Lunsky and Benson (1997) from the Reiss-Peterson Social Support for Mentally Retarded Adults (Reiss and Benson, 1985). The original scale focused upon three areas of support (family, friends and partner). The later version of the SSSR developed a further area concerning care staff.

The measure has two components: firstly, the respondents are asked questions about family members, friends, partners and staff to gauge a broad understanding of a person's social support system; and secondly, the quality of each of these relationships is evaluated and scored under four sub-sections (friends, family, partner/other and staff). The quality of these relationships is measured through questions such as 'How much do you talk to x' and 'How much does x help you with your problems?' A three-point Likert-type scale is used for responses ('not at all', 'sometimes' and 'a lot'). Pictorial images were designed and provided to support this choice. Total scale scores range between 0 and 80, with high scores indicating high levels of social support.

Concurrent validity was found to be acceptable between the SSSR and Harter's (1985) 'People in my life' scale for scores in the family, friends and partners sections (Lunsky, 2004). When used with a similar client group, the SSSR was shown to have good internal consistency, with Cronbach's alpha of .71, and was found to be generally in accordance with staff perceptions (Lunsky, 2004).

3.7 Procedure

3.7.1 Recruitment

Once ethical approval was given by the university's ethics panel (Appendix H), the Special Olympics and Mencap³ were approached to take part in the study; both agreed to approach members respectively to explore initial interest. Contact was made through the Special Olympic Regional Managers via an electronic newsletter, and via Mencap regional managers. The rationale and logistics of the study were explained in initial meetings and copies of the information sheet and consent forms were provided (Appendix I and J). Interested clubs and centres were then contacted to discuss the project once initial interest had been expressed. All participants were given an information sheet and coaches and centre managers asked to assist in making the information accessible. Contact details were provided so that the main researcher could address any queries or concerns regarding the study. People invited from Mencap were all affiliated to the organisation via their involvement in activity groups. These included a range of organised activities which were not sport specific.

Research volunteers with relevant experience were recruited to assist with data collection. The researchers were trained on the administration of the questionnaires using a specifically designed protocol to help ensure standardised presentation (Appendix K).

Participants wanting to take part in the study were asked to sign a consent form that had been designed collaboratively with a representative from Mencap who was experienced in designing 'easy read' materials for this population. It was requested that this form was signed at least 24 hours prior to the interviews. Participants were interviewed at the

³ Mencap is the UK's leading learning disability charity working with people with a learning disability and their families and careers. Mencap provides help and support through supported living, supported employment, respite services, organised activities, systemic and individual advocacy, and outreach support.

prearranged venues, information was gathered on age, gender, accommodation, sports involvement, and measures administered in one setting, taking between 40 and 60 minutes in total. All researchers read out the questions to each participant.

4 RESULTS

4.1 Distribution of data and statistical analysis strategy

Prior to data analysis, variables were evaluated through tests of skewness, normal distribution and kurtosis in order to determine whether they met parametric assumptions. The Shapiro-Wilks tests were used to assess the normality of distribution of data (Appendix L). Where the results of such tests indicated that parametric assumptions were not met, non-parametric tests of statistical significance were selected. Despite the use of multiple comparisons, Bonferroni adjustments were not adopted in this analysis. These corrections maybe overly conservative when applied to a reasonable number of comparisons (Perneger, 1998), thereby increasing the likelihood of false negative errors. Additionally the data was not analysed in multiple ways, using only total scores rather than total and sub-scores of measures.

4.2 Demographic details and matching variables

Table 1 shows the demographic details of the participants. The total number of participants in this study was $n = 101$; however 27 of these participants (16 from SO and 11 from Mencap) were found to have an IQ of 85 or over and were therefore removed from the dataset resulting in a remaining $n = 74$.

Table 1 demographic information

	SO Group n=44	Non-SO Group n=30
Gender:		
Male	26 (60%)	11 (37%)
Female	18 (40%)	19 (63%)
Marital Status:		
Single	29 (67%)	16 (53%)
Partner	12(27%)	11(37%)
Married	3(6%)	3(10%)
Employed Care:		
Yes	30 (67%)	20 (67%)
None	14 (31%)	9 (30%)
Not Sure	1(2%)	1(3%)
Accommodation:		
With family	23 (51%)	8 (27%)
Supported housing	18(41%)	17 (57%)
Independent	2 (4%)	4 (13%)
Not sure	2 (4%)	1 (3%)

A series of Pearson's Chi Square tests were conducted to test the association between group membership (SO vs. Non-SO) and gender, marital status, employment, living circumstances, and whether the participant had an employed carer. Table 2 shows the outcomes of these analyses, revealing that no significant association was found between group membership and these demographic factors. This provides evidence that the participants were matched on these factors between groups. The two samples IQ scores were as follows:

	Mean	Standard Deviation	Range
SO Involved	64.61	10.33	29
Non-SO	63.17	7.36	20

Table 2 The IQ scores of each sample

Two Mann-Whitney tests were conducted comparing IQ and age between groups. These tests revealed a non-significant difference between the IQs of participants between groups ($U=650.00$, $Mdn=60.50$, $n_1=44$, $n_2=30$, $p=.991$, two-tailed), and a significant difference between the ages of participants in the different groups ($U=430.500$, $Mdn=36.50$, $n_1=44$, $n_2=30$, $p=.011$, two-tailed). These findings suggest the two groups were adequately matched in terms of IQ but not age, with the non-SO group being an average of seven years older than the SO group.

Table 3. Statistical differences between the SO and non SO groups

	Value	Df	Asymp. Sig. (2-sided)
Gender	3.588	1	.058
Marital Status	1.193	2	.551
Employment	5.213	3	.157
Living Circumstances	5.437	2	.066
Employed carer	.005	1	.944

4.3 **Hypothesis 1: Self-esteem will be higher in those who were involved in SO compared to those not involved.**

The mean score of the items was calculated to compensate for missing data, as long as at least eight of the ten items had been responded to. Individual questionnaires with more than eight items missing were excluded from the analysis. A t-test revealed that self-esteem was higher in the SO group ($M=2.23$, $SE = .065$) than the non-SO group ($M=1.99$, $SE = .068$). This difference was significant $t(69) = -2.57$, $p < .05$ (sig .006, one tailed), supporting hypothesis 1.

