AN EXPLORATION OF THE BARRIERS AND MOTIVATORS TO OUTDOOR ACTIVE PLAY FOR YOUNG PEOPLE AGED 11-12: WHY DON'T THEY PLAY ANYMORE?

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Copyright Statement

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Abstract

Introduction: Regular engagement in physical activity has numerous health-related benefits for children and young people, yet many do not meet the recommended levels of physical activity set by The Chief Medical Officer. Outdoor active play, a form of unstructured physical activity, contributes towards children and young people's physical activity levels more than any other pastime/activity. Despite this, outdoor active play levels decline when children transition from year six (aged 10-11 years) to year seven (aged 11-12 years). Therefore, this study aims to understand why young people engaged in outdoor active play and what barriers they faced. There is little research that explores outdoor active play for young people aged 11-12 years living in the UK. Thus, the present study will address the gaps in research and contribute to existing knowledge.
Methods: An explanatory sequential mixed method design was adopted and comprised of a two-phase approach: collecting and analysing quantitative data followed by the collection and analysis of the qualitative data. Phase one adopted a quantitative approach – self-reported questionnaires were used to quantify outdoor active play rates of a sample of 208 young people aged 11-12 years. The purpose of phase one was to identify young people with high and low play rates. Phase two adopted a qualitative approach – four focus were conducted with, five boys with high play rates, five girls with high play rates, five boys with low play rates, and five girls with low play rates. The purpose of phase two was to identify and explore the barriers and motivators to outdoor active play. All focus groups were audiotaped and transcribed verbatim. The transcripts were analysed using content analysis.
Findings: The questionnaires revealed that 170 young people reported that they engaged in outdoor active play, of those 170, 36 young people were categorised as having high play rates and 31 young people were categorised as having low play rates. The focus groups revealed that having homework to complete was the most prominent barrier for boys. Whereas, the most frequently cited barrier by girls was the presence of strangers in preferred play spaces. Additionally, the most prominent barrier to outdoor active play for young people with high play rates was being too busy learning other skills such as football or dance. Whereas, the most frequently reported barrier for young people with low play was having location rules such as, only being allowed to play in their garden which was implemented by parents. In this study, boys often spoke of being motivated to engage in outdoor active play because it was fun and enjoyable. Whereas, girls spoke of being motivated to engage in outdoor active play as it provided an opportunity to socialise with friends. Additionally, young people with high play rates were motivated to engage in outdoor active play for the health-related benefits. Whereas, young people with low play rates spoke of being motivated to engage in outdoor active play because it was fun and enjoyable. Conversely, the weather was cited as a barrier and a motivator to outdoor active play by young people in this study.
Conclusion: The findings of this study provide an insight into the barriers and motivators to outdoor active play for young people aged 11-12 years. And show that the barriers and motivators differ between gender and play rates. The study is unique for its direct involvement with young people aged 11-12 years (year seven) and its comparison of the barriers and motivators between boys and girls and young people with high and low play rates. However, the researcher was a limitation in this study as a lack of experience in data collection and data analysis may have affected the validity of the findings. Future research is needed to clarify what girls perceive as a safe place space and what steps can be taken to make outdoor active play safer for those who participate. Furthermore, future research which is conducted with parents of young people is needed to explore how parental safety concerns can be eased to increase young people's outdoor active play levels.

Key words: Outdoor active play, barriers, motivators, gender, young people

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Word count – 24,277

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Chapter 1

Introduction

The aim of this chapter is to introduce and explore the importance of outdoor active, a form of physical activity, for children and young people. Current outdoor active play levels for young people aged 11-12 years living in the United Kingdom (UK) will be discussed, as will any issues surrounding outdoor active play. Furthermore, schemes and interventions designed to increase outdoor active play levels for children and young people in the UK will be identified. The importance of physical activity will be explored, as will the health implications of sedentary behaviour for children and young people. Ultimately, this chapter will highlight the current gaps in research and will elucidate how this study will address the gaps and contribute towards existing knowledge.

1.1 The importance of physical activity and the dangers of sedentary behaviour

The World Health Organization (WHO, 2020) defines physical activity as “any bodily movement produced by skeletal muscles that requires energy expenditure, such as walking, dancing, aerobics, and cycling” (p.1). The Chief Medical Officer recommends that children and young people (aged 5-17 years) should engage in at least 60 minutes of moderate-to-vigorous intensity physical activity per day (Department of Health and Social Care, 2019a; The National Health Service [NHS], 2019). There are numerous health-related benefits associated with regular participation in physical activity, including reduced symptoms of depression and weight management (Department of Health and Social Care, 2019b). Additionally, weight-bearing activities are advised for children and young people as they help strengthen and develop muscles and bones (Tan et al, 2014). For overweight or obese children and young people, it is advised that they engage in more than the recommended 60 minutes of moderate-to-vigorous intensity physical activity per day, to redress the energy expenditure imbalance (National Institute for Health and Care Excellence [NICE], 2013). Despite the guidelines and the health-related benefits of physical activity,

levels decline for boys and girls during the transition from year six (age 10-11) to year seven (age 11-12) (Dumith, Gigante, Domingues, & Kohl, 2011; Payne, Townsend, & Foster, 2013; Sport England, 2018). Furthermore, there is a disparity between boys and girl's physical activity levels, with girls generally being less physically active than boys (Allison, Dwyer, & Makin, 1999; Sport England, 2018). It has been stated by Robbins, Pender, and Kazanis (2003) and Trost, Pate, and Dowda (1995) that girls have lower levels of self-efficacy towards physical activity than boys, which may account for why girls are generally less physically active than boys.

NICE (2013) defines sedentary behaviour as "activities that do not increase energy expenditure much above resting" (p.54). Sedentary activities include sitting, watching television, and reading (NICE, 2013). Physical inactivity and sedentary behaviour are endemic problems in the UK, with approximately 39% of adults failing to meet the recommended 150 minutes of moderate-intensity exercise, or 75 minutes of vigorous-intensity exercise per day, set by the Chief Medical Officer (Public Health England, 2019). Similarly, the sedentary behaviour and physical inactivity of children and young people are significant concerns in the UK, with only 23% of boys and 20% of girls meeting the recommended guideline of 60 minutes of moderate-to-vigorous intensity exercise per day (Public Health England, 2018). More specifically, Public Health England (2018) reported that 25% of boys and girls aged 11-12 years spend more than six hours per weekend sedentary, and 9% of boys and 8% of girls aged 11-12 years spend more than six hours per weekday - excluding school hours - sedentary.

The British Heart Foundation (2017) reported that over 5 million deaths worldwide are attributed to inactivity, and that sedentary behaviour is among the top ten leading causes of death worldwide. Physical activity literature has suggested children and young people who maintain high levels of sedentary behaviour (>2 hours per day) are more likely to exhibit signs of cardiovascular disease at an early age, resulting in an increased chance of developing cardiovascular disease later in life (Daniels, Pratt, & Hayman, 2011; de Moraes et al, 2014;2015; Mitchell et al, 2009). Additionally, engaging in excessive periods of

sedentary behaviour could cause, type two diabetes, obesity, and some types of cancers in children and young people. Tanaka, Reilly, and Huang (2014) suggested that sedentary behaviour increases with age by approximately 30 minutes per year. Therefore, the risk factors associated with sedentary behaviour become more prevalent as children and young people get older. Mitchell et al (2009) and The World Health Organization (WHO, 2019) reported that maintaining high levels of sedentary behaviour was positively associated with obesity in children and young people. Moreover, obesity in childhood increases the chances of a premature death or disability in adulthood (WHO, 2019).

1.2 Determinants of sedentary behaviour

Veitch et al (2010) highlighted that there is a lack of clarity regarding a singular cause of sedentary behaviour, due to the heterogeneity of the environment people are raised in. Although, it has been stated by Peers (2017) that children and young people in the UK spend approximately five hours per day sitting down during school hours. Therefore, schools should target alternative methods to try to reduce the number of hours children and young people spend seated during the school day (Peers, 2017). Swartz et al (2018) suggested that standing desks can reduce children and young people's sedentary behaviour during the school day. This finding is supported by a systematic review conducted by Sherry, Pearson, and Clemes (2016) who assessed the impact of standing desks within the school classroom and identified three studies that found that standing desks positively affected energy expenditure during school lessons. Standing desks were found to increase children's energy expenditure by approximately 26%, however, the studies only measured the effects of standing desks on children's energy expenditure over two hours (Sherry et al, 2016).

There have been substantial technological advances within the last decade (Mishra et al, 2014). Cooper and Morton (2018) and Sholjakova (2019) suggested that these advances have contributed towards the worldwide obesity epidemic, as food production is now more streamlined and there is even a mass market for unhealthy food, which is directed at children and young people. Domingues-Montanari (2017) and Griffiths (2010) suggested that

technological advances, which have been integrated and become a fundamental part of everyday life, influence sedentary behaviours. Furthermore, the primary cause of sedentary behaviour in children and young people is often attributed to media use and screen time (Leung, Agaronov, Grytsenko, & Yeh, 2012; Mameli, Fabiano, & Zuccotti, 2014). This finding is supported by a report on media use, released by The Office of Communications (2017), that highlighted young people aged 12-15 years spend approximately 21 hours per week online, 18 hours spent on mobile phones, approximately 14 hours spent watching television, and around 12 hours gaming.

The home environment and the people living within it can greatly influence children and young people's sedentary behaviours (Knowles, Kirk, & Hughes, 2014). It has been stated by Maitland et al (2013) and Van Der Geest et al (2017) that parents can greatly influence children and young people's sedentary behaviours. Granich, Rosenberg, Knuiman, and Timperio (2010) substantiated this finding, reporting that parents can reinforce sedentary media use behaviours; this occurs when families co-watch television programs and movies and label it as family time. Therefore, children who participate in sedentary behaviours with their parents, generally spend more time sedentary (Maitland et al, 2013). Conversely, Solomon-Moore et al (2017) found that parents with a negative attitude towards their children's screen viewing, and parents who limited screen-viewing behaviours had children who displayed lower television, computer, and smartphone viewing on weekdays and on the weekend. Trost, Kerr, Ward, and Pate (2001) reported that parents can influence children and young people's sedentary behaviours and found that overweight and obese children were less likely to have a physically active father or a physically active male role model. Therefore, children and young people's vicarious experiences of parent's behaviours can strongly influence sedentary behaviours (Maitland et al, 2013; Trost et al, 2001).

Recent research has suggested that siblings can influence children and young people's sedentary behaviours (Kracht & Sisson, 2018). Kracht and Sisson (2018) conducted a meta-analysis and systematic review on the influence of siblings on children's physical activity

levels and reported that children with siblings generally exhibited lower levels of sedentary behaviour and higher levels of physical activity. Conversely, it has been stated by Granich et al (2010) that same-sex siblings can encourage sedentary behaviours, as a same-sex sibling is more likely to participate in sedentary behaviours with a young person. Children and young people with siblings may exhibit lower levels of sedentary behaviour, however, siblings may still encourage sedentary behaviours. As children move into adolescence (around 12 years old) they spend more time with their peers (Kracht & Sisson, 2018). Peers then have a greater influence on sedentary behaviours than siblings or parents (Kracht & Sisson, 2018).

Coombs, Shelton, Rowlands, and Stamatakis (2013) revealed that socioeconomic status could strongly influence sedentary behaviours in children and young people. Coombs et al (2013) reported that children and young people aged 5-15 years in a low socioeconomic position spent more time engaging in sedentary media use behaviours, such as watching TV, than children and young people in a high socioeconomic position. This finding is supported by Mielke et al (2017) who conducted a systematic review and meta-analysis on the socioeconomic correlates of sedentary behaviour in young people and identified 39 studies which found that sedentary behaviour is higher among young people from a low socioeconomic background.

There are numerous dangers associated with maintaining high levels of sedentary behaviour for children and young people (de Moraes et al, 2014;2015). Therefore, children and young people should regularly engage in physical activity to try and minimise time spent sedentary throughout the day (Tremblay et al, 2011). Outdoor active play, a form of physical activity, is one of the most prevalent forms of physical activity for children aged 1-11 years in the UK (Sport England, 2018).

1.3 The importance of outdoor active play and the key issues surrounding it

Outdoor active play is defined as any unstructured outdoor physical activity, such as games of tig, street play, catching, and kicking games (Brockman, Jago, & Fox, 2011a; Early

Childhood Development, 2019; Lee et al, 2015a; Veitch, Salmon, & Ball, 2007). Outdoor active play incorporates regular bursts of moderate-to-vigorous physical activity and should raise children and young people's heart rates (Australian Capital Territory Government, 2019; Climbing Frames, 2020). Furthermore, outdoor active play is often defined as a fun and enjoyable form of unstructured physical activity by children and young people (Curtis, Hinckson, & Water, 2012; Lee et al, 2015a). Although outdoor active play can be supervised by parents in the home environment and surrounding neighborhood, this study will focus on outdoor active play when it is driven by young people and free from adult supervision and rules.

Payne et al (2013) reported that outdoor active play was the largest contributor to children and young people's overall physical activity (boy = 48%, girls = 53%). However, with increasing age, the contribution of outdoor active play decreased (Payne et al, 2013). This finding is substantiated by Sport England (2018) who highlighted that outdoor active play was the most prevalent activity for children and young people in years five and six (aged 9-11 years). However, in years seven and eight (aged 11-13 years), outdoor active play levels decreased by 15%.

Outdoor active play is a form of physical activity, thus, the numerous physical and social benefits associated with regular engagement in physical activity apply to outdoor active play (Janssen & LeBlanc, 2010; The World Health Organization [WHO], 2011; Toy Industries of Europe, 2012). Outdoor active play can help improve children and young people's cardiovascular system, improve their cardiorespiratory system, improve flexibility, improve bone health, and help develop and strengthen muscles (DiVasta & Gordon; 2013; WHO, 2011). A study conducted by Ahmed et al (2017) substantiated these claims, reporting that active young people aged 11-17 years scored higher on health-related fitness tests than inactive young people. Young people who regularly participated in sport and physical activity, voluntarily participated in training or conditioning programs, or participated in school games and tournaments were categorised as active, whereas young people who did meet

any of the conditions above were categorised as inactive (Ahmed et al, 2017). Young people completed a muscular strength test (chin-ups), a muscular endurance test (bent-knee-sit-ups), a cardiorespiratory endurance test (12-minuted run/walk), and a flexibility test (sit and reach test) (Ahmed et al, 2017). The active young people (n=100) scored approximately 40% higher on the muscular strength test, approximately 32% higher on the muscular endurance test, approximately 13% higher on the cardiorespiratory endurance test, and approximately 23% higher on the flexibility test than inactive young people (n=100) (Ahmed et al, 2017). The findings of Ahmed et al's (2017) study suggest that regular engagement in physical activity can help improve young people's cardiorespiratory fitness, muscular strength, muscular endurance, and flexibility.

Outdoor active play allows children and young people to develop their social skills by practicing their decision-making skills and learning to resolve conflicts, while providing an opportunity to be spontaneous and creative (Ginsburg et al, 2007). Ginsburg et al (2007) stated that the acquisition of these attributes led to increased confidence in children and young people. However, Sandford, Duncombe, Mason, and Butler (2015) argued that children and young people's level of engagement in play is influenced by their levels of physical, social, and creative competence. Sandford et al (2015) defined children and young people's physical, social, and creative competence during play as "their ability to use the equipment on offer, their ability to use their creativity to enhance their play, and their ability to play with others" (p.155). As a result, children and young people with lower levels of competence do not play as often, or for as long as those children and young people with higher levels of competence (Sandford et al, 2015). Sandford et al's (2015) findings highlight the importance of physical, social, and creative competence to children and young people's outdoor active play levels.

The benefits of outdoor active play for children and young people extend to psychological benefits (The National Health Service [NHS], 2018; Veselska, Geckova, Reijneveld, & van Dijk, 2011). NHS (2018) released a report on the benefits of exercise for children, young

people, and adults, and reported that regular engagement in exercise can help reduce symptoms of depression in children, young people, and adults. Veselska et al (2011) explored the role of self-esteem, self-liking, self-competence, and self-efficacy in mediating young people's physical activity levels and substantiated the finding that regular engagement in physical activity has numerous psychological benefits for young people. Veselska et al (2011) collected data from 501 young people aged 13-15 years (243 boys and 258 girls) using the Self-competence/Self-liking Scale (Tafarodi & Swann, 1995), the Rosenberg's Self-esteem Scale (Rosenberg, 1965), and the Self-efficacy Scale (Sherer et al, 1982) and reported that physically inactive boys and girls have lower self-liking, lower social self-efficacy, lower positive self-esteem, and lower self-competence than active boys and girls.

Despite the benefits, contemporary British children spend less time engaging in outdoor active play compared to previous generations (Brockman, Fox, & Jago, 2011b). In the UK, in 1973 approximately 75% of children and young people aged 15 years and under were observed engaging in outdoor active play near their homes. In contrast, in 2005 approximately 15% of children and young people aged 15 were observed engaging in outdoor active play near their homes (Brockman et al, 2011b). Safety concerns have been identified as a possible contributing factor in the decrease in children's outdoor active play levels (Brockman et al, 2011b; Encyclopaedia on Early Childhood Development, 2019). Brockman et al (2011a) reported that children aged 10-11 years felt threatened when strangers and older children encroached on preferred play spaces, which subsequently reduced outdoor active play levels. These safety concerns were shared by parents who implemented rules, such as curfews or location rules, which were designed to protect children but restricted their outdoor active play (Brockman et al, 2011a). This finding is supported by Veitch, Bagley, Ball, and Salmon (2006) who reported that parental safety concerns arose when their children played in locations other than their garden. Parents were concerned about traffic, the presence of strangers, and the presence of older children in preferred play spaces (Veitch et al, 2006). Conversely, Play England (2019) suggested that

parents and children's fear of strangers are not justified, as crime figures have remained relatively unchanged over the last decade. They speculated that safety concerns have arisen from sensationalist media reports, about children being abducted or killed by strangers (Play England, 2019).

Changes in society and parent's perceptions of societal norms are key factors which may contribute to a decrease in outdoor active play rates, as children and young people's outdoor active play opportunities may be limited by what parent's view as good or bad parenting (Lee et al, 2015b). Allowing children and young people to roam free and engage in unstructured play may be deemed bad parenting (Lee et al, 2015b). It has been stated by Hoeben and Weerman (2016) that excessive unstructured play with peers can lead to delinquency behaviour in children and young people aged 11-20 years. This finding is supported by Osgood et al (2013) and Ousey and Wilcox (2007) who found a relationship between time spent with friends in unsupervised and unstructured activities, and delinquency in children and young people aged 11-19 years. Therefore, parents may be reluctant to allow children and young people to engage in excessive unstructured play with peers as it may be deemed bad parenting.

A lack of outdoor active play facilities in the local areas have been identified as a possible contributing factor in the decrease in children and young people's outdoor active play levels (The Association of Play Industries, 2019). A recent survey of over 1000 parents of children and young people aged 2-12 years revealed that 72% of parents who had children or young people with health-related issues such as obesity, believed that a lack of outdoor play facilities in their area played a role in exacerbating their children's health issues (The Association of Play Industries, 2019). Additionally, over 25% of parents with children or young people experiencing mental health problems believed that a lack of outdoor play facilities in their area has played a role in their children's mental health problems (The Association of Play Industries, 2019). Furthermore, 26% of surveyed parents with children or young people who have sleeping problems, believe that a lack of outdoor play facilities in

their area has played a role in their children's sleeping problems (The Association of Play Industries, 2019).

1.4 Initiatives and schemes designed to increase outdoor active play

Playful Childhoods is a Welsh campaign that recognises the benefits of outdoor active play for children and aims to increase children's outdoor active play levels (Playful Childhoods, 2019; Public Health Network, 2019). *Playful Childhoods* educates parents, carers, and grandparents to support children's outdoor active play, and advises on how to create a safe environment so children can engage in outdoor active play at home and in their local community (Playful Childhoods, 2019; Public Health Network, 2019).

In January 2009, the UK government started the *Change4Life* initiative, designed to educate people about the benefits of physical activity and healthy eating (The National Archives, 2010). The aim was to reduce the number of overweight and obese individuals in the United Kingdom (The National Archives, 2010). *Change4Life* advises the population to participate in sport and physical activity and educates people on the benefits of a well-balanced diet (Change4Life, 2019a). Furthermore, *Change4Life* educates children and young people on the benefits of physical activity and recommends that they engage in outdoor active play with friends and family members (Change4Life, 2019b; Change4Life, 2019c).

1.5 Aim and objectives

Despite the benefits, outdoor active play levels decline during the transition from year six (aged 10-11 years) to year seven (aged 11-12 years) (Sport England, 2018). Therefore, trying to understand why there is a decline in children and young people's outdoor active play rates should be a public health target (Brockman et al, 2011b; Sport England, 2018). Therefore, this study's aim is to explore the barriers and motivators to outdoor active play for young people aged 11-12 years (in year seven) by asking young people directly. Although other studies have asked children and young people directly, there is limited recent research conducted on young people aged 11-12 years living in the UK. Furthermore, research that compares the barriers and motivators to outdoor active play between boys' and girls' rates is

limited. This study is unique as it will quantify outdoor active play rates to identify young people with high and low play rates. The barriers and motivators to outdoor active play will be compared between young people with high and low play rates to assess any similarities and differences. The findings of this study may be used to contribute towards strategies, schemes, and interventions to increase outdoor active play levels in the local area for young people, regardless of gender or play rates. The findings may also be used by parents, guardians, and local authorities to help ameliorate barriers to outdoor active play. Local facilities, for example, parks, could be the target location for strategies, schemes, and interventions to increase active play levels for young people.

Previous outdoor active play literature has adopted a qualitative approach to explore the barriers and/or motivators to outdoor active play for children and young people (Brockman et al, 2011a; Curtis et al, 2012; Holt, Lee, Millar, and Spence, 2015; Lee et al, 2015a). This study is unique as it will adopt a mixed method approach, combining quantitative and qualitative data, to explore the barriers and motivators to outdoor active play, comparing boys and girls and young people with high and low play rates.

This study will address gaps in research by exploring the self-reported barriers and motivators to outdoor active play for young people aged 11-12 years living in the UK, comparing boys and girls and young people with high and low play rates.

Aim

To explore the barriers and motivators to outdoor active play for young people aged 11-12 years (year seven).

Objectives

- To identify outdoor active play rates using self-reported questionnaires
- To explore the barriers to outdoor active play via focus groups
- To explore the motivators to outdoor active play via focus groups
- To compare barriers and motivators to outdoor active play between boys and girls

- To compare barriers and motivators to outdoor active play between young people with high and low outdoor active play rates

Chapter 2

Literature Review

This chapter examines fifteen key papers (Brockman et al, 2011a; Caro, Altenburg, Dedding, & Chinapaw, 2016; Cumbo, Jacobs, Leong, & Kanstrup 2014; Curtis et al, 2012; Ergler, Kearns, & Witten, 2016; Holt et al, 2015; Hyndman, Telford, Finch, & Benson, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; NICE, 2009; Pawlowski, Veitch, Andersen, & Ridgers, 2019; Ross & Francis, 2016; The Children's Commissioner for England, 2018; Thompson, Rehman, & Humbert, 2005; Veitch et al, 2007) that explored outdoor active play for children and young people. The aim of this literature review was to uncover the barriers and motivators that play a significant role in children's and young people's decision to engage in outdoor active play. The findings from the 15 key papers will be compared and discussed. The key barriers and motivators extracted from the papers will be examined alongside wider literature. Furthermore, the differences between age and gender will be compared and discussed.

The 15 key papers were analysed and summarised. Twelve of the 15 key studies examined the barriers to outdoor active play for children or young people (Brockman et al, 2011a; Caro et al, 2016; Ergler et al, 2016; Holt et al, 2015; Hyndman et al, 2012; Lee et al, 2015a; NICE, 2009; Pawlowski et al, 2019; Ross & Francis, 2016; The Children's Commissioner for England, 2018; Thompson et al, 2005; Veitch et al, 2007), whereas, 13 of the 15 key studies explored the motivators to outdoor active play (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Ergler et al, 2016; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; NICE, 2009; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005; Veitch et al, 2007). The key barriers identified in these studies were: the environment; personal safety concerns; and parental restrictions. The key motivators identified in these studies were: an opportunity to socialise; for the emotions experienced through play; autonomy; and the environment.

2.1 Procedure

Figure 1 shows the PRISMA systematic approach (PRISMA, 2009) which was used to search for and identify relevant literature. A search string was created, combining the terms: 'outdoor active play', 'active free play', 'active play', 'street play', or 'outdoor play' with either 'barriers' or 'motivators' to identify relevant studies. Several databases were searched: ERIC, PsycINFO, and Scopus as well as Google Scholar, Sport England, and the Youth Sport Trust.

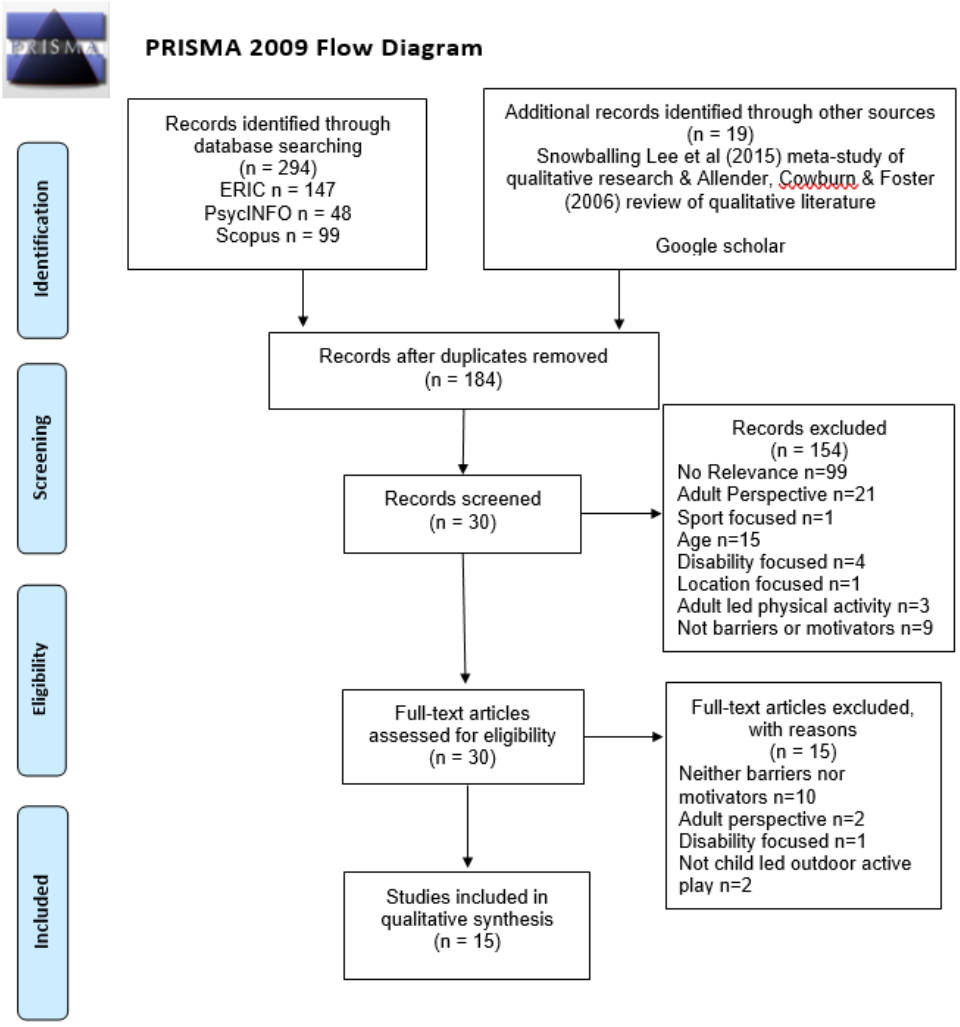


Figure 1: The PRISMA systematic approach used to identify relevant literature

A meta-study conducted by Lee et al (2015b) which examined the determinants of children's independent active free play and a review of qualitative research conducted by Allender,

Cowburn, and Foster (2006) which examined UK children's and adults' reasons for participation and non-participation in sport and physical activity were snowballed for additional studies. However, this did not yield any additional studies as the relevant studies within Lee et al's (2015b) meta-study and Allender et al's (2006) review of qualitative research did not meet the inclusion criteria. The inclusion and exclusion criteria revealed 15 studies (see appendix 1) (Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Ergler et al, 2016; Holt et al, 2015; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; NICE, 2009; Pawlowski et al, 2019; Ross & Francis, 2016; The Children's Commissioner for England, 2018; Thompson et al, 2005; Veitch et al, 2007).

2.1.1 Included studies

Thirteen of the fifteen studies were quality assured using the Critical Appraisal Skills Programme (CASP) (Critical Appraisal Skills Programme, 2018). Then summarised and presented in table 1. Thirteen of the fifteen studies adopted a qualitative methodology (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Ergler et al, 2016; Holt et al, 2015; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005; Veitch et al, 2007). NICE (2009), and The Children's Commissioner for England (2018) released reports on children's outdoor active play and physical activity, however, the methodological details of the studies were not published and therefore their reports were not quality assured using CASP (Critical Appraisal Skills Programme, 2018).

