

MCBRIDE: AN INVESTIGATION INTO THE EXISTING RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND LEVELS OF HAPPINESS IN KEY STAGE TWO PUPILS

An investigation into the existing relationship between physical activity and levels of happiness in Key Stage Two pupils

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Abstract

This study was undertaken with the intention of finding out whether there is an existing relationship between physical activity and levels of happiness in Key Stage Two pupils. The pupils involved in this investigation were Key Stage Two pupils from Primary Five, Primary Six and Primary Seven classes. In total, there were two hundred and seventy-five pupils involved, one hundred and thirty-five of which were male and one hundred and forty of which were female. Their ages ranged from eight years to eleven years. The subjects attended six different schools in Northern Ireland and were from different socio-economic backgrounds. After the results were collected, they were imputed to a spreadsheet to allow for clear interpretation.

To determine how much physical activity the subjects engaged in, individual pedometers were used to discover the precise amount of steps they each took during the course of a particular school day. In order to obtain levels of happiness, each child participated in a brief interview. The information gained from the interview outlined how happy each pupil was in general and how happy each pupil was within school. To formulate a score from their answers, each pupil was asked to rate their happiness level from 1 – 5 (1 being very sad and 5 being very happy).

After comparing the results of all subjects, it was evident that the male subjects were more physically active than their female counterparts. Additionally, the male subjects were happier within school. However, in terms of general happiness, the female subjects were happier than their male colleagues. Ultimately, it can be stated that there was very little correlation between physical activity and levels of happiness in pupils in Key Stage Two.

Key words

Physical activity, levels of happiness

Introduction

1.1 Background to Study

The positive impact exercise can have on one's mood and level of happiness has been well documented. As Carr (2004) suggests, in the short term, exercise induces positive mood states and in the long term regular exercise leads to greater happiness. However, more and more of our young people are becoming less physically active. The UK Department of Health (2011) state that children should engage in at least 60 minutes per day of moderate-to-vigorous intensity physical activity. Yet, alarming figures presented by the NHS Information Centre (2009) suggest that such requirements are not being met. They found that 68% of boys aged 4 – 15 were classified as not meeting the government's recommendations for physical activity and that an even more worrying, 76% of girls of the same age were not meeting the recommended amount of physical activity.

Physical activity is as essential to health as food, oxygen and rest. Medical research indicates that physical activity develops stronger bones, offers protection against developing heart disease, improves circulation and even helps to foster better, mental attitudes (Rauner et al, 2013).

Citation

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Nevertheless, as Rauner (2013) insists, children undergo much less physical activity than children of previous generations and consequently; modern children are not as healthy. According to Dishman et al (2013), children today have little heart and lung endurance, limited muscle flexibility, poor muscle tone and in general, weigh far too much.

A key contributor to why today's children are not as healthy as children from previous generations is the extensive improvements and innovations in modern technology. Due to advances in communication and gaming, children have moved indoors more than ever before. As Pica (2008) confirms, substantial advances in technology, coupled with the more sedentary lifestyle of today's families, have contributed to modern children becoming significantly less active. Subsequently, this has resulted in higher rates of children becoming 'obese' or 'overweight,' having high blood pressure and contracting diseases such as diabetes and respiratory illnesses.

As well as the many health benefits that arise from participating in ongoing exercise, physical activity can also be used to foster happiness and fulfilment among children. According to Beaulieu (2008) young children who are physically active are happier, have more positive thoughts about themselves and their abilities and are more optimistic about the future. Within the school context, it is essential for educationalists to place a huge emphasis on physical activity and Physical Education as trends that are learned within school are carried throughout adulthood. As Cale and Harris (2009) confirm, there is a growing body of evidence to suggest that childhood activity influences adult participation. Therefore, it is likely that an active child will become an active adult and accordingly, happy children will become happy adults.

1.2 Need for Study

As previously mentioned, physical activity and Physical Education are hugely important for a variety of reasons. Contrary to popular opinion, these reasons are not solely physical or health related. Conversely, as The Northern Ireland Curriculum (2007) states, Physical Education should also help young people to develop positive relationships, sportsmanship, fair play and respect for differing capabilities. Furthermore, there is significant evidence to suggest that children who engage in physical activity demonstrate positive social behaviours and higher levels of confidence and self-esteem (Muijs and Reynolds, 2010).

Numerous researchers have conducted investigations regarding the existing relationship between the two variables of physical activity and happiness. However, results to date have been inconclusive. As a future teacher specialising in the area of Physical Education, and someone who cares greatly about the need for children to be physically active and also that they feel fulfilled and happy throughout their lives, I feel that this area had the capacity to be researched in more detail. Moreover, it is my hope that the findings of this investigation have an impact on further research.

1.3 Aims and Objectives

This research aims to investigate children's recreational physical activity and its relationship with happiness.

Aims:

The aims of the research are as follows:

- To determine the extent of children's school based activity.
- To explore the context of their level of happiness, in and out of the school setting.
- To explore the relationships between physical activity and happiness.

Objectives:

These objectives were met by:

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- Using pedometers to measure physical activity patterns.
- Investigating happiness through a questionnaire.
- Determining if a correlation exists through the use of statistical analysis of questionnaire data and pedometer information.

Literature Review

2:1 Benefits of Physical Activity

The benefits physical activity has on the positive development of social, physical and psychological traits have been well documented. These benefits support the assertion that there is a requirement to integrate more physical activity into the school day. Physical activity is a general and diverse term. It can be defined as any movement caused by muscle activity resulting in increased energy expenditure (Must and Tybor, 2005). However, as Hoffman (2005) articulates, if kinesiology focused on all forms of human movement, then kinesiologists would study everything that humans do, because living is moving. Consequently, Hoffman points towards Professor Karl Newell's (1990) classical definition of physical activity, 'Physical activity is movement that is intentional, voluntary and directed toward achieving an identifiable goal.' This definition is not too inclusive as it excludes human movements that are involuntary, such as reflexes, or those performed aimlessly and without a specific purpose. Furthermore, it is not too exclusive as it does not restrict itself to movement related to sport alone. The World Health Organisation (2002) divides physical activity into categories of sports, conditioning exercises and household tasks which further emphasises that physical activity is any movement that is directed towards achieving an identifiable goal.