4.4 **Hypothesis 2: Levels of engagement in Social networks will be higher for the SO group compared to the non-SO group.**

Six participants did not complete the SSSR, and therefore could not be included in the analysis. A t-test revealed that social networks were higher in the SO group ($M=43.85$, $SE = 2.39$) than the non-SO group ($M=36.61$, $SE = 3.66$). This difference was significant $t(66) = 1.73$, $p < .05$ (sig .04, one tailed) supporting hypothesis 2.

4.5 **Hypothesis 3: Stress levels will be lower in people involved in SO compared to those who are not.**

Three participants did not complete the LSI, and therefore could not be included in the analysis. A Mann-Whitney test revealed that life stress was statistically significant between the SO and non-SO group ($U = 397.000$, $Mdn=14.00$, $N1 = 42$ $N2=29$, $p = .006$, one-tailed), supporting hypothesis 3.

4.6 **Hypothesis 4: Quality of life will be higher in those involved in SO compared to those who are not.**

A Mann-Whitney test revealed that life stress was statistically significant between the SO and non-SO group ($U = 392.500$, $Mdn=23.00$, $N1 = 44$ $N2=30$, $p = .003$, one-tailed), supporting hypothesis 4.

Furthermore comparisons of the subsections in the life experience measure showed the following results:

'Opportunities' was not statistically significant- ($U = 561.000$, $N_1 = 44$ $N_2 = 30$, $p = .129$, one tailed). However, 'Leisure' was statistically significant- ($U = 425.000$, $N_1 = 44$ $N_2 = 30$, $p = .005$, one tailed). Similarly, the 'Relationships' subtest was statistically significant- ($U = 398.500$, $N_1 = 44$ $N_2 = 30$, $p = .002$, one tailed). Both 'leisure' and 'relationships' were found to be increased for the SO group compared to the non-SO group.

4.7 Hypothesis 5: There is a significant association between psychosocial factors and involvement, or non-involvement, in SO.

A series of bivariate and point-biserial Spearman's and Pearsons correlation analyses were performed between the predictors and group membership (see Tables 3 and 4). Analysis suggested that there were significant relationships between group membership and LEC, LSI, RSE and age, but not with the SSSR.

Table 4. Variables input into the correlation

	Item
1	Group membership (SO or non-SO)
2	Life experience (LEC)
3	Life stress (LSI)
4	Self-esteem (RSE)
5	Social Networks (SSSR)
6	Age

Table 5. Correlation Matrix between main variables (*p<0.05, **p<0.01)

	1	2	3	4	5	6
1	1.00	.346**	-.297*	.308**	.228	-.296**
	N=74	n=74	n=71	N=71	n=68	n=74
2	.346**	1.00	-.095	.195	.499**	-.137
	N=74	n=74	n=71	N=71	n=68	n=74
3	-.297*	-.095	1.00	.010	.205	.286*
	N=71	n=71	n=71	N=71	n=68	n=71
4	.308**	.195	.010	1.00	~.132	.007
	N=71	n=71	n=71	N=71	n=68	n=71
5	.228	.499**	.205	~.132	1.00	-.047
	N=68	n=68	n=68	N=68	n=68	n=68
6	-.296**	.137	.286*	.007	-.047	1.00
	N=74	n=74	n=71	N=71	n=68	n=74

Key ~ = Pearsons Correlations were used as this data met parametric conditions. All others were Spearmans.

4.8 **Hypothesis 6: Psychosocial factors independently predict involvement, or non-involvement, in SO.**

A binary logistical regression analysis was performed, entering the variables found to be significantly correlated with group membership in a single step. Before the analysis was conducted, several steps were taken to test the relevant statistical assumptions. Firstly, it was ensured that the dependent variable was binary (SO vs. non SO). Secondly, the error terms were independent (i.e. data-points were not from before-after measurements, or matched pairings). Finally, to assess whether multicollinearity was present in the data, a correlation matrix was produced which revealed no substantial correlations ($r > .9$) between the predictor variables.

A total of 71 cases were analysed and the base model correctly predicted 59% of group membership. The full model significantly improved prediction of group membership (omnibus chi-square = 19.55, df =4, $p < .001$) over the base model. The model accounted for between 24.1 % and 32.1 % of the variance of group membership, with 65.5 % of the no sport group successfully predicted and 81% of the sport group successfully predicted. Overall 74.6 % of predictions were correct. Table 5 (see below) gives coefficients, the Wald statistic and probability values for each of the predictor variables. This shows that only self-esteem reliably predicted group membership. The values of the coefficients reveal that as self-esteem increases this raises the likelihood of being involved in SO by a factor of 5.12 (95% CI 1.17 and 22.44).

Table 6. Binary logistical regression analysis: Variables entered on step 0 and 1: Life experiences, life stress, self-esteem and age

	B	S.E.	Wald	P	Exp(B)
Constant - (step 0)	.370	.241	2.35	.125	1.45
Life Experience	.154	.085	3.26	.071	1.166
Life Stress	-.038	.026	2.15	.143	.963
Self-esteem	1.634	.754	4.70	.030	5.123
Age	-.039	.022	3.23	.072	.961

5 DISCUSSION

5.1 Aims

This study proposed several hypotheses. Firstly, it was hypothesised that (1) social networks, (2) self-esteem and (3) quality of life would be higher in the group involved in SO, and that (4) stress levels would be lower compared to those not involved in the SO.