Table 1: The CASP score of the 15 key studies

Year	Author	Location	Aim	Participants	Study Type	Data Collection	Data Analysis	CASP Score
2019	**Pawlowski**, Veitch, Anderson, and Ridgers	Denmark and New Zealand	To gain knowledge on children's perceptions and experiences of factors influencing	Children and young people aged 10-13 years (n= 127) Girls n=66 Boys n=62	Qualitative	Participant observation; go-along group interviews; and participatory	Thematic analysis	25

			their physical activity behaviour during recess			photo interviews		
2018	The Children's Commissioner for England	UK	A report on the importance to children of play and physical activity	Not published	Report	Not published	Not published	NA
2016	Caro, Altenburg, Dedding, and Chinapaw	Holland	To explore child-identified determinants of activity-friendly school playgrounds	Children and young people aged 9-12 years (n=18) Girls n=9 Boys n=9	Qualitative	Mixed sex group meetings	Thematic analysis	28
2016	Ergler, Kearns, and Witten	New Zealand	To explore families outdoor play experiences	Children aged 8-10 years (n=20) Girls n=12 Boys n=8 Parents (n=25)	Qualitative	Interviews and drawing exercises with children. Semi-structured interviews with parents.	Thematic analysis	21
2016	Ross and Francis	America	To describe physical activity perceptions, context, facilitators, and barriers from the perspective of Hispanic immigrant-origin children	Children aged 6-11 years (n=14) Girls n=12 Boys n=2	Qualitative	Child observation; field notes; semi-structured interviews; and a PhotoVoice activity	Thematic analysis	30
2015	Lee, Takenaka, and Kanosue	Japan	To explore the perceptions of fun, barriers, and facilitators to active free play	Children aged 9-11 years (n=60) Girls n=30 Boys n=30	Qualitative	Same sex focus groups	Thematic Analysis	25
2015	Holt, Lee, Millar, and Spence	Canada	To examine factors that influenced childhood active free play – retrospective approach	Young adults aged 18-21 years (n=13) Female n=9 Male n=4	Retrospective Study: Qualitative	Semi-structured walk along interviews	Thematic Analysis	28
2014	Cumbo, Jacobs, Leong, and Kanstrup	Denmark	To present the outcomes of three workshops conducted with children designed to	Children and young people aged 8-12 years (n=11)	Qualitative	Workshops	The Person-Place-Process (PPP) framework	20

			understand key motivators for outdoor play in children					
2012	Curtis, Hinckson, and Water	New Zealand	To determine which factors influence children from areas of socioeconomic deprivation to engage in after school activities	Children and young people aged 8-12 years (n=9) Parents aged 31-43 (n=21)	Qualitative	Mixed-sex focus groups with children Children separated by weight: healthy and overweight One parent focus group Parents phone interview	Thematic Analysis	21
2012	Hyndman, Telford, Finch, and Benson	Australia	To explore the barriers and facilitators of physical activity between primary and secondary school students	Children and young people aged 10-13 years (n=76) Girls n=39 Boys n=39	Qualitative	Mixed sex focus groups and map drawing sessions	Content analysis	25
2011a	Brockman, Jago, and Fox	UK	1)Why do children engage in active play? 2)What factors limit children's active play? 3)What factors facilitate children's active play?	Children aged 10-11 years (n=77) Females n=49 Males n=28	Qualitative	Mixed sex focus groups	Thematic Analysis	28
2009	NICE	Not published	A report on physical activity for children and young people	Not published	Report	Not published	Not published	N/A
2008	Miller and Kuhaneck	Not published	To investigate the perceptions of play experiences and rationales for play choices of children	Children aged 7-11 years (n=10) Girls n=4 Boys n=6	Qualitative	Individual semi-structured interviews	Thematic analysis	26
2007	Veitch, Salmon, and Ball	Australia	To examine active free-play from the	Children and young people	Qualitative	Mixed sex focus groups	Thematic analysis	25

			children's points of view, particularly issues relating to the role and use of public open spaces	aged 6-12 years (n=132) Girls n=71 Boys n=61				
2005	Thompson, Rehman, and Humbert	Not published	To describe the influences on the physically active leisure of students in elementary, junior, and secondary school as voiced by the young people	Children and young people aged 9, 12, 16 years (n=22) Girls n=10 Boys n=12	Qualitative	Individual semi-structured interviews	Interpretative phenomen-ological analysis	23

The identified studies were scored by the clarity of their research aim and objectives; the methodological approach of the study; the validity of their findings; and the significance of their findings (Critical Appraisal Skills Programme, 2018). A summary of the CASP scores is presented in table 2. The mean CASP score of the thirteen studies identified in the review of literature was 25, therefore studies scoring 25 and above were classified as above average, whereas studies scoring 24 and below were classified as below average (Critical Appraisal Skills Programme, 2018). All the studies were reviewed regardless of the CASP score to ensure there were sufficient key studies to analyse and discuss.

Table 2: The CASP scoring system used for the 13 key studies

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Total**
Pawlowski et al (2019)	+	+	+	+	±	±	±	−	+	+	25
Caro et al (2016)	+	+	±	+	+	+	±	+	+	+	28
Ergler et al (2016)	+	±	±	+	±	−	−	±	+	±	21
Ross and Francis (2016)	+	+	+	+	+	+	+	+	+	+	30
Lee et al (2015a)	+	+	±	+	−	±	+	±	+	+	25
Holt et al (2015)	+	+	+	+	±	±	+	+	+	+	28
Cumbo et al (2014)	+	+	±	−	±	±	±	−	+	−	20
Curtis et al (2012)	+	+	±	+	−	−	−	+	±	±	21
Hyndman et al (2012)	+	+	±	+	+	−	±	+	+	±	25
Brockman et al (2011a)	+	+	+	+	±	±	+	+	+	+	28
Miller and Kuhaneck (2008)	+	+	+	−	+	+	±	+	±	+	26
Veitch et al (2007)	+	+	−	+	±	±	±	+	+	+	25

Thompson et al (2005)	+	+	±	±	+	±	−	+	±	±	23

- + Represents criteria achieved and three points given
- ± Represents uncertainty if criteria were achieved and therefore two points given
- − Represents criteria not achieved and one point given
- 1. Was there a clear statement of the aims of the research?
- 2. Is a qualitative methodology appropriate?
- 3. Was the research design appropriate to address the aims of the research?
- 4. Was the recruitment strategy appropriate to the aims of the research?
- 5. Was the data collected in a way that addressed the research issue?
- 6. Has the relationship between researcher and participants been adequately considered?
- 7. Have ethical issues been taken into consideration?
- 8. Was the data analysis sufficiently rigorous?
- 9. Is there a clear statement of findings?
- 10. Will the results help locally?

2.2 Methods

2.2.1 Participants

Eleven of key studies recruited participants based on their residence in purposefully selected geographical locations (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Ergler et al, 2016; Holt et al, 2015; Hyndman et al, 2012; Miller & Kuhaneck, 2008; Pawlowski et al, 2019; Ross & Francis, 2016; Veitch et al, 2007). More specifically, eight of the key studies recruited participants based on neighbourhood indicators of socioeconomic status (Brockman et al, 2011a; Caro et al, 2016; Curtis et al, 2012; Ergler et al, 2016; Hyndman et al, 2012; Pawlowski et al, 2019; Ross & Francis, 2016; Veitch et al, 2007). However, two of the thirteen key studies did not justify their sampling method (Lee et al, 2015a; Thompson et al, 2005).

Five of the thirteen key studies recruited children aged 6-11 years from primary schools (Ergler et al, 2016; Ross & Francis, 2016; Lee et al, 2015a; Brockman et al, 2011a; Miller & Kuhaneck, 2008). Seven of the key studies recruited children and young people aged 6-13 years from primary schools and secondary schools (Caro et al, 2016; Cumbo et al, 2014;

Curtis et al, 2012; Hyndman et al, 2012; Pawlowski et al, 2019; Thompson et al, 2005; Veitch et al, 2007). Whereas Holt et al (2015) recruited young adults aged 18-21 years from a university student population, all of whom resided in the local area (Edmonton, Alberta, Canada). Although Holt et al (2015) conducted a retrospective study, examining factors that included childhood active free play. Sample sizes ranged from nine participants to 132 participants, and the average sample size of the thirteen key studies was 45 participants (girls n=28, boys n=24).

2.2.2 Data collection

Twelve of the thirteen studies collected data from children and young people, and it has been stated by Bell (2007) that children and young people can provide more reliable information about themselves than adults who know them well (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Ergler et al, 2016; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005; Veitch et al, 2007). Therefore, the direct involvement of children and young people in the collection of data was a strength of the twelve key studies (Bell, 2007). Holt et al (2015) conducted a retrospective study and collected data from young adults aged 18-21 years. Participants in Holt et al's (2015) study discussed their experiences of outdoor active play at the ages of 8-11 years old and therefore the direct involvement of young adults was a strength of the study.

Eight of the thirteen key studies utilised focus groups (n=7) or workshops (n=1) to obtain data from participants (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Hyndman et al, 2012; Lee et al, 2015a; Pawlowski et al, 2019; Veitch et al, 2007). Focus groups and workshops allow children and young people to share their views and opinions with other members of the group, within a safe environment (Brockman et al, 2011a). Moreover, many children and young people feel more comfortable being with friends and people they know during a group situation (Tisdall, Davis, & Gallagher, 2009). Additionally, Kennedy, Kools, and Krueger (2001) stated that focus groups free children and

young people from data collection limitations such as literacy and reading levels which can impact quantitative research. Therefore, the use of focus groups and workshops to collect data from children and young people was a strength of previous outdoor active play research.

Semi-structured interviews to obtain data from participants were utilised by five of the thirteen key studies (Ergler et al, 2016; Holt et al, 2015; Miller & Kuhaneck, 2008; Ross & Francis, 2016; Thompson et al, 2005). Semi-structured interviews allow children and young people to share their views and perceptions within a safe environment (Vogl, 2013). Furthermore, they provide children and young people with more speaking time than focus groups (Vogl, 2013). Therefore, semi-structured interviews may provide a more accurate representation of the views and perceptions of an individual. However, conducting and analysing semi-structured interviews are time consuming, therefore may not be an appropriate method of data collection for studies with a large sample size (Vogl, 2013).

Previous outdoor active play research explored the barriers and/or motivators to outdoor active play, comparing boys and girls. However, only one of the fifteen key studies conducted same sex focus groups, (Lee et al, 2015a). Gibson (2007) stated that homogenous focus groups facilitate a comparison between boys and girls, and Christensen and James (2008) believed that boys and girls should be interviewed separately as they may have different communication styles. Therefore, the reliability of the findings from Lee et al's (2015a) study may have been affected by their methodological approach.

2.2.3 Study design

Thirteen of the 15 key studies employed qualitative methods to explore children and young people's experiences and perceptions of outdoor active play (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Ergler et al, 2016; Holt et al, 2015; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005; Veitch et al, 2007). The two additional sources – NICE (2009) and The Children's Commissioner for England (2018) did not publish any

methodological details. A qualitative methodology allows a researcher to explore the beliefs, perceptions, and assumptions of an individual or group of people (Choy, 2014). However, a qualitative methodology cannot produce objectively verifiable results (Choy, 2014). Thirteen key studies explored the self-reported barriers and motivators to outdoor active play for children and young people, therefore, a qualitative methodology was appropriate to meet the studies aim and objectives (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Ergler et al, 2016; Holt et al, 2015; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005; Veitch et al, 2007).

The review of literature highlighted a lack of quantitative and mixed methods research in this area. Quantitative research is the process of collecting and analysing numerical data (Choy, 2014; Creswell, 2014). The objective numerical data obtained through a quantitative approach facilitates the comparison between individuals and groups (Choy, 2014; Creswell, 2014). Furthermore, quantitative research allows a researcher to obtain data from a large sample (Choy, 2014; Creswell, 2014).

Mixed methods research is a methodology that involves collecting, analysing, and integrating quantitative and qualitative data (Creswell, 2014). Mixed method research offsets the weakness of both quantitative and qualitative research (Creswell, 2014; FoodRisC Resource Centre, 2020). Therefore, mixed method research can provide a more complete understanding of the research problem than either quantitative or qualitative approaches alone (Creswell, 2014; FoodRisC Resource Centre, 2020). However, mixed methods research can be time consuming and therefore, may not be appropriate for studies with a large sample size.

The key studies have compared the barriers and motivators to outdoor active play between boys and girls, however, only one of the key studies compared the barriers and motivators between active and inactive children and young people (Lee et al, 2015a). Lee et al (2015a) used a subjective measure of outdoor active play to categorise children as either active or

inactive, which was determined by teacher's daily experiences of children's and young people's outdoor active play levels during school playtime. Although children and young people may have been miscategorised as the researchers did not consider other physical activity (Lee et al, 2015a).

2.3 Barriers to outdoor active play

Twelve of the fifteen key studies explored the barriers to outdoor active play for children or young people (Brockman et al, 2011a; Caro et al, 2016; Ergler et al, 2016; Holt et al, 2015; Hyndman et al, 2012; Lee et al, 2015a; NICE, 2009; Pawlowski et al, 2019; Ross & Francis, 2016; The Children's Commissioner for England, 2018; Thompson et al, 2005; Veitch et al, 2007). Table 3 shows all the barriers to outdoor active play reported in the thirteen key studies. The most frequently reported barriers to outdoor active play in these 12 studies were the environment (ten studies); personal safety concerns (seven studies); and parental restrictions (five studies).

Table 3: The barriers to outdoor active play reported in the key studies

Year	Authors	Barriers	
		Factors	**Sub-factors**
2018	The Children's Commissioner for England	Technology	Social media; playing on video games
		Other constraints	Tiredness; lack of variety
		Personal safety concerns	Presence of older children
		A busy schedule	Too busy
2019	Pawlowski, Veitch, Anderson, and Ridgers	Physical competence	Lack of competence
		Peer influence	Don't play because friends don't play
		Technology	Electronic devices; social media; playing on video games
		Confliction and Exclusion	Didn't enjoy play; not allowed to play
		Environment	Bad weather conditions; crowded facilities; lack of facilities
2016	Caro, Altenburg, Dedding, and Chinapaw	Environment	Broken equipment; access to equipment when facilities are busy; untidy facilities

		Personal safety concerns	Fear of injury; condition of play spaces and equipment; older children bullying behaviours; exclusions from play
		Peer influence	Unfriendly behaviours during play; peers disrupt play
2016	Ergler, Kearns, and Witten	Parental restrictions	Parents unable to provide transport to play locations
		Environment	Winter weather
2016	Ross and Francis	Environment	Lack of facilities; traffic
		Personal safety concerns	Risk of injury
		Physical competence	Not good at it; do not know how to play
		Other constraints	Physical pain/discomforts; smelling bad after exercise;
2015	Lee, Takenaka, and Kanosue	Busy schedule	No time to play; learning other skills; homework
		Environment	Rain
		Other constraints	Health
2015	Holt, Lee, Millar, and Spence	Parental safety concerns	Stranger danger
		Parental restrictions	Stay close to home
2012	Hyndman, Telford, Finch, and Benson	Personal safety concerns	Older children
		Environment	Lack of equipment
2011a	Brockman, Jago, and Fox	Parental safety concerns	Stranger danger; traffic; safety concerns
		Environment	Rain
		Personal safety concerns	Older children
2009	NICE	Peer influence	Peers discourage play
		Environment	Weather
		Other constraints	Personal safety concerns; accessibility
		Parental restrictions	Fear of injury can lead to discouraging play
2007	Veitch, Salmon, and Ball	Environment	Limited play equipment at facilities
		Personal safety concerns	Older children
		Busy schedule	Lack of time; homework; household chores
		Parental restrictions	Needing permission; not being allowed to play independently; fears of traffic
2005	Thompson, Rehman, and Humbert	Parental influence	Parents encourage sedentary behaviour; parents discourage play; parents do not support play

Physical competence	Felt limited by physical ability
Parental safety concerns	Fear of injury
Technology	Watching television; playing on video games
Environment	Weather

2.3.1 The environment

Ten of the twelve key studies reported that the environment was a barrier to outdoor active play (Brockman et al, 2011a; Caro et al, 2016; Ergler et al, 2016; Hyndman et al, 2012; Lee et al, 2015a; NICE, 2009; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005; Veitch et al, 2007). The environment was sub-dived into two sub-themes of weather and outdoor active play facilities.

2.3.1.1 Weather

Six of the ten key studies reported that the weather was a barrier to outdoor active play for children and young people (Brockman et al, 2011a; Ergler et al, 2016; Lee et al, 2015a; NICE, 2009; Pawlowski et al, 2019; Thompson et al, 2005). Research undertaken by Harrison et al (2017) and Harrison et al (2011) found a relationship between weather conditions and physical activity levels in children and young people, furthermore, Harrison et al (2011) reported that rainfall is associated with decreased levels of physical activity in children aged 9-10 years. Children engaged in almost 15 minutes less physical activity on the wettest days compared to days with no rain (Harrison et al, 2011). Three of the key studies reported that rainy weather was a barrier to outdoor active play for children and young people (Brockman et al, 2011a; Lee et al, 2015a; Pawlowski et al, 2019). Engaging in outdoor active play when it was raining was perceived as unenjoyable by children and young people in Brockman et al's (2011a) and Pawlowski et al's (2019) study. Whereas the children and young people in Lee et al's (2015a) study reported that they would not engage in outdoor active play when it was raining because parents would not allow them.

Research undertaken by Chan and Ryan (2009) and Wagner, Keusch, Yan, and Clarke (2019) found a relationship between children's physical activity levels and seasonality, reporting that children and young people's physical activity levels decreased in the winter season, a season associated with snowfall. Two of the key studies supported Chan and Ryan's (2009) and Wagner et al's (2019) findings, suggesting that the winter weather was a barrier to children and young people's outdoor active play (Ergler et al, 2016; Pawlowski et al, 2019). Children and young people in Ergler et al's (2016) and Pawlowski et al's (2019) studies reported that engaging in outdoor active play during the winter season, which is associated with lower temperatures and snowfall, was unenjoyable. Furthermore, both studies reported that children and young people would rather engage in indoor sedentary activities such as watching television, than engage in outdoor active play in winter weather conditions (Ergler et al, 2016; Pawlowski et al, 2019). The findings from Ergler et al's (2016) study may be a result of seasonality, as data was collected during the winter which may account for why the winter weather was reported as a barrier. Whereas Pawlowski et al (2019) collected data from schools located in Denmark, a country that experiences variable weather patterns due to its geographical location (Anderson et al, 2021).

Thompson et al (2005) reported that the weather was a significant barrier, however, did not specify the type of weather, although the findings from Chan and Ryan (2009), Harrison et al (2017), Harrison et al (2011), and Wagner et al (2019) would suggest that rainfall and snowfall were barriers to children's outdoor active play.

2.3.1.2 Facilities

Five of the key studies reported that children and young people perceived outdoor active play facilities and the equipment within them as a barrier to outdoor active play (Caro et al, 2016; Hyndman et al, 2012; Pawlowski et al, 2019; Ross & Francis, 2016; Veitch, et al, 2007). Caro et al (2016), Pawlowski et al (2019), and Ross and Francis (2016) reported that overcrowding in outdoor active play spaces often resulted in children and young people engaging in sedentary behaviours such as sitting, whilst waiting for play spaces and

equipment to become available. This finding is supported by a study conducted by Chen, Yuan, and Zhu (2019;2020) who explored the play experiences of 10 children aged 4-7 years and their parents and reported that overcrowding in parks was a barrier to outdoor active play. The parents suggested that overcrowding was a barrier as they had to wait for play spaces and equipment to become available, and if play spaces and equipment did not become available then parents would take their children home (Chen et al, 2019;2020).

The remaining two studies who reported the facilities and equipment as a barrier, found that the absence of new equipment was a significant barrier to children's and young people's outdoor active play (Hyndman et al, 2012; Veitch et al, 2007). Both studies indicated that children and young people found the play equipment uninteresting and boring once they had used it repeatedly, therefore, children and young people were discouraged from visiting play spaces that lacked new and exciting equipment (Hyndman et al, 2012; Veitch et al, 2007). Veitch et al (2007) suggested that a lack of challenging and exciting equipment was a significant factor that discouraged children and young people from visiting specific parks more often. Similarly, Hyndman et al (2012) reported that children and young people would only visit playgrounds that had new and exciting equipment. This finding is supported by Jansson (2015) who reported that playground equipment was an important aspect that motivated children to use playgrounds. Jansson (2015) conducted mixed sex group interviews with 141 children aged 6-11 years and suggested that challenges and thrills attracted children to playgrounds, and the type of playground equipment available determined whether the play area was considered challenging. Hyndman et al's (2012) and Veitch et al's (2007) findings suggest that an absence of new and exciting equipment was not too greater barrier to overcome as children and young people would still engage in outdoor active play, albeit at different play locations. This may account for why only two of the key studies reported that an absence of new and exciting equipment was a barrier to outdoor active play (Hyndman et al, 2012; Veitch et al, 2007).

Two of the twelve key studies did not report the environment as a barrier (Holt et al, 2015; The Children's Commissioner for England, 2018). Holt et al (2015) conducted a retrospective study with young adults aged 18-21 years and therefore recall bias may have affected the validity of their findings (Khare & Vedel, 2019). Whereas The Children's Commissioner for England (2018) did not report the methodological details of their study and therefore it is unclear why the environment was not reported as a barrier.

2.3.2 Personal safety concerns

Modern-day children spend less time engaging in outdoor active play compared to previous generations (Carver, Timperio, & Crawford, 2008; Hillman, 2006; Karsten, 2005). Previous physical activity research has attributed this decline in outdoor active play levels to a lack of neighbourhood safety (Brockman et al, 2011a; Carver et al, 2008; Davison & Lawson, 2006). This may account for why seven of the twelve key studies reported that children and young people expressed personal safety concerns as a barrier to outdoor active play (Brockman et al, 2011a; Caro et al, 2016; Hyndman et al, 2012; NICE, 2009; Ross & Francis, 2016; The Children's Commissioner for England, 2018; Veitch et al, 2007). Five of these studies reported that children and young people cited the presence of older children in preferred play spaces as a barrier to outdoor active play (Brockman et al, 2011a; Caro et al, 2016; Hyndman et al, 2012; The Children's Commissioner for England, 2018; Veitch et al, 2007). Whereas two studies reported that the fear of injury was a barrier (Caro et al, 2016; Ross & Francis, 2016).

2.3.2.1 Older children

Older children were perceived by the younger children as intimidating when they encroached on preferred play spaces. In addition, their bullying behaviours such as verbal insults, were seen as threatening and therefore younger children avoided outdoor play in these spaces (Brockman et al, 2011a, Caro et al, 2016; The Children's Commissioner for England, 2018; Hyndman et al, 2012; Veitch et al, 2007). Brockman et al (2011a) also reported that the presence of older children was a more prevalent barrier for girls aged 10-11 years living in

England, a finding not reported by any of the other key studies. A report on bullying in England by the Department for Education (2018a) revealed that girls aged 10-15 years were more likely to be bullied by other children than boys aged 10-15 years, which may account for Brockman et al's (2011a) findings.

The Children's Commissioner for England's (2018) report on children's outdoor play revealed that the presence of older children in preferred play spaces was a barrier to outdoor active play. Younger children reported that older children were perceived as intimidating when they encroached on play spaces, furthermore, older children congregated in play spaces and dominated equipment (The Children's Commissioner for England, 2018). Therefore, younger children had to wait for play spaces and equipment to become available or relocate to a different play space (The Children's Commissioner for England, 2018).

Research undertaken by Ahlport et al (2008) and Horton and Kraftl (2018) supported the finding that older children are a barrier to physical activity for younger children. Horton and Kraftl (2018) explored the determinants of playground use and reported that children and young people aged 5-13 years cited older children as a barrier to playground use. Children and young people perceived older children as intimidating when they gathered in playgrounds and therefore younger children would intentionally avoid these playgrounds (Horton & Kraftl, 2018). Similarly, Ahlport et al (2008) explored the barriers to active travel for children aged 9-11 years and found that older children often bullied younger children whilst they walked to and from school. This was a significant barrier to children's physical activity and was reported as the primary reason why children did not walk to school more often (Ahlport et al, 2008).

2.3.2.2 Fear of injury

Phelan, Khoury, Kalkwarf, and Lanphear (2001) discovered that approximately 75% of all playground injures that received medical attention were a result of falls and many of these, according to Bernardo, Gardner, and Seibel (2001) were the result of falls from equipment.

Mott et al (1997) discovered that the majority of injures that children and young people sustain in a playground environment are a result of playground equipment and playground surfaces, and therefore children and young people may refrain from playing in playgrounds for a fear of getting hurt (Caro et al, 2016; Ross & Francis, 2016).

Two of the key studies reported that children and young people refrained from engaging in outdoor active play for a fear of getting hurt (Caro et al, 2016; Ross & Francis, 2016). Caro et al (2016) explored the determinants of activity-friendly school playgrounds and suggested that children and young people were concerned about their personal safety due to injury whilst engaging in outdoor active play. Children and young people aged 9-12 years refrained from engaging in outdoor active play for fear of getting hurt from broken equipment and damaged surfaces, such as splinters from holding wooden equipment and tripping and falling on loose paving stones (Caro et al, 2016).

Ross and Francis (2016) explored physical activity perceptions, context, facilitators, and barriers from the perspective of Hispanic immigrant-origin children and young people aged 6-11 years. Children reported they would refrain from engaging in outdoor active play for fear of getting hurt by broken and damaged equipment at play spaces (Ross & Francis, 2016). Ross and Francis (2016) collected data from children and young people aged 6-11 years (mean age n=8), and it has been stated by Ollendick, Matson, and Helsel (1984) that younger children aged 7-9 years are more prevalent to be afraid of their environment than children and young people aged 10-18 years, which may account for Ross and Francis' (2016) findings.

2.3.3 Parental restrictions

The safety of children and young people who engage in physical activity is paramount for many parents (Mulvihill, Rivers, & Aggleton, 2000a; Weir, Etelson, & Brand, 2006). Parental safety concerns often led to the formation of rules, which are designed to keep young people safe whilst engaging in physical activity, however, they are often perceived by children and

young people as a barrier (Datar, Nicosia, & Shier, 2013; Kalish, Blanco, Burke, & Lapidus, 2010).

Five of the key studies reported that parental rules were a barrier to children and young people's outdoor active play (Ergler et al, 2016; Holt et al, 2015; NICE, 2009; Thompson et al, 2005; Veitch et al, 2007). Ergler et al (2016) explored families outdoor play experiences and reported that children aged 8-10 years were not allowed to engage in outdoor active play without parental supervision. Similarly, Veitch et al (2007) reported that many younger children aged 6-8 years were not allowed to go to the park without parental supervision and therefore were reliant on parents being available to take them to public open spaces to engage in outdoor active play. The similarities in the findings may be a result of Ergler et al (2016) and Veitch et al (2007) collecting data from a younger sample (children under 9 years), and it has been stated by Brown et al (2008), Fyhri and Hjorthol (2009), and Prezza et al (2001) that independent mobility increases with increasing age.

One of the key studies reported that location rules were a barrier to outdoor active play (Holt et al, 2015). Holt et al (2015) reported that parents had rules that confined children's play to a designated area, usually near their home. This was perceived by children as a significant barrier to outdoor active play as it limited independent mobility (Holt et al, 2015). This finding was supported by a study by Kercood et al (2015) of over 500 parents of children aged four to 18 years who found that safety concerns led to parents imposing location rules on children and young people's physical activity.

NICE (2009) released a report on physical activity for children and young people and reported that parents' fear of injury prevented children and young people being physically active through outdoor active play. Although NICE (2009) did not publish the methodological details of the study, the findings are supported by wider literature (Boufous, Finch, & Bauman, 2004; Telford, Finch, Barnett, Abbott, & Salmon, 2012). Telford et al (2012) examined the relationship between parent's concerns about sport safety and injury risk and the amount of physical activity their children undertook. Telford et al (2012) reported that for

children and young people (aged 6-11 years), parents' perceptions of injury risk were negatively associated with moderate to vigorous physical activity levels. Similarly, Boufous et al (2004) examined parental safety concerns as a barrier to children's sport and physical activity. Boufous et al's (2004) study of over 5500 parents of children aged 5-12 years found that approximately twenty-five percent of parents discouraged their children from playing sport because of fears of injury. Furthermore, parental safety concerns were a greater barrier for boys – approximately 34% of boys were discouraged from playing sport because of safety concerns, whereas only 16% of girls were discouraged from participating in sport.

2.4 Motivators to outdoor active play

Thirteen of the fifteen key studies explored the motivators to outdoor active play for children or young people and the motivators are reported in table 4 (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Ergler et al, 2016; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; NICE, 2009; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005; Veitch et al, 2007). The key motivators noted in these studies were an opportunity to socialise (twelve studies); for the emotions experienced through play (seven studies); autonomy (six studies); and the environment (five studies).