Due to the huge technological advances in modern society, which has led to online gaming, social networking and internet browsing becoming instantly accessible, the need for children to engage in physical activity is more crucial than ever before. This is reiterated by The UK Department of Health (2011) who state that children and young people should engage in moderate-to-vigorous intensity physical activity for at least 60 minutes per day. It is also suggested that vigorous intensity activities, including those that strengthen muscle and bone, should be incorporated at least three days a week. This is reflected in the Revised NI Curriculum (2007) which now has Physical Education as one of its core subjects with schools being encouraged to give pupils at least two hours of quality PE weekly.

One of the most obvious advantages of regular physical activity is the positive impact it can have on a person's physical health. As Pica (2008) affirms, physical activity provides health benefits to children through promoting healthy growth and development. In a recent review on the benefits of physical activity in children, a panel of experts concluded that physical activity increases aerobic fitness, muscle strength and bone strength in children. Additionally, there is extensive research to suggest that physical activity improves blood pressure, lipoproteins, adiposity and cardiovascular health (Centres for Disease Control and Prevention, 2010). Significantly, there is also a direct correlation between patterns of physical activity in childhood and adolescence right through to adulthood. As Pica (2008) confirms, the more active children are, and stay, the more likely they are to be fit because active children tend to become active adults. Conversely, Centres for Disease Control and Prevention (2010) determined that only two per cent of inactive children went on to become active adults.

In addition to physical health, regular physical activity can also have a profound impact on a person's mental health. Within modern society, issues such as mental illness, suicide, depression and anxiety are becoming increasingly prominent, especially among children and adolescents. However, as Faulkner and Taylor (2005) suggest, there is a growing belief that physical activity can reduce these problems while also having a positive impact on one's well-being. Physical activity positively influences anxiety and stress, as well as decreasing the risk of developing clinically defined

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depression (Creek and Lougher, 2008). Faulkner and Taylor (2005) are of the same opinion and believe physical activity has an encouraging effect on reducing tension, fatigue and confusion. Moreover, it can dramatically enhance the emotional experiences of those who engage in regular exercise.

Physical activity is increasingly being advocated as a means to maintain and enhance positive self-perceptions. Research from Raglin (2012), about the psychological and social benefits of participation in sport for children, demonstrates the most common benefits associated with physical activity; enhanced self-esteem, increased self-worth, higher confidence levels and improved social skills. In addition to this, through physical activity, such as physical education, children can become healthier, increase their motor skills and boost their physical fitness. Moreover, as Haydn-Davies (2010) suggests, through activities involving team work and ongoing interaction with their peers, children can develop specific social skills such as cooperation, communication, teamwork and responsibility.

A school's extra-curricular schedule for sport is another way in which physical activity can prove to be very valuable. The Revised Northern Ireland Curriculum (2007) states, the school's extra-curricular programme should provide opportunities for all children to extend and develop skills and interests acquired during the PE programme. Through involvement in after-school activities children can develop the ability to make informed choices and decisions, an understanding of the relationship between physical activity and good health and forge healthy relationships with adults other than their parents. As Gullotta et al (2006) clarify, young people who participate in after-school activities improve significantly in three major areas; feelings and attitudes, behavioural adjustment and academic performance. More specifically, research has displayed that youths who engage in after-school sport display higher levels of confidence and self-esteem, enhanced school bonding (positive feelings and attitudes towards school) and positive social behaviours (Godoy, 2011).

2:2 Childhood happiness

According to Carter (2004) a happy person is someone who experiences an abundance of positive thoughts and emotion. People who consider themselves to be happy experience about twice as many positive thoughts and feelings as they do negative. Alternatively, unhappy people experience an equal ratio of positive and negative thoughts and feelings. As McCloud (2006) articulates, extensive research has repeatedly demonstrated that, when asked what they want most from life – and what they want most for their children – people have always answered that they want happiness.

What do I really want for my children? If you spend some time thinking about this question, your reply will almost certainly include one particular word – the simple, almost silly-seeming word, happiness. Most of us parents just want our kids to be happy, now and forever. Oh, sure, we want them to be good people. We want them to contribute to the world. We want them to care for others and lead responsible lives. But deep down, more than anything else, most of us want our children to be happy (Hallowell, 2003).

Happiness comes to some people more easily than it does to others. Only about half of a child's overall level of happiness is determined by their genetic make-up (McCloud, 2006). As Carter (2004) suggests, parents can teach their children to be happy, or at least happier. By providing an environment and daily routines which support and provoke positive feelings, the practice of fulfilling activities, emotional intelligence, and social skills, parents provide the platform for happy childhoods. And teaching children to be happy now helps them learn the skills and habits they need to find fulfilment and joy throughout their lifetimes.

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According to Hallowell (2003), there are five fundamental requirements for promoting successful learning and lifelong joy in our children. Parents, teachers, coaches and all others who care about children can use this template to give children the gift of happiness that will last a lifetime: Connection, Play, Practice, Mastery and Recognition. As fundamental as these five concepts are, they hold the key to raising children with healthy self-esteem, moral awareness and spiritual values. Moreover, Hallowell believes this framework fosters the ability to create and sustain joy and the capacity to deal with pain and adversity.

Connection, in the form of unconditional love from an adult, is the single most important root of adult happiness. Additionally, as Hallowell (2003) affirms, there are many other kinds of connection that, when combined, form a resolute foundation on which a person can build an entire life. They include family togetherness and positive connections to friends, the local community, school, sports, and the arts.