Additionally, it was hypothesised that (5) there would be a significant association between psychosocial factors and involvement, or non-involvement, in the SO, and (6) that psychosocial factors would independently predict involvement, or non-involvement, in the SO.

The first four hypotheses, lower stress levels, higher self-esteem, social networks and quality of life were partially supported by the results of this study. The fifth hypothesis was also partially supported because the analysis of the data revealed a significant association between psychosocial factors and involvement in all the measurements except social networks. Finally, the sixth hypothesis was supported because self-esteem was found to independently predict involvement or non-involvement in SO to an adequate level. Each hypothesis will be explored in more detail below in relation to the following propositions: (1) people with learning disabilities are often socially isolated due to reduced social networks and subsequently experience lower levels of social support than the wider population; (2) these life circumstances lead to individual psychological vulnerabilities such as low self-esteem; (3) lower levels of self-esteem and reduced social support can result in higher levels of stress for individuals and that; (4) these psychosocial experiences can result in an overall reduced quality of life.

5.2 **Self-esteem**

The findings of this study support previous research with the general population (Fox, 1999; McGee, Williams, Chapman, Martin, and Kawachi, 2006) and learning disabled population (Weiss, Diamond, Denmark and Lovald, 2003) which have suggested that sports involvement contributes to higher levels of self-esteem. The results of this study reinforce the importance of relationship between self-esteem and sports involvement, suggesting that as SO involvement increases, so does self-esteem. This suggests that interventions aimed at facilitating SO involvement in a learning disabled population may be advantageous.

5.3 **Stress, social networks, and quality of life**

The results of this study concur with findings of Carmeli, Barak, Morad, and Kodesh, (2009) study. They found that the implementation of an aerobic physical training programme significantly reduced levels of stress and anxiety in a sample of people with learning disabilities. The current study found that lower life stress was found to be associated with group membership.

This study also found a difference between the groups in terms of social networks. This lends further support to research that suggests both within the general and learning disabled populations, sport enriches social networks. Delaney and Keaney's (2005) study exploring sport and social networks found that members of sports organisations were more likely to have friends in those organisations compared to other organisations. A possible reason why social networks were not found to be a significant predictor variable may be that the organisation (Mencap), from which the non sport group sample was obtained, was providing a similar role in terms of building social networks.

The findings of this study partially supported the conclusions of a recent systematic review of the literature pertaining to physical activity benefits of adults with learning disabilities. Bartlo and Klein (2011) found strong evidence that physical activity positively affected the quality of life of those with learning disabilities. Quality of life, as measured by the LEC, was found to be higher in the SO group and associated with group membership.

It is interesting to consider the subsections of the quality of life measure between the two groups. Both the SO and non SO groups scored similar, non significant scores, on the 'opportunities' subsection of the measure. This suggests that the two groups were similar in terms of independence and choice. The remaining two subsections, 'relationships' and 'leisure' combined to result in an overall difference between the two groups, with the SO group scoring significantly higher in these areas. This suggests that while the two groups

both had similar opportunities, the SO group were reporting higher scores in relation to both their relationships and leisure experiences. A possibility is that the SO was offering participants something that contributed to their relationships (social support) and leisure opportunities. These findings echo those in the mainstream literature in terms of the added value of sports involvement relating to increased social networks and activities.

When we consider relating the findings of this study to the theory of self-esteem it is helpful to draw upon how researchers have considered the concept of self esteem. It has been described as a form of evaluation of the self that guides future behavioral choice and action (Leary and Baumeister, 2000). The subject of much of the self-esteem literature has been on the relationship between self-esteem and functioning across a range of factors (Emler, 2001; Tesser, 2001). One conclusion from these relationships is that self-esteem plays a causal role in life outcomes, and that an individual's level of self-esteem is critical in determining success and failure across a range of life tasks (Harter, 1993, 1999). This suggests that self esteem functions as a mediator between identity and actions (Chappell, Goodley and Lawthom, 2001).

It might be hypothesised that Special Olympic involvement provides an alternative identity to that of a learning disability. Affiliation to a learning disability group (with the learning disability being the key characteristic) such as Mencap may result in a negative core identity due to the stigma of learning disabilities (Chappell, Goodley and Lawthom, 2001). In contrast Special Olympics is related to the Olympics, which is associated with a high value and may therefore result in a more positive identity and higher self-esteem. This may also be hypothesised as becoming an iterative process as having high self-esteem may lead to further activity, higher levels of confidence which may also increase social competence that further increases levels of self-esteem. (Chappell, Goodley and Lawthom, 2001).

5.4 **Clinical Implications**

Given the centrality of self-esteem to psychological well being (Aleem, 2005; Salsali and Silverstone, 2003; Baumeister, Campbell, Kreuger and Vohs, 2003), it is important to identify accessible interventions aimed at elevating self-esteem within this population. Due to the high numbers of people with learning disabilities who experience mental ill health, improving self-esteem may be a factor in reducing these negative experiences. This study suggests therefore that the identified effects of sport in increasing self-esteem within the general population are also relevant to that of the learning disabled population.

These findings support the literature suggesting that sports engagement is a good psychosocial intervention as it brings benefits both individually in terms of psychological wellbeing and socially. This is particularly important for people with learning disabilities who need access to normative social activities to improve wellbeing and which are also accessible to a broad range of abilities. SO provides an example of an organisation that specifically addresses these needs and this research, suggesting that as a psychosocial intervention, it is very effective. In addition to the psychosocial benefits of SO involvement, physical benefits of sports have been well evidenced in the literature. This is especially significant given the physical health vulnerabilities that people with learning disabilities experience.

The SO is a global movement involving 3.1 million athletes across 185 countries. As well as having the pride of representing their country, SO athletes will undoubtedly benefit from the experience of being involved, from competing for medal positions in their individual events and the opportunity of meeting other SO athletes representing their countries and teams worldwide. In summary, based on the findings of this study and the research in this area, involvement in the SO is recommended as an intervention to support people with learning disabilities in protecting against the psychosocial vulnerabilities they are known to experience.