Table 4: The motivators to outdoor active reported in the 13 key studies

Year	Authors	Motivators	
		Factors	Sub-factors
2019	Pawlowski, Veitch, Anderson, and Ridgers	An opportunity to socialise	Play because friends play
2016	Caro, Altenburg, Dedding, and Chinapaw	Health-related benefits	To be physically active
		For the emotions experienced through play	Fun the most important aspect of play
		Environment	Equipment is fun to use; aesthetics of facilities; large playground with more room
		An opportunity to socialise	Playing with friends; be surrounded by others

		Autonomy	Play without rules; playing without instructions
2016	Ergler, Kearns, and Witten	An opportunity to socialise	Meeting friends
		For the emotions experienced through play	Play is fun
		Environment	Weather
2016	Ross and Francis	An opportunity to socialise	Having fun with friends; making new friends
		Health-related benefits	Getting stronger; getting more muscles (boys only); getting fitter
		For a sense of achievement	Getting better
		Autonomy	Opportunity to explore their imagination
2015	Lee, Takenaka, and Kanosue	An opportunity to socialise	Be with friends; help each other; be with others
		For a sense of achievement	Easy to do; enjoy achieving it
		For the emotions experienced through play	Feeling excited; feeling of sudden intense; relaxing
		Autonomy	Without instructions; decide their own rules; put a story into activities
2014	Cumbo, Jacobs, Leong, and Kanstrup	For the physical challenge	Enjoy the physical challenge;
		Autonomy	Freedom; explore imagination; adventure
		Environment	Be around nature
2012	Curtis, Hinckson, and Water	An opportunity to socialise	Socialising; playing with friends
		For the emotions experienced through play	Outdoor active play is fun
2012	Hyndman, Telford, Finch, and Benson	An opportunity to socialise	Playing with friends
		For the emotions experienced through play	Fun with friends; play provides a thrill
2011a	Brockman, Jago, and Fox	An opportunity to socialise	Be with friends; be with others
		To prevent boredom	Alternative to sedentary behaviour
		Health-related benefits	Physical benefits; mental benefits
		Autonomy	Escape from adult control; without instructions
2009	NICE	Peer influence	Peers encourage play

		Environment	Weather
		Parental influence	Parents support play; parents encourage play
2008	Miller and Kuhaneck	For the emotions experienced through play	Play is fun; feeling happy
		For the physical challenge	Enjoy a challenge;
		An opportunity to socialise	Playing with friends; siblings; pets
2007	Veitch, Salmon, and Ball	For the emotions experienced through play	Enjoyed play; enjoyed playing with friends
		An opportunity to socialise	Playing with friends; spend time with family
		Environment	Be around nature
		Autonomy	Freedom from adults; freedom from older children
2005	Thompson, Rehman, and Humbert	Peer influence	Playing with friends; friends encourage participation
		Parental influence	Parents support play

2.4.1 An opportunity to socialise

Friends are an important part of a child's everyday life, to the extent that they can influence diet and exercise behaviours (Cope, Bailey, & Pearce, 2013; Wolff & Crockett, 2011). The findings from a review conducted by Maturo and Cunningham (2013) concluded that children and young people's (aged 5-18 years) physical activity was positively associated with encouragement from friends, engagement with friends, and friends' own physical activity choices. Similarly, Salvy et al (2009; 2008) explored whether the presence of friends increased the motivation to be physically active in overweight and non-overweight young people aged 12-14 years and discovered that friendships increased the motivation for these young people to be physically active.

An opportunity to socialise with friends was reported as a significant motivator to outdoor active play by the majority of the key studies (Brockman et al, 2011a; Caro et al, 2016; Curtis et al, 2012; Ergler et al, 2016; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; NICE, 2009; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005; Veitch et al, 2007). In all but one of these 12 studies, the children and young people reported that outdoor active play was more enjoyable with friends than alone, therefore, friends

provided a crucial motive to engage. Children and young people were motivated to engage in outdoor active play as it provided an opportunity to spend time with friends, furthermore, some children and young people reported that they would not engage in outdoor active play alone, and therefore friends mediated play levels. The sense of enjoyment experienced through the social aspects of outdoor active play was a key motive for children and young people in all but one of the 12 key studies. Despite the methodological differences between the twelve studies, the findings were similar. This confirms the influence friends can have on children and young people's outdoor active play behaviours.

Only one of the thirteen studies did not report that an opportunity to socialise was a significant motivator (Cumbo et al, 2014). Cumbo et al (2014) only collected data from 11 children and young people aged 8-12 years, therefore, the study's small sample size may account for why the social aspects of play were not reported as a motivator (Faber & Fonseca, 2014). Furthermore, Cumbo et al (2014) scored the lowest of the key studies on the Critical Appraisal Skills Programme as the description of the recruitment phase was vague and the data analysis was not sufficiently rigorous. Thereby, Cumbo et al's (2014) findings may have been affected by the study's methodological rigour (Faber & Fonseca, 2014; Tobin & Begley, 2004).

Children are often motivated to engage in physical activity with a specific group of friends such as school friends or neighbourhood friends (Jago et al, 2009). Jago et al (2009) explored the influence of friendship groups on children's physical activity levels and suggested that friendship groups influence how physical activity is initiated and maintained among children aged 10-11 years. Jago et al (2009) identified three key types of friendship groups which influence children's physical activity: school friends; neighbourhood friends (friends who reside close to a child's home); and other friends (friends from activities such as swimming and non-physical activity clubs such as scouts or family friends). Two of the key studies reported that children spoke of being motivated to engage in outdoor active play to socialise with a specific group of friends (Brockman et al, 2011a; Ross & Francis, 2016).

Ross and Francis (2016) found that neighbourhood friends such as the next-door neighbour were the most popular companions for outdoor active play. Similarly, Brockman et al (2011a) explored the barriers, motivators, and facilitators to children's outdoor active play and reported that children aged 10-11 years spoke of being motivated to play to socialise with neighbourhood friends.

2.4.2 For the emotions experienced through play

It has been widely reported that the experience of fun is an important aspect of physical activity and sport for children and young people (Ciocan, Milon, & Mares, 2017; McCullagh, Matzkanin, Shaw, & Maldonado, 1993; Weiss, 2000). Ciocan et al (2017) explored children's motivators to sport and suggested that having fun was a significant motivator for children aged 9-11 years. Similarly, Weiss (2000) reported that having fun during physical activity was essential if children aged 5-9 years were to maintain and increase levels of activity. However, Quarmby and Dagkas (2010) reported that fun and enjoyment were prominent motivators to physical activity for boys but not girls. Quarmby and Dagkas' (2010) study was part of a larger research project which recruited 34 young people aged 11-14 years from a secondary school in the UK, but only analysed the data collected from six young people (four boys and two girls). Thus, the small sample size may have affected the reliability and generalisability of the findings (Boddy, 2016; Vasileiou, Barnett, Thorpe, & Young, 2018).

Seven of the key studies reported that children and young people emphasized that the experience of fun was an important aspect of outdoor active play (Caro et al, 2016; Curtis et al, 2012; Ergler et al, 2016; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; Veitch et al, 2007). Fun was reported as a significant factor in children and young people's perception of play and their choice of play (Miller & Kuhaneck, 2008). Children and young people would not engage in outdoor active play if it was not fun, therefore, fun was an important factor which influenced children and young people's decision to continue playing (Caro et al, 2016; Curtis et al, 2012; Ergler et al, 2016; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; Veitch et al, 2007).

Five of the key studies reported that children and young people enjoyed playing with friends (Brockman et al, 2011a; NICE, 2009; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005). Playing with friends made outdoor active play more enjoyable than playing alone as it allowed children and young people to engage in activities they could not do on their own, such as games of tig. Playing with friends allowed children and young people to socialise whilst providing competition which made outdoor active play more enjoyable. Research conducted by Weiss (2000) supported the finding that the presence of friends makes physical activity more enjoyable for children and young people. Weiss (2000) discovered that children and young people aged 6-18 years reported greater sport and physical activity enjoyment and a stronger desire to stay involved in sport and physical activity when they engaged with friends.

Cumbo et al (2014) identified the motivators to outdoor active play and reported that children and young people aged 8-12 years enjoyed the physical challenges of outdoor active play such as climbing a tree. The physical challenges resulted in positive emotions that were cited by children and young people as a crucial motive to engage, furthermore, physical challenges helped children and young people develop their physical abilities which was also cited as a motivator. This finding was supported by wider literature conducted by Theeboom, De Knop, and Weiss (1995) who discovered that children and young peoples aged 8-12 years were motivated to engage in sport to develop their physical abilities. Despite the methodological differences between the thirteen key studies, the findings were similar. This confirms the importance of fun and enjoyment in motivating children and young people to engage in outdoor active play.

2.4.3 Autonomy

Autonomy refers to the freedom from external control or external influences (Roemmich et al, 2012). The review identified six key studies which reported that children and young people engaged in outdoor active play because they enjoyed the degree of autonomy that outdoor active play provided (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014;

Lee et al, 2015a; Ross & Francis, 2016; Veitch et al, 2007). Three of the key studies reported that children and young people spoke of being motivated to engage in outdoor active play as it allowed them the freedom to express themselves and explore their imaginations (Cumbo et al, 2014; Lee et al, 2015a; Ross & Francis, 2016). Cumbo et al (2014) reported that many children and young people enjoyed using imaginary narratives as the core foundation of their outdoor active play. Therefore, outdoor active play provided an opportunity to be imaginative, such as the creation of characters, places, and activities which other forms of physical activity did not provide. Similarly, Ross and Francis (2016) and Lee et al (2015a) reported that children enjoyed engaging in creative play as it provided them with an opportunity to explore their imaginations with the creation of games. These findings agree with Ginsburg et al (2007) who noted that the unstructured and informal nature of outdoor active play allowed children to express their views, emotions, and frustrations whilst providing an opportunity to be spontaneous and creative.

Three of the key studies reported that children and young people valued the opportunity to play without parental control or rules (Brockman et al, 2011a; Caro et al, 2016; Veitch et al, 2007). The three studies reported that adults restricted play by imposing rules such as not being allowed to climb trees when they supervised outdoor active play. Children and young people believed these rules made outdoor active play less enjoyable, therefore, were motivated to play independently to escape parental rules (Brockman et al, 2011a; Caro et al, 2016; Veitch et al, 2007). Research conducted by Panter, Jones, and van Sluijs (2008) supported this finding, reporting that children and young people aged 5-18 years were motivated to engage in physical activity for independence from parents. Children and young people valued the opportunity to engage in physical activity without parental rules or restrictions (Panter et al, 2008).

The similarities in the findings may be a result of methodological similarities between the key studies – all three studies collected data from children and young people using focus groups (Brockman et al, 2011a; Caro et al, 2016; Veitch et al, 2007). Research has suggested that

focus groups are an effective method for collecting data for children and young people – focus group allow children and young people to share their views and perceptions with other members of the group, within a safe and comfortable environment (Brockman et al 2011a; Kennedy et al, 2001; Tisdall et al, 2009).

2.4.4 The environment

The environment was reported as a motivator to children and young people's outdoor active play by five of the key studies (Caro et al, 2016; Ergler et al, 2016; Cumbo et al, 2014; NICE, 2009; Veitch et al, 2007). The environment was sub-dived into two sub-themes of weather and outdoor active play facilities.

2.4.4.1 Facilities

Three of the key studies reported that outdoor active play facilities motivated children and young people to engage (Caro et al, 2016; Cumbo et al, 2014; Veitch et al, 2007). Children and young people valued the aesthetics of outdoor active play facilities such as a clean play setting, and the presence of trees, bushes, and flowers, furthermore, demonstrated a desire to interact with nature whilst playing such as climbing a tree (Caro et al, 2016; Cumbo et al, 2014; Veitch et al, 2007). Children and young people reported that interacting with nature, such as hiding behind trees and jumping over bushes made outdoor active play more enjoyable, and therefore the presence of nature at play facilities was a significant motivator (Caro et al, 2016; Cumbo et al, 2014; Veitch et al, 2007). Research conducted by Raney, Hendry, and Yee (2019) supported this finding, reporting that adding green space to playgrounds such as trees, plants, and grass increased children and young people's (aged 6-13 years) physical activity levels. The similarities in the findings between the three key studies may be a result of methodological similarities – all three studies explored the role of outdoor active play locations on children and young people play (Caro et al, 2016; Cumbo et al, 2014, Veitch et al, 2007).

Caro et al (2016) also reported that children and young people aged 9-12 years spoke of being motivated to engage in outdoor active play to use the equipment at preferred locations. Children and young people reported that fixed equipment such as climbing frames, slides, and tumble bars, and loose equipment such as balls and accompanying materials at playgrounds made play more enjoyable, and therefore was a crucial motive to engage (Caro et al, 2016). Research conducted by Pawlowski et al (2019) supported this finding, reporting that loose equipment such as balls, ropes, and chalk motivated girls aged 10-13 years to engage in physical activity. Loose equipment made physical activity more enjoyable as it enabled different kinds of activity which seemed important for girls (Pawlowski et al, 2019). However, Pawlowski et al (2019) only collected data from girls aged 10-13 years, therefore the findings cannot be generalised to represent the views of boys aged 10-13 years.

2.4.4.2 Weather

Only two studies by Ergler et al (2016) and NICE (2009) reported that the weather motivated children and young people to engage in outdoor active play. Ergler et al (2016) explored children's seasonal play and collected data from 20 children aged 8-10 years using interviews and drawing exercises and reported that children spoke of being motivated to engage in outdoor active play when the weather was warm outside - warm weather is classified as temperatures between 18 and 20 degrees Celsius in the UK (Harrison et al, 2017). Ergler et al (2016) collected data in Summer, a season associated with warm temperature, which may account for their findings. NICE (2009) released a report on children and young people's physical activity and reported that the weather can motivate children and young people to engage in outdoor active play. However, NICE (2009) did not publish the methodological details of the study.

Harrison et al (2017) used data from 23,451 young people in the International Children's Accelerometery Database (ICAD) and found a positive linear relationship between an increase in temperature and an increase in physical activity levels amongst young people, which may account for Ergler et al's (2016) findings. Similarly, Bélanger et al (2009)

examined the effect of season and daily weather conditions on physical activity over 5 years during adolescence and reported that physical activity levels increased one to two percent for every 10 C increase in temperature for adolescences aged 12-18 years.

One of the key studies reported that the weather can facilitate outdoor active play. Brockman et al (2011a) reported that snowfall can facilitate outdoor active play by providing children with additional opportunities and activities such as sledging and snowball fights with friends. However, Brockman et al (2011a) collected data in Winter, a season associated with snowfall in the UK, which may account for their findings (Met Office, 2020).

Conclusion

This chapter aimed to identify studies that explored the barriers and motivators to outdoor active play for children and young people. The PRISMA systematic approach (PRISMA, 2009) was used to search for and identify relevant literature, relevant studies were then quality assured using the Critical Appraisal Skills Programme (CASP) (Critical Appraisal Skills Programme, 2018). This process revealed 15 key studies that explored the barriers and motivators to outdoor active play for children and young people. Thirteen of the key studies employed qualitative methods to explore children and young people's experiences and perceptions of outdoor active play (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Ergler et al, 2016; Holt et al, 2015; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005; Veitch et al, 2007). The additional two sources did not publish any methodological details (NICE, 2009; The Children's Commissioner for England, 2018).

Twelve of the fifteen key studies explored the barriers to outdoor active play (Brockman et al, 2011a; Caro et al, 2016; Ergler et al, 2016; Holt et al, 2015; Hyndman et al, 2012; Lee et al, 2015a; NICE, 2009; Pawlowski et al, 2019; Ross & Francis, 2016; The Children's Commissioner for England, 2018; Thompson et al, 2005; Veitch et al, 2007). The key barriers identified in these studies were: the environment; personal safety concerns; and

parental restrictions. Thirteen of the fifteen key studies explored the motivators to outdoor active play (Brockman et al, 2011a; Caro et al, 2016; Cumbo et al, 2014; Curtis et al, 2012; Ergler et al, 2016; Hyndman et al, 2012; Lee et al, 2015a; Miller & Kuhaneck, 2008; NICE, 2009; Pawlowski et al, 2019; Ross & Francis, 2016; Thompson et al, 2005; Veitch et al, 2007). The key motivators identified in these studies were: an opportunity to socialise; for the emotions experienced through play; autonomy; and the environment.

Chapter 3

Methods

This chapter will discuss the importance of choosing the most suitable methodology to ensure the study's aim and objectives were met. An explanatory sequential mixed methods design was chosen as the most appropriate methodology to obtain baseline outdoor active play rates and to explore the barriers and motivators to outdoor active play for young people. An explanatory sequential design comprised of a two-phase approach: collecting and analysing quantitative data followed by the collection and analysis of the qualitative data. Although, quantitative data and qualitative data were not synthesised because it was not required.

3.1 Methodology

The correct methodology must be adopted to ensure the study's aim and objectives were met (Creswell & Plano Clark, 2018). This study required two phases of sampling, data collection, and data analysis to discover: 1) the outdoor active play rates of a sample of young people, to identify young people with high and low play rates and 2) to identify the barriers and motivators to outdoor active play, comparing boys and girls and young people with high and low play rates. To identify young people with high and low play rates from a large sample; outdoor active play levels were quantified. Thus, phase one adopted a quantitative approach. The second phase of data collection and analysis was required to identify and explore the barriers and motivators to outdoor active play, comparing boys and girls and young people with high and low play rates. Therefore, phase two adopted a qualitative methodology, to ensure that young people's perceptions of the barriers and motivators to outdoor active play were identified and explored. The present study adopted a mixed method methodology and incorporated quantitative and qualitative research to meet the aim and objectives.

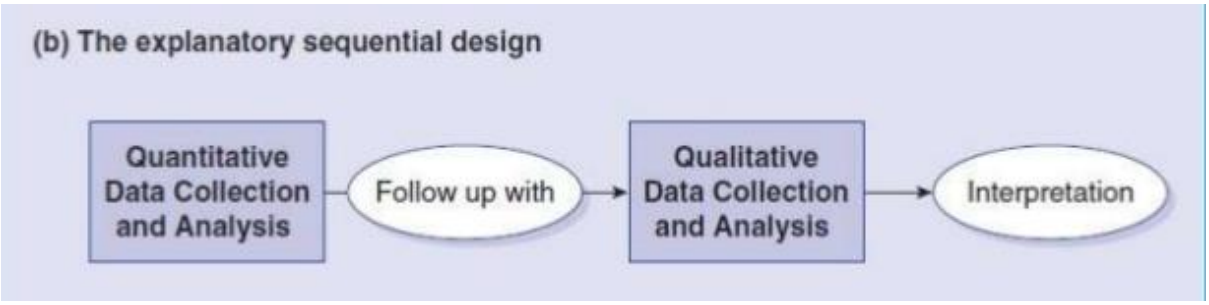
Mixed method research offsets the weakness of both quantitative and qualitative research (Creswell, 2014; FoodRisC Resource Centre, 2020). Quantitative research is weak in

understanding the context in which people behave, which qualitative research makes up for (Creswell, 2014; FoodRisC Resource Centre, 2020). Alternatively, qualitative research may be limited because of the potential for biased interpretation made by the researcher, however, this is not a weakness of quantitative research (Creswell, 2014; FoodRisC Resource Centre, 2020). Therefore, using quantitative and qualitative research allows the strength of one approach to accommodate for the weakness of the other approach (Creswell, 2014; FoodRisC Resource Centre, 2020). Therefore, mixed method research can provide a more complete understanding of the research problem than either quantitative or qualitative approaches alone (Creswell, 2014; FoodRisC Resource Centre, 2020). Although, a mixed method methodology was deemed the most appropriate for this study, this approach has clear weaknesses and limitations (Creswell, 2014). Planning and executing mixed method research can be complex and time consuming, more so than either quantitative or qualitative approaches alone. (Creswell, 2014; FoodRisC Resource Centre, 2020). Furthermore, it is more difficult to resolve discrepancies that arise in the interpretation of the findings due to the complex nature of mixed methods research (Creswell, 2014; FoodRisC Resource Centre, 2020). Additionally, mixed method research incorporates quantitative and qualitative research, thus, the researcher must be able to learn and perform multiple methods and know how to mix multiple methods effectively to meet the study's aim and objectives (Creswell, 2014; Creswell & Plano Clark, 2018).

An explanatory sequential mixed methods design was adopted and is a type of design in which qualitative and quantitative data are collected in parallel, analysed separately, and then merged. In this study, quantitative data will be used to measure outdoor active play rates of a sample of young people to identify young people with high and low play rates. Qualitative data will explore the barriers and motivators to outdoor active play for young people, comparing boys and girls and young people with high and low play rates. It has been stated by Gray (2014) than in an explanatory sequential mixed methods design, the qualitative data is used to explain and interpret the findings of the quantitative data.

However, in this study, the purpose of the quantitative data was to measure the outdoor active play rates of a sample of young people, to identify young people with high and low play rates for the analysis phase of the study (Creswell, 2013). Figure 2 shows the protocol of an explanatory sequential mixed methods design (Creswell, 2013).

Figure 2: shows the protocol of an explanatory sequential mixed methods design (Creswell, 2013)



An explanatory sequential mixed method design is easy to implement because the procedure is split into separate stages, thus, the design is easy to follow and the results are easy to report (Creswell, 2014). However, an explanatory sequential mixed method design is time consuming as data collection and analysis must be completed for two separate phases (Creswell, 2014). Furthermore, phase one acts as a foundation for phase two, therefore, if phase one produces insufficient or fruitless data, it may have an adverse impact on the findings from phase two. Thus, an explanatory sequential design is reliant on the success of phase one (Creswell, 2014). In this study, if phase one was unable to identify young people with high or low play rates then the barriers and motivators to outdoor active play could not be identified, explored, and compared between young people with high and low play rates.

3.2 Methods

3.2.1 Phase one

3.2.1.1 Recruitment and sampling

Two hundred and eight boys and girls aged 11-12 years (year seven) were all recruited from a rural middle school in the North of England - a middle school provides education between primary school and secondary school. The recruited school did not want any information that

could identify the school or a pupil leaving the school premises. Therefore, the researcher did not know how many of the 208 young people were boys and girls. The participants were recruited through a convenience sample as the researcher had previous contact with the school's Head of Girls Physical Education (PE). Although, the recruited participants all met the inclusion and exclusion criteria: young people aged 11-12 years (year seven); identified as either a boy or a girl; able-bodied; and attended the recruited school. Following institution ethical approval, the recruited school volunteered to take part after the gatekeeper to the school was sent the details of the study by email (see appendix 2 and 3).

3.2.1.2 Data collection

A survey method was used to collect data in phase one. The survey consisted of an anonymous self-report questionnaire (see appendix 4) – the questionnaires were anonymous because of ethical constraints. However, each questionnaire was numbered, and the school gatekeeper assigned a number to a participant. This allowed the researcher to identify individuals with high or low play rates whilst assuring the anonymity of the participants. The questionnaires were validated, albeit, face validated, which is a simple form of validation, involving the researcher evaluating the feasibility, readability, consistency, and clarity of the language used on a questionnaire (Trochim, 2020). However, face validity is a subjective measure, therefore, what may be considered valid to one person may not be so for another (Trochim, 2020). The questionnaire contained a series of fixed response questions, which ensured respondents answers remained relevant to the questions (Bell, 2007). Furthermore, this made quantifying the questionnaires an easy process (Gilbert & Gilbert, 2008). Including open ended questions that would have drawn upon young people's views and perceptions would have unnecessarily slowed down the data analytical process. Self-reported questionnaires were chosen for data collection because they can be easily designed, distributed, and analysed in large quantities, thus, questionnaires were suitable for collecting and analysing data for 208 young people (Greig, Taylor, & MacKay, 2013).

It has been stated by Bell (2007) that young people can provide more reliable information about themselves than adults who know them well. Thus, self-reported questionnaires would collect reliable information (Bell, 2007). Although, caution must be adopted when reviewing self-reported questionnaires as there is a risk of self-report bias, which may threaten the validity of the research (Donaldson & Grant-Vallone, 2002). This occurs when respondents misunderstand the question or when they want to appear better than they are, even when the questionnaire is anonymous (Rosenman, Tennekoon, & Hill, 2011). To reduce instances of this occurring, previous literature on questionnaire design for children and young people contributed towards the development of the questionnaires (Bell, 2007; Gilbert & Gilbert, 2008). Bell (2007) suggested that it is important that young people can understand and answer all the questions. Therefore, the questionnaire was kept as concise as possible to avoid placing excessive demand on young people's cognition or memory to ease completion (Bell, 2007).

A pilot study (n=2) was also conducted to ensure young people could understand and complete the questionnaire, and to ensure that the questionnaires quantified outdoor active play rates. The pilot study used a convenience sample as the researcher had access to the two young people, although, neither was in year seven (one boy in year nine and one girl in year eleven). The questionnaires quantified outdoor active play levels and neither young person reported any issues understanding the questionnaire. However, the results from the pilot study necessitated changes to the structure of the questionnaire, for example, an initial 'Do you take part in any outdoor active play?" question was added, to prevent respondents who do not engage in any outdoor active play from answering 'no' to every question. This made quantifying the questionnaires quicker and easier.

Once the questionnaires were updated and ready to be delivered to the school, the gatekeeper was contacted to arrange a date to deliver the questionnaires. The researcher delivered the questionnaires, including spares, to the school gatekeeper. The method of questionnaire distribution was left to be decided by the gatekeeper, as the researcher

believed the gatekeeper would know the most efficient way to distribute and collect the questionnaires, whilst causing minimal disruption to the school day. The gatekeeper notified the researcher by email when the questionnaires had been completed and were available for collection.

3.2.1.3 Data analysis

Of the 208 young people in year seven at the recruited school, 197 young people completed the questionnaire, a response rate of 94.7%. The completed questionnaires were screened, and any incomplete, unclear, or contradictory responses were removed before analysis. For example, one participant reported that they did not engage in any outdoor active play, but also reported that they engaged in outdoor active play on a Sunday. This process eliminated 21 questionnaires, leaving 176 for analysis.

A score sheet was created (see appendix 5) which quantified outdoor active play rates producing simple descriptive statistics, which allowed for simple interpretation of the data. Every answer on the questionnaire was assigned a score - the more frequent the outdoor active play, the higher the score. For example, if a participant engaged in outdoor active play for up to half an hour on normal Sunday, they scored one point; if they engaged for up to an hour, they scored two points; if they engaged for up to two hours, they scored three points; and if they engaged for more than two hours, they scored four points. This scoring system was applied for every question on the questionnaire. Each questionnaire was individually scored, with the lowest possible score being zero and the highest possible score being 27. Each questionnaire was scored twice to ensure the reliability of the assigned score. The mean outdoor active play rate (17) was calculated by dividing the sum of play scores (3034) by the number of participants (176). The standard deviation (7) was calculated using Excel and three different online standard deviation calculators, to ensure the number was correct (Calculator.net, 2020; EasyCalcuation.com, 2020; Standard Deviation Calculator, 2020). One standard deviation was then calculated by adding and subtracting the standard deviation to and from the mean (Wan, Wang, Liu, & Tong, 2014). One standard deviation

was calculated to identify young people who fell outside of the norm (Wan et al, 2014). This analytical process revealed that an outdoor active play score of 10 and below was categorised as low play rates, whilst an outdoor active play score of 24 and above was categorised as high play rates. Sixty-seven young people were categorised as having high play rates (n=36) or low play rates (n=31).

3.2.2 Phase two

3.2.2.1 Recruitment and sampling

The school gatekeeper was informed by email that 67 young people met the criteria for phase two of the study. Sealed envelopes containing consent forms (see appendix 6) and participants information sheets (see appendix 7) for participation in phase two were delivered to the school. Participants designated questionnaire number were printed on the front of the envelope, to ensure the gatekeeper distributed the sealed envelopes to the correct participants. The gatekeeper chose the method of distribution, as the researcher believed the gatekeeper would know the most efficient way to distribute the consent forms and participant information sheets, whilst causing minimal distribution to the school day.

Of the 67 pupils that were sent consent forms and participant information sheets, seven withdrew from the study. The parents of the seven participants notified the researcher by email that they did not want their child, who was identified by their designated questionnaire number, to take part in the study. The researcher informed the gatekeeper which of the remaining 60 participants had either high or low play rates. The gatekeeper then randomly selected 20 participants, five boys and five girls with high outdoor active play rates, and five boys and five girls with low outdoor active play rates for the data collection stage.

3.2.2.2 Data collection

Focus groups were the chosen method of data collection for phase two. Focus groups allow young people to share their views and perceptions to other members of the group, within a safe and comfortable environment (Brockman et al, 2011a). Furthermore, many young

people feel more comfortable and enjoy being with friends and people they know in a focus group situation (Tisdall et al, 2009). It has been stated by Kennedy et al (2001) that focus groups free young people from data collection limitations such as, literacy and reading levels, which can impact quantitative research. Therefore, focus groups are an effective method for collecting qualitative data from young people within a school environment (Brockman et al, 2011a). However, group discussions can steer off topic, therefore, it was essential that the researcher moderated the focus groups and kept the conversation relevant (Tisdall et al, 2009). To reduce instances of this occurring, each focus group followed a schedule designed to keep the discussion relevant to the topic area and to ensure the barriers and motivators to outdoor active play were discussed (Krueger, 1998). Two schedules were designed, one for the high play rates focus groups (see appendix 8) and the other for the low play rates focus groups (see appendix 9). Four key themes identified in the literature review, parental restrictions; personal safety concerns; the environment; and an opportunity to socialise, contributed towards the development of the focus group schedules. The schedules were piloted on young people (n=2) as it allowed an opportunity to test the schedules to ensure that the data collected from the focus groups would be of use. Any necessary changes could then be made to the schedules before they were finalised and utilized in the focus groups. However, no changes were made to either of the schedules after the pilot study.

Young people can feel peer pressured to give similar answers to other participants during focus groups (Tisdall et al, 2009). To reduce instances of this occurring, young people were reminded that it is important to respect the views and opinions of others within the group, even if they do not agree with what another person has said. To limit response bias, participants were advised that there were not taking a test or an exam and there were no right or wrong answers (Brockman et al, 2011a). Additionally, young people were asked to respect the confidentiality of the information disclosed in the discussion.,

Gibson (2007) stated that a new environment and unfamiliar adults can be anxiety provoking for some young people. Therefore, focus groups being conducted in the school setting would help make young people feel more comfortable (Gibson, 2007). Each focus group contained five young people, which is the optimal size for a focus group containing young people (Greig et al, 2013). A focus group containing too many people may limit young people's responses (Gibson, 2007). The purpose of the focus groups was to explore the barriers and motivators to outdoor active play, comparing boys and girls and young people with high and low play rates. Therefore, young people were split according to gender and play rates: boys with high play rates; girls with high play rates; boys with low play rates; and girls with low play rates. Homogenous focus groups would facilitate the comparison of the barriers and motivators between boys and girls and young people with high and low play rates (Gibson, 2007). Furthermore, it has been stated by Christensen and James (2008) that boys and girls should be interviewed separately as they may have different communication styles. The focus groups were semi-structured and incorporated follow-up questions and prompts to try and elicit more information from young people (Krueger, 1998).