In modern society, many children spend too much time rushing from one activity to the next without ever doing the single most enriching activity ever devised – play. As stated in the Revised Northern Ireland Curriculum (2007), play provides opportunities for children to experience learning in a meaningful and purposeful way. It is a means by which children can develop the skills and capabilities to be effective learners. Furthermore, play builds the imagination. It teaches the skills of problem-solving, the ability to tolerate frustration and the ability to fail. As Hallowell (2003) clarifies, the child who learns to play alone will never be lonely.

According to Hallowell (2003) rare is the child who can ride a bike on the first try without falling off. However such is the attraction of being able to ride, the exasperation becomes bearable. Although children might not enjoy practicing, they will keep at it because they enjoy how the final result feels. In addition to this, as children practice, they usually receive some help. And learning how to get help through teaching or coaching is yet another important skill.

After a certain amount of practice and discipline, a child will achieve the feeling of mastery. As Hallowell (2003) articulates, when children master something they couldn't do before, they become increasingly stimulated and their self-esteem rises. Furthermore, with mastery comes confidence, leadership skills, initiative and an enduring desire to work hard. This point is reiterated by Csikszentmihalyi (2004) as he suggests people find genuine happiness during a state of consciousness called 'Flow.' In this state they are completely absorbed in an activity, especially an activity which involves their creative abilities. During this 'optimal experience' they feel strong, alert, in effortless control and at the peak of their abilities.

Subsequently, mastery leads to an ever-widening circle of recognition. Although it may seem quite inconsequential, recognition can actually make the difference between joyless achievement and joyful mastery. The feeling of being valued by others enhances a child's level of fulfilment, sense of belonging and ultimately, their happiness.

2:3 Physical Activity and Childhood Happiness

The question now is: Does physical activity have a positive effect on childhood happiness? The relationship between a child's participation in physical activity and their level of happiness is a fascinating one and has led many researchers to carry out extensive reviews on the topic's existing literature. Having assessed the relationship between the two from a scientific perspective, many theorists feel that physical activity is pivotal for a child's happiness. Stryker (2013) states that dopamine, a chemical that plays a substantial role in happiness, is a neurotransmitter in the brain that is necessary for feelings of pleasure and contentment. Therefore, the best way to increase the brain's dopamine production is through regular exercise. Talbot and Verrinder (2010) share this

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view by claiming that physical activity increases the flow of blood to the brain, enhancing mood, boosting mental alertness and heightening self-esteem, which in turn are likely to significantly improve happiness.

The importance of physical education in the school setting cannot be underestimated when addressing the relationship between a child's participation in physical activity and their level of happiness. For many children, physical education will be the first occasion they become exposed to planned and structured physical activity. As Griggs (2012) articulates, it is critical for physical educators to create a learning environment that is equitable, inclusive and culturally relevant to diverse learners. All children, regardless of race, gender, ability, disability, body size, religion and economic status, need to learn in an emotionally safe and welcoming environment that is free from harassment. If physical education teachers can generate this environment in the school setting, they can contribute towards a child's affiliation to physical activity, their enjoyment of the activity and ultimately, their happiness. Conversely, and reaffirming the significance of an appropriate physical education setting, if a child feels isolated or inadequate during a lesson they can become unhappy and develop negative feelings towards physical activity (Lindon, 2012).

According to Pate and Buchner (2014) when a child engages in any form of physical activity, even if it is short in duration and at a moderate intensity level, it produces positive changes. In other words, physical activity can produce joy and gratification. The psychological benefits of feeling in control, a sense of accomplishment and social support are the foremost contributors to these feelings of happiness.

Alternatively, there is considerable concern for inactive, lethargic children who have lost the motivation to play lively games, preferring passive activity, especially with television or computer usage. As Lindon (2012) testifies these children can become depressed and avoid more activity, therefore becoming more depressed and creating a cycle. Often sedentary children gain weight and fat. Again, obesity has an addictive effect; being inactive and overweight leads to more depression, which leads to less activity, and so forth. Consequently, physical activity has immediate and long-term benefits for happiness and mental health.

In conclusion, this literature has demonstrated that there is certainly a greater emphasis being placed on the amount of physical activity children experience in schools today. Moreover, from the literature outlined here, there is substantial evidence to suggest that physical activity does have a positive influence on a child's happiness. However, the precise correlation between the two remains unclear. For this reason, this study will examine the relationship between levels of physical activity and childhood happiness.

Methodology

3.1 Research Design

The main objective of this study is to examine the existing relationship between physical activity and levels of happiness in Key Stage Two pupils. In order to achieve reliable results, it is vital that testing methods used are extensively researched and that the process is completed both diligently and ethically. To determine a pupil's level of physical activity during the course of a school day, it is essential to discover the precise amount of steps each child takes during a particular school day. Subsequently, the allocation of individual pedometers provides all the information required to complete an accurate and precise indication of the amount of physical activity each pupil engages in. Furthermore, this provides enough analysis to look at their physical activity in relation to their levels of happiness.

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With regards to each pupil's level of happiness, in order for data to be reliable and consistent, information must be assembled directly from the pupils themselves. Accordingly, a brief interview with each pupil provides a suitable range of dependable information and statistics. The information gained should outline how happy each pupil is in general and how happy each pupil is within school. Each pupil is asked two questions in order to gain this information. However, in some cases, the interviewer will have to engage in a longer conversation with particular subjects in order to tease answers from them. To formulate a score from their answers, each pupil is asked to rate their happiness level from 1 – 5 (1 being very sad and 5 being very happy). The results collected are imputed to a spreadsheet via Microsoft Excel allowing for clear interpretation.

Initially, other forms of research were considered for this investigation but were dismissed due to their lack of practicality and reliability. In order to analyse physical activity, each subject was expected to keep a log book, recording all the physical activity they participated in for one whole week. However, due to time constraints and practicality issues, it was decided that the use of pedometers, to measure how many steps each pupil takes during the course of a particular school day, was a much more effective and practical way of establishing their amount of physical activity. Originally, in order to measure levels of happiness, each subject was expected to fill in a questionnaire. Yet, through substantial evaluation and research, an interview proved to be a much more accurate and reliable method for assessing levels of happiness.