5.5 **Study Limitations and Further Research**

Limitations of this study include the cross-sectional design used, which does not enable conclusions to be made about directions of causality. For example, it is not possible to suggest a causal relationship between self-esteem and SO involvement. It is only possible to highlight the differences in levels of self-esteem between those involved in SO and those not involved. Further research using a design which can accommodate causality is required.

A further limitation of this study may be the 85 cut-off in relation to IQ used for the purposes of this study. This is a complex issue in the majority of studies within this area have not reported IQ at all (Carmeli E, Barak S, Morad M, and Kodesh E, 2009; Johnson, C.C, 2009 and Bartlo, P., and Klein, P.J, 2011), so it is not clear if the samples in others studies met the more strict definition of learning disabilities. This study took a more rigorous approach by measuring IQ, but by doing so raised definitional issues. What also should be considered in this context is that it is not recommended that the WASI is used as a diagnostic tool (Wechsler, 1997), there are suggestions that the WASI may score higher than other tests such as the WAIS (Wechsler,1997) that for a full assessment of learning disabilities to be made adaptive behaviour and age of onset must be ascertained, and all the participants, in both groups were participating in services for people with learning disabilities. The last point is particularly important as whether people are defined as having a learning disability is dependent upon the philosophical approach taken. Taking a social model approach to defining the disability would suggest that by actually requiring services they come into this definition, whilst a more 'medical' approach would suggested that a the disability lies in the individual and is measurable (Cast and Burke, 2002). This is much contested area and is mentioned here to illustrate problems with taking a strict diagnostic approach to the sample.

However, as the study did use a measure of IQ it would be worthwhile carrying out some further exploratory data analysis to investigate a) if the sample differed between those with an IQ under 70 and those over, and b) to investigate the research questions just confining the sample to those meeting the stricter IQ assessment (barring in mind the reduced power due to the lower sample size).

Additionally minimum sample sizes of 50 or 100 have been recommended for such logistic regression analyses (Buchner, Erdfelder and Faul, 1997). This study had a sample of 74 but future research may consider additional participants to fulfil the higher end of this recommendation.

Despite two of the measures being reported as psychometrically sound and the most widely used measures in their area, it is possible that they limited the results of this study. Firstly the measure of social support (SSSR) may not be a robust measure of the persons' actual social network. For example, each subsection (friends, family, partner/other or carer) has a limit of two people per section, so whilst an individual may have few family members, they may have several friends, but due to the design of the measure the quantity of friends would not be identified due to the restriction of categories of this measure.

Secondly, the measure of self-esteem (RSE), whilst being translated into various languages and extensively used on cross-cultural studies in up to 53 different nations, has been criticised by Kellett and Beail (2009). They argued that, based on a study of 219 participants with learning disabilities, two of the ten items (5 - "I feel I do not have much to be proud of" and 8- "I wish I could have more respect for myself) were problematic and clinically had the least face validity of the items. Due to this criticism, the analysis was conducted with and without these items; both were significant. The decision was made to report the complete scale to aid further research and replicability of findings. Nevertheless, researchers should be encouraged to be aware of this issue with the scale, especially if applying it to a

sample that are less cognitively able. Further studies may also consider measuring and reporting the IQ of their sample as this is infrequently reported in previous research, and given the results of this study, participants may well be included who do not match the IQ driven definitions of learning disability.

It is important to examine the generalisability of the findings to the population of people with learning disabilities as a whole. Firstly, the classification of a learning disability was assessed only via one of the three factors recommended by the Department of Health (DoH, 2006), although all were engaged with learning disability services. Secondly, the study may have been limited by the sports inclusion criteria. People were considered to be within the sports group if they took part in at least one hour of sport per week. This was considered a reasonable level of sports involvement, but may have incorrectly excluded participants who were meeting a sufficient level of involvement to have an effect on psychosocial functioning.

Future studies may also consider the nature of sport: i.e. whether it is team or individual; and the organisation the sport is linked to; and whether these factors have an impact upon the psychosocial functioning of individuals.

6 CONCLUSION

It is well evidenced that people with learning disabilities have shortened life expectancy and poorer physical and psychological wellbeing than the broader population. They receive poorer health care, which in turn limits them participating in their communities and contributing to the economy. This study suggests that there are beneficial psychosocial factors that are associated with SO involvement. Such factors have been evidenced as key factors in mental and physical health. It is important for research to explore why these differences occur, in order that more people with learning disabilities are able to experience the same potential positive psychological outcomes as those in the wider population.

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Clare Watts BSc Hons

Major Research Project

SECTION C

Critical Appraisal

Word Count: 1903

SECTION C - CRITICAL APPRAISAL

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1 **CRITIQUES**

1.1 **What research skills have you learnt and what research abilities have you developed from undertaking this project and what do you think you need to further develop?**

Before beginning this research project I was responsible for making an application for funding from the Special Olympics US Healthy Athletes fund. This involved ensuring that I had fully explored the current research area and was able to build upon existing research needs as well as forecasting a budget for the project. Following this application the project was awarded \$4,000 that I was able to allocate for recruiting and supporting a research team of six volunteer research assistants' time and travel expenses and to provide each participant with a gift voucher in recognition of their time given to the project (Appendix M).

Through this research project I was able to develop skills in terms of training and managing a research team. This process involved initially advertising positions via local assistant psychology groups and screening over 50 CVs for relevant experience, such as having worked with people with a learning disability. This resulted in six successful volunteer research assistants being invited to become a member of the research team. The project began with a training day based at SO headquarters. The purpose of this day was to introduce the background of the research, the aims rationale and procedure (Appendix N). Following this, training for the administration of the full battery of tests was provided, emphasising the importance of consistency and therefore following the guideline pack closely. Additionally we discussed procedures for potential risk issues such as disclosure of harm. Over twenty-one sites across the south east of England were visited to carry out the interviews; this gave me an opportunity to develop the organisational skills required for a project of this nature.