Each participant was greeted by the researcher upon arrival and was asked to switch off any electronic devices and leave any non-essential belongings away from the group. Chairs were arranged in a circle so every member of the group could see each other, which has been found to facilitate a group discussion by reducing the tendency of individuals to dominate the conversation (Stewart & Shamdasani, 2015). Young people were reminded of the definition of outdoor active play to keep the discussion relevant to the topic (Gibson, 2007). The definition was taken from the questionnaire; 'outdoor active play is any informal physical activity that you take part in for enjoyment and entertainment, on your own or with other people. Outdoor active play should increase your heart rate so that you feel warm and slightly out of breath. For example, tig, street play, catching games, and kicking games. The researcher acted as the moderator and conducted each group alone - the role of a moderator is to ensure the discussion stays on topic and that all participants are able to

speak (Stewart & Shamdasani, 2015). To ensure that participants felt safe and comfortable during the discussion, three 'ice-breaker' questions were asked at the beginning of each focus group (Gibson, 2007). Young people in each focus group were asked to say their names and answer three short questions so that the researcher could identify each participant during the transcription process. The mean duration of the focus groups was 23 minutes, with the longest focus group lasting 29 minutes and the shortest focus group lasting 14 minutes.

3.2.2.3 Data analysis

All four focus groups were digitally recorded on a password protected mobile phone then transferred to a password protected computer at the University of Huddersfield. The recordings on the mobile phone were deleted after being transferred to the computer and will be kept on a password protected computer at the University of Huddersfield for 10 years before being destroyed. The digital recordings of the four focus groups were transcribed verbatim by the researcher (Indian Scribes, 2018). All data that could identify a young person or the recruited school such as, the area they live in, was removed from the transcripts. Furthermore, participants were allocated a pseudonym that could not identify them or the recruited school.

Content analysis was used as a systematic method of analysing the data collected from the focus groups. Content analysis is a method used to analyse qualitative data and is a technique that allows quantitative data to be extracted from qualitative data (Flick, Kardoff, & Steinke, 2004; Hsieh & Shannon, 2005). Content analysis was chosen for this study as it was deemed an appropriate method to identify the prominent barriers and motivators to outdoor active play. Additionally, content analysis facilitated the comparison between boys and girls and young people with high and low play rates by quantifying the cited barriers and motivators. Content analysis is an easy and reliable method to analyse qualitative data, as the procedure is transparent and is high in reliability as it follows a systematic procedure which can be easily replicated (Flick et al, 2004; Hsieh & Shannon, 2005). Therefore,

content analysis is a reliable method for transforming qualitative data into quantitative data (Flick et al, 2004; Hsieh & Shannon, 2005). However, if the initial coding is inaccurate then the findings are invalid (Flick et al, 2004; Hsieh & Shannon, 2005). To reduce instances of this occurring, each transcript was coded twice to ensure the reliability of the coding process. Additionally, in content analysis, causality cannot be established as it simply describes the data, thus, interpretation of the findings is limited (Flick et al, 2004; Hsieh & Shannon, 2005).

The four transcripts were analysed individually. Initially, the researcher familiarised themselves with each transcript to get a sense of the data as a whole to start formulating an idea for what the main points were (Flick et al, 2004; Hsieh & Shannon, 2005). Relevant words, phrases, sentences, and sections were identified from the transcript then coded. Once the transcript was fully coded, each code was checked to ensure it accurately depicted the word, phrase, sentence, or section (Flick et al, 2004; Hsieh & Shannon, 2005). The data was conceptualised as the codes similar to each other, through content or context, were grouped as a theme. The themes were labelled by what best described its content and the context, such as weather, and were placed into one of two tables.– one table represented the barriers to outdoor active play and the other represented the motivators to outdoor active play (see appendix 10-17) (Flick et al, 2004; Hsieh & Shannon, 2005). This process was completed for all four focus groups. In content analysis, the frequency or tally of a theme is often recorded (Flick et al, 2004; Hsieh & Shannon, 2005). However, in this study, the number of participants who reported a particular theme was recorded (out of 20). The data was recorded in this manner to accurately represent the views of the participants and to reduce instances of a theme appearing to be more influential, due to an individual frequently reporting it.

3.3 Ethical approval

Phase one

This study used a gatekeeper to recruit participants - a gatekeeper safeguards the participants and can provide formal or informal permission for the research to proceed (Greig

et al, 2013). Considering the data collection would take place within a school setting, with young people under the age of 16, a gatekeeper was a logical way to approach the school to gain access (Greig et al, 2013). The gatekeeper was made aware that the researcher had an up-to-date Emergency First Aid qualification and was trained in Safeguarding Children. A copy of the researcher's DBS check (Disclosure and Barring Service) was taken by the school reception office. After the school had agreed to take part, the gatekeeper made all young people in year seven aware of the study, which presented them with enough time to make an informed decision regarding their involvement. The gatekeeper made the researcher aware that pupils' names, sex, school form group, or any other information that could reveal the identity of a pupil or reveal the identity of the school could not leave the school premises. However, the researcher needed to able to identify certain individuals, as the purpose of phase one was to identify young people with high and low outdoor active play rates. Therefore, each questionnaire was numbered, and the gatekeeper assigned a number to a participant, which ensured the anonymity of the school and all of the pupils.

Phase two

Young people with high or low play rates were given a sealed envelope containing a consent form and a participant information sheet for the focus groups in phase two. Participants and their parents/guardians were provided with a withdrawal from the study date on both the consent form and participant information sheet, where they had up and till that date to inform the researcher if they did not want to take part in phase two of the study. Furthermore, they were provided with a deadline where they were able to withdraw from the study without reasoning. Seven parents/guardians of young people with high or low play rates informed the researcher by email that they did not want their child to take part in the focus groups. Twenty young people: five boys with high play rates; five girls with high play rates; five boys with low play rates; and five girls with low play rates were randomly selected to take part in the focus groups by the gatekeeper. The researcher did not have any information that could

disclose the identity of the participants, therefore, the gatekeeper randomly selected the participants.

If any child protection issues had arisen or instances where a child required support during the focus groups, then it would have been reported to the school's Child Welfare Officer. A copy of a child protection flowchart (see appendix 18) was kept on hand for each focus group which contained details on what to do and who to report to if an issue arose. Furthermore, if a criminal offence had been disclosed that was not reported to the authorities, then the researcher would have followed the SREP (Research Ethics Governance Policy) guidance document on the researcher's obligations to disclose unreported crimes. Participants were informed that the information disclosed in the focus groups would remain anonymous to those outside of the group discussion. Ethical permission for this study was granted by SREP then granted again after amendments.

Chapter 4

Findings

This chapter presents the findings from the self-reported questionnaires in phase one, along with data collected from the four focus groups in phase two. The barriers and motivators to outdoor active play, and the similarities and differences between boys and girls and young people with high and low outdoor active play rates will be presented.

4.1 Phase one

One hundred and ninety-seven questionnaires were completed. Following the screening processes, 21 questionnaires were eliminated, leaving 176 questionnaires for analysis.

Table 5: The number of young people and outdoor active play rate scores

Outdoor active play score	Number of young people who were assigned this score
0	6
3	1
5	3
6	2
7	5
8	4
9	4
10	6
11	2
12	4
13	10
14	12
15	7
16	4
17	10
18	13
19	10
20	10
21	12
22	7
23	8
24	7
25	6
26	17
27	6

Duration of outdoor active play during a normal school week

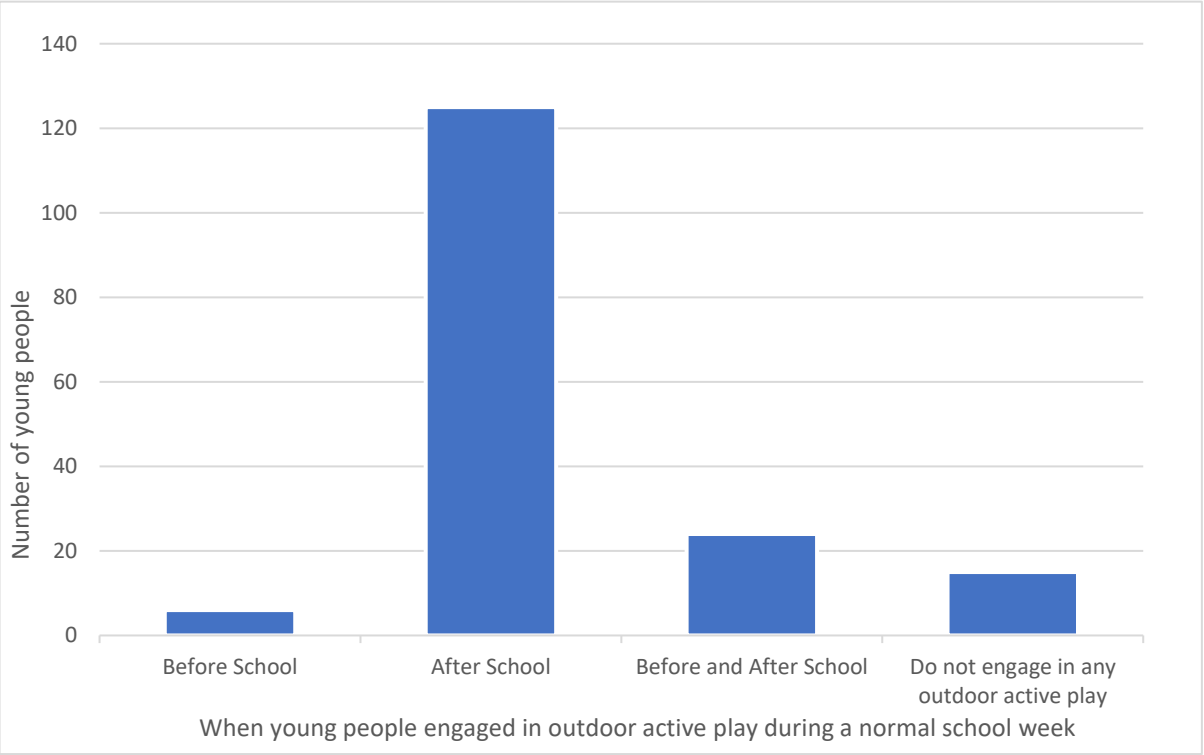


Figure 3: Shows when young people engaged in outdoor active play during a normal school *week*

One hundred and seventy young people engaged in outdoor active play and six did not. Of those 170, 92% (n=155) reported that they engaged in outdoor active play during a normal school week, whereas, 8% (n=15) did not.

Figure 3 shows that 74% (n=125) of young people reported that they only engaged in outdoor active play after school during a school week, 14% of young people (n=24) reported that they engaged in outdoor active play before and after school, 9% of young people (n=15) reported that they did not engage in any outdoor active play during a school week, and 4% of young people (n=6) reported that they only engaged in outdoor active play before school during a school week.

Responses showed that 54% of young people (n=83) typically engaged in outdoor active play on 2-3 days per school week, 39% of young people (n=61) typically engaged in outdoor active play on 4-5 days per school week, and 7% of young people (n=11) typically in outdoor active play 1 day per school week.

Figure 4 shows that 36% of young people (n=56) typically engaged in more than 3 hours of outdoor active play per day during a school week, 29% of young people (n=44) typically engaged in up to 2 hours of outdoor active play per day during a school week, 21% of young people (n=33) typically engaged in up to 3 hours of outdoor active play per day during a school week, and 14% of young people (n=22) typically engaged in up to 1 hour of outdoor active play per day during a normal school week.

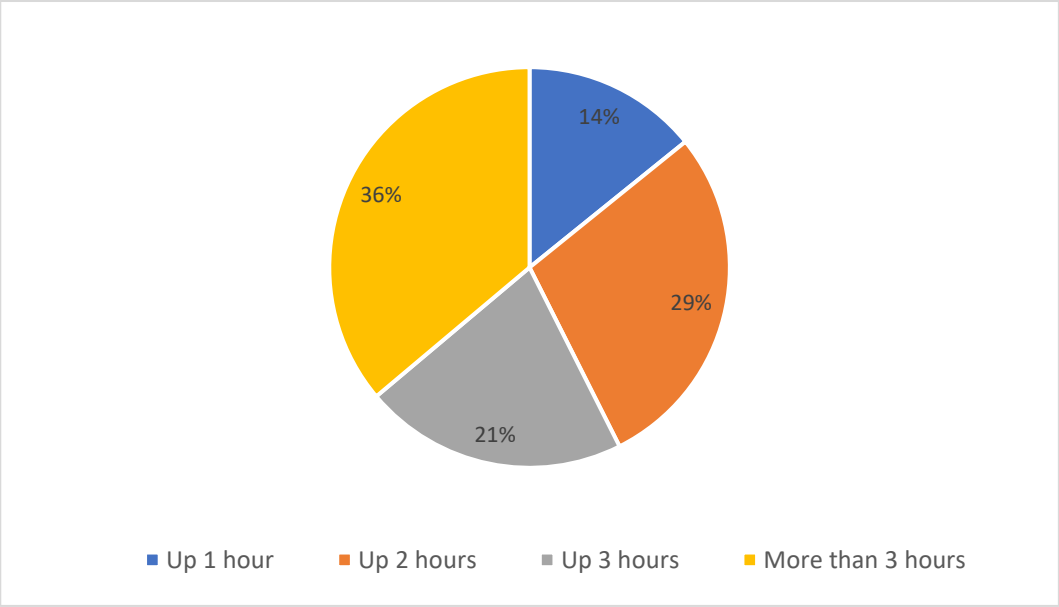


Figure 4: Shows the duration of outdoor active play per day during a typical school week

Duration of outdoor active play during a normal Saturday

One hundred and thirty-seven young people (81%) engaged in outdoor active play on a normal Saturday whereas, 19% of young people (n=33) did not.

Figure 5 shows that 37% of young people (n=51) typically engaged for more than 2 hours on a normal Saturday, 31% (n=43) typically engaged for up to 1 hour, 28% (n=39) typically engaged for up to 2 hours, and 3% of young people (n=4) typically engaged for up to half an hour of outdoor active play on a normal Saturday.

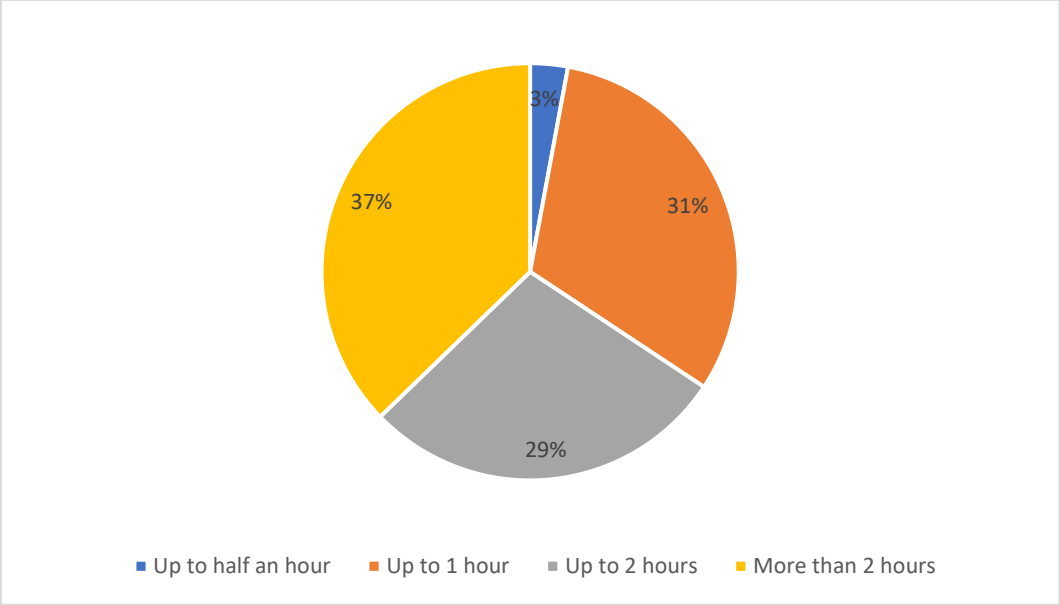


Figure 5: Shows the duration of outdoor active play during a typical Saturday

Duration of outdoor active play during a normal Sunday

Responses revealed that 72% of young people (n=123) engaged in outdoor active play on a normal Sunday whereas, 28% of young people (n=47) did not.

Figure 6 shows that 31% of young people (n=38) typically engaged for more than 2 hours on a normal Sunday, 30% (n=37) typically engaged for up to 2 hours, 28% (n=34) typically engaged for up to 1 hour, and 11% of young people (n=14) typically engaged for up to half an hour of outdoor active play on a normal Sunday.

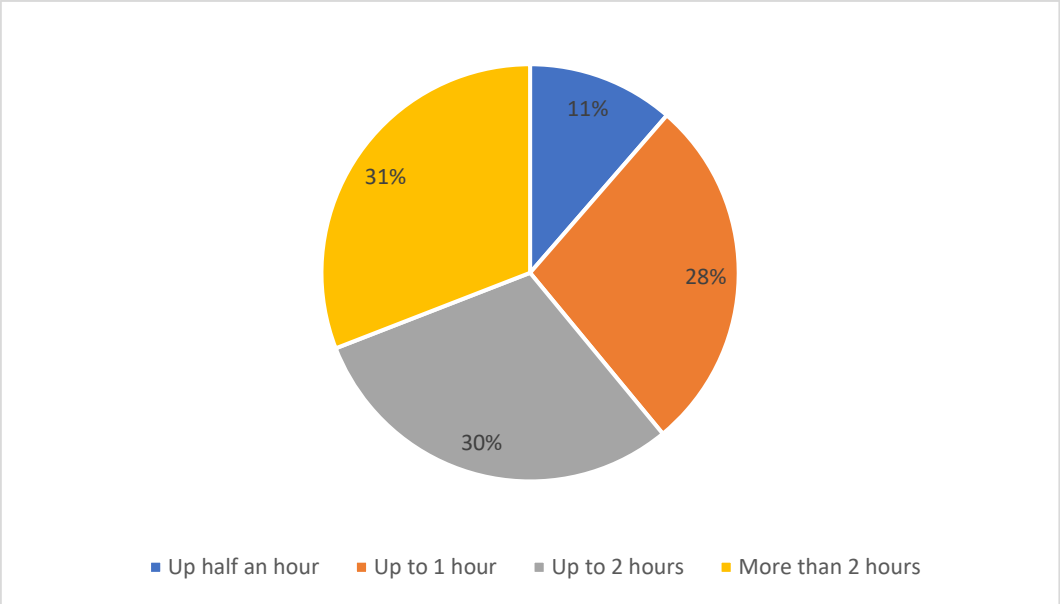


Figure 6: Shows the of duration outdoor active play during a typical Sunday

Duration of outdoor active play during a normal school holiday

One hundred and sixty-two young people (95%) engaged in outdoor active play during the school holidays whereas, 8% of young people (n=5%) did not. Of the 162 young people that engaged in outdoor active play during the summer holidays, 54% (n=87) typically engaged in outdoor active play on 2-3 days per week, 41% (n=66) typically engaged in outdoor active play on 4-5 days per week, and 6% (n=9) typically engaged in outdoor active play 1 day per week during the school holidays.

Figure 7 shows that 46% of young people (n=74) typically engaged in more than 3 hours of outdoor active play per day during a school holiday, 23% of young people (n=38) typically engaged for up to 3 hours, 22% of young people (n=36) typically engaged for up to 2 hours, and 9% of young people (n=14) typically engaged for up to 1 hour of outdoor active play during a school.

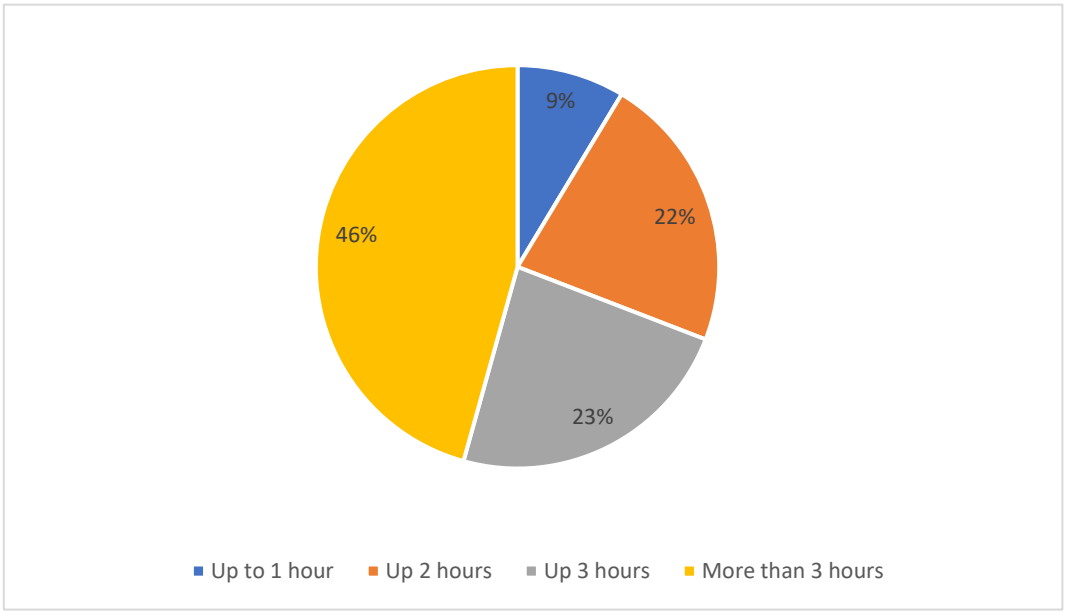


Figure 7: Shows the duration of outdoor active play per day during a typical school holiday

Outdoor active play locations

Young people were also asked, **"**Where do you typically take part in outdoor active play?" with examples given, including "in your garden, in a friends garden, in a park, in a field, and on the streets". Young people were also allowed to report any additional outdoor active play

locations that they played in. One hundred and sixty-three young people revealed where they typically engaged in outdoor active play.

Figure 8 shows that 74% of young people (n=120) engaged in outdoor active play at a park, 68% of young people (n=110) engaged in outdoor active play in their garden, 60% of young people (n=98) engaged in outdoor active play in a field, 46% of young people (n=75) engaged in outdoor active play on the streets, and 42% of young people (n=68) engaged in outdoor play in a friend's garden.

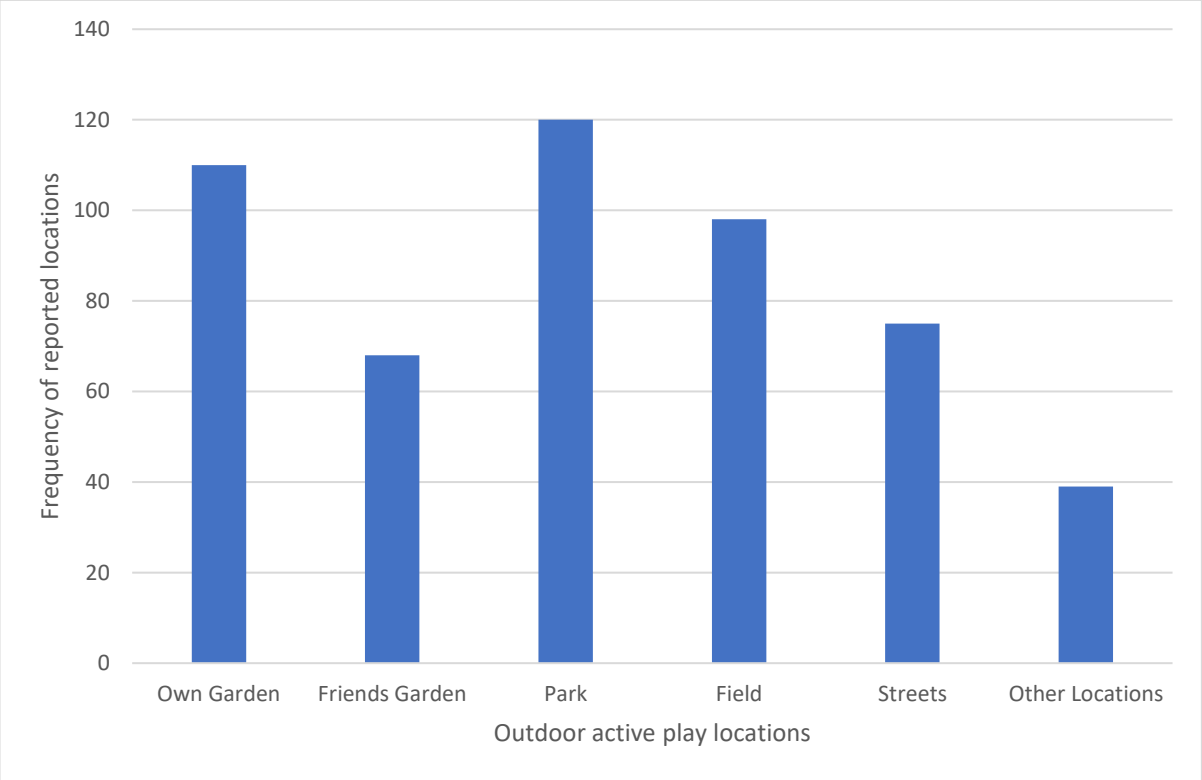


Figure 8: Shows young people's preferred outdoor active play locations

Additionally, 24% of young people (n=39) reported that they engaged in outdoor active play in other locations including, the woods (n=16), at school (n=7), at a farm (n=4), at a family members house (n=3), on a sports pitch (n=2) at a quarry (n=1), and at a youth club (n=1)

4.2 Phase two

Four homogeneous focus groups were conducted with 20 young people – one focus group containing five boys with high play rates, one focus group containing five girls with high play rates, one focus group containing five boys with low play rates, and one focus group

containing five girls with low play rates. The barriers and motivators to outdoor active play emerged from the four focus groups. Tables 6 and 7 report the barriers and motivators to outdoor active play as reported in the four focus groups and shows the number of young people who reported a particular barrier or motivator. Table 8 shows one theme – the environment, that was reported as a barrier and a motivator to outdoor active play by young people. The data is presented in this manner to accurately represent the views of the young people and to reduce instances of a barrier or a motivator appearing to be more influential, due to an individual frequently reporting it.

4.2.1 Barriers to outdoor active play

During the focus groups, young people discussed the barriers to outdoor active play. Table 6 shows the five themes that emerged from the four focus groups: 1) A Busy Schedule; 2) Parental Rules; 3) Personal Safety Concerns; 4) Technology; 5) Other barriers. However, this study did not identify a prominent motivator for outdoor active play for young people with low play rates.

Table 6: The number of young people reporting barriers to outdoor active play

Barriers to outdoor active play				
	High play rate boys	High play rate girls	Low play rate boys	Low play rate girls
Busy schedule				
No time	1	0	0	0
Homework	5	0	4	0
Learning other skills	3	5	0	0
Chores	0	2	1	0
Parental rules				
Rule of time	2	3	2	2
Not allowed	0	1	0	1
Permission needed	0	1	0	0
Location rule	0	0	4	2
Personal safety concerns				
Older children	2	0	0	2
Strangers	0	2	0	3

Technology	0	0	0	3
Other barriers				
Access to play spaces	2	1	1	0
Nobody to play with	0	1	1	1
Siblings	0	1	4	0
Play is boring	0	0	0	1

Busy schedule

Having a busy schedule was reported as a barrier to outdoor active play by 70% of young people in this study (nine boys and five girls). The most frequent barrier cited by boys (nine boys) was having homework to complete, however, this was not cited as a barrier by any girls.

"Homework does stop you going out because we spend six hours a day at school and then at home, they [teachers] expect us to do an hour more of work, so that's cutting off our time" (boy with low play rates)

The most frequent barrier cited by young people with high play rates (three boys and five girls) was being too busy learning other skills, such as, football or dance. However, this was not reported as a barrier by young people with low play rates.

"When you were younger you couldn't play out because you were young, but now I can't play because I've got all the stuff [dancing and singing lessons]" (girl with high play rates)

Parental rules

In this study, 75% of young people (six boys and nine girls) reported that parental rules, including location rules or rules of time, were a barrier to outdoor active play. The most frequent barrier cited by young people with low play rates (four boys and two girls) was having a location rule, such as, only being allowed to play in their garden. However, this was not cited as a barrier by young people with high play rates.

"I can only play in my garden… That's really sad isn't it" (girl with low play rates)

A rule of time, such as, having a curfew, was cited as a barrier to outdoor active play by 45% of young people in this study (four boys and five girls)

"I've got a curfew till eight" (boy with high play rates)

"I've got to be back before half eight" (girl with low play rates)

Personal safety concerns

In this study, 40% of young people (two boys and six girls) cited personal safety concerns, including older children and strangers, which were seen as a barrier to outdoor active play. The presence of older children and strangers in preferred play spaces were perceived as threatening and intimidating by young people. However, this was not cited as a barrier by boys with low play rates. The most frequent barrier cited by girls (five girls) was the presence of strangers in their preferred play spaces. However, this was not cited as a barrier by boys.

"We were *at [location] and there was this woman and this man who came out and they were quite… they were drunk, and we didn't feel safe whatsoever… so we left"* (girl with high play rates)

Young people in this study (two boys and two girls) cited that the presence of older children in preferred play spaces was a barrier to outdoor active play.