3.2 Subjects

The subjects involved in this investigation are Key Stage Two pupils from Primary Five, Primary Six and Primary Seven classes. In total, there are two hundred and seventy-five pupils involved, one hundred and thirty-five of which are male and one hundred and forty of which are female. Their ages range from eight years to eleven years. The subjects attend six different schools in Northern Ireland and are from different socio-economic backgrounds. Each school enjoys a strong sporting tradition and have deep-rooted connections to their local sports clubs. Furthermore, each school promotes and fosters positive attitudes towards sport and are enthusiastic about their pupils' involvement in physical activity.

3.3 Procedures

There are a number of steps and procedures to be considered before collecting the data required to aid this investigation. Firstly, it is imperative to gain permission from the participating schools through their Principal and class teachers. A letter (Appendix 1) was sent to the Principal to ensure that consent was given prior to collecting any data. This letter specifies the aim of the study and what is expected from the school and its pupils. Also, this letter emphasises that any information collected would be handled with the utmost integrity and confidentiality for schools and subjects who participate in the investigation. Secondly, parents of the pupils were also sent a letter (Appendix 2) explaining the precise purpose and aim of the study, information on who is leading the investigation and crucially, what information is required from their children. Each letter included a consent form which, once signed and returned by parents/guardians, clarified the participation of the child. On return of all consent forms from school parties and parents, the collection of data could begin.

3.4.1 Testing Physical Activity

For the purpose of this investigation, physical activity is measured on the basis of how many steps each pupil takes during the course of a school day. Consequently, each child is allocated an individual pedometer, which is to be attached to their waist, prior to the beginning of the school day. At the end of the school day, each child gives their pedometer to their class teacher where they are then collected for further research.

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3.4.2 Testing Levels of Happiness

Quantitative research is used to find out information regarding the levels of happiness of the two hundred and seventy five subjects involved in this investigation. Each child participated in a short interview in which they rated both their 'general happiness' and their 'happiness within school' on a scale of 1 – 5 (1 being very sad and 5 being very happy). These results are recorded on a spreadsheet document leaving it much more efficient and straightforward when analysing results.

3.5 Analysis

In order to determine if there is a direct correlation between the subjects' physical activity and their levels of happiness, statistical analysis of questionnaire data and pedometer information were used.

Results

4.1 Introduction

This section details the findings of the two hundred and seventy-five subjects under investigation to assist in the overall purpose of this study. The aim of this study is to investigate the existing relationship between children's level of physical activity and their level of happiness in Key Stage 2 (KS2). Data were collected and recorded, through the use of pedometers, to calculate each child's individual level of physical activity, and an interview, to determine each child's individual level of happiness. When analysed, these results should provide an insight as to whether there is a case to suggest that regular physical activity has a positive impact on the happiness of children. Through research and findings it was hoped that active children, who participate in physical activities frequently, would demonstrate greater levels of happiness and contentment than those children who do not participate in physical activity or exercise as regularly.

4.2 Subjects

The subjects involved in this investigation were Key Stage 2 pupils from Primary Five, Primary Six and Primary Seven classes. There were two hundred and seventy-five subjects, one hundred and thirty-five of which were male and one hundred and forty of which were female. Their ages ranged from 84 months to 137 months. The subjects attended six different schools in Northern Ireland and were from different socio-economic backgrounds.

4.3 Physical Activity

Each child's level of physical activity was recorded on the basis of how many steps they took during the course of a school day. Figure 4.1 (below) highlights the contrast in the average number of steps taken by each gender. The average number of steps taken by males was 3732 and the average number of steps taken by females was 3639. Overall, the average number of steps taken by children in KS2 was 3678. The amount of steps ranged from 364 to 10065. This is a huge range but it should be noted that subject numbers 60, 76 and 154 (who all took less than 1000 steps) left school early for differing reasons.