In addition to the co-ordination of the project it was necessary that I managed the budget, keeping records up to date and liaising with financial managers. One of the main skills I

learnt as a result of this project was the importance of communication skills, initially in linking with other organisations. I found myself improving in terms of describing the project and the importance of the research. Whilst promoting the project it was necessary to also communicate to coaches and centre managers that each participant must be able to give consent to take part in the project or not. This was double checked with participants after consent forms had been received.

On two occasions research assistants reported that participants had disclosed physical abuse and bullying. In both these instances the initial protocol was followed and full investigations took place under the guidance of my supervisor. I learnt the true value of having these procedures set up prior to data collection and the clear guidelines that had been discussed with the research team.

This project has highlighted my interest in further developing quantitative research skills. I would therefore like to increase the experiential learning experience of future research by using a wider range of the variety of quantitative experimental designs and additionally qualitative methods. During the interviews two open ended questions were put to the sport group concerning what they liked about being involved in sports and what they might miss if they were not involved. Whilst it was not possible to do this data justice in this research project, a paper analysing these responses will follow.

1.2 **If you were able to do this project again, what would you do differently and why?**

Retrospectively I had underestimated the time needed to create links with various coaches and managers of centres. This meant that my timeline in terms of collecting the data became more restricted as I had underestimated the time that it takes to build and maintain networks. Therefore if I were to do this project again I would allow more time for initial contact building with an overall aim of interviewing more participants. A further adaption to

this study would be to have run the WASI IQ tests with participants prior to carrying out the full battery of assessments. The reason for this is that 27 participants were unable to be included in the analysis as their IQ was more than 85, the cut-off point as stipulated by the study entry criteria. In doing an initial IQ test this could serve as a screen to determine whether the participant fitted the inclusion criteria of the study. It was disappointing to have collected more data than I was able to include due to the inclusion criteria, but as described I would hope to use this data, such as the qualitative responses from the larger sample size, in further projects.

A further adjustment to the project would be to collect data regarding the total number of people within each persons social network. I would then use this as an indication of social network, as the social support self report measure was unable show any correlation with sports participation in this study but did not account for the estimated number of people within a persons' network.

In addition I would have liked to have collected more accurate data regarding length of SO involvement. It was often something that athletes themselves were unsure of, so the quality of this data was not adequate enough to consider in the analysis. If I were to carry out this analysis again I would ask coaches/parents to consult their records as a way to verify this data. This would allow an exploration of length of time involved in SO and the measures of quality of life, self-esteem, social networks and stress.

1.3 **Clinically, as a consequence of doing this study, would you do anything differently and why?**

There are several influences that I believe this project has had in terms of my ongoing clinical work. Firstly I have a better understanding of generally carrying out psychometric tests with people with learning disabilities. The project made me see the value of visual prompts that represent scales that do not rely so heavily upon verbal ability. I was also

aware that parents and coaches were keen to support participants in the assessments and this played an important role in the interviews. However, I learnt that this needed to be managed carefully to ensure this contribution did not affect the responses and performance of the individuals in the interviews. I will therefore be mindful of the important balance that is necessary to create between people with learning disabilities and the systems around them.

I also have become very aware of the importance of recreational involvement within this client group in particular, and this will be a consideration in terms of future work with people with learning disabilities. I will want to increase my knowledge of local organisations in future service settings and to consider potential barriers that this population may experience in being involved in recreation activities. Many of the athletes interviewed in this study were very inspiring and through the results of this study, wider research and being involved in this project I was aware of the positive effects their experiences were having. Due to the Special Olympics inclusive policy, level of ability is not a barrier to involvement I would therefore hope to encourage people who are not aware of the organisation to become involved.

A further influence that this study has had in terms of my ongoing clinical work is that for people with learning disabilities both mental and physical health is neglected and I will hold this in mind, both in the case of individuals and more systemically, within multi-disciplinary work in the future.

Additionally I believe that the experience of this project has encouraged me to do more research as part of my clinical practice. It has led me to think more about my role as a clinical psychologist and the importance of contributing to the research base that increases our understanding in this field and as a result informs our practice. In addition to planning

upon disseminating the findings of this research via a journal (Appendix O), the US SO will distribute the findings of this study via their various communication streams.

I will be presenting the results to the UK SO board who will be sharing the results of this study via their National newsletter, website and events. This will enable them to take the findings of this study to sponsors to suggest the benefits of psychosocial wellbeing via SO involvement. The SO rely heavily upon such sponsors for funding their organisation, therefore any further research supporting involvement may encourage individual and government financial support. In my future clinical work I will aim to be proactive in terms of disseminating findings of research and as a result inform clinical practice.

1.4 **If you were to undertake further research in this area what would that project seek to answer and how would you go about it?**

In future work I plan to carry out analysis and publish the findings of the qualitative responses collected as a part of this study. For this I would use qualitative research methods such as thematic analysis to explore the data and identify key themes that were described by people involved in the Special Olympics. This would aim to give a rich description of how people experience sports that would aim to deepen our knowledge of this area and support a service user involvement approach (Trivedi and Wykes, 2002). It is hypothesised that key themes may include social benefits, achievement, fitness and enjoyment. These hypotheses may be linked to the findings of the current study.

In addition to this, I would be interested in further qualitative research that explores the perceptions of identity that arose such as one skiing athlete described herself as 'feeling like a bond girl coming down the slopes' and another enjoying 'being written about in the local paper' after winning a competition. This made me think more about sports involvement relationship to perception of multi-identities and the subsequent psychological impacts of this, for example the impacts of perceiving oneself as primarily an athlete or as someone

with a learning disability. This was particularly evident at the sporting events where athletes were flying their team flag at events and collecting their medals with pride. I would go about carrying out this further research by designing a qualitative study that would involve interviewing athletes from a range of sports areas and abilities using a semi-structured interview. This type of interview would allow the interview to be sufficiently open ended to encourage participants to describe their thoughts but structured enough to explore the subject of identity.