"*For me, it's older children because you feel quite intimidated sometimes"* (boy with high play rates)

"*Older children that are smoking and being suspicious"* (girl with low play rates)

Technology

The most frequent barrier cited by girls with low play rates (three girls) was technology. Although, technology was not cited by boys or by girls with high play rates. Girls with low

play rates reported that their addition to technology stopped them from engaging in outdoor active play more often.

"My computer, I'm on it too much" (girl with low play rates)

Other barriers

In this study, 55% of young people (seven boys and four girls) cited other factors that were barriers to outdoor active play, such as siblings, access to play spaces, outdoor active play was perceived as boring, and having nobody to play with. The most frequent barrier cited by boys with low play rates (four boys) was siblings, because they were perceived as annoying and often ruined outdoor active play experiences.

"With my younger siblings what it is, it's annoying because they always cheat… they get really rude and then we all have to come inside because they're being rude" (boy with low play rates).

4.2.2 Motivators to outdoor active play

During the focus groups, young people discussed the motivators to outdoor active play. Table 7 shows the five themes that emerged from the four focus groups: 1) Opportunity to socialise; 2) For the emotions experienced through play; 3) Autonomy; 4) Health-related benefits; 5) Prevent boredom.

Table 7: The number of young people reporting motivators to outdoor active play

Motivators to outdoor active play				
	High play rate boys	High play rate girls	Low play rates boys	Low play rate girls
Opportunity to socialise				
Be with friends	3	2	0	5
Help each other	0	2	0	0
Be with others	0	5	0	1
Meet new people	0	0	0	2
Be with family	0	0	0	1
For the emotions experienced through play				
It's fun	3	0	5	0

Feels good	0	2	0	0
No pressure	0	1	0	0
To relax	0	0	1	0
Clear mind	0	0	2	0
For the funny interactions	0	0	0	2
Autonomy				
To get away from family	0	4	3	0
For the freedom	0	0	2	1
Control over own actions	1	0	0	1
Health-related benefits				
Enjoy being active	3	4	0	0
Prevent boredom				
Something to do	1	0	0	1
Inside is boring	0	0	1	0
More variety	0	0	1	3

Opportunity to socialise

In this study, 65% of young people (three boys and ten girls) spoke of being motivated to engage in outdoor active play because it provided an opportunity to socialise with friends and other people. The most frequent motivator to outdoor active play cited by girls (seven girls) was an opportunity to socialise with friends, however, this was only cited by three boys.

"I like going outside, just because being social with friends and stuff makes me happy" (girl with low play rates)

"You get to spend time with friends" (boy with high play rates)

Girls in this study (six girls) spoke of being motivated to engage in outdoor active play to socialise with other people but did not specify who these other people were. No boys in this study reported that they were motivated to engage in outdoor active play to socialise with other people.

"Because it's spending time with others [why she enjoys outdoor active play]" (girl with high play rates)

For the emotions experienced through play

Sixty percent of young people (eight boys and four girls) cited that they were motivated to engage for the emotions they experienced through play. Eight boys spoke of being motivated to engage in outdoor active play because it was fun and enjoyable. However, this was not cited as a motivator by any girls.

"I take part because it's fun and I enjoy going outside" (boy with low play rates)

Autonomy

In this study, 50% of young people (six boys and four girls) engaged in outdoor active play because they enjoyed a considerable degree of autonomy. Young people (three boys and four girls) spoke of being motivated to engage in outdoor active play to get away from family and to avoid confrontation.

"*Like how Landin said with his family fighting and just to get away from all that and be in your own little area"* (boy with low play rates)

"*Just getting away sometimes from your house, it just feels good cos, I have siblings, so I argue and then it's just good to get away"* (girl with high play rates)

Health-related benefits

Ninety percent of young people (ten boys and eight girls) reported that outdoor active play had numerous physical and psychological benefits. Despite this, only young people with high play rates (three boys and four girls) spoke of being motivated to engage in outdoor active play for the health-related benefits.

"Yeah, [outdoor active play] keeps you fit" (boy with high play rates).

4.2.3 Themes that were both a barrier and a motivator

In this study, 65% of young people (seven boys and six girls) reported that the environment was either a barrier or motivator to outdoor active play. The environment was reported as a major theme that affected young people's outdoor active play as several related subthemes emerged from the data. Table 8 shows one theme – the environment, that was reported as a barrier and a motivator to outdoor active play by young people.

Table 8 – Aspects of outdoor active play which were both a barrier and a motivator

Barriers and motivators to outdoor active play – The environment				
	High play rate boys	High play rate girls	Low play rate boys	Low play rate girls
Barriers				
Weather	1	1	2	1
Traffic	0	0	2	0
Condition of play spaces	3	0	0	1
Geographical location of play spaces	0	0	0	1
Motivators				
Weather	0	2	1	0
Enjoy being outdoors	1	0	2	1
Enjoy being around nature	0	1	0	1

The environment

Forty-five percent of young people (six boys and three girls) cited that the environment was a barrier to outdoor active play. The weather, particularly rainy weather, was cited as a barrier by 25% of young people (three boys and two girls).

> *"I like rain, but not while playing out"* (girl with high play rates)

Whereas, 40% of young people (four boys and four girls) reported that the environment motivated them to engage in outdoor active play. The weather, particularly warm weather, was cited as a motivator by 15% of young people (two girls and one boy).

"When it's warm there is no point in being inside and wasting it" (girl with high play rates).

Chapter 5

Discussion

The purpose of this chapter is to explore the barriers and motivators to outdoor active play for young people, comparing boys and girls and young people with high play rates and low play rates. The main findings of this study were that the key barriers to outdoor active play were having a busy schedule, parental rules, and personal safety concerns. Whereas, the key motivators were, an opportunity to socialise, for the emotions experienced through play, for the health-related benefits, and the environment.

This chapter will discuss the findings of this study and will explore the significance of these findings alongside the fifteen key papers and wider literature. Furthermore, any new findings will be highlighted and their contribution towards existing knowledge will be discussed. Additionally, the strengths and limitations of this study will be examined and any recommendations for practice and future research will be discussed.

This study was unique as it explored the barriers and motivators to outdoor active play for young people aged 11-12 years living in the UK. Furthermore, to my knowledge, this is the first study to compare the barriers and motivators to outdoor active play between young people with high and low outdoor active play rates living in the UK. Therefore, this study contributes towards the limited existing knowledge of the barriers and motivators to outdoor active play for young people aged 11-12 years living in the UK.

5.1 Barriers to outdoor active play

The key barriers to young people's outdoor active play identified in this study were consistent with previous literature - parental restrictions such as having a rule of time or a location rule, and personal safety concerns such as the presence of strangers in preferred play spaces. This study also discovered that being too busy completing homework and learning other skills were prominent barriers to young people's outdoor active play. Despite

being reported as a significant barrier to outdoor active play in this study, there is limited research that supports this finding.

In the UK, schools regularly set children and young people additional schoolwork to be completed during out of school hours, often referred to as homework or schoolwork, which is designed to continue children's learning (Standards and Testing Agency, 2020). Previous research has theorised that excessive homework set by school teachers limits children's and young people's physical activity, as the time spent completing homework could have been devoted to engaging in physical activity (Allison et al, 1999; Tappe, Duda, & Ehrnwald, 1989). Allison et al (1999) and Tappe et al (1989) explored the determinants of physical activity for young people aged 13-15 years and reported that having homework to complete was a significant barrier for girls. The findings from this study are important as they substantiate the theory that homework is a barrier to young people's physical activity while disputing the notion that homework is a greater barrier for girls.

In this study, homework was the most frequently cited barrier to outdoor active play by boys (nine boys) but was not cited by any girls. Boys reported that having to complete homework took away time that could have been devoted to engaging in outdoor active play. The discrepancies in the findings between the present study and previous literature may be a result of Allison et al (1999) and Tappe et al (1989) collecting data from a sample of older young people, aged 13-15 years, and it has been stated by Duckworth and Seligman (2006) that girls aged 13-15 years spend more hours completing homework than boys aged 13-15 years. Whereas this study collected data from a sample of younger young people, aged 11-12 years.

Boys in this study understood that homework was designed to continue their learning, however, cited that when homework was set by numerous school teachers the accumulation of school work posed as a barrier to outdoor active play (Department for Education, 2018b). This finding is important as it suggests that boys valued completing homework more than engaging in outdoor active play. However, having homework to complete was not an insurmountable barrier, as boys with high play rates reported it. Thereby, this study offers a

new insight - that young people are still able to maintain high levels of outdoor active play whilst having homework to complete.

In this study being too busy learning other skills such as football, mountain biking, dancing, singing, and acting, was the most prominent barrier to outdoor active play cited by young people with high play rates, however this was not reported as a barrier by young people with low play rates. Young people with high play rates reported participating in structured sport as well as unstructured activities, a finding supported by previous literature (Fairclough, Beighle, Erwin, & Ridgers, 2012; Page et al, 2005). In Fairclough et al's (2012) and Page et al's (2005) studies, young people with high physical activity levels revealed that they enjoyed engaging in structured sports and unstructured activities. These findings are also similar to previous physical activity literature (McCarthy & Jones, 2007; Wankel & Kreisel, 1983; Weiss, 2000).

Despite being reported as a significant barrier to outdoor active play in this study, there is limited research that supports the finding that being too busy learning other skills, particularly structured sports and activities, is a significant barrier to physical activity for young people. One of the key studies reported that children were sometimes too busy learning other skills such as playing the piano to engage in outdoor active play, however, this was cited as a significant barrier by active and inactive children (Lee et al, 2015a). The discrepancies in the findings may be a result of methodological differences as Lee et al (2015a) used a third-party subjective measure, determined by teachers, to categorise children as either active or inactive, based on their observations of the children during breaktime and lunchtime. Additionally, children's outdoor active play levels before school, after school, on the weekends, and during school holidays were not measured and therefore teachers may have miscategorised children as active or inactive (Lee et al, 2015a). This study used a subjective measure to quantify young people's outdoor active play rates, however, used data collected from self-reported questionnaires completed by the participants. It has been stated by Bell (2007) that young people can provide more reliable information about themselves than adults who know them well, therefore the methodological approach of this study may have

enhanced the validity of the findings because the process of categorising young people with high and low play rates was more accurate.

In the current study, 75% of young people (six boys and nine girls) reported that parents had rules regarding their outdoor active play which posed as a significant barrier. These rules were designed to protect young people but were seen by young people as a barrier to outdoor active play. However, these rules did not pose as insurmountable barriers as young people were still able to engage in outdoor active play if they adhered to the rules, for example, being home before 8 pm. Furthermore, young people with high play rates cited parental rules as a barrier but were still able to maintain high levels of outdoor active play with parental restrictions in place. Parental rules being a barrier to outdoor active play is consistent with the results of studies undertaken by Datar et al (2013) and Kalish et al (2010). Both studies stated that parents implemented rules that were designed to keep young people safe whilst engaging in physical activity, but like the findings of the present study, these rules were perceived by children and young people as a barrier (Datar et al, 2013; Kalish et al, 2010).

In the present study, parental rules were more frequently reported as a barrier by girls, a finding consistent with previous research that states that parents restrict girl's (aged 10-12 years) physical activity more than boys (aged 10-12 years) (Foster et al, 2014). Foster et al (2014) found that parents felt boys were more capable of dealing with strangers than girls. The findings from this study substantiate the theory that parents restrict girl's physical activity more than boy's physical activity.

The most frequently reported barrier by young people with low play rates was having a curfew - a regulation designed to keep people indoors within specified hours (Oxford, 2020). Young people with low play rates reported that parents imposed a curfew which acted as an insurmountable barrier to outdoor active play as it prevented them from playing during designated hours. Despite this being reported as a significant barrier by young people with low play rates in this study, there is limited research to support or refute this finding. Therefore, the findings from this study are important as they offer new insight, that having a

curfew is a prominent barrier to physical activity for young people with low physical activity levels. What evidence there is, is limited to curfews imposed on older young people – Ries et al (2008) explored adolescent's (aged 14-17 years) perceptions of environmental influences on physical activity and supported the findings of this study, reporting that having a curfew was a significant barrier to physical activity. Adolescents revealed that having a curfew restricted their independent mobility because it limited the duration of their physical activity (Ries et al, 2008). Despite the similarities in the findings between Ries et al (2008) and the present study, Ries et al (2008) collected data from a sample of 50 African American adolescents aged 14-17 years, but O'Brien, Jones, Sloan, and Rustin (2000) discovered that parents of minority ethnic adolescents (aged 13-14 years) often restrict adolescents' physical activity, which may account for their findings. The findings from this study differ from Ries et al's (2008) findings as having a curfew was a more prominent barrier for young people with low play rates, however, Ries et al (2008) did not measure or quantify adolescent's physical activity levels.

In the current study, young people revealed that parents eased curfews and allowed them to play for longer on days they did not have to attend school or on the following day (Friday after school, Saturday, and Sunday). Young people, regardless of gender or play rates, also reported that they enjoyed engaging in outdoor active play more on a Friday after school, on a Saturday, and on a Sunday because their parents allowed them to play for a longer period, and more young people were available to play because of eased curfews. Research conducted by Jago, Anderson, Baranowski, and Watson (2005) supported this finding, reporting that young people's physical activity levels, regardless of gender, were highest on a Friday, Saturday, and Sunday.

Previous research has theorised that parental safety concerns can lead to rules such as location rules, that pose as a barrier to children's and young people's physical activity (Datar et al, 2013; Kalish et al, 2010). In the present study, 60% of young people with low outdoor active play rates (four boys and two girls) reported that parents had location rules such as,

only being allowed to play in the garden. This was perceived as a barrier by young people with low play rates as it restricted their independent mobility, often confining them to play within a designated area which was cited as unenjoyable. Although, young people revelated they were still able to engage in outdoor active play if they adhered to the location rules, albeit a restricted outdoor active play. Restricting independent mobility resulted in young people having to engage in outdoor active play in non-preferred play spaces, such as their garden, or having to engage alone because they were not allowed to travel to preferred play locations, a finding supported by Stone, Faulkner, Mitra, and Buliung (2014) and Veitch et al (2014) who stated that children and young people were often restricted to engage in physical activity near their home.

Despite being reported as a significant barrier by young people with low play rates, location rules were not reported by young people with high play rates. It is unclear if parents of young people with high play rates did not set location rules or if young people with high play rates did not perceive location rules as a barrier. Studies by Holt et al (2015) and Kercood et al (2015) also substantiate the finding that location rules are significant barriers to physical activity. Holt et al (2015) reported that location rules such as having to stay close to home whilst outdoors restricted children's outdoor active play. Similarly, Kercood et al (2015) discovered that parents would impose location rules on young people's physical activity, such as having to stay close to home, which was perceived as a barrier by young people. Contrary to the findings of Holt et al (2015) and Kercood et al (2015), this study found that location rules were a more prominent barrier to outdoor active play for young people with low play rates. Discrepancies between the findings in this study and previous research may be a result of the unique methodological approach of this study. The present study quantified outdoor active play rates, identifying young people with high and low play rates, whereas Holt et al (2015) and Kercood et al (2015) did not quantify or measure children's and young people's physical activity levels.

Moran et al (1997) stated that as children get older, they become more aware of the potential dangers that can be posed by strangers. Furthermore, Carver et al (2005) and Larsen (2014) stated that girls aged 8-13 years were more worried about the presence of strangers in their neighbourhood than boys. The findings of the current study appear to concur with those of Carver et al (2005) and Larsen (2014) as the presence of strangers in preferred play spaces was the more prominent barrier to outdoor active play for girls. Conversely, Larsen (2014) reported that girls were more concerned about the presence of older children than strangers because they were a more immediate and real threat. The present study disputes this finding as 50% of girls (five girls) in this study cited that strangers were a barrier, whereas 20% of girls (two girls) cited that older children were a barrier. The discrepancies in the findings between the present study and previous literature may be a result of Larsen (2014) collecting data from younger young people, aged 8-11 years, and it has been stated by Deakin (2006) that ages 12-13 represent the peak of young people's experiences of harassment and victimisation by strangers.

Girls in this study also revealed that they did not feel safe when strangers encroached on preferred play spaces, as their behaviour was perceived as threatening and intimidating. Therefore, girls would have to relocate to a different play space to continue engaging in outdoor active play. This barrier was cited by girls with high play rates, and therefore girls were still able to maintain high levels of physical activity regardless of this fear. Despite the presence of strangers being reported as a significant barrier to outdoor active play by girls, boys in this study did not cite the presence of strangers as a barrier. The findings from this study are important as they contribute towards limited existing knowledge – that the presence of strangers in preferred outdoor physical activity locations is a significant barrier to outdoor active play for girls.

Girls in this study also revealed that the presence of drunk strangers in preferred play spaces was a significant barrier to outdoor active play. Drunk strangers were cited as a greater barrier than sober strangers because their behaviour was more erratic, and as a result girls felt more threatened by the presence of drunk strangers in preferred play spaces.

Despite being reported as a significant barrier by girls in this study, there is limited research that supports this finding (Witten et al, 2013). Witten et al (2013) explored parents' perceptions of outdoor active play and active travel and reported that parents believed the presence of drunk strangers in the local areas was a significant factor that stopped young people from engaging in active play and active travel more often. Although Witten et al's (2013) findings support the findings of this study, data was collected from parents and not from young people themselves, therefore, the findings may not represent the views of young people. Thus, the findings of the present study provide a more accurate representation of young people's perceptions of outdoor active play than previous literature (Witten et al, 2013). The findings from this study contribute towards limited existing knowledge – that the presence of drunk strangers in preferred outdoor active play locations is a significant barrier to outdoor active play for girls.

5.2 Motivators to outdoor active play

In this study, the key motivators to young people's outdoor active play were identified as: for an opportunity to socialise, for the emotions experienced through play, for the health-related benefits, and the environment - these were consistent with previous literature.

Recent literature by Caro et al (2016), Ergler et al (2016), and Pawlowski et al (2014) has theorised that socialising with friends is a key motivator to outdoor active play for young people, regardless of gender. Caro et al (2016) found that children and young people were motivated to engage in outdoor active play to socialise with friends. Similarly, Pawlowski et al (2014) reported that children and young people chose to engage in outdoor active play to spend time with friends**, and** Ergler et al (2016) suggested that children aged 8-10 years were motivated to engage in outdoor active play as it afforded an opportunity to meet friends. In this study, an opportunity to socialise with friends was reported as a significant motivator by both sexes, however, was more frequently cited by girls (eight girls) than boys (three boys). The discrepancies in the findings between this study and Caro et al's (2016), Ergler et al's (2016), and Pawlowski et al's (2014) studies **m**ay be a result of methodological

differences. Caro et al (2016) and Pawlowski et al (2014) conducted same sex focus groups with children and young people, and Ergler et al (2016) conducted semi-structured interviews with children and parents. This study explored the barriers and motivators to outdoor active play during same sex focus groups, and it has been stated by Christensen and James (2008) that boys and girls should be interviewed separately as they may have different styles of communication. Furthermore, Gibson (2007) stated that homogeneous focus groups, such as undertaking focus groups with the same sex, facilitated the comparison between boys and girls, therefore, the findings from this study may provide a more accurate representation of young people's perceptions of outdoor active play.

The girls in this study reported that they valued the opportunity to meet and socialise with friends, because playing with friends was revealed as being more enjoyable as it allowed them to engage in activities that they could not do alone, such as games of tig. Research conducted by Vu, Murrie, Gonzalez, and Jobe (2006) supported this finding, reporting that girls aged 11-15 years revealed that friends motivated them to engage in physical activity. García-Carpintero, de Diego-Cordero, Pavón-Benítez, and Tarriño-Concejero (2020) discovered that females felt safer while engaging in physical activity in public spaces with friends rather than alone. Girls in this study supported this finding, reporting that the presence of friends made them feel more comfortable and safer while engaging in outdoor active play.

Despite being a significant motivator to outdoor active play for girls, only 30% of boys (three boys) spoke about the opportunity to socialise with friends as a motivation to engage in outdoor active play. This may be because, as stated by Kracht and Sisson (2018) and Schofield, Mummery, Schofield, and Hopkins (2007), as girls move into adolescence (around 12 years old) they spend more time with friends, and friends begin to have a strong influence on their peers' physical activity levels. Wider physical activity literature conducted by Davison and Schmalz (2006) and Lytle et al (2009) has reported that social support from friends mediates the level of moderate to vigorous physical activity in girls aged 11-14 years,

furthermore, there is a stronger association between social support from friends and physical activity in girls aged 11-14 years in comparison to boys aged 11-14 years.

It is well documented that fun and enjoyment are key determinants to physical activity for children and young people aged 7-18 years (O'Dea, 2003; Petlichkoff, 1992; Visek et al, 2015). The importance placed on fun and enjoyment to outdoor active play was evident in this study, as 80% of boys (eight boys) reported that they engaged in outdoor active play because it was fun and enjoyable. However, boys did not specify what made outdoor active play enjoyable. Despite this, the findings are consistent with previous research that reports that fun and enjoyment are key determinants to outdoor active play for children and young people (Caro et al, 2016; Ergler et al, 2016; Curtis et al, 2012; Hyndman et al, 2012; Miller & Kuhaneck, 2008; Veitch et al, 2007).

Contrary to previous outdoor active play research, only boys in this study cited that they were motivated to engage in outdoor active play because it is fun and enjoyable. Previous outdoor active play research has reported that fun and enjoyed are significant motivators for children and young people, regardless of gender (Caro et al, 2016; Curtis et al, 2012; Ergler et al, 2016; Hyndman et al, 2012; Miller & Kuhaneck, 2008; Veitch et al, 2007). However, wider physical activity research conducted by Leslie, Kremer, Toumbourou, and Williams (2010) supported the findings of this study, reporting that enjoyment of physical activity was higher for boys aged 10-11 years and 13-14 years, than girls aged 10-11 years and 13-14 years. This study's findings highlight the significance of fun and enjoyment in mediating young people's physical activity. Boys engaged in outdoor active play because it was fun, while girls engaged because they enjoyed the social aspects of play, such as playing with friends. Therefore, the findings from this study are important as they support previous research - that young people are motivated to engage in physical activity because it is enjoyable (Caro et al, 2016; Curtis et al, 2012; Ergler et al, 2016; Hyndman et al, 2012; Miller & Kuhaneck, 2008; O'Dea, 2003; Petlichkoff, 1992; Veitch et al, 2007; Visek et al, 2015).

Regular engagement in physical activity can help improve young people's cardiovascular system, improve their cardiorespiratory system, improve bone health, and help develop and strengthen muscles (WHO, 2011). Furthermore, regular engagement in physical activity can help reduce depression, reduce anxiety, and improve short term self-esteem in young people (Biddle & Asare, 2011). In the current study, 90% of young people (ten boys and eight girls) reported numerous physical and mental benefits from outdoor active play, such as improving their cardiovascular system and reducing the risk of depression. Thus, the findings from this study suggest young people recognise the physical and mental health-related benefits associated with regular engagement in physical activity. Research conducted by Mulvihill, Rivers, and Aggleton (2000b) supported this finding, reporting that young people, regardless of physical activity levels, were aware of the physical health-related benefits associated with regular engagement in physical activity, such as getting stronger and building muscle.

In the current study, only young people with high play rates (seven young people) spoke of being motivated to engage in outdoor active play for the health-related benefits. Young people with high play rates revealed that getting fitter and improving their mental health were the key health-related motivators. Previous outdoor active play research has also demonstrated that young people are motivated to engage in outdoor active play for the health-related benefits (Brockman et al, 2011a; Caro et al, 2016; Ross & Francis, 2016). Brockman et al (2011a) explored the barriers, motivators, and facilitators to outdoor active play from children aged 10-11 years and reported that children recognised the physical and mental benefits of outdoor active play which motivated them to engage. Similarly**,** Caro et al (2016) reported that children and young people aged 9-12 years engaged in outdoor active play because they enjoyed being physically active, and Ross and Francis (2016) found that children engaged in outdoor active play for the physical health-related benefits, such as getting stronger.

The findings from the current study support previous outdoor active play research stating that young people are motivated to play for the health-related benefits (Brockman et al, 2011a; Caro et al, 2016; Ross & Francis, 2016). Furthermore, only young people with high play rates (seven young people) in this study spoke of being motivated to play for the health-related benefits, a key finding not reported in previous outdoor active play research (Brockman et al, 2011a; Caro et al, 2016; Ross & Francis, 2016). All three studies reported that children and young people, regardless of play rates, were motivated to engage in outdoor active play for the health-related benefits. Although the discrepancies in the findings between the present study and previous literature may be a result of Brockman et al (2011a), Caro et al (2016), and Ross and Francis (2016) not measuring or quantifying children and young people's outdoor active play rates. Whereas the current study used data collected from self-reported questionnaires, completed by the participants, to quantify outdoor active play rates.

Despite being reported as a barrier to outdoor active play, the weather was also reported as a motivator by 15% of young people in this study (one boy and two girls). Young people in this study spoke of being motivated to engage in outdoor active play when the weather was warm outside - warm weather is classified as temperatures between 18 and 20 degrees Celsius in the UK (Harrison et al, 2017). Research conducted by Beghin et al (2020) and Harrison et al (2017) supported the findings of this study - Beghin et al (2020) found that meteorological conditions are a determinant of physical activity for young people aged 12-17 years. Rainfall was negatively related to physical activity levels and an increase in temperature was positively associated with physical activity levels (Beghin et al, 2020). Harrison et al (2017) used data from 23,451 young people in the International Children's Accelerometery Database (ICAD) and found a linear relationship between an increase in temperature and an increase in physical activity levels amongst children and young people aged 3-18 years.

Young people in the current study revealed that outdoor active play was more enjoyable in warm temperatures, furthermore, staying inside and engaging in sedentary activities, such as watching TV whilst the weather was warm was cited as unenjoyable. This finding was supported by research conducted by Ergler et al (2016) who found that warm temperatures motivated children and young people to engage in outdoor active play. The similarities in the findings may be a result of when the data collection took place – both studies collected data in Summer, a season associated with warm temperatures (The Meteorological Office, 2020a). Conversely, Brockman et al (2011a) reported that snowfall can facilitate outdoor active play by providing children with additional opportunities and activities, such as sledging and snowball fights with friends. However, Brockman et al (2011a) collected data in Winter, a season associated with snowfall in the UK, which may account for their findings (The Meteorological Office, 2020b).

Strengths and limitations

The use of self-reported questionnaires to quantify outdoor active play rates and identify young people with high and low play rates was a strength of this piece of research. The questionnaires were easily designed, distributed, and analysed. Therefore, questionnaires were an effective method to quantify outdoor active play rates for 208 young people (Greig et al, 2013). The study is unique for its direct involvement with young people aged 11-12 years (year seven), as previous UK based outdoor active play literature has collected data on children aged 10-11years (year six) (Brockman et al, 2011a). Homogenous focus groups, determined by gender and outdoor active play rates, were a strength of this piece of research as they facilitated the comparison between boys and girls and young people with high and low play rates (Gibson, 2007). Ultimately, the present study is unique in its use of a quantitative methodology to quantify young people's outdoor active play rates, and its use of a qualitative methodology to explore the barriers and motivators to outdoor active play, comparing boys and girls and young people with high and low play rates.

Recruiting a school and gaining permission for the study to commence was a timely process. Waiting for a school to confirm their participation in the present study lasted several months. This resulted in the data collection and data analysis for phase one and data collection for phase two being completed within the last week of school, before it closed for the summer holidays and did not reopen until September. Therefore, the researcher had limited time to analyse the 208 completed questionnaires. Thus, some of the questionnaires may have been incorrectly scored. Although, the high and low play rate questionnaires were scored twice to ensure they were correct. Additionally, the present study was conducted in July, during the Summer, thus seasonal bias may have influenced the findings.

The present study was dependent on children's ability to recall past experiences and events, therefore, recall bias may have affected the validity of the findings, although in depth focus group discussions may have helped in this respect (O.Nyumba et al, 2018). Although the researcher was supported by two University lecturers throughout this study, the researcher was still a limitation as a lack of experience in data collection and data analysis may have affected the validity of the findings. This was apparent during the phase two data collection stage, as the first focus group which was conducted with boys with high play rate was shorter than the other three focus groups. This was because the researcher felt more comfortable after the first focus group, as the experience gained provided the researcher with the confidence and knowledge to include more follow up questions in the remaining three focus groups. Although, sufficient data was extracted from boys with high play rates.

The present study was unique as it explored the barriers and motivators to outdoor active play for young people aged 11-12 years living in the UK, comparing boys and girls and young people with high and low play rates. Therefore, the findings may provide a more accurate representation of the perceptions of young people aged 11-12 years living in the UK than previous research.

Recommendations for practice

The findings from this study highlight the importance of educating young people in time-management techniques to help balance their school life, social life, family life, and hobbies, to increase outdoor active play levels (Mannix, 2009;2014; McCraty et al, 1999). In this study having a busy schedule was frequently cited as a barrier to outdoor active play, particularly by boys who revealed that having homework to complete was the prominent barrier to outdoor active play. Time-management skills could be incorporated into the school curriculum to ensure that all young people are educated within a safe, familiar, and comfortable environment (Mannix, 2009;2014; McCraty et al, 1999).

The findings from this study are also important as they highlight the significance of alleviating parental safety concerns to increase young people's physical activity levels. Parental safety concerns often lead to rules being implemented, that are designed to protect young people, however, are seen by young people as a barrier to outdoor active play (Datar et al, 2013; Kalish et al, 2010). In this study, having a curfew was frequently cited as a barrier by young people, regardless of gender or play rates. Similarly, young people with low play rates revealed that having location rules, such as only being allowed to play in their own garden, was the prominent barrier to outdoor active play. Previous research has suggested that independent mobility is positively associated with the possession of a mobile phone, as parents can contact young people whilst they are away from home (Brockman et al, 2011a; Bjorklid, 2004; Carver, Timperio, & Crawford, 2012). Therefore, encouraging young people with low play rates to possess a mobile phone while away from home may ease parental safety concerns and increase young people's outdoor active play levels.