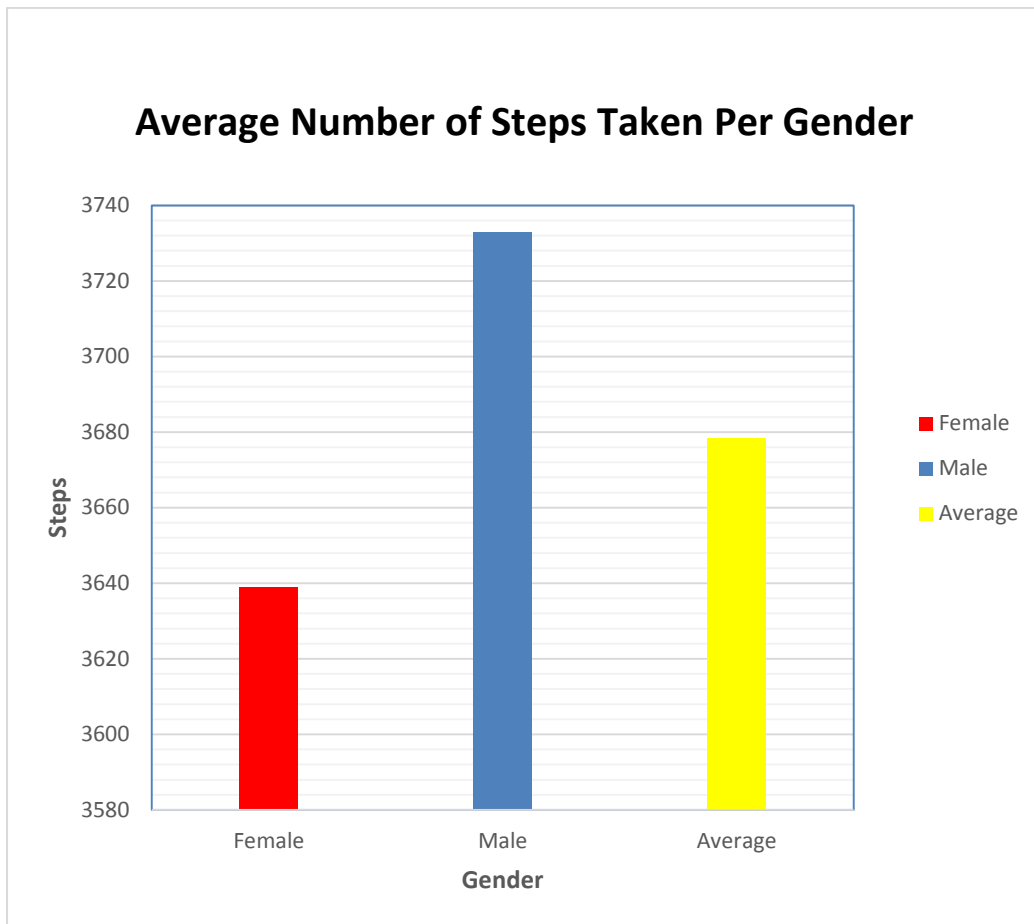


Figure 4.1: Average Number of Steps Taken Per Gender

These results display that boys are slightly more active than girls in KS2. This is reflected by Blair et al (2001) who confirm that females are less physically active than their male counterparts although the difference in this study is very slight. Their research, which focused on KS2 children in the school playground, confirmed that boys and girls tend to play differently. Girls tended to spend time in smaller groups and engage in verbal games which involved lots of conversing and socialising. Alternatively, most boys played in larger a group, which led to more physically active games, such as football, rugby and basketball.

Figure 4.2 displays the average body fat (%), weight (kg) and height (cm) of each gender.

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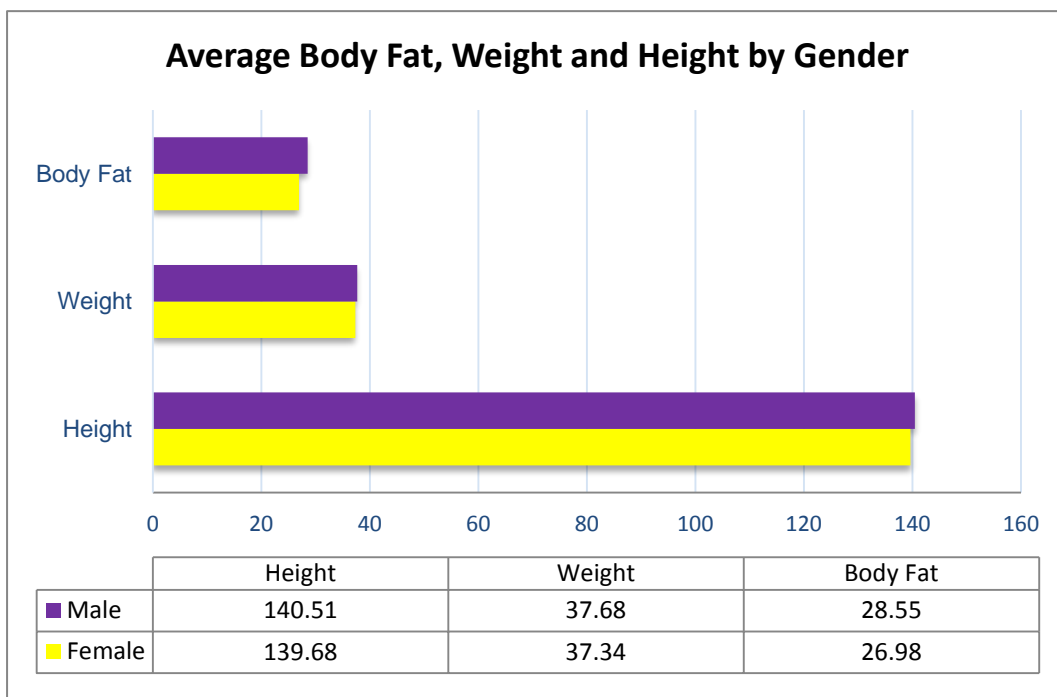


Figure 4.2: Average Body Fat (%), Weight (kg) and Height (cm) by Gender

As the graph demonstrates, males have, on average, a higher weight and a higher body fat. The average weight of the male subjects is 37.68kg, whereas the average weight of the female subjects is 37.34kg. Additionally, the average body fat of the male subjects is 28.55%, whereas the average body fat of the female subjects is 26.98%. If the perceived wisdom that activity leads to body fat changes is accepted, this information is contradictory to the previous graph as it identified that the male subjects were more physically active. Yet, despite their higher levels of physical excursion, they are heavier and have more body fat than their female counterparts.

4.4 Happiness

Each subject’s ‘general happiness’ and ‘happiness in school’ was determined through the use of an interview. I asked each subject two questions in order to calculate their different levels of happiness. However, in some cases, I had to engage in a longer conversation with particular subjects in order to tease answers from them. For each question, the subjects were asked to rank how happy they were on a scale of 1 – 5. Each number represented a different level of happiness:

- 5 – Very happy
- 4 – Happy
- 3 – Okay
- 2 – Sad
- 1 – Very sad

Figure 4.3 demonstrates a breakdown of the subjects’ ‘overall happiness.’ The subjects’ ‘general happiness’ and ‘happiness in school’ were combined in order to gain an insight into their overall state of happiness and contentment.