I would also be interested in exploring further the recent study exploring Rosenbergs self-esteem questionnaire. Kellett and Beail (2009) argued that, based on a study of 219 participants with learning disabilities, two of the ten items (5 - "I feel I do not have much to be proud of" and 8- "I wish I could have more respect for myself) were problematic and clinically had the least face validity of the items. They recommended that revision to this measure take place. It is possible that the data from this study may be analysed and compared to these findings and this could potentially be both clinically and empirically beneficial, given that the Rosenbergs Self-esteem questionnaire is the most commonly use measure of self-esteem for people with learning disabilities and has been translated into several languages.

2 REFERENCES

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472.

Clare Watts BSc Hons

Major Research Project

SECTION D

Appendices

Section D

Appendices

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Appendix A

Literature Search

An initial review of the literature was conducted using Medline, PsychInfo electronic databases. The following search terms were used: learning disabilities; mental retardation; intellectual disabilities; developmental disabilities in combination with: sports; exercise; physical activity; Special Olympics in combination with: self esteem; social networks; social support; quality of life; stress; physical health; mental health; wellbeing.

The searches were limited to the English language and abstracts scanned for relevance. In addition the electronic search was supplemented with searching on websites relating to this area including Special Olympics, Mencap, sports England, and the Department of Health. Finally a search through the reference lists of relevant articles took place. Once potential articles were sourced they were screened to meet the inclusion criteria.

DEMOGRAPHIC QUESTIONNAIRE

RESEARCHER NAME _____

PARTICIPANT NUMBER _____ DATE _____

AGE _____ GENDER M/F

CONSENT FORM SIGNED Y/N (nb the interview cannot take place in no)

S/O MENCAP (please circle) LOCATION OF TESTING _____

IF S.O;

FIRST BECAME MEMBER OF S.O _____ (no. Of years & months)

MAIN SPORT _____

OTHER SPORTS _____

NUMBER OF TRAINING SESSIONS PER WEEK _____

COMPETITIONS PER YEAR _____

Appendix C

Life experiences checklist

This has been removed from the electronic copy.

Appendix D

Rosenberg's Self Esteem questionnaire

This has been removed from the electronic copy.

Appendix E

LIFE STRESS INVENTORY

This has been removed from the electronic copy.

Appendix F

Social Support Self Report (SSSR)

This has been removed from the electronic copy.

Appendix G

Ethics Approval

This has been removed from the electronic copy.

Appendix H

Study Information Mencap

Study Title - What are the benefits that athletes get from the Special Olympics?

You are being invited to take part in a study. Here is some information so you can decide whether you might join in or not. Please take time to read this and talk about it with others. Ask us any questions you have. It is fine if you would like someone to read this information to you Thank you.



What is the study?

We will be asking some people who play sports and others who do not about how they feel about themselves.



We will also be asking about people's friends and family.



© Copyright iPhotoLibrary Ltd

Why have I been chosen?

You have been chosen through your local organisation, Mencap.

Do I have to take part?

No, you do not have to take part.



If you do decide to I will also ask you to sign a form to say you understand (consent form).



You are still free to stop at any time and without saying why.

What will happen to me if I take part?

I will be asking you some questions about you. To get an idea about how good you are at remembering things we will do some puzzles.

Then I will ask you some questions about your thoughts. There are no right or wrong answers.



This will take 50 minutes. Questions will be read out to you. You can break in the middle.



After I have collected the answers I will look for patterns in what people say.

Will my taking part in this study be kept to myself?

All information which is collected about you during the research will have your name taken away. No one will know it is you.



What will happen to the results of the research study?

I will send you and your Mencap center manager a copy of a short report. I will also write a report for other researchers to read.



contact Clare Watts -

Canterbury Christ Church University, Salomons Campus, Broomhill Road, Tunbridge Wells, Kent, TN3 0TG

Appendix I

CONSENT FORM

Participant number: _____ Site: _____ ID

Title of the project: Psychological Benefits of Special Olympic Involvement.

box Please tick

1. I understand the information sheet for this study.

2. I have asked the question and received answers I wanted



3. I understand that I can
stop at any time, without giving a reason



4. I agree to take part in the above study

Name of Participant

Date

Signature

Name of Researcher

Date

Signature

Appendix J

Interview Guidelines

Prior to interviews

Clare will be in touch with details of where and when the interviews will take place as we hear back from coaches and Mencap centres. Please give confirmation that you are able to make these times.

A few days before please phone the named contact to:

- 1) Confirm your visit,
- 2) That consent forms have been completed ready for you prior to the interview.
- 3) That there will be an area for you to complete the interviews
(Any problems ie lost consent forms etc then please let Clare know)
- 4) Check if anyone has had any recent serious life events

TOOLS (please check you have the following before going to each interview)

- Interview guidelines (1 per participant)
- WASI pack (Including response sheets)
- The visual laminated response sheets

Introduction

My name is _____ Thank you for agreeing to answer some questions. Can I have the consent form, did you have any questions about the study?

This interview should take about 50 minutes. I will ask you half way through if you would like a short break. If you do want to stop at anytime you can - just let me know.

We will start by finding out more about you.

Complete the Participant Information sheet (see instruction sheet)

Completing the Participant Information sheet - INSTRUCTIONS

See sheet 1 named Participant Information sheet

1. Add your name under researcher name
2. Participant number this is your initials followed by the date of birth of the participant. For example if I was testing someone born on 14th January 1980 the participant number would be CW140180

Please keep a secure record of the name of the participant with their date of birth and participant number on the Participant information sheet. These will all need to be handed to me after you have completed the interviews - this is very important due to confidentiality and data protection.