This finding may have significant implications for increasing girl's physical activity levels. Girls in this study reported that the presence of strangers in preferred play spaces was a significant barrier because their intimidating and threatening behaviour made them feel uncomfortable. Brockman et al (2011a) suggested that children require a safe outdoor space where they can engage in outdoor active play to increase physical activity levels. Therefore, the findings from this study are important as they add weight to the notion that a safe outdoor space is required to increase young people's physical activity levels.

Sweeney and Von Hagen (2016) explored children's, young people's, and parents' perceptions of the built and social environment and how they influenced physical activity choices, and reported that possessing a mobile phone eased parents', children's, and young people's safety concerns. Girls (aged 11-14 years) revealed that possessing a mobile phone whilst away from home made them feel more comfortable because they were able to contact their parents or the Emergency Medical Services in case of an emergency. There is a disparity between boys and girl's physical activity levels, with girls generally being less physically active than boys (Allison et al, 1999; Sport England, 2018). Therefore, encouraging girls to possess a mobile phone whilst away from home may ease personal and parental safety concerns and increase outdoor active play levels.

Future research

In this study, girls reported that they felt unsafe whilst engaging in outdoor active play as older children and strangers often encroached on preferred play spaces. It has been stated by Sport England (2018) that girls aged 11-12 years have lower physical activity levels than boys aged 11-12 years. Therefore, to increase girls' physical activity levels, it is paramount that safe outdoor spaces are provided. Therefore, future research is needed to clarify what girls perceive as a safe play space and what steps can be taken to make outdoor active play safer for those who participate. Parental rules were frequently cited as a barrier to outdoor active play by young people in this study. Therefore, future research which is conducted with parents of young people is needed to explore how parental safety concerns can be eased.

Chapter 6

Conclusion

The findings of this study revealed that after school was the most popular time for young people to engage in outdoor active play. Seventy-four percent of young people in this study (n=155) reported that they engaged in outdoor active play after school during a normal school week, furthermore, young people typically engaged in outdoor active play for more than three hours during a typical school week. This study also revealed that the park was the most popular outdoor active play location, as reported by 74% of young people (n=120).

The current study provided an insight into the barriers and motivators to outdoor active play for young people aged 11-12 years living in one area of the North of England. This study identified numerous barriers to outdoor active play. The most frequently cited barrier by boys was having homework to complete, whereas the most frequently cited barrier by girls was the presence of strangers in preferred play spaces. Additionally, the most prominent barrier to outdoor active play for young people with high play rates was being too busy learning other skills, such as football or dance. Whereas the most prominent barrier for young people with low play rates was having location rules implemented by parents such as, only being allowed to play in their garden, which was cited as unenjoyable.

This study also identified numerous motivators to outdoor active play for young people. Boys often spoke of being motivated to engage in outdoor active play because it was fun and enjoyable, and girls spoke of being motivated to engage in outdoor active play as it provided an opportunity to socialise with friends. Additionally, young people with high play rates were motivated to engage in outdoor active play for the health-related benefits, whereas to socialise with friends and because it was fun and enjoyable were the most frequently reported motivators by young people with low play rates. Conversely, the environment was reported as a motivator and a barrier to outdoor active play. Young people revealed that warm weather motivated them to engage, whereas rainy weather was a barrier.

This study differs from previous research as a mixed method methodology was used to explore the barriers and motivators to outdoor active play for young people aged 11-12 years living in the UK, comparing boys and girls and young people with high and low play rates. Additionally, this study is unique as outdoor active play levels were quantified using young people's perceptions of their outdoor active play behaviours and patterns.

References

Ahlport, K. N., Linnan, L., Vaughn, A., Evenson, K. R., & Ward, D. S. (2008). Barriers to and facilitators of walking and bicycling to school: Formative results from the non-motorized travel study. *Health Education & Behavior, 35*(2), 221-244. doi:10.1177/1090198106288794

Ahmed, M. D., Ho, W. K. Y., Van Niekerk, R. L., Morris, T., Elayaraja, M., Lee, K., & Randles, E. (2017). The self-esteem, goal orientation, and health-related physical fitness of active and inactive adolescent students. *Cogent Psychology, 4*(1) doi:10.1080/23311908.2017.1331602

Allender, S., Cowburn, G., & Foster, C. (2006). Understanding participation in sport and physical activity among children and adults: A review of qualitative studies. *Health Education Research, 21*(6), 826-835. doi:10.1093/her/cyl063

Allison, K. R., Dwyer, J. J. M., & Makin, S. (1999). Perceived barriers to physical activity among high school students. *Preventive Medicine, 28*(6), 608-615. doi:10.1006/pmed.1999.0489

Anderson, R. T., Folke, H., Linton, M. I. A., Nokkentved, C., & Anderson, S. V. (2021). *Denmark*. *Encyclopedia Britannica*. Retrieved from https://www.britannica.com/place/Denmark

Australian Capital Territory Government. (2019). *Active Play*. Australian Capital Territory Government. Retrieved from https://www.health.act.gov.au/about-our-health-system/healthy-living/kids-play-active-play/active-play

Beghin, L., Vanhelst, J., Drumez, E., Migueles, J., Manios, Y., Moreno, L. A., De Henauw, S,. & Gottrand, F. (2020). Influence of meteorological conditions on physical activity in adolescents. *Journal of Epidemiology and Community Health (1979), 74*(4), 395-400. doi:10.1136/jech-2019-212459

Bélanger, M., MSc, Gray-Donald, K., PhD, O'Loughlin, J., PhD, Paradis, G., MD, & Hanley, J., PhD. (2009). Influence of weather conditions and season on physical activity in adolescents. *Annals of Epidemiology, 19*(3), 180-186. doi:10.1016/j.annepidem.2008.12.008

Bell, A. (2007). Designing and testing questionnaires for children. *Journal of Research in Nursing, 12*(5), 461-469. doi:10.1177/1744987107079616

Bernardo, L. M., Gardner, M. J., & Seibel, K. (2001). Playground injuries in children: A review and Pennsylvania trauma center experience. *Journal for Specialists in Pediatric Nursing, 6*(1), 11-20. doi:10.1111/j.1744-6155.2001.tb00114.x

Biddle, S. J. H., & Asare, M. (2011). Physical activity and mental health in children and adolescents: A review of reviews. *British Journal of Sports Medicine, 45*(11), 886-895. doi:10.1136/bjsports-2011-090185

Boddy, C. R. (2016). Sample size for qualitative research. *Qualitative Market Research, 19*(4), 426-432. doi:10.1108/QMR-06-2016-0053

Boufous, S., Finch, C., & Bauman, A. (2004). Parental safety concerns – a barrier to sport and physical activity in children? *Australian and New Zealand Journal of Public Health, 28*(5), 482-486. doi:10.1111/j.1467-842X.2004.tb00032.x

British Heart Foundation. (2017). *Physical Inactivity and Sedentary Behaviour Report 2017*. Retrieved from file:///C:/Users/u1566799/Downloads/physical-inactivity-report---mymarathon-final.pdf

Brockman, R., Fox, K. R., & Jago, R. (2011b). What is the meaning and nature of active play for today's children in the UK? *The International Journal of Behavioral Nutrition and Physical Activity, 8*(1), 15-15. doi:10.1186/1479-5868-8-15

Brockman, R., Jago, R., & Fox, K. R. (2010). The contribution of active play to the physical activity of primary school children. *Preventive Medicine, 51*(2), 144-147. doi:10.1016/j.ypmed.2010.05.012

Brockman, R., Jago, R., & Fox, K. R. (2011a). Children's active play: Self-reported motivators, barriers, and facilitators. *BMC Public Health, 11*(1), 461-461. doi:10.1186/1471-2458-11-461

Brown, B., Mackett, R., Gong, Y., Kitazawa, K., & Paskins, J. (2008). Gender differences in children's pathways to independent mobility. *Children's Geographies, 6*(4), 385-401. doi:10.1080/14733280802338080

Calculator.net. (2020). *Standard Deviation Calculator*. Retrieved from https://www.calculator.net/standard-deviation-calculator.html

Caro, H. E. E., Altenburg, T. M., Dedding, C., & Chinapaw, M. J. M. (2016). Dutch primary schoolchildren's perspectives of activity-friendly school playgrounds: A participatory study. *International Journal of Environmental Research and Public Health, 13*(6), 526. doi:10.3390/ijerph13060526

Carver, A., Salmon, J., Campbell, K., Baur, L., Garnett, S., & Crawford, D. (2005). How do perceptions of local neighborhood relate to adolescents' walking and cycling? *American Journal of Health Promotion, 20*(2), 139-147. doi:10.4278/0890-1171-20.2.139

Carver, A., Timperio, A. F., & Crawford, D. A. (2012). Young and free? A study of independent mobility among urban and rural dwelling Australian children. *Journal of Science and Medicine in Sport, 15*(6), 505-510. doi:10.1016/j.jsams.2012.03.005

Carver, A., Timperio, A., & Crawford, D. (2008). Perceptions of neighborhood safety and physical activity among youth: The CLAN study. *Journal of Physical Activity & Health, 5*(3), 430-444. doi:10.1123/jpah.5.3.430

Chan, C. B., & Ryan, D. A. (2009). Assessing the effects of weather conditions on physical activity participation using objective measures. *International Journal of Environmental Research and Public Health, 6*(10), 2639-2654. doi:10.3390/ijerph6102639

Change4Life. (2019a). *About Change4Life*. Retrieved from https://www.nhs.uk/change4life/about-change4life.

Change4Life. (2019b). *Fun ideas to help your kids stay healthy*. Retrieved from https://www.nhs.uk/change4life.

Change4Life. (2019c). *Sports and activities*. Retrieved from https://www.nhs.uk/change4life/activities/sports-and-activities.

Chen, C., Yuan, Z., & Zhu, H. (2019;2020;). Playing, parenting and family leisure in parks: Exploring emotional geographies of families in guangzhou Children's park, china. *Children's Geographies, 18*(4), 1-14. doi:10.1080/14733285.2019.1676879

Choy, L. T. (2014). The Strengths and Weaknesses of Research Methodology: Comparison and Complimentary between Qualitative and Quantitative Approaches. *Journal of Humanities and Social Science, 19*(4), 99-104. doi:10.9790/0837-194399104

Christensen, P. M., & James. A. (2008). *Research with children: Perspective and practices* (2nd ed.). London; New York;: Routledge

Ciocan, D. M., Milon, A., & Mares, G. (2017). Study Regarding the Motives of Children Participation in Sport Activities. *8th LUMEN International Scientific Conference Rethinking Social Action*, Romania, 1, 159-168. doi:10.18662/lumproc.rsacvp2017.15

Climbing Frames. (2020). *What is 'Active Play'?*. Retrieved from https://www.climbingframes.com.au/kb/what-is-active-play/#:~:text=Active%20play%20is%20physical%20activity%20with%20regular%20bursts,heart%20rate%20and%20make%20them%20%E2%80%98huff%20and%20puff%E2%80%99.

Coombs, N., Shelton, N., Rowlands, A., & Stamatakis, E. (2013). Children's and adolescents' sedentary behaviour in relation to socioeconomic position. *Journal of Epidemiology and Community Health (1979), 67*(10), 868-874. doi:10.1136/jech-2013-202609

Cooper, M., & Morton, J. (2018). *Digital Health* (1st ed.). Springer. 10.1007/978-3-319-61446-5

Cope, E., Bailey, R., & Pearce, G. (2013). Why do children take part in, and remain involved in sport?: implications for children's sport coaches. *International Journal of Sports Science & Coaching, 7*(1), 55-74. Retrieved from https://www.researchgate.net/publication/262151828_Why_do_children_take_part_in_and_remain_involved_in_sport_implications_for_children's_sport_coaches

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (Fourth, International student ed.). Los Angeles: SAGE.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (Third ed.). Los Angeles: SAGE.

Creswell, J.W. (2013). *Steps in Conducting a Scholarly Mixed Methods*. Retrieved from http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1047&context=dberspeakers.

Critical Appraisal Skills Programme. (2018). *CASP Checklists*. Retrieved from https://casp-uk.net/casp-tools-checklists/.

Cumbo, B., Jacobs, B., Leong, T., & Kanstrup, A. (2014). What motivates children to play outdoors?: Potential applications for interactive digital tools. Paper presented at the 168-171. doi:10.1145/2686612.2686637

Curtis, A. D., Hinckson, E. A., & Water, T. C. A. (2012). Physical activity is not play: Perceptions of children and parents from deprived areas. *New Zealand Medical Journal, 125*(1365), 38-47.

Daniels, S. R., Pratt, C. A., & Hayman, L. L. (2011). Reduction of risk for cardiovascular disease in children and adolescents. *Circulation (New York, N.Y.), 124*(15), 1673-1686. doi:10.1161/CIRCULATIONAHA.110.016170

Datar, A., Nicosia, N., & Shier, V. (2013). Parent Perceptions of Neighborhood Safety and Children's Physical Activity, Sedentary Behavior, and Obesity: Evidence from a National Longitudinal Study. *American Journal of Epidemiology, 177*(10), 1065-1073. doi:10.1093/aje/kws353

Davison, K. K., & Lawson, C. T. (2006). Do attributes in the physical environment influence children's physical activity? A review of the literature. *The International Journal of Behavioral Nutrition and Physical Activity, 3*(1), 19-19. doi:10.1186/1479-5868-3-19

Davison, K. K., & Schmalz, D. L. (2006). Youth at risk of physical inactivity may benefit more from activity-related support than youth not at risk. *International Journal of Behavioral Nutrition and Physical Activity, 3*(1), 5-5. doi:10.1186/1479-5868-3-5

de Moraes, A. C. F., Carvalho, H. B., Siani, A., Barba, G., Veidebaum, T., Tornaritis, M., Molnar, D., Ahrens, W., Wirsik, N., De Henauw, S., Mårild, S., Lissner, L., Konstabel, K., Pitsiladis, Y., Moreno, L. A., & IDEFICS consortium. (2014;2015;). Incidence of high blood pressure in children — effects of physical activity and sedentary behaviors: The IDEFICS study. *International Journal of Cardiology, 180*, 165-170. doi:10.1016/j.ijcard.2014.11.175

Deakin, J. (2006). Dangerous people, dangerous places: The nature and location of young people's victimisation and fear. *Children & Society, 20*(5), 376-390. doi:10.1111/j.1099-0860.2006.00011.x

Department for Education. (2018a). *Bullying in England, April 2013 to March 2018*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/754959/Bullying_in_England_2013-2018.pdf

Department for Education. (2018b). *Education Secretary: I trust head teachers to decide their homework policies*. Retrieved from https://dfemedia.blog.gov.uk/2018/10/28/education-secretary-i-trust-head-teachers-to-decide-their-homework-policies/

Department of Health and Social Care. (2019a). *UK Chief Medical Officers' Physical Activity Guidelines*. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832868/uk-chief-medical-officers-physical-activity-guidelines.pdf

Department of Health and Social Care. (2019b). *UK Chief Medical Officers' Physical Activity Guidelines*. GOV.UK. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832868/uk-chief-medical-officers-physical-activity-guidelines.pdf

DiVasta, A. D., & Gordon, C. M. (2013). Exercise and bone: Where do we stand? *Metabolism, 62*(12), 1714-1717. doi:10.1016/j.metabol.2013.09.016

Domingues-Montanari, S. (2017). Clinical and psychological effects of excessive screen time on children: Effects of screen time on children. *Journal of Paediatrics and Child Health, 53*(4), 333-338. doi:10.1111/jpc.13462

Donaldson, S. I., & Grant-Vallone, E. J. (2002). Understanding self-report bias in organizational behavior research. *Journal of Business and Psychology, 17*(2), 245-260. doi:10.1023/A:1019637632584

Duckworth, A. L., & Seligman, M. E. P. (2006). Self-discipline gives girls the edge: Gender in self-discipline, grades, and achievement test scores. *Journal of Educational Psychology, 98*(1), 198-208. doi:10.1037/0022-0663.98.1.198

Dumith, S. C., Gigante, D. P., Domingues, M. R., & Kohl, H. W. (2011). Physical activity change during adolescence: A systematic review and a pooled analysis. *International Journal of Epidemiology, 40*(3), 685-698. doi:10.1093/ije/dyq272

Encyclopaedia on Early Childhood Development. (2019). *Outdoor Play*. Retrieved from http://www.child-encyclopedia.com/outdoor-play/according-experts/active-outdoor-play

Ergler, C. R., Kearns, R., & Witten, K. (2016). Exploring children's seasonal play to promote active lifestyles in Auckland, New Zealand. *Health & Place, 41*, 67-77. doi:10.1016/j.healthplace.2016.07.001

Faber, J., & Fonseca, L. M. (2014). How sample size influences research outcomes. *Dental Press Journal of Orthodontics, 19*(4), 27-29. doi:10.1590/2176-9451.19.4.027-029.ebo

Fairclough, S. J., Beighle, A., Erwin, H., & Ridgers, N. D. (2012). School day segmented physical activity patterns of high and low active children. *BMC Public Health, 12*(1), 406-406. doi:10.1186/1471-2458-12-406

Flick, U., Kardoff, E. V., & Steinke, I. (2004). *A companion to qualitative research*. London: SAGE.

Foster, S., Villanueva, K., Wood, L., Christian, H., & Giles-Corti, B. (2014). The impact of parents' fear of strangers and perceptions of informal social control on children's independent mobility. *Health and Place, 26*, 60-68. doi:10.1016/j.healthplace.2013.11.006

Fyhri, A., & Hjorthol, R. (2009). Children's independent mobility to school, friends and leisure activities. *Journal of Transport Geography, 17*(5), 377-384. doi:10.1016/j.jtrangeo.2008.10.010

García-Carpintero, M. Á., de Diego-Cordero, R., Pavón-Benítez, L., & Tarriño-Concejero, L. (2020). 'Fear of walking home alone': Urban spaces of fear in youth nightlife. *The European Journal of Women's Studies.* doi:10.1177/1350506820944424

Gibson, F. (2007). Conducting focus groups with children and young people: Strategies for success. *Journal of Research in Nursing, 12*(5), 473-483. doi: 10.1177/1744987107079791

Gilbert, G. N., & Gilbert, N. (2008). *Researching social life* (3rd ed.). London: SAGE

Ginsburg, K. R., and Committee on Communications, and Committee on Psychosocial Aspects of Child and Family Health, American Academy of Pediatrics Committee on Communications, American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health, and the Committee on Communications, & and the Committee on Psychosocial Aspects of Child and Family Health. (2007). The importance of play in promoting healthy child development and maintaining strong parent-child bonds. *Pediatrics, 119*(1), 182-191. doi:10.1542/peds.2006-2697

Granich, J., Rosenberg, M., Knuiman, M., & Timperio, A. (2010). Understanding children's sedentary behaviour: A qualitative study of the family home environment. *Health Education Research, 25*(2), 199-210. doi:10.1093/her/cyn025

Gray, D. E. (2014). *Doing research in the real world* (Third ed.). London: SAGE Publications.

Greig, A. Taylor, J., & MacKay, T. (2013). *Doing research with children: A practical guide* (3rd ed.). London; Los Angeles, Calif;: SAGE.

Griffiths, M.D. (2010). Trends in technological advance: Implications for sedentary behaviour and obesity in screenagers. *Education and Health, 28* (2), 35-38. Retrieved from https://www.researchgate.net/publication/286712498_Trends_in_technological_advance_Implications_for_sedentary_behaviour_and_obesity_in_screenagers

Harrison, F., Goodman, A., Van Sluijs, E., Andersen, L., Cardon, G., Davey, R., Janz, K. F., Kriemler, S., Molloy, Y., Page, A. S., Pate, R., Puder, J. J., Sardinha, L. B., Timperio, A., Wedderkopp, N., & Jones, A. (2017). Weather and children's physical activity; how and why do relationships vary between countries? *The International Journal of Behavioral Nutrition and Physical Activity, 14*(1), 74-74. doi:10.1186/s12966-017-0526-7

Harrison, F., Jones, A. P., Bentham, G., van Sluijs, E. M. F., Cassidy, A., & Griffin, S. J. (2011). The impact of rainfall and school break time policies on physical activity in 9-10 year

old British children: A repeated measures study. *International Journal of Behavioral Nutrition and Physical Activity, 8*(1), 47-47. doi:10.1186/1479-5868-8-47

Hillman, M. (2006). Children's rights and adults' wrongs. *Children's Geographies, 4*(1), 61-67. doi:10.1080/14733280600577418

Hoeben, E., & Weerman, F. M. (2016). Why is involvement in unstructured socializing related to adolescent delinquency?. *Criminology, 54*(2), 242-281. doi:10.1111/1745-9125.12105

Holt, N. L., Lee, H., Millar, C. A., & Spence, J. C. (2015). 'eyes on where children play': A retrospective study of active free play. *Children's Geographies, 13*(1), 73-88. doi:10.1080/14733285.2013.828449

Horton, J., & Kraftl, P. (2018). Three playgrounds: Researching the multiple geographies of children's outdoor play. *Environment and Planning A: Economy and Space, 50*(1), 214-235. doi:10.1177/0308518X17735324

Hsieh, H., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277-1288. doi:10.1177/1049732305276687

Hyndman, B., Telford, A., Finch, C. F., & A. C., Benson. (2012). Moving Physical Activity Beyond the School Classroom: A Social-ecological Insight for Teachers of the facilitators and barriers to students' non-curricular physical activity. *Australian Journal of Teacher Education 37*(2), 1-24. doi:10.14221/ajte.2012v37n2.2

Indian Scribes. (2018). *4 Rules of Verbatim Transcription*. Retrieved from https://www.indianscribes.com/4-rules-of-verbatim-transcription/.

Jago, R., Anderson, C. B., Baranowski, T., & Watson, K. (2005). Adolescent patterns of physical activity: Differences by gender, day, and time of day. *American Journal of Preventive Medicine, 28*(5), 447-452. doi:10.1016/j.amepre.2005.02.007

Jago, R., Brockman, R., Fox, K. R., Cartwright, K., Page, A. S., & Thompson, J. L. (2009). Friendship groups and physical activity: Qualitative findings on how physical activity is initiated and maintained among 10-11 year old children. *The International Journal of Behavioral Nutrition and Physical Activity, 6*(1), 4-4. doi:10.1186/1479-5868-6-4

Janssen, I., & LeBlanc, A. G. (2010). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *The International Journal of Behavioral Nutrition and Physical Activity, 7*(1), 40-40. doi:10.1186/1479-5868-7-40

Jansson, M. (2015). Children's perspectives on playground use as basis for children's participation in local play space management. *Local Environment, 20*(2), 165-179. doi:10.1080/13549839.2013.857646

Kalish, M., Blanco, L., Burke, G., & Lapidus, G. (2010). Outdoor Play: A Survey of Parent's Perceptions of Their Child's Safety. *The Journal of trauma, 69*(4), 212-222. doi:10.1097/TA.0b013e3181f1eaf0

Karsten, L. (2005). It all used to be better? different generations on continuity and change in urban children's daily use of space. *Children's Geographies, 3*(3), 275-290. doi:10.1080/14733280500352912

Kennedy, C., Kools, S., & Krueger, R. (2001). Methodological considerations in children's focus groups. *Nursing Research, 50* (3), 184-187. doi:10.1097/00006199-200105000-00010.

Kercood, S. K., Conway, T. L., Saelens, B. E., Frank, L. D., Cai, K. L., & Sallis, J. F. (2015). Parent Rules, Barriers, and Places for Youth Physical Activity Vary by Neighborhood Walkability and Income. *Children, Youth and Environments, 25*(1), 100-118. doi:10.7721/chilyoutenvi.25.1.0100

Khare, S. R., & Vedel, I. (2019). Recall bias and reduction measures: an example in primary health care service utilization. *Family Practice, 36*(5), 672-676. doi:10.1093/fampra/cmz042

Knowles, A., Kirk, A., & Hughes, A. (2014). What is sedentary behavior? parents' perceptions and key determinants of sedentary behavior in young children. *Medicine and Science in Sports and Exercise, 46*, 516. doi:10.1249/01.mss.0000495013.60912.48

Kracht, C. L., & Sisson, S. B. (2018). Sibling influence on children's objectively measured physical activity: A meta-analysis and systematic review. *BMJ Open Sport and Exercise Medicine, 4*(1), 405. doi:10.1136/bmjsem-2018-000405

Krueger, R. A. (1998). Developing questions for focus groups. London: SAGE.

Larsen, K. (2014). *Safety and school travel: How does the built environment relate to correlates of safety, mode of travel and physical activity levels to and from school* (PhD thesis). Retrieved from https://tspace.library.utoronto.ca/bitstream/1807/69048/6/Larsen_Kristian_201406_PhD_thesis.pdf

Lee, H., Tamminen, K. A., Clark, A. M., Slater, L., Spence, J. C., & Holt, N. L. (2015b). A meta-study of qualitative research examining determinants of children's independent active free play. *International Journal of Behavioral Nutrition and Physical Activity, 12*(1), 5. doi:10.1186/s12966-015-0165-9

Lee, Y., Takenaka, K., & Kanosue, K. (2015a). An understanding of Japanese children's perceptions of fun, barriers, and facilitators of active free play. *Journal of Child Health Care, 19*(3), 334-344. doi:10.1177/1367493513519294

Leslie, E., Kremer, P., Toumbourou, J. W., & Williams, J. W. (2010). Gender differences in personal, social, and environmental influences on active travel to and from school for Australian adolescents. *Journal of Science and Medicine in Sport, 13*(6), 597-601. doi:10.1016/j.jsams.2010.04.004

Leung, M. M., Agaronov, A., Grytsenko, K., & Yeh, M. (2012). Intervening to reduce sedentary behaviors and childhood obesity among school-age youth: A systematic review of randomized trials. *Journal of Obesity, 2012*, 1-14. doi:10.1155/2012/685430

Lytle, L. A., Murray, D. M., Evenson, K. R., Moody, J., Pratt, C. A., Metcalfe, L., & Parra-Medina, D. (2009). Mediators affecting females' levels of physical activity outside of school: Findings from the trial of activity in adolescent females. *Annals of Behavioral Medicine, 38*(2), 124-136. doi:10.1007/s12160-009-9127-2

Maitland, C., Stratton, G., Foster, S., Braham, R., & Rosenberg, M. (2013). A place for play? the influence of the home physical environment on children's physical activity and sedentary behaviour. *International Journal of Behavioral Nutrition and Physical Activity, 10*(1), 99-99. doi:10.1186/1479-5868-10-99

Mameli, C., Fabiano, V., & Zuccotti, G. V. (2014). Sedentary behaviour as a risk factor for cardiovascular diseases in pediatric age. *Italian Journal of Pediatrics, 40*(1), 1-1. doi:10.1186/1824-7288-40-S1-A22

Mannix, D. (2009;2014;). *Life skills activities for special children* (2nd ed.). San Francisco, California: Jossey-Bass.

Maturo, C. C., & Cunningham, S. A. (2013). Influence of friends on children's physical activity: A review. *American Journal of Public Health, 103*(7), 23-38. doi:10.2105/AJPH.2013.301366

McCarthy, P., & Jones, M. (2007). A Qualitative Study of Sport Enjoyment in the Sampling Years. *The Sport Psychologist, 21*(4), 400-416. doi:10.1123/tsp.21.4.400

McCraty, R., Atkinson, M., Tomasino, D., Goelitz, J., & Mayrovitz, H. N. (1999). The impact of an emotional self-management skills course on psychosocial functioning and autonomic recovery to stress in middle school children. *Integrative Psychological & Behavioral Science, 34*(4), 246-268. doi:10.1007/bf02688693

McCullagh, P., Matzkanin, K. T., Shaw, S. D., & Maldonado, M. (1993). Motivation for Participation in Physical Activity: A Comparison of Parent-Child Perceived Competencies and Participation Motives. *Pediatric Exercise Science, 5*(3), 224-233.