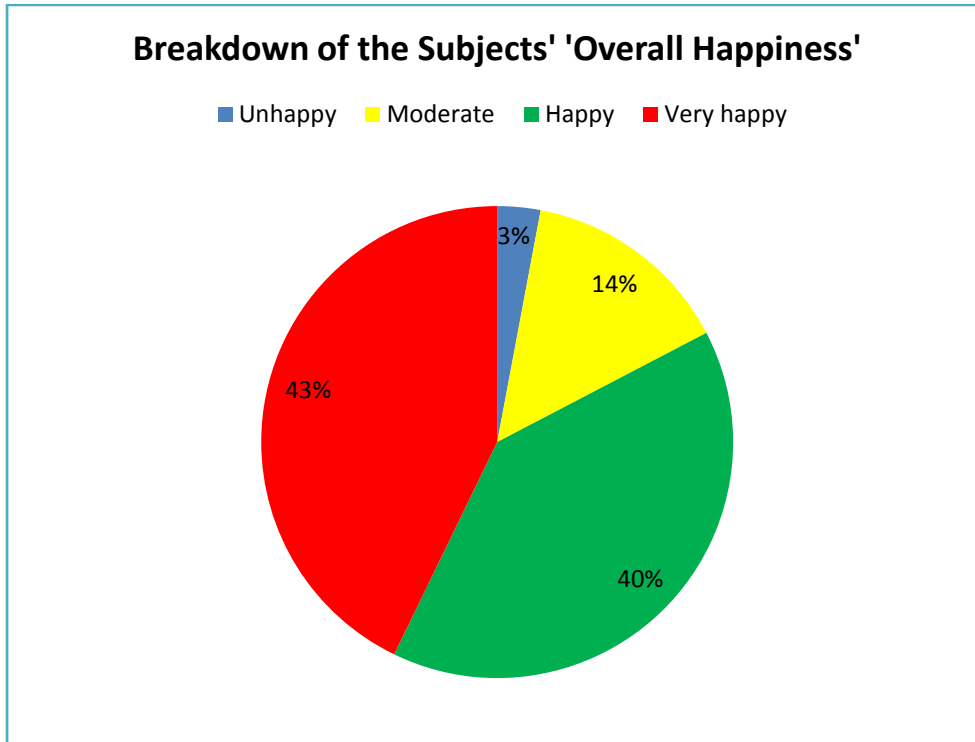


Figure 4.3: Breakdown of the Subject's 'Overall Happiness'

As Figure 4.3 demonstrates, 43% of the subjects were very happy, 40% were happy, 14% were moderate and only 3% were unhappy. Only four categories were used for this graph as no children were 'very unhappy.' Figure 4.3 is very encouraging as it displays that the majority of subjects are, overall, either happy or very happy. This is echoed by Dossil's (2006) assertion that children are happier, less anxious and more sociable than children were twenty years ago.

As well as displaying the subjects' overall levels of happiness, it is important to provide a breakdown of the different kinds of happiness. Figure 4.4 (below) displays the difference in the subjects' level of happiness in school and general happiness. Interestingly, the graph demonstrates that the pupils were happier in school than in general. The average level of happiness for pupils in school was 3.75. Alternatively, the average level of happiness for pupils in general was 3.29.

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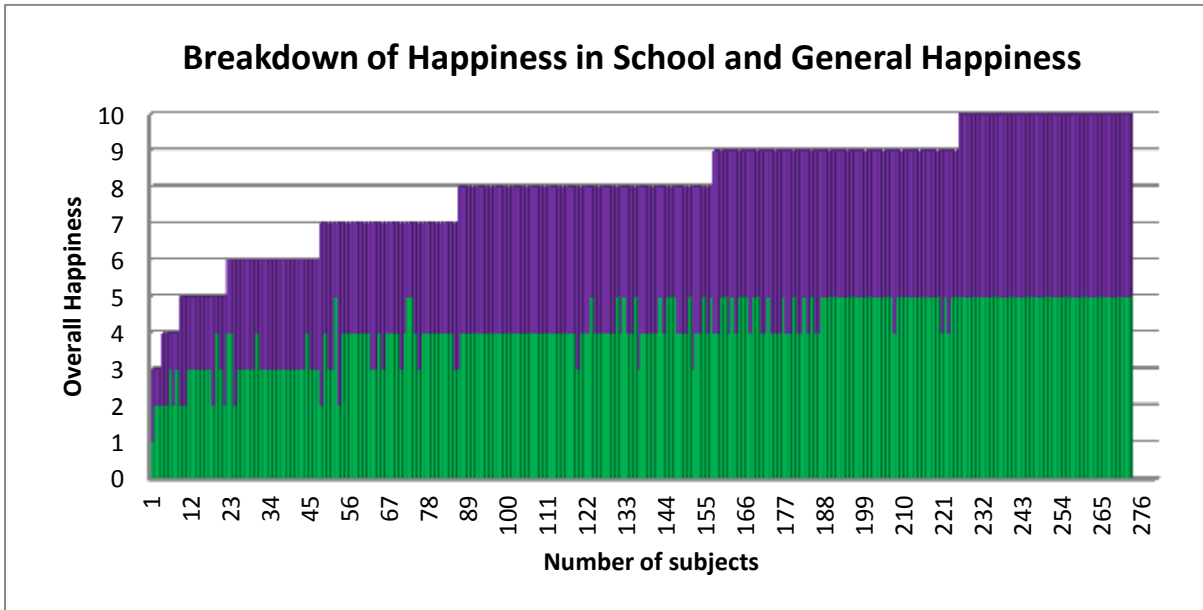
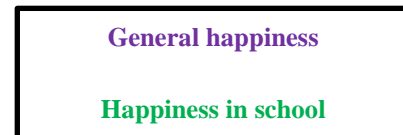


Figure 4.4: Breakdown of Happiness in School and General Happiness



4.5 Physical activity and Happiness

The final part of this section analyses the relationship between physical activity and happiness. Figure 4.5 (below) addresses each gender’s level of happiness in relation to their physical activity. Due to presentation purposes, happiness scores in this graph have been multiplied by 1000.