3. Date is the date of testing
4. Age of participant in years
5. Check the consent form is signed
6. Circle either a SO or Mencap member
7. Location is where the testing is being carried out. Ie Bromley Mencap
8. Only fill out the next section if SO member as indicated
9. Mencap details of sport is really important to find out so we can adequately match our participants. If they do take part in sport please get as much detail as possible - how often, other sports they also do.

10. The next section is for you to record the questionnaires once they have been completed and so we all stick to the same order.

After the demographic questionnaire administer the testing in the following order (instructions for each test are described below)

- WASI
- LIFE EXPERIENCES CHECKLIST
- SOCIAL SUPPORT SELF REPORT
- ROSENBERGS SELF ESTEEM
- LIFE STREE INVENTORY
- QUALITATIVE QUESTIONS

WASI

- 1) See page 53 of the manual and follow the script closely and fill in the ID and the examiner grid on the top right corner of the front sheet. (No need to complete the address). Using the stimulus booklet, as participants give their responses complete the record form (1 Vocabulary)
- 2) Turn over to page 54 and carry out the instructions for Vocabulary
- 3) Once you have finished Vocabulary turn to page 118 in the manual and follow the instructions for Matrix Reasoning, using the stimulus booklet and filling out the record form (4. Matrix reasoning)

Appendix K

Tests of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Wasi IQ	.878	68	.000
Life experiences checklist (LEC)	.929	68	.001
social support self report (SSSR)	.982	68	.429
Life stress inventory (LSI)	.886	68	.000
Age	.944	68	.004
R_MEAN_10*	.897	68	.206

*Rosenberg Self Esteem (RSE)

August 23, 2010

Professor Jan Burns
Christchurch Canterbury University
Department of Applied Psychology
Salomons Campus
Broomhill Road
Tunbridge Wells, Kent TN3 0TG
England

Dear Professor Burns:

I am pleased to inform you that Christchurch Canterbury University has been awarded a grant in the amount of \$4,175.00. These funds will be used to support Clare Watts's research project "Psychological Benefits of Special Olympic involvement."

The funding for this grant is provided by a grant from the U. S. Department of Health and Human Services, Centers for Disease Control and Prevention. Expenses applied to this grant are subject to the cost principles outlined in *OMB Circular A-21, "Cost Principles for Educational Institutions*. Please note that indirect cost is not applicable. In addition, any unspent funds must be returned to Special Olympics, Inc. at the end of the grant reporting period.

The grant monies will be disbursed in a single payment. If you accept the terms, please sign the attached copy of the "Grant Award Agreement," and return a signed copy to Special Olympics, Inc. Upon receipt of the signed Agreement, Special Olympics Inc. will release the grant payment in the amount of \$4,175.00. Please specify the University or Departmental entity to whom the check should be forwarded.

A report of the Project's onset is required within 30 days of it taking place. A final report and evaluation is due within 30 days of the completion of the project. Each report should include a summary of the activities. A statement of financial expenditures, with original receipts, is also due at that time. These reports will allow Special Olympics, Inc. *Healthy Athletes* to understand your experience and thereby assist other institutions implement similar initiatives for their students.

I congratulate you and Clare on receiving this award and look forward to hearing about your experience and findings. Should you have any questions, please feel free to contact Darcie Mersereau at dmersereau@specialolympics.org.

Sincerely,



Darcie Mersereau, MPH
Vice President, Health Programs

Special Olympics Healthy Athletes Student Grant Award Agreement

Christchurch Canterbury University ("**Recipient**") hereby accepts Special Olympics, Inc.'s ("**SOI**") grant of \$4,175.00 US Dollars ("**Grant**") and in consideration of the Grant agrees to the following conditions:

- Achieve all the criteria for success as set forth in the Grant Application in accordance with the deadlines established in the application. Recipient understands that failure to achieve the success criteria in the time agreed upon may, at SOI's sole discretion, result in SOI not funding the full amount of the Grant or Recipient refunding money to SOI.
- Use the Grant solely for the purposes set forth in the Grant Application, Plan or other document approved by SOI.
- Recipient shall be solely responsible for the payment of any expenses in excess of the grant award.

- Submit final reports (“**Reports**”) to SOI by the designated due dates. Recipient understands that SOI may post information provided in the Reports to the SOI Web site to educate other Programs on Recipient’s activities. SOI will use names and telephone numbers of individuals mentioned in the Reports.
- Comply with all *Federal Government OMB Circular A-21* rules and regulations related to allowable expenditures. If SOI determines in its own discretion that expenditures were not in compliance with OMB Circular A-21—such expenses shall not be reimbursed with federal funds, and Recipient must return advanced funds immediately. **(for grants supported by CDC)**
- Recipient must get prior approval for any changes in the approved budget.
- Document expenditures of all disbursed Grant funds through original purchase orders, invoices, checks and/or receipts and submit financial statements and documentation of Grant expenses as required by SOI. If applicable, documentation must be translated to English.
- Recipient understands that all unused Grant funds, if any, must be returned to SOI 30 days after the event unless other arrangements are agreed upon in writing and approved, in advance, by SOI.
- Acknowledge SOI’s support on all press materials and public documents related to the project funded by the Grant.
- SOI has the right to use and exploit the materials developed under this Grant for Special Olympics, Inc.’s charitable purposes.

U.S Executive Orders, U.S. laws, European Union Directives and other similar laws, regulations or statutes prohibits transactions with and the provision of resources and support to, individuals and organizations associated with terrorism. By signing below, Recipient certifies that neither it nor any of its principals or key personnel (including volunteers) is presently engaged in any activities that would exclude or disqualify Recipient from receiving the Grant. This award is not “earmarked” within the meaning of Treasury Regulations Section 53.4945-2(a)(5)(i), to be used (a) in any attempt to influence legislation within the meaning of Section 4945(e) of the Code.