Mielke, G. I., Brown, W. J., Nunes, B. P., Silva, I. C. M., & Hallal, P. C. (2017). Socioeconomic correlates of sedentary behavior in adolescents: Systematic review and meta-analysis. *Sports Medicine, 47*(1), 61-75. doi:10.1007/s40279-016-0555-4

Miller, E., & Kuhaneck, H. (2008). Children's perceptions of play experiences and play preferences: A qualitative study. *The American Journal of Occupational Therapy, 62*(4), 407-415. doi 10.5014/ajot.62.4.407

Mishra, K. K., Misra, A. K., Mueller, P., Martinez Perez, G., Bhatia, S. K., & Wang, Y. (2014). Recent advancements in computer & software technology. *Scientific World Journal, 2014*, 1-1. doi:10.1155/2014/609512

Mitchell, J. A., Mattocks, C., Ness, A. R., Leary, S. D., Pate, R. R., Dowda, M., Blair, S. N., & Riddoch, C. (2009). Sedentary behavior and obesity in a large cohort of children. *Obesity, 17*(8), 1596-1602. doi:10.1038/oby.2009.42

Moran, E., Warden, D., Macleod, L., Mayes, G., & Gillies, J. (1997). Stranger-Danger: What do children know? *Child Abuse Review, 6*(1), 11-23. doi:10.1002/(SICI)1099-0852(199703)6:1<11::AID-CAR286>3.0.CO;2-G

Mott, A., Rolfe, K., James, R., Evans, R., Kemp, A., Dunstan, F., Kemp, K., & Sibert, J. (1997). Safety of surfaces and equipment for children in playgrounds. *The Lancet (British Edition), 349*(9069), 1874-1876. doi:10.1016/S0140-6736(96)10343-3

Mulvihill, C., Rivers, K., & Aggleton, P. (2000a). A qualitative study investigating the views of primary-age children and parents on physical activity. *Health Education Journal, 59*(2), 166-179. doi:10.1177/001789690005900206

Mulvihill, C., Rivers, K., & Aggleton, P. (2000b). Views of young people towards physical activity: Determinants and barriers to involvement. *Health Education, 100*(5), 190-199. doi:10.1108/09654280010343555

O.Nyumba, T., Wilson, K., Derrick, C. J., Mukherjee, N., & Geneletti, D. (2018). The use of focus group discussion methodology: Insights from two decades of application in conservation. *Methods in Ecology and Evolution, 9*(1), 20-32. doi:10.1111/2041-210X.12860

O'Brien, M., Jones, D., Sloan, D., & Rustin, M. (2000). Children's independent spatial mobility in the urban public realm. *Childhood, 7*(3), 257-277. doi:10.1177/0907568200007003002

O'Dea, J. A. (2003). Why do kids eat healthful food? perceived benefits of and barriers to healthful eating and physical activity among children and adolescents. *Journal of the American Dietetic Association, 103*(4), 497-501. doi:10.1016/S0002-8223(03)00013-0

Ollendick, T. H., Matson, J. L., & Helsel, W. J. (1985). Fears in children and adolescents: Normative data. *Behaviour Research and Therapy, 23*(4), 465-467. doi:10.1016/0005-7967(85)90174-3

Osgood, D. W., Ragan, D. T., Wallace, L., Gest, S. D., Feinberg, M. E., & Moody, J. (2013). Peers and the emergence of alcohol use: Influence and selection processes in adolescent friendship networks. *Journal of Research on Adolescence, 23*(3), 500-512. doi:10.1111/jora.12059

Ousey, G. C., & Wilcox, P. (2007). The interaction of antisocial propensity and life-course varying predictors of delinquent behavior: Differences by method of estimation and implications for theory. *Criminology, 45*(2), 313-354. doi:10.1111/j.1745-9125.2007.00080.x

Oxford. (2020). *Curfew*. Retrieved from https://www.lexico.com/en/definition/curfew

Page, A., Cooper, A. R., Stamatakis, E., Foster, L. J., Crowne, E. C., Sabin, M., & Shield, J. P. H. (2005). Physical activity patterns in nonobese and obese children assessed using minute-by-minute accelerometry. *International Journal of Obesity, 29*(9), 1070-1076. doi:10.1038/sj.ijo.0802993

Panter, J. R., Jones, A. P., & van Sluijs, E. M. F. (2008). Environmental determinants of active travel in youth: A review and framework for future research. *International Journal of Behavioral Nutrition and Physical Activity, 5*(1), 34-34. doi:10.1186/1479-5868-5-34

Pawlowski, C. S., Tjørnhøj-Thomsen, T., Schipperijn, J., & Troelsen, J. (2014). Barriers for recess physical activity: A gender specific qualitative focus group exploration. *BMC Public Health, 14*(1), 639-639. doi:10.1186/1471-2458-14-639

Pawlowski, C. S., Veitch, J., Andersen, H. B., & Ridgers, N. D. (2019). Designing activating schoolyards: Seen from the girls' viewpoint. *International Journal of Environmental Research and Public Health, 16*(19), 3508. doi:10.3390/ijerph16193508

Payne, S., Townsend, N., & Foster, C. (2013). The physical activity profile of active children in England. *International Journal of Behavioral Nutrition and Physical Activity, 10*(1), 136-136. doi:10.1186/1479-5868-10-136

Peers, K (2017). *We need more PE – why are our children being made to sit down all day at school?* Retrieved from https://metro.co.uk/2017/02/01/we-need-more-pe-why-are-our-children-being-made-to-sit-down-all-day-at-school-6381175/

Petlichkoff, L. M. (1992). Youth Sport Participation and Withdrawal: Is It Simply a Matter of FUN?. *Pediatric Exercise Science, 4*(2), 105-110. doi:10.1123/pes.4.2.105

Phelan, K. J., Khoury, J., Kalkwarf, H. J., & Lanphear, B. P. (2001). Trends and patterns of playground injuries in united states children and adolescents. *Ambulatory Pediatrics : The Official Journal of the Ambulatory Pediatric Association, 1*(4), 227-233. doi:10.1367/1539-4409(2001)001<0227:TAPOPI>2.0.CO;2

Play England. (2019). *Streets*. Retrieved from http://www.playengland.net/streets/.

Playful Childhoods. (2019). *About Playful Childhoods*. Retrieved from https://www.playfulchildhoods.wales/about-playful-childhoods.

Prezza, M., Pilloni, S., Morabito, C., Sersante, C., Alparone, F. R., & Giuliani, M. V. (2001). The influence of psychosocial and environmental factors on children's independent mobility and relationship to peer frequentation. *Journal of Community & Applied Social Psychology, 11*(6), 435-450. doi:10.1002/casp.643

PRISMA. (2009). *PRISMA Flow Diagram*. Retrieved from http://prisma-statement.org/PRISMAStatement/FlowDiagram.aspx.

Public Health England. (2018). *Patterns and trends in child physical activity*. Retrieved from https://www.slideshare.net/AndyPicken/patterns-and-trendsinchildphysicalactivitypresentationfeb2018

Public Health England. (2019). *Physical activity: applying All Our Health*. Retrieved from https://www.gov.uk/government/publications/physical-activity-applying-all-our-health/physical-activity-applying-all-our-health

Public Health Network. (2019). *Project Play - new summer campaign launched*. Retrieved from https://www.publichealthnetwork.cymru/en/news/project-play-new-summer-campaign-launched/

Ries, A. V., Voorhees, C. C., Gittelsohn, J. G., Roche, K. M., & Astone, N. M. (2008). Adolescents' Perceptions of Environmental Influences on Physical Activity. *American Journal of Health Behavior, 32*(1), 26-39. doi:10.5555/ajhb.2008.32.1.26

Robbins, L. B., Pender, N. J., & Kazanis, A. S. (2003). Barriers to physical activity perceived by adolescent girls. *Journal of Midwifery and Women's Health, 48*(3), 206-212. doi:10.1016/S1526-9523(03)00054-0

Roemmich, J. N., Lambiase MS, M. J., McCarthy, T. F., Feda, D. M., & Kozlowski, K. F. (2012). Autonomy supportive environments and mastery as basic factors to motivate physical activity in children: A controlled laboratory study. *International Journal of Behavioral Nutrition and Physical Activity, 9*(1), 16-16. doi:10.1186/1479-5868-9-16

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, N.J: Princeton University Press.

Rosenman, R., Tennekoon, V., & Hill, L.G. (2011). Measuring bias in self-reported data. *International Journal of Behavioral and Healthcare Research, 2* (4), 320-332. doi: 10.1504/IJBHR.2011.043414.

Ross, S. E. T., & Francis, L. A. (2016). Physical activity perceptions, context, barriers, and facilitators from a hispanic child's perspective. *International Journal of Qualitative Studies on Health and Well-being, 11*(1), 31949-31949. doi:10.3402/qhw.v11.31949

Salvy, S., Roemmich, J. N., Bowker, J. C., Romero, N. D., Stadler, P. J., & Epstein, L. H. (2009;2008;). Effect of peers and friends on youth physical activity and motivation to be physically active. *Journal of Pediatric Psychology, 34*(2), 217-225. doi:10.1093/jpepsy/jsn071

Sandford, R., Duncombe, R., Mason, C., & Butler, C. (2015). Ability to be active: Exploring children's active play in primary schools. *International Journal of Play, 4*(2), 149-162. doi:10.1080/21594937.2015.1060569

Schofield, L., Mummery, W. K., Schofield, G., & Hopkins, W. (2007). The Association of Objectively Determined Physical Activity Behavior Among Adolescent Girl Friends. *Research Quarterly for Exercise and Sport, 78*(2), 9-15. doi:10.1080/02701367.2007.10599398

Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The Self-Efficacy Scale: Construction and Validation. *Psychological Reports, 51*(2), 663-671. doi:10.2466/pr0.1982.51.2.663

Sherry, A. P., Pearson, N., & Clemes, S. A. (2016). The effects of standing desks within the school classroom: A systematic review. *Preventive Medicine Reports, 3*, 338-347. doi:10.1016/j.pmedr.2016.03.016

Sholjakova, M. V. (2019). Technological advances in medical education in intensive care. *Anaesthesia, Pain & Intensive Care*, 119-123. doi:10.35975/apic.v23i2.1054

Solomon-Moore, E., Sebire, S. J., Macdonald-Wallis, C., Thompson, J. L., Lawlor, D. A., & Jago, R. (2017). Exploring parents' screen-viewing behaviours and sedentary time in association with their attitudes toward their young child's screen-viewing*. Preventive Medicine Reports, 7*(C), 198-205. doi:10.1016/j.pmedr.2017.06.011

Sport England. (2018). *Active Lives Children and Young People Survey: Academic Year 2017/18*. Retrieved from https://www.sportengland.org/media/13698/active-lives-children-survey-academic-year-17-18.pdf.

Standard Deviation Calculator. (2020). *Standard Deviation Calculator*. Retrieved from https://standarddeviationcalc.com/

Standards and Testing Agency. (2020). *Key stage 1 and key stage 2 test dates*. Retrieved from https://www.gov.uk/guidance/key-stage-1-and-key-stage-2-test-dates

Stewart, D. W., & Shamdasani, P. N. (2015). *Focus groups: Theory and practice* (Third ed.). Los Angeles, CA: SAGE.

Stone, M. R., Faulkner, G. E., Mitra, R., & Buliung, R. N. (2014). The freedom to explore: Examining the influence of independent mobility on weekday, weekend and after-school physical activity behaviour in children living in urban and inner-suburban neighbourhoods of varying socioeconomic status. *The International Journal of Behavioral Nutrition and Physical Activity, 11*(1), 5-5. doi:10.1186/1479-5868-11-5

Swartz, A. M., Tokarek, N., Cho, C. C., Miller, N. E., Maeda, H., Lisdahl, K., & Strath, S. J. (2018). Standing desk intervention in elementary school children: Effects on physical activity and sedentary behavior. *Medicine & Science in Sports & Exercise, 50*, 696. doi:10.1249/01.mss.0000538292.52395.42

Sweeney, S. M., & Von Hagen, L. A. (2016). Stranger danger, cell phones, traffic, and active travel to and from schools: Perceptions of parents and children. *Transportation Research Record, 2582*(1), 1-7. doi:10.3141/2582-01

Tafarodi, R. W., & Swann, W. B. (1995). Self-Linking and Self-Competence as Dimensions of Global Self-Esteem: Initial Validation of a Measure. *Journal of Personality Assessment, 65*(2), 322-342. doi:10.1207/s15327752jpa6502_8

Tan, V. P., Macdonald, H. M., Kim, S., Nettlefold, L., Gabel, L., Ashe, M. C., & McKay, H. A. (2014). Influence of physical activity on bone strength in children and adolescents: A systematic review and narrative synthesis. *Journal of Bone and Mineral Research, 29*(10), 2161-2181. doi:10.1002/jbmr.2254

Tanaka, C., Reilly, J. J., & Huang, W. Y. (2014). Longitudinal changes in objectively measured sedentary behaviour and their relationship with adiposity in children and adolescents: Systematic review and evidence appraisal. *Obesity Reviews, 15*(10), 791-803. doi:10.1111/obr.12195

Tappe, M. K., Duda, J. L., & Ehrnwald, P. M. (1989). Perceived Barriers To Exercise Among Adolescents. *Journal of School Health, 59*(4), 153-155. doi:10.1111/j.1746-1561.1989.tb04689.x

Telford, A., Finch, C. F., Barnett, L., Abbott, G., & Salmon, J. (2012). Do parents' and children's concerns about sports safety and injury risk relate to how much physical activity children do? *British Journal of Sports Medicine, 46*(15), 1084-1088. doi:10.1136/bjsports-2011-090904

The Association of Play Industries. (2019). *Childhood obesity, poor mental health and sleep problems linked to playground decline*. Retrieved from https://www.api-play.org/posts/childhood-obesity-poor-mental-health-and-sleep-problems-linked-to-playground-decline/.

The Children's Commissioner for England. (2018). *Playing Out*. Retrieved from https://www.childrenscommissioner.gov.uk/wp-content/uploads/2018/08/Play-final-report.pdf.

The Meteorological Office. (2020a). *Summer*. Retrieved from https://www.metoffice.gov.uk/weather/learn-about/weather/seasons/summer

The Meteorological Office. (2020b). *Rain and snow - what is precipitation?*. Retrieved from https://www.metoffice.gov.uk/weather/learn-about/met-office-for-schools/other-content/other-resources/what-is-precipitation

The National Archives. (2010). *Change4Life – Eat Well, Move More, Live Longer*. Retrieved from https://webarchive.nationalarchives.gov.uk/+/http://www.dh.gov.uk/en/MediaCentre/Currentcampaigns/Change4Life/index.htm.

The National Health Service. (2018). *Benefits of exercise*. Retrieved from https://www.nhs.uk/live-well/exercise/exercise-health-benefits

The National Health Service. (2019). *Part 5: Physical activity*. Retrieved from https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-obesity-physical-activity-and-diet/statistics-on-obesity-physical-activity-and-diet-england-2019/part-5-adult-physical-activity

The National Institute for Health and Care Excellence. (2009). *Physical activity for children and young people*. Retrieved from https://www.nice.org.uk/guidance/ph17/resources/physical-activity-for-children-and-young-people-pdf-1996181580229

The National Institute for Health and Care Excellence. (2013). *Weight management: lifestyle services for overweight or obese children and young people*. Retrieved from https://www.nice.org.uk/guidance/ph47/resources/weight-management-lifestyle-services-for-overweight-or-obese-children-and-young-people-pdf-1996362978757

The Office of Communications. (2017). *Children and Parents: Media Use and Attitudes Report*. Retrieved from https://www.ofcom.org.uk/__data/assets/pdf_file/0020/108182/children-parents-media-use-attitudes-2017.pdf

Theeboom, M., De Knop, P., & Weiss, M. R. (1995). Motivational Climate, Psychological Responses, and Motor Skill Development in Children's Sport: A Field-Based Intervention Study. *Journal of Sport and Exercise Psychology, 17*(3), 294-311. doi:10.1123/jsep.17.3.294

Thompson, A. M., Rehman, L. A., & Humbert, M. L. (2005). Factors influencing the physically active leisure of children and youth: A qualitative study. *Leisure Sciences, 27*(5), 421-438. doi 10.1080/01490400500227324

Tisdall, E. K. M., Davis, J. M., & Gallagher, M. (2009). *Researching with children and young people: Research design, methods, and analysis*. SAGE.

Tobin, G. A., & Begley, C. M. (2004). Methodological rigour within a qualitative framework. *Journal of Advanced Nursing, 48*(4), 388-396. doi:10.1111/j.1365-2648.2004.03207.x

Toy Industries of Europe. (2012). *Play in children's development, health and well-being*. Retrieved from https://www.ornes.nl/wp-content/uploads/2010/08/Play-in-children-s-development-health-and-well-being-feb-2012.pdf.

Tremblay, M. S., LeBlanc, A. G., Kho, M. E., Saunders, T. J., Larouche, R., Colley, R. C., Goldfield, G., & Gorber, S. C. (2011). Systematic review of sedentary behaviour and health indicators in school-aged children and youth. *International Journal of Behavioral Nutrition and Physical Activity, 8*(1), 98-98. doi:10.1186/1479-5868-8-98

Trochim, W.M.K. (2020). *Measurement Validity Types*. Retrieved from https://conjointly.com/kb/measurement-validity-types/

Trost, S. G., Kerr, L. M., Ward, D. S., & Pate, R. R. (2001). Physical activity and determinants of physical activity in obese and non-obese children. *International Journal of Obesity, 25*(6), 822-829. doi:10.1038/sj.ijo.0801621

Trost, S. G., Pate, R. R., & Dowda, M. (1995). gender differences in physical activity and determinants of physical activity in rural fifth grade children: 928. *Medicine & Science in Sports & Exercise, 27*(Supplement), S165. doi:10.1249/00005768-199505001-00928

Van Der Geest, K. E, Mérelle, S. Y. M., Rodenburg, G., Van De Mheen, D., & Renders, C. M. (2017). Cross-sectional associations between maternal parenting styles, physical activity

and screen sedentary time in children. *BMC Public Health, 17*(1), 753-10. doi:10.1186/s12889-017-4784-8

Vasileiou, K., Barnett, J., Thorpe, S., & Young, T. (2018). Characterising and justifying sample size sufficiency in interview-based studies: Systematic analysis of qualitative health research over a 15-year period. *BMC Medical Research Methodology, 18*(1), 148-18. doi:10.1186/s12874-018-0594-7

Veitch, J., Bagley, S., Ball, K., & Salmon, J. (2006). Where do children usually play? A qualitative study of parents' perceptions of influences on children's active free-play. *Health and Place, 12*(4), 383-393. doi:10.1016/j.healthplace.2005.02.009

Veitch, J., Carver, A., Hume, C., Crawford, D., Timperio, A., Ball, K., & Salmon, J. (2014). Are independent mobility and territorial range associated with park visitation among youth? *The International Journal of Behavioral Nutrition and Physical Activity, 11*(1), 73-73. doi:10.1186/1479-5868-11-73

Veitch, J., Salmon, J., & Ball, K. (2007). Children's perceptions of the use of public open spaces for active free-play. *Children's Geographies, 5*(4), 409-422. doi:10.1080/14733280701631874

Veitch, J., Salmon, J., Timperio, A., Crawford, D., Abbott, G., & Giles-Corti, B. (2010). Cross-sectional and longitudinal associations between the neighbourhood environment and sedentary behaviours among children. *Obesity Research & Clinical Practice, 4*, 42-43. doi:10.1016/j.orcp.2010.09.086

Veselska, Z., Geckova, A. M., Reijneveld, S. A., & van Dijk, J. P. (2011). Aspects of self differ among physically active and inactive youths. *International Journal of Public Health, 56*(3), 311-318. doi:10.1007/s00038-010-0203-y

Visek, A. J., Achrati, S. M., Mannix, H. M., McDonnell, K., Harris, B. S., & DiPietro, L. (2015). The fun integration theory: Toward sustaining children and adolescents sport participation. *Journal of Physical Activity and Health, 12*(3), 424-433. doi:10.1123/jpah.2013-0180

Vogl, S. (2013). Telephone versus face-to-face interviews: Mode effect on semistructured interviews with children. *Sociological Methodology, 43*(1), 133-177. doi:10.1177/0081175012465967

Vu, M. B., Murrie, D., Gonzalez, V., & Jobe, J. B. (2006). Listening to girls and boys talk about girls' physical activity behaviors. *Health Education & Behavior, 33*(1), 81-96. doi:10.1177/1090198105282443

Wagner, A. L., Keusch, F., Yan, T., & Clarke, P. J. (2019). The impact of weather on summer and winter exercise behaviors. *Journal of Sport and Health Science, 8*(1), 39-45. doi:10.1016/j.jshs.2016.07.007

Wan, X., Wang, W., Liu, J., & Tong, T. (2014). Estimating the sample mean and standard deviation from the sample size, median, range and/or interquartile range. *BMC Medical Research Methodology, 14*(1), 135-135. doi:10.1186/1471-2288-14-135

Wankel, L., & Kreisel, P. (1983). Factors Underlying Enjoyment of Youth Sports: Sport and Age Group Comparisons. *Journal of Sport and Exercise Psychology, 7*(1), 51-64. doi:10.1123/jsp.7.1.51

Weir, L. A., Etelson, D., & Brand, D. A. (2006). Parents' perceptions of neighborhood safety and children's physical activity. *Preventive Medicine, 43*(3), 212-217. doi:10.1016/j.ypmed.2006.03.024

Weiss, M. R. (2000). Motivating Kids in Physical Activity. *President's Council on Physical Fitness and Sports Research Digest, 3*(11), 1-8. Retrieved from https://files.eric.ed.gov/fulltext/ED470695.pdf

Witten, K., Kearns, R., Carroll, P., Asiasiga, L., & Tava'e, N. (2013). New Zealand parents' understandings of the intergenerational decline in children's independent outdoor play and active travel. *Children's Geographies, 11*(2), 215-229. doi:10.1080/14733285.2013.779839

Wolff, J. M., & Crockett, L. J. (2011). The role of deliberative decision making, parenting, and friends in adolescent risk behaviors. *Journal of Youth and Adolescence, 40*(12), 1607-1622. doi:10.1007/s10964-011-9644-8

World Health Organization. (2011). *Global Recommendations on Physical Activity for Health*. Retrieved from https://www.who.int/dietphysicalactivity/publications/physical-activity-recommendations-5-17years.pdf?ua=1

World Health Organization. (2019). *Why does childhood overweight and obesity matter?*. Retrieved from https://www.who.int/dietphysicalactivity/childhood_consequences/en/

World Health Organization. (2020). *Physical Activity*. Retrieved from https://www.who.int/dietphysicalactivity/pa/en/

Appendices

Appendix 1: Table containing the initial inclusion/exclusion criteria used to identify relevant literature

Included	Excluded
Outdoor active play	Studies focused on sport
Barriers to outdoor active play	Studies focused on other forms of physical activity such as active travel
Motivators to outdoor active play	Studies focused on outdoor active play location
From children's perspective	Seasonality focused studies
Participants in year 6, year 7 and year 8	Parental/Guardian perceptions only
Conducted in the last 10 years	Teacher/Sport Coach perceptions only
Non-disabled focused	Participants in years 5 and below
Conducted in a country in Europe	Participants in years 9 and above
	Disability focused studies
	Studies conducted outside of Europe
	School-led outdoor active play
	Adult-led outdoor active play
	Meta-studies
	Retrospective studies
	Reports

Appendix 2: The invitational email sent to the recruited school

Dear **[insert name]**,

I graduated from the University of Huddersfield in 2018 with a 2:1 classification in Exercise Science (BSc Hons) and have recently enrolled on a Masters by Research programme that requires me to conduct a study of my choice, under the supervision of two university lecturers. I am currently a part-time football coach and have been for nearly 8 years, working with boys and girls aged 5-16. I, therefore, have an up to date DBS check.

I am writing to request your permission for **[insert school name]** to be included in my study. The aim of the study aims is to explore the barriers and motivators to outdoor active play for young people aged 11-12 years (year 7) as this has not been fully explored in the UK.

Outdoor active play is described as physical activity without structure. For example, tig games, street play, catching and kicking games.

Methods:

The study will take place over two phases:

Phase 1 will require the completion of a self-reported questionnaire by all year 7 pupils. The method of distribution can be decided by the school, for example, distribution during form time. It should take no longer than 10 minutes for a pupil to complete a questionnaire.

The purpose of the questionnaire is to quantify outdoor active play rates to identifying young people with high and low play rates.

Phase 2 will compromise of four focus groups each containing 5 young people; one female high outdoor play rates, one male high outdoor active play rates, one female low outdoor active play rates and, one male low outdoor active play rates. The focus groups will be audio recorded. Due to ethical considerations, the focus groups need to take place in a public space at your school such as a library or classroom and one of my university supervisors is willing to be present for both focus groups if required. The views and opinions expressed during the focus groups will remain anonymous and confidential. Pupils will be signposted to the school's pastoral support/child welfare team should any concerning information be disclosed.

Expectations of the school:

Your school would need to provide a public space for the focus groups. Additionally, it would assist the timely completion of my data collection if the school would act in-loco-parentis. However, if this is not possible participant Information sheets and consent forms can be sent to parents/guardians before the commencement of the study.

Please feel free to contact me should you require further information. If you would like to be considered for this study, please either email your permission to raul.fletcher@hud.ac.uk or complete the proforma below

Kind Regards

Raul Fletcher

I would like my school **[insert school name]** to be part of the study looking at The Barriers and Motivators to Children's Outdoor Active Play

I give/do not give (delete as appropriate) consent for the school to act in loco parentis

Name…… Signed……

Date……

Appendix 3: The additional information sheet sent to the recruited school via email

Background Information:

Physical inactivity and sedentary behaviour are serious problems in the UK. Public Health England (2018) reported that 25% of boys and girls aged 11-12 years spend more than 6 hours per weekend sedentary. Additionally, that 9% of boys and 8% of girls spend more than 6 hours per weekday sedentary - excluding school hours. Maintaining high levels of sedentary behaviour (>2 h/d) during childhood increases the risk of developing non-communicable diseases like cardiovascular disease.

The Chief Medical Officer recommends that children and young people aged 5-17 years should engage in at least 60 minutes of moderate to vigorous intensity physical activity per day. The benefits of regular physical activity are well documented, yet many children and young people do not meet these recommendations.

Outdoor active play is any physical activity without structure, described by Brockman, Jago, and Fox (2010, p. 144) as “unstructured outdoor physical activity in children’s free time”. Examples of outdoor active play being games of tig, street play, catching and kicking games. Outdoor active play is the largest contributor to children and young people’s overall physical activity. For children in year 6, active play is the greatest contributor to physical activity levels. However, there is a significant decline in outdoor active play levels when children reach year 7.

In the UK, a study was conducted in Bristol by Brockman, Jago, and Fox (2011) on children aged 10-11 years (year 6) that explored the barriers and motivators to outdoor active play. Their results indicated that there are four key motivators to outdoor active play: 1) socialising; 2) preventing boredom; 3) the health-related benefits; and 4) freedom. The results are also identified three key barriers to outdoor active play: 1) parental constraints; 2) the presence of older children in preferred place spaces; and 3) weather.

The proposed study will look to identify and explore the self-reported barriers and motivators to outdoor active play, comparing boys and girls and children with high and low play rates. With the aim to better understand what motivates young people to engage in outdoor active play and what barriers they face.

Aim

To explore the barriers and motivators to outdoor active play for young people aged 11-12 years (year seven)

Objectives

- To identify outdoor active play rates using self-reported questionnaires
- To explore the barriers to outdoor active play via focus groups
- To explore the motivators to outdoor active play via focus groups
- To compare barriers and motivators to outdoor active play between boys and girls
- To compare barriers and motivators to outdoor active play between children with high and low outdoor active play rates

Appendix 4: The questionnaire used to collect data for phase one

What is Outdoor Active Play?

Outdoor Active Play is any informal physical activity that you take part in for enjoyment and entertainment on your own or with other people. Outdoor active play should increase your heart rate so that you feel warm and slightly out of breath. For example, tig, street play, catching games and kicking games.

Please only include **OUTDOOR** active play in your answers.

Please **DO NOT** include any individual or team activities that you do for a club or as a lesson e.g. swimming lessons or football club.

By filling in this questionnaire, you consent to your data being used.

1. Do you take part in any outdoor active play?

Yes O (GO to question 2)

No O (if NO, go to the end of the questionnaire)

2. During a normal school week (Monday to Friday) do you take part in outdoor active play? (tick all that apply)

Yes, before school O (Complete questions 2a and 2b)

Yes, after school O (Complete questions 2a and 2b)

No O (GO to question 3)

2a. How many days in a normal school week would you typically take part in outdoor active play? (tick one answer)

1 day per week O

2-3 days per week O

4-5 days per week O

2b. On a normal school week how long do you take part in outdoor active play? (tick one answer)

up to 1 hour O

up to 2 hours O

up to 3 hours O

more than 3 hours O

3. Do you take part in outdoor active play on a normal Saturday? (tick answer)

Yes O (Complete question 3a)

No O (GO to question 4)

3a. On a normal Saturday how long do you take part in outdoor active play? (tick one answer)

up to half an hour O

up to 1 hour O

up to 2 hours O

more than 2 hours O

4. Do you take part in outdoor active play on a normal Sunday? (tick answer)

Yes O (Complete question 4a)

No O (GO to question 5)

4a. On a normal Sunday how long do you take part in outdoor active play? (tick one answer)

up to half an hour O

up to 1 hour O

up to 2 hours O

more than 2 hours O

5. During the school holidays do you take part in outdoor active play? (tick answer)

Yes O (Complete questions 5a and 5b)

No O (GO to question 6)

5a. During the school holidays how many days per week would you typically take part in outdoor active play? (tick one answer)

1 day per week O

2-3 days per week O

4-5 days per week O

5b. During the school holidays how many hours per week do you take part in outdoor active play? (tick one answer)

up to 1 hour O

up to 2 hours O

up to 3 hours O

more than 3 hours O

6. Where do you typically take part in outdoor active play? (tick all that apply)

Own Garden O Friends Garden O Park O Field O Streets O

Any others? If yes, please list ……..…….....

Thank you for completing this questionnaire!