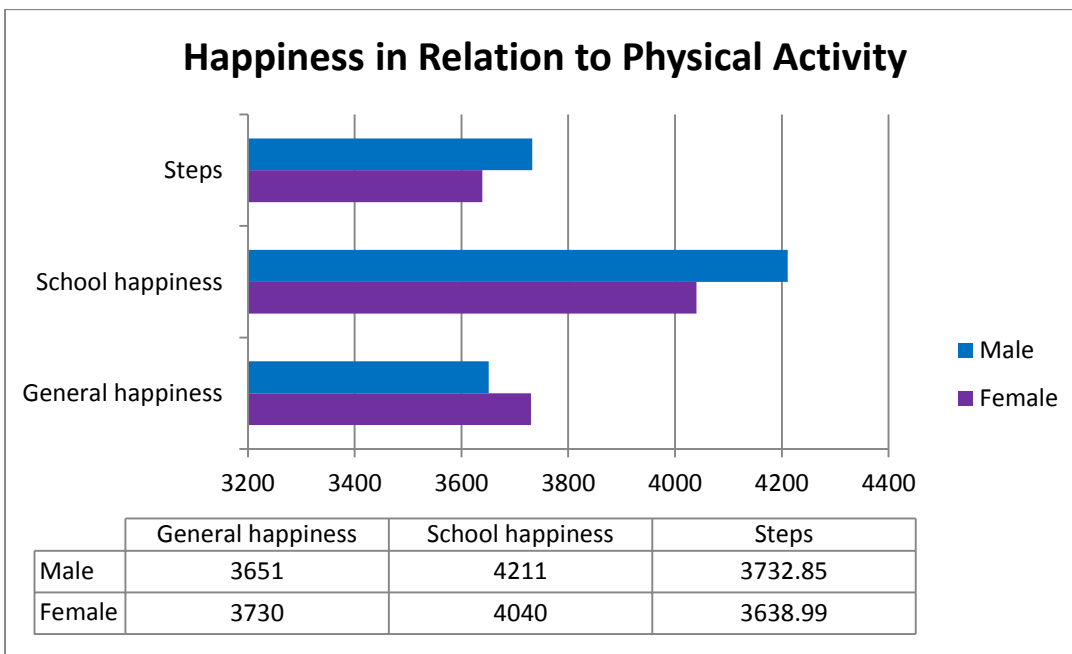


Figure 4.5: Happiness in Relation to Physical Activity

As previously mentioned, the male subjects, on average, took slightly more steps than their female counterparts. This graph also demonstrates that the male subjects were happier than the females

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within school. The average score for male happiness in school was 4211. However, the average score for female happiness in school was 4040. Conversely, in terms of general happiness, the female subjects were happier than the males. The average score for general happiness among male subjects was 3651. Alternatively, the average score for general happiness among female subjects was 3730.

Figure 4.6 (below) displays the correlation between each subject's rank, in terms of how many steps they took during the course of the school day, and their overall happiness. It is evident from the graph that there is very little connection between each subject's steps rank and their overall happiness.

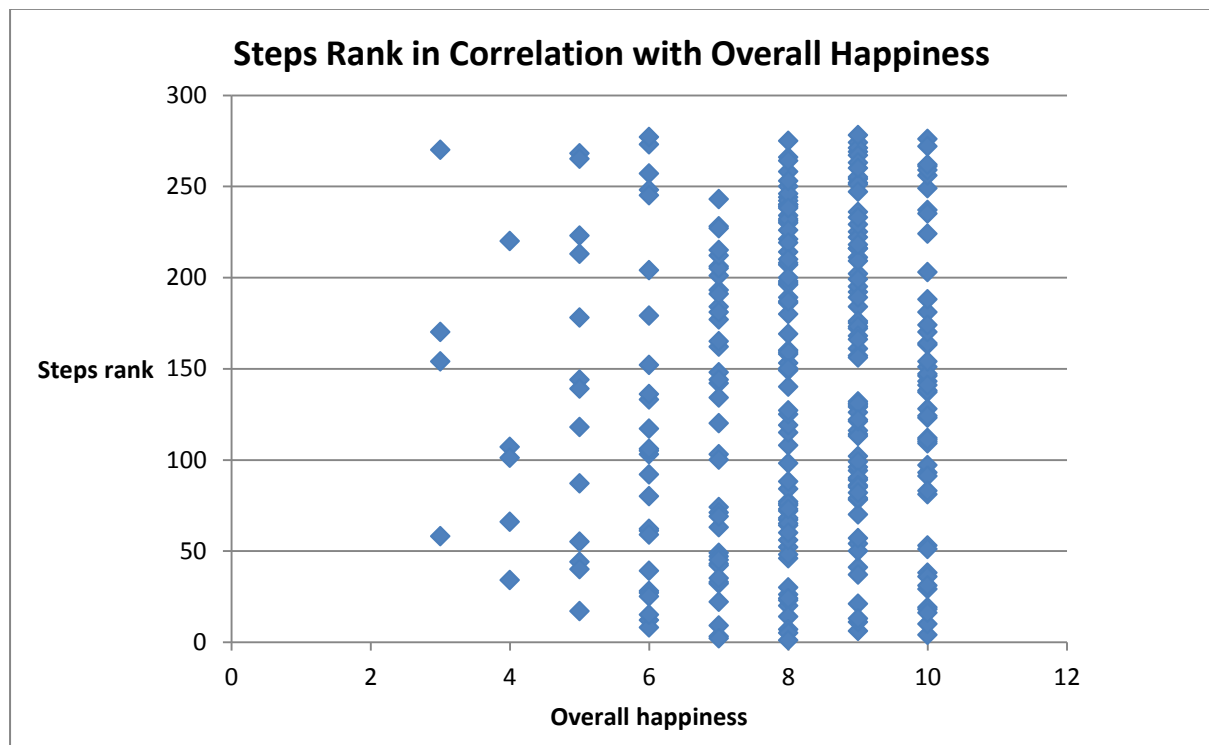


Figure 4.6: Steps Rank in Correlation with Overall Happiness

Figure 4.7 represents the overall happiness level by average step rank. The five categories used in the graph, to describe levels of happiness, are very unhappy, unhappy, moderate, happy and very happy. As is easily identifiable from the graph, none of the subjects were categorised as being 'very unhappy.'