SOI has the right to: 1) discontinue funding of the Grant and thus not provide Recipient with the full amount of the Grant if Recipient does not comply with the above conditions or if SOI concludes that discontinuing funding is in the best interest of Special Olympics, in SOI’s sole discretion (in such event, Recipient shall promptly return the requested portion of the Grant); 2) require repayment of all or any portion of Grant if SOI believes all or a portion of the Grant was not used in compliance with this Grant Award Agreement; 3) audit the Grant at SOI expense (in which case Recipient shall cooperate fully with any such audit); and 4) reallocate the Grant funds among the various budget line items. Any budget reallocation by Recipient shall be approved in advance by SOI. Any interest earned on Grant funds must be applied to the Project purposes and must be reported to SOI. Recipient shall promptly return any unused Grant funds, or Grant funds used for any

purpose not specified in the Grant Application, Plan, or other document approved by SOI, unless agreed in writing, in advance, by SOI.

Jan Burns, Professor of Clinical Psychology	Date
Christchurch Canterbury University	

(Print Name): _____	or	Enter	Date
Administrative Officer			
Christchurch Canterbury University			

Appendix M

Presentation to research team

Appendix N

Criteria for journal submission

Appendix O

Salomons Ethics Pannel

David Salomons Estate

Broomhill Road

Southborough

Tunbridge Wells

Kent, TN3 0TG

15th July 2011

Dear Ethics Panel,

I have now completed my research project (Ref: MMC/V75). Included is my summary of the study and the findings. Please let me know if you require any furtch feedback.

Yours Sincerely

Clare Watts

Trainee Clinical Psychologist

Summary of Findings

The Psychological benefits of Special Olympic involvement

Objectives. There is evidence that people with learning disabilities have poorer mental and physical wellbeing compared to that of the wider population. The aim of this study was to explore whether a group of people with learning disabilities involved in sport differed in terms of psychological well being compared to a group not involved in sport.

Design. A cross sectional design was employed comparing two groups, sports active and non-active on the variables: Self esteem, quality of life, stress levels and social networks.

Methods. Seventy four participants were recruited across South East England and completed a number of psychological measures.

Results. Analysis revealed that self esteem, quality of life, social networks and stress were all significantly correlated with the Special Olympics. A logistic regression analysis was used to explore whether scores on these variables were able to predict sport membership. Self esteem was found to be a high predictor of group membership, those in the Special Olympics having higher self esteem.

Conclusions. The findings provide further evidence of a positive association between sport involvement and increased psychological wellbeing. The implications of these findings for theory and future research into the relationship between sport and psychological wellbeing within the learning disabled population is considered.

Background

There is evidence that people with learning disabilities have poorer mental and physical wellbeing compared to that of the wider population. The aim of this study was to explore whether a group of people with learning disabilities involved in sport differed in terms of psychological well being compared to a group not involved in sport.

The prevalence of mental health problems for people with learning disabilities has been found to be significantly higher than the general population at between 25-40 per cent (Emerson et al, 2009). Emmerson & Hatton (2007) conducted a large scale audit of the mental health of young people with learning disabilities in Britain and found that the high levels of mental health problems in this population were 'not a consequence of their learning disability, but simply because of their increased chances of being exposed to poverty, social exclusion and more challenging family environments' (p.7).

People with learning disabilities have been found to be vulnerable to low self esteem compared to the general population (Evans, 1998). Risk factors for lower self esteem have been cited as perceived intellectual inadequacy, repeated failures in academic and social situations and prolonged stigmatization (Ntshangase, Mdikana & Cronk, 2008).

The positive effects of sport have been well evidenced in the general population and there is some evidence to suggest this is also true of the learning disabled population (Weiss, Diamond, Denmark & Lovald, 2003). These researchers were interested in the development of theoretical models of how physical activity programs can be implemented to effect psychological change and found that both competition and sport were positively correlated with positive self esteem. These factors provided a rational for conducting a study to explore

whether sports involvement via the Special Olympics may be a potential intervention for mental wellbeing.

Method

A cross sectional design was employed comparing two groups, Special Olympic Involved and non-involved on the variables: Self esteem, quality of life, stress levels and social networks. Seventy four participants were recruited across South East England and completed a number of psychological measures.

Results & Discussion

Analysis revealed that self esteem, quality of life, social networks and stress were all significantly correlated with Special Olympic involvement. A logistic regression analysis was used to explore whether scores on these variables were able to predict sport membership. Self esteem was found to be a high predictor of group membership, those in the Special Olympics having higher self esteem.

From this and other research it was possible to suggest a pathway which leads to reduced quality of life for people with learning disabilities:

- 1) It is well recognised that people with learning disabilities are often socially isolated due to reduced social networks and subsequently experience lower levels of social support than the wider population.
- 2) These life circumstances lead to intra-personal psychological vulnerabilities such as low self esteem.
- 3) Lower levels of self esteem and reduced social support can result in higher levels of stress for individuals.
- 4) These psychosocial experiences can therefore result in an overall reduced quality of life.

Limitations of this study include the correlation design used, which does not enable conclusions to be made about directions of causality. For example, it is not possible to suggest a causal relationship between self esteem and Special Olympic involvement it is only possible to highlight the differences in levels of self esteem between these groups. Further research using a design which can accommodate causality is required. Future studies may also consider the nature of sport, whether it is team or individual, the organisation the sport is linked to and whether these factors have an impact upon the psychosocial functioning of individuals.

Conclusions

It is well evidenced that people with learning disabilities have shortened life expectancy and poorer physical and psychological wellbeing than the broader population. They receive poorer health care, which in turn limits them participating in their communities and in the economy. This study suggests that there are beneficial psychosocial factors that are associated with Special Olympic involvement, such factors have been evidenced as key factors in mental and physical health. It is important for research to explore why these differences occur, so more people with learning disabilities are able to experience the same potential positive psychological outcomes as those in the wider population.