Appendix 5: The scoresheet used to quantify a questionnaire

1. Do you take part in any outdoor active play?

Yes = NO SCORE

No = NO SCORE

2. During a normal school week (Monday to Friday) do you take part in outdoor active play? (tick all that apply)

Yes, before school = 1 POINT

Yes, after school = 1 POINT

No O = 0 POINTS

2a. How many days in a normal school week would you typically take part in outdoor active play? (tick one answer)

1 day per week = 1 POINT

2-3 days per week = 2 POINTS

4-5 days per week = 3 POINTS

2b. On a normal school week how long do you take part in outdoor active play? (tick one answer)

up to 1 hour = 1 POINT

up to 2 hours = 2 POINTS

up to 3 hours = 3 POINTS

more than 3 hours 4 POINTS

3. Do you take part in outdoor active play on a normal Saturday? (tick answer)

Yes = 1 POINT

No = 0 POINTS

3a. On a normal Saturday how long do you take part in outdoor active play? (tick one answer)

up to half an hour = 1 POINT

up to 1 hour = 2 PONTS

up to 2 hours = 3 POINTS

more than 2 hours = 4 POINTS

4. Do you take part in outdoor active play on a normal Sunday? (tick answer)

Yes = 1 POINT

No = 0 POINTS

4a. On a normal Sunday how long do you take part in outdoor active play? (tick one answer)

up to half an hour = 1 POINT

up to 1 hour O = 2 POINTS

up to 2 hours = 3 POINTS

more than 2 hours = 4 POINTS

5. During the school holidays do you take part in outdoor active play? (tick answer)

Yes = 1 POINT

No = 0 POINTS

5a. During the school holidays how many days per week would you typically take part in outdoor active play? (tick one answer)

1 day per week = 1 POINT

2-3 days per week = 2 POINTS

4-5 days per week = 3 POINTS

5b. During the school holidays how many hours per week do you take part in outdoor active play? (tick one answer)

up to 1 hour = 1 POINT

up to 2 hours = 2 POINTS

up to 3 hours = 3 POINTS

more than 3 hours = 4 POINTS

Appendix 6: The parent/guardian consent form for phase two

PARENT/GUARDIAN CONSENT FORM – Phase 2

AN EXPLORATION OF THE BARRIERS AND MOTIVATORS TO OUTDOOR ACTIVE PLAY FOR YOUNG PEOPLE AGED 11-12: WHY DON'T THEY PLAY ANYMORE?

Dear Parent/Guardian,

You are being asked for permission for your child to participate in a research study entitled: an exploration of the barriers and motivators to outdoor active play for young people aged 11-12: why don't they play anymore? This form provides you with information about this study and the researcher. Please read the information below and see the participant information sheet attached.

Your child's participation is entirely voluntary, and you can refuse their participation without giving a reason. If you do not want your child to participate then you need to inform me of your decision by **[insert date]** by contacting me on the email address below.

Your child is free to withdraw from the study without reason up until **[insert date]**. If you require further information, please feel free to contact me – details below.

Kind Regards,

Raul Fletcher

Contact Details
Name: Raul Fletcher
E-mail: u1566799@unimail.hud.ac.uk

Inc. participant information sheet

Appendix 7: The participant information sheet for phase two

Participant Information Sheet – Focus Groups

An exploration of the barriers and motivators to outdoor active play for young people aged 11-12: why don't they play anymore?

Your child is being invited to take part in a study on the barriers and motivators to outdoor active play. Before you decide if you want your child to take part, it is important you understand why the research is being done and what it will involve. Please take the time to read the following information carefully.

The purpose of the questionnaire:

- To identify active play rates

The purpose of the focus groups:

- To explore the barriers to active play
- To explore the motivators to active play

Why has your child been approached?

Your child has been invited to take part in this study as they have indicated they have either high or low active play rates and are a male or female pupil aged 11-12, in year 7 at **[recruited school name]**.

Does my child have to participate?
It is the decision of both you and your child whether to take part or not. If you do not want your child to take part, you do not have to give a reason, but you will need to opt out of the study by contacting the researcher on the email below by **[insert date]**. If you or your child change their mind later on, you can withdraw from this study up until **[insert date]** without reason.

What will my child need to do?
Pupils will be randomly selected for the focus groups. If selected they will be spilt into one of four focus groups, with 4 or 5 pupils per focus group. The focus groups will be asked questions regarding their active play.

Will my child's identity be disclosed?
Your child will be given a fake name for the focus groups. Their identity and the information they disclose will remain anonymous to those outside of their focus group.

What will happen to the information?
The focus groups will be audiotaped, transcribed, and analysed before being included in the write up of the study. The information received will be locked and secured at the University of Huddersfield for 10 years on a password protected computer before being destroyed.

Who can I contact for further information?
If you require any further information regarding the study, see contact details below:

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Appendix 8: The focus group schedule for young people with high play rates

HIGH outdoor active play rates – Boys and Girls

Barriers

1. What things stop you from going outside to take part in active play or more often?

Prompts; traffic, other children, stranger danger, weather

2. Do your parents have any rules about your outdoor active play? If so, what are these rules?

3. Does this mean you cannot play outdoors as much as you would like?

4. Is there anything you dislike about outdoor active play?

5a. What are you doing if you are not engaging in outdoor active play?

5b. Would you rather do the things you mentioned or engage in active play? Why?

6. Do you enjoy outdoor active play? If yes, then why?

Motivators

1. Why do you take part in outdoor active play?

2. What do you enjoy the most about outdoor active play?

3. Where do you like to engage in outdoor active play? Why do you like to play there?

4a. What do you think are the benefits of outdoor active play?

4b. Do you take part because of these benefits? Or for other reasons?

5. What would encourage you to engage in more outdoor active play?

Additional Information

1. Do you like to engage in outdoor active play alone, or with others, and why?

For example, parents, friends, neighbours

2. What do you do when engaging in outdoor play?

Prompts; games, activities

3. Why do you do outdoor active play over other types of exercise?

Prompts; formal team sports, formal individual sports

5. What are your favourite and least favourite rime to engage in outdoor active play?

For example; Monday after school or Thursday before school or Sunday midday?

6. Why do you like to play at certain times and not others?

School holidays first. Sundays second. Saturdays third

7a. As you have got older, do you feel like you engage in more or less outdoor active play?

7b. If less, then at what age did you engage in outdoor active play the most?

Appendix 9: The focus group schedule for young people with low play rates

LOW outdoor active play rates – boys and girls

Barriers

1a. What things stop you from going outside to take part in active play or more often?

Prompts; traffic, other children, stranger danger, weather

1b. Would you engage in more outdoor active play if these things were not a barrier?

2. Do your parents have any rules about your outdoor active play? If so, what are these rules?

3. Does this mean you cannot play outdoors as much as you would like?

4. Is there anything you dislike about outdoor active play?

5a. What are you doing if you are not engaging in outdoor active play?

5b. Would you rather do the things you mentioned or engage in active play? Why?

6. Do you enjoy outdoor active play? If not, then why not?

Motivators

1. Why do choose to engage in outdoor active play?

2. What do you enjoy the most about outdoor active play?

3. Where do you like to engage in outdoor active play? Why do you like to play there?

4a. What do you think are the benefits of outdoor active play?

4b. Do you take part because of these benefits? Or for other reasons?

5. What would encourage you to engage in more outdoor active play?

Additional information

1. Do you like to engage in outdoor active play alone, or with others, and why?

For example, parents, friends, neighbours

2. What do you do when engaging in outdoor play?

Prompts; games, activities

3. Do you prefer to engage in other types of exercise? And why?

Prompts; formal team sports, formal individual sports

5. What are your favourite and least favourite times to engage in outdoor active play?

For example; Monday after school or Thursday before school or Sunday midday

6. Why do you like to play at certain times and not others?

School holidays first. Sundays second. Saturdays third

7a. As you have got older, do you feel like you engage in more or less outdoor active play?

7b. If less, then at what age did you engage in outdoor active play the most?

8. Do you enjoy outdoor active play? Why?

Appendix 10: A table containing the barriers to outdoor active play for boys with high play rates

High Play Rate Boys - Barriers			
Codebook Categories	**Sub-Categories**	**Initial Codes**	**Quotes:**
Environment	Weather	Weather	Leroy: I'd say older children and weather and fitting it into family
Parental rules	Curfew	Time	Devan: I've got a curfew till eight
			Ezekiel: For me, I've got to be home by a certain time
Busy Schedule	No time to play	Busy family	Leroy: I'd say older children and weather and fitting it into family
	Homework	Homework busy	Devan: I'd say time, cos you can't always get the time right with homework and stuff
		Homework	Graham: Probably homework
			Leroy: You didn't have as much homework either IN: Not as much homework? Graham: Yeah Ezekiel: Yeah Leroy: Yeah, so you didn't have to spend as long in
		Less homework	Graham: Less homework probably IN: Less homework? Leroy: Yeah Ezekiel: Yeah Victor: Yeah
	Learning other skills	Extra-curricular	Graham: Things that you do like extra-curricular and clubs
		Sport busy	Graham: Well depends, less for me because I used to be able to play out like lots and now I've got sponsored by for climbing and stuff I have to spend a lot more time on that
			Ezekiel: Same here, cos I'm sponsored for motor biking so I've got to practice more to get my performance up and stuff
			Leroy: Same for me cos I'd want to do what I'm doing but I've got to practise cos I'm trying to get sponsored and stuff so I can do it better and bigger
Personal safety concerns	Older children	Older children	Ezekiel: Sometimes for me, it's older children cos you feel quite intimated sometimes
			Leroy: I'd say older children and weather and fitting it into family
Other barriers	Access to play locations	Transport	Victor: Well when I go to my park with my friends I normally go to [**LOCATION**] and I live in [**LOCATION**] so, sometimes the trouble is getting a lift down for me

			IN: So right at this moment you're bit too far away? Ezekiel: Yeah
	Condition of play spaces	Facilities	Victor: In the park in [**LOCATION**] there's a bin and there's loads of rubbish and it's just over flowing and it's all over the park and stuff Victor: Probably proper football nets and stuff IN: Okay. The pitches are they just the metal goals? Victor: Yeah IN: Okay, they don't have the nets at the back? Victor: Yeah IN: It makes life easier doesn't it? Victor: Yeah IN: So know if it's a goal or not Victor: Yeah
		Facilities	Ezekiel: And one of the parks that I go to it says no dogs allowed and people take their dogs in and they poo all over the park
			Leroy: And where I go, all the ramps and stuff are like broken up from people purposefully breaking them

Appendix 11: A table containing the barriers to outdoor active play for girls with high play rates

High Play Rate Girls - Barriers			
Codebook Categories	**Sub-Categories**	**Initial Codes**	**Quotes:**
Environment	Weather	Rain	"Skylar: Weather sometimes IN: What type of weather are you thinking? Skylar: Rain" "Skylar: I mean, I like rain, but not while playing out or doing something"
Parental Rules	Not allowed	Being grounded	"Kyleigh: My mum IN: Okay, why? Kyleigh: She always grounds me"
	Curfew	Time bar	IN: Have you got any rules you think? It might be you've got to be back at a certain time? Ariella: Certain time IN: Okay, what time do you have to be back? Ariella: Seven or half six
		Time bar	Kyleigh: Latest is half seven eight and I'm, we're not allowed on our phones after bedtime, after ten o'clock.
		Back home	Skylar: We have to be back before dark, depending on which day
	Permission needed	Permission	Ally: I can't go out without permission
Busy Schedule	No time to play	Busy	"Rihanna: Because I'm usually too busy"
		Busy	Ally: Doing other things, I'm too busy Ally: Not really because I don't really know, because when you were younger you couldn't play out because you were young, but now I can't play because cos I've got… all the stuff, so
		Busy	Skylar: Got too many things on
		Lack of time	Rihanna: Because I have my, dance and that on Saturdays and all my, I do all my hobbies through the week IN: Okay, so you're busy doing your dance? So it's a lack of time really? Rihanna: Yeah
		Doing more things	Ally: Cos we're doing more things cos we're getting older so we want more opportunities to do more things and so playing out really
		Doing more things	Skylar: Just because, just like Ally said we have opportunities now because we're actually older and you can't really do it when you're younger

		More opportunities	Skylar: There is a lot more stuff to do cos the age is perfect so you have more opportunities
	Chores at home	Chores	Ariella: Because there is more jobs to do IN: Okay, so jobs in the house? Or? Ariella: Yeah IN: Oh, so what are you thinking? Skylar: Dishwasher Ariella: Yeah
	Learning other skills	Hobbies	Skylar: I don't, my parents don't have rules like that. I can play out, pretty much every day, except from my personal hobbies which I enjoy doing. That stops me from playing out but that's not a biggie Skylar: Monday, Tuesday, Wednesdays, 8 hours a week
		Hobbies	Ariella: I can't play put on Tuesdays… Well, I've got to play football on Tuesdays IN: Do you play football on the weekends I'm guessing? Ariella: Well matches are on the weekends IN: Alright okay, so that means you don't have as much time Ariella: Yeah
		Hobbies	Kyleigh: I do singing, dancing and acting all in one day
		Hobbies	Ally: Cos I do swimming and stuff, I don't know how many things a week, on group chat I'll be like can't play swimming, every single day Ally: I feel like it sometime gets in the way cos if you're doing something always repetitive like the hobbies, you sort of, so see all of your friends play out and I wish I could be there but at the time you're having fun doing your hobby though
		Hobbies	Rihanna: Because I have my, dance and that on Saturdays and all my, I do all my hobbies through the week IN: Okay, so you're busy doing your dance? So it's a lack of time really? Rihanna: Yeah Rihanna: Even though it stops me [hobbies] from playing out quite a lot I'd rather do them though
Personal safety concerns	Strangers	Drunk Strangers	Ally: Cos we were at **[LOCATION]** and there was this woman and this man who came out and there were quite. Were they drunk? They were drunk weren't they at the park? And we didn't feel safe whatsoever did we? Ally: Just if things were a bit safer and if there weren't more drunk people around

		Drunk Strangers	Rihanna: Maybe if just drunken people weren't allowed in that place
Other Barriers	Nobody to play with	Others not turning up	Kyleigh: When people ditch ya… They'll like, they'll say oh yeah I'm coming out and then, when you get there… They'll be like, 'oh sorry, I can't play out'. Am like 'why didn't you tell me that before?' I've just rode my bike all the way down to **[LOCATION]** and now you're saying you can't play out?
		Nobody plays out	Kyleigh: Or there's this other park, up at the top of **[LOCATION]** but we don't normally go there anymore because no one really plays out
	Access to play locations	Too far away	Rihanna: Yeah, and then, cos if I'm playing out with my friends I am usually too far away and I can't get there as easily… because I live further away than most people Rihanna: Yeah, well my parents will let me play out when I can, if I'm not too busy. But, it's just getting there
	Siblings	Argue	Kyleigh: Me and my little brother argue all the time

Appendix 12: A table containing the barriers to outdoor active play for boys with low play rates

Low Play Rate Boys - Barriers			
Codebook Categories	**Sub-Categories**	**Initial Codes**	**Quotes:**
Environment	Weather	Rain	Morris: Yeah, me too. So homework and as well the weather Morris: The rain
		Wind	Chance: Weather, cos I live on the side of a hill so it's always really windy
	Traffic	Cars	Cameron: Cars IN: Okay, so the traffic? Cameron: Yeah IN: Why in particular the traffic? Cameron: So, I live in an estate and you sometimes you get the cars driving around on the road IN: Alright, okay Cameron: Don't want to get hit by them
Parental Rules	Play area restricted	Rules	Drake: And my mum doesn't let me play near the house so I can't really play with my basketball… I'm not, well, she does wasn't me shatter a window or anything
		Rules	Morris: So when we play football at my dad's he tells us keep the ball down IN: Okay Morris: Because he doesn't want us to smash the glass IN: Okay Morris: And as well keep it away from fragile objects
		Play area restricted	Landin: Mine, I'm not allowed to go out of [**LOCATION**] and the furthest I can go, cos we live at the southern part of [**LOCATION**]
		Limited area	Cameron: Cos my area that I'm allowed to play in is quite limited, so I just like being on my estate
	Curfew	Curfew	Cameron: Mine is, got to be in by eight or half seven and cos I do a lot of biking round my estate
		Not dark	Drake: Well, I'd rather play outside but when it gets dark and I'm not allowed to go outside I usually do some late night drawing
Busy Schedule	Homework	Homework	Landin: And also homework cos I'm concentrated on doing my homework and my parents have this rule where you've got do all your homework before you go outside Landin: More homework
		Homework	Morris: Yeah, me too. So homework and as well the weather

			Morris: Even though I've got my homework to do at the end of the day, I either do that as soon as I get in so I don't have to worry about it Morris: Homework does stop you going out because we spend what six hours a day at school… and then at home they expect us to do an hour more of work… so that's cutting off our time yet, then again, some homework is revision, some homework's fifteen minutes
		Homework	Drake: So probably homework and as well as the part there's too much grass because I like to play basketball a lot and there's only a small chunk of roads on our path Drake: I get revision cos you know you need to practise for tests… But homework that you already know and you can already do, I don't see the point in it Drake: When we get older, I think we get less and less time out cos be get more and more homework
		School Holiday Homework	Cameron: It's once you, especially the holidays you get out of school and you're finally I've got, let's say it's the half term holidays, you've got a week to yourself and the teachers are like, here go and do five hours' worth of homework
	Chores	Pets	Morris: And also, that cos I've got chickens as well… They interfere quite a lot so we've got to look after them, but recently it was just my birthday so we got a table tennis net and a basketball net so I'm just starting to play out a bit more now
Other Barriers	Nobody to play with	No friends	
		Nobody to play with	Morris: Basketball, table tennis. I can't really play rugby at home. So my brother used to play rugby but then he moved to football so, I can't really do rugby because you can't really practise rugby at alone
	Access to play locations	Live far	Chance: I live nowhere near any of my friends
	Siblings	Brother	Landin: I'd say my brother and sister cos they never leave me alone
		Sibling cheat	Landin: With my younger siblings what it is, it's annoying cos they always cheat and they say oh I'm not cheating and they get really rude and then we all have to come inside cos they're being rude and I'm in trouble cos, god knows Landin: Because they just come oh and you're trying to a good time and they come and they're like come play with me, come play with me and it's like why don't you come

		jump on the trampoline with me? And there like okay then, and I'm like why do we play this game and then I explain it to them and then they just cheat
	Rude	Landin: Well, it's usually cos my sister, she doesn't listen and she's really rude
	Brother	Morris: My brother Morris: We play but, sometimes we can get annoying very quick IN: Why's that, is that competitiveness? Or just Morris: Competitive… Always trying to be the best
	Brother	Cameron: My brother, he always comes out and just annoys me Cameron: I want to say get rid of my brother but that would be really mean
	Want attention	Cameron: Usually they want attention and they just want something to do but then it can usually, they put it out in a bad way
	Annoying younger brother	Drake: I used to have, well I do have a younger brother and he used to play rugby… And the annoying thing was that he hasn't stopped the rugby routine so he's still tackling me so he'll turn any kind sport like Frisbee into a showdown and a big takedown

Appendix 13: A table containing the barriers to outdoor active play for girls with low play rates

Low Play Rate Girls - Barriers			
Codebook Categories	**Sub-Categories**	**Initial Codes**	**Quotes:**
Environment	Weather	Rain and wind	Susan: I don't like the weather IN: What weather though in particular? Is it a certain? Susan: Rain IN: Rain, anything else? Just the rain? Susan: Wind
Parental Rules	Not allowed	Being Grounded	Athena: I actually won't be on my phone because I'm actually grounded at the moment
	Curfew	Time bar	Lina: I've got to be back before half eight
		Time bar	Susan: I have to be back for nine
	Play area restricted	Location	Cassandra: I'm not allowed to play out in **[LOCATION]** or **[LOCATION]** or anywhere… Pretty much, I only can play in my garden Cassandra: Cos I live in **[LOCATION],** not many people live in **[LOCATION]** and loads of people live in **[LOCATION]** and **[LOCATION]** and everything, and yeah I'm not allowed to play out there Cassandra: I just play in my garden unless I go to my friends and they'll be playing out and my mum will be like, right you're not allowed to play out here Cassandra: Mum and dad, so they can't tell me not to go
			Kaylyn: I can't go out of my estate or my street
Personal safety concerns	Stranger Danger	Strangers	Athena: Strangers
			Lina: Outside some of the corner shops and near there cos there always just people hanging around for no reason
		Smokers	Kaylyn: People who smoke
	Older Children	Older children	Cassandra: Older children that are smoking and being suspicions. Suspicious, drugs like that Cassandra: There, you'll see them [older children]and you might look at them or something and they'll just whispering to someone or they'll be smoking or they'll be doing something and it just looks real suspicious
			Kaylyn: Older children and people who smoke

			Kaylyn: I don't normally go down the bottom of my estate, because there is a high and low bit and down here there's loads of creepy teenagers that are always hanging around Kaylyn: Well to be honest I just think it's just the way that they act like, what Lina said and it's just really weird and creepy vibes
	Neighbourhood play spaces	Not safe	
			IN: Is there certain place you don't like to go? Cassandra: Just rough areas… Let's say I'll be on a walk from my dad's and there'll just be rough areas IN: Okay, why don't you want to go there? Cassandra: Cos it looks real creepy
		Floor	**Susan: And you get, wood part of the floor in your shoes and it hurts**
Technology	Technology	Computer	IN N: Is there anything that you'd remove that would help you play out more often? Susan: My computer… I'm on it too much… So, I'd get rid of it IN: So, if your computer wasn't there, you'd be out more often? Susan: Yeah
		Mobile	IN: Anything's you could get rid of that would encourage you to play out more often? Lina: My phone
		Any tech	Kaylyn: Basically, any technology with a screen
Other Barriers	Nobody to play with	Nobody	Lina: Sometimes when my friends aren't there to play
	Boring play spaces	Boring	Susan: Just the park, it's near the skate park it's really boring

Appendix 14: A table containing the motivators to outdoor active play for boys with high play rates

High Play Rate Boys - Motivators			
Codebook Categories	**Sub-Categories**	**Initial Codes**	**Quotes:**
Socialising	Be with friends	With friends	Ezekiel: I just like getting fresh air and you just have a laugh with your mates
			Leroy: I'd say probably time meeting your friends
			Victor: Yeah, spending time with friends Victor: Yeah both, but cos it keeps you fit and you get to spend time with friends
For the emotions experienced through play	It's fun	Fun	Victor: Yeah, keep fit. It's fun, cos I normally play football when I go out and yeah, fun
			Leroy: It's fun, it keeps you active. Gives you something to do as well
			Devan: Partly, it's just because it's fun too
Autonomy	Control over own actions	Do own thing	Ezekiel: Sometimes I'm just in that mood where I don't want to be fussed I just want to do my own thing
Health-Related Benefits	Being Active	Keep fit	Devan: Keep fit… partly, it's just because it's fun too
		Keep fit	Victor: Yeah, keep fit. It's fun, cos I normally play football when I go out and yeah, fun
		Keep fit	Victor: Yeah both, but cos it keeps you fit and you get to spend time with friends
		Keep active	Leroy: It's fun, it keeps you active. Give you something to do as well
Environment	Be Outdoors	Fresh air	Ezekiel: I just like getting fresh air and you just have a laugh with your mates
Prevent Boredom	Something to do	To do	Leroy: It's fun, it keeps you active. Give you something to do as well

Appendix 15: A table containing the motivators to outdoor active play for girls with high play rates

High Play Rate Girls - Motivators			
Codebook Categories	**Sub-Categories**	**Initial Codes**	**Quotes:**
Opportunity to socialise	Be with friends	With friends	Kyleigh: I like to spend time with my friends Kyleigh: Three of, a couple of my friends that now go to **[OTHER SCHOOL] …** And they live quite near me. So, I'll go on my bike and knock on their door and ask them if they're playing out and we'll play out and just go down to
		With friends	Skylar: We go on, me and my friend go on dog walks every Monday and Thursdays with our dogs just around the fields for two hours
		With friends	Kyleigh: I got a new bike last night and my old one, cos we don't need it anymore, I'm giving it to my friend so we can start going on bike rides together cos her old bike broke. So I'm giving her my old one and my mum says it's completely fine because we don't need it
	Be with others	Others	Kyleigh: Because it's spending time with others Kyleigh: Yeah and you're not all lonely and sad
		Company	Skylar: Company
		With others	Rihanna: Being active and being with others
		Together	Ariella: Being active and being together
For the emotions experienced through play	Feels good	Feels good	Ally: You just feel good when you play out
		Feels good	Skylar: It just feels good done it
	No pressure	No pressure	Ally: There's no pressure
		No pressure	Skylar: Yeah, there's no pressure so you can just be a bit free
Autonomy	To get away from family	Get away	Skylar: Well there's that and there probably other reasons, just getting away sometimes from your house, it just feels good cos, I have siblings, so I argue… it's just good to get away
		Get away	Kyleigh: Getting away from my five year old little brother… Getting away from them, just getting some time
		Get away	Skylar: Well there's that and there probably other reasons, just getting away sometimes from your house, it just feels good cos, I have siblings so I argue and then it's just good to get away
		Freedom	Ariella: Freedom
	To be active	Being active	Ally: I like to be active

Health-related benefits			Ally: Keep your fitness up as well, cos you and your friends can go out for a run together can't you as well
		Burning off things	Ally: You're burning off things as well, aren't you?
		With friends/active	Rihanna: Being active and being with others
		With friends/active	Ariella: Being active and being together and that
		Being active	Kyleigh: Being active and all that
Environment	Enjoying the weather	Be outside	Ally: Keeping outside, when it's nice weather you don't want to be inside sat on your own. Ally: Just being around nature and stuff like that
		Be Outside	Kyleigh: When it's warm there is no point in being inside and wasting it Kyleigh: Cos when it's nice weather there's no point being inside and wasting it becuase we live in England, it's normally rainy
	Be around nature	Nature	Ally: Just being around nature

Appendix 16: A table containing the motivators to outdoor active play for boys with low play rates

Low Play Rate Boys - Motivators			
Codebook Categories	Codebook Categories	Codebook Categories	Codebook Categories
For the emotions empierced through play	Clear mind	Forget about things	Chance: Forgetting about quite a lot of things
		Get away	Cameron: Like how Landin said with his family fighting, just to get away from all that and be in your own little area
	To relax	Relax	Drake: Probably, I probably just go outside to relax rather than having my brother just coming into my room and slapping me for no reason
	It's fun	Fun and different	Cameron: Simply because it's fun and different IN: Fun? Drake: Yeah Morris: Yeah Chance: Yeah
		Fun	Morris: I take part because it's fun and I enjoy going outside Landin: Yeah
		Fun	Landin: Probably cos the equipment outside cos it's really fun to go on the trampoline and the swings
Autonomy	Get away from family	Get away	Landin: I've not got much to do mainly because my brother and sister are fighting or my parents are shouting at each other sometimes
		Get away	Cameron: Like how Landin said with his family fighting, just to get away from all that and be in your own little area
		Away from brother	Drake: Probably, I probably just go outside to relax rather than having my brother just coming into my room and slapping me for no reason
	Freedom	Freedom	IN: Okay, so it's that little bit of freedom, that little bit of forgetting what you're doing Chance: Yeah
		Freedom	Morris: Freedom IN: The freedom? Okay Chance: Yeah
		Freedom	Cameron: Freedom

Environment	Enjoying the weather	Nice weather	Morris: So I go to my dad's on a Tuesday IN: Okay Morris: So I can play out at his and I pretty much play out every night sometimes IN: Every night, okay Morris: At the moment, I have been as well because the weather, it's been so nice
	Be outdoors	Get out	Chance: I think it's because, it's getting me outside so I'm having a bit of fresh air
		Enjoys dark	Landin: Cos it's nice to go outside Landin: When its dark in winter or just when it's dark in general cos I say I usually play Dob Dob, I find it good cos stealth and stuff like that
	Play equipment	Fun	Landin: Probably cos the equipment outside cos it's really fun to go on the trampoline and the swings
Prevent boredom	Inside is boring	Inside boring	Landin: Because insides boring Landin: I'd say the space cos you've got way more space to do stuff and usually inside its boring
	More variety	More space	Landin: I'd say the space cos you've got way more space to do stuff and usually inside its boring

Appendix 17: A table containing the motivators to outdoor active play for low with low play rates

Low Play Rate Girls - Motivators			
Codebook Categories	**Sub-Categories**	**Initial Codes**	**Quotes:**
Environment	Being around nature	Enjoy Nature	Lina: I like just looking at trees and grass
	Be outdoors	Be outside	Cassandra: I like going outside just to be outside and smell fresh and just play with my brother
Opportunity to socialise	Be with friends	Talk	Susan: To go sit down and talk to people cos we go to the skate part everybody's doing stuff and then me and my friends on the corner watching people
		With friends	Kaylyn: I like going outside just because being social with friends and stuff makes me happy but I can't really do that inside cos of certain things
			Athena: Being with friends
			Lina: It's just better than sat at home when you can be with your friends
			Cassandra: Also yeah, like Susan says, you might take one friend and then you might ring up someone and you're friend might ring someone
			Susan: Be with friends Susan: And if you went out with one of your friends you'll go there and maybe some more would come
	Be closer to others	With others	Cassandra: It's just more company cos if you're alone you get bored in a minute but if you're with other people they've always got something to do or go somewhere
			Cassandra: Just to see people and do things
	Meet new people	New people	Cassandra: Or you might meet people
			Lina: Because you go there with one person and you always see different people, what they said
	Be with family	With family	Cassandra: I like going outside just to be outside and smell fresh and just play with my brother
Autonomy	Freedom	Freedom	Lina: You've just got more freedom and control of what you're doing
	Control over own actions	Control	Lina: You've just got more freedom and control of what you're doing
For the emotions experienced through play	Funny Interactions	Others hurt themselves	Susan: Cos I'm friends and when you got to the park you see teenagers fall over, it's really funny
			Athena: I love watching people hurt themselves

Prevent Boredom	More Variety	More to do	Lina: There is just so many more thing to do… Then being inside, just stuck in one place… You can go anywhere
		More interesting	Kaylyn: Mine's sort of the same, it's more interesting to be outside cos there's more things to do and stuff like that
		Different	Cassandra: When you're inside you've seen it, you see it every day… But when you're outside things change
	Something to do	Something to do	Cassandra: It's just more company cos if you're alone you get bored in a minute but if you're with other people they've always got something to do or go somewhere

Appendix 18: The Child Protection Flowchart