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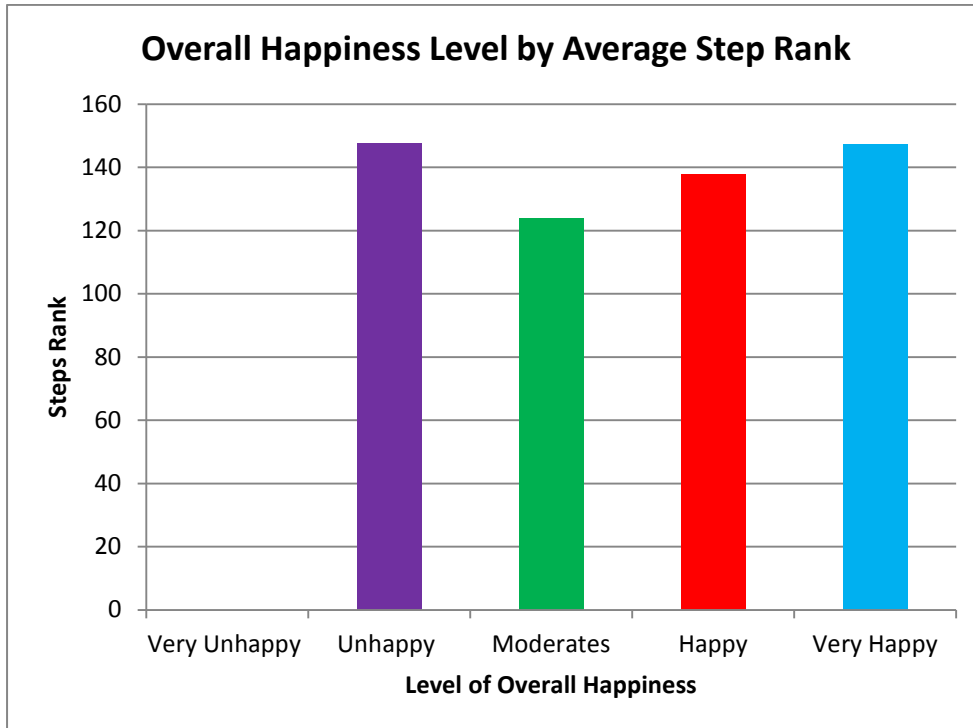


Figure 4.7: Overall Happiness Level by Average Step Rank

On average, pupils who were categorised as ‘unhappy’ were ranked at 145th on the steps rank. Pupils who were categorised as ‘moderate’ were ranked at 123rd. Pupils who were categorised as ‘happy’ were ranked at 137th. And finally, pupils who were categorised as ‘very happy’ were ranked at 144th. Again, as the previous graph demonstrated, there is very little correlation between each subject’s steps rank and their overall happiness.

To conclude the results section, there is not significant evidence to show there is a strong, existing relationship between physical activity and levels of happiness in children at Key Stage Two.

Conclusion

5.1 Conclusion

Following many hours of extensive research, assembling and recording results, and then critically analysing those results, very little connection can be identified between physical activity and levels of happiness in Key Stage Two pupils. Moreover, there is still no definite evidence or confirmation to suggest that physical activity is associated with enhanced levels of happiness. However, it was evident from the results that the majority of children demonstrated high levels of happiness and were somewhat active.

Previous research has demonstrated that physical activity may lead to some short-term improvements in a participant’s level of happiness, such as an improved mood, higher energy levels and fulfilment. However, the long-term effects are less clear and consequently, the relationship between the two variables requires further analysis. According to Armstrong and Mechelen (2008) active children report higher levels of self-esteem, happiness and life satisfaction and lower levels of anxiety, depression, stress and peer victimisation. However, Holder (2012) believes the strongest statement regarding the effect of physical activity on a child’s level of happiness, is that exercise will certainly not reduce, or have a detrimental impact, on a child’s contentment.

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5.2 Recommendations

Upon completion of this study there are a number of recommendations to be made. It is my assessment that a study of similar design, but longer duration, is required before it would be possible to confidently assert that a child's physical activity might have a positive impact on their level of happiness. The results for this study were gathered over the course of one day for each school. Therefore, this may not be reflective of the amount of physical activity some children participate in. Moreover, results were collected in the month of November which is a restrictive time for schools to participate in various physical activities due to weather conditions and closed sporting seasons. In order for the study to represent a more precise reflection of the amount of physical activity participated in, results should have been collected and recorded over a longer period of time. For example, if results were collected in June, September and November, it would lead to more accurate and representative results.

Although attaining each pupil's level of happiness through a brief interview was a simple and effective process, there was some uncertainty from the researcher on basing happiness solely on this method. Initially, it was thought that many of the subjects might give the same answers as their classmates as they were in close proximity to them during the interview process. In order for answers to be personal and more accurate, a designated and supervised section for the interviews should have been sectioned off in each school. However, in defence of this criticism, the researcher was extremely thorough with each interview and, when necessary, the researcher engaged in longer conversations with particular subjects in order to tease out more precise and reflective answers.

5.3 Limitations

Through evaluation of this study, it is evident that there were some limitations which affected the overall outcome of the investigation. The data gathered were collected over the course of one day for each school. On reflection, this study would be more accurate and representative if the subjects' levels of physical activity were recorded over a more extensive period of time. However, the time restraints of this investigation meant that this method would not be possible. Also, results were recorded on the basis of how many steps each child took during the course of a school day. Some children may be somewhat inactive in school but participate in lots of after-school physical activity. Subsequently, pedometers should have been worn for a full day. However, due to issues surrounding ethics and practicality, this approach was simply not an option for this study.

As aforementioned in the previous section, the timing of the year may also have hindered the accuracy of the results collected. Results for this study were collected in November which, on reflection, may not be the most active time of year for school children due to weather conditions and closed sporting seasons.

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