



**THE USE OF TIME AND THE
DETERMINANTS OF SPORTS
PARTICIPATION IN ADULTS IN THE
UNITED KINGDOM 2001 - 2015**

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ABSTRACT

This investigation examines the factors that enable or restrict the participation in sports or physical activities in adults in the United Kingdom in 2001 and 2015. The statistical analysis of the “United Kingdom Time Use Survey – UKTUS”, allows us to determine to what extent, the structural mechanisms related to gender, age, level of education, economic situation and status of health affect the sports participation in adults. Additionally, this research considers the role played by the time devoted to the use of mass media and technology in the decision of adults to get involved in sports and physical activities. The results of this research indicate that although the levels of sports participation have increased significantly from 2001 to 2015, it is still strongly affected by structural mechanisms. On the other hand, the time devoted to the use of technology has also shown a significant growth. However, the current evidence suggests that technology does not completely replace time that adults spend in sports and physical activities, but can be used as a tool to promote its practice. Thus, the understanding of sports participation in adults helps us to identify certain gaps and inequalities that arise from its practice, as well as debunk stereotypes and prejudices associated with the use of technologies in their leisure or free time.

Keywords: *sports participation, social factors, mass media, technology, time-diaries, leisure time, United Kingdom.*

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This is the beginning of greater things to come.

List of abbreviations

CAPI	Computer Assisted Personal Interviewing
IRS	The International Review for the Sociology of Sports
ISA	International Sociological Association
JSSI	The Journal of Sport and Social Issues
LPSA	Land Property Services Agency
ONS	Office for National Statistics
PA	Physical activity
PAF	Primary sampling of postcode sectors
SSJ	The Sociology of Sport Journal
UK	United Kingdom
UKTUS	The United Kingdom Time Use Survey

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INTRODUCTION

This investigation explores the determinants of sports participation in adults in the United Kingdom in the periods of 2001 and 2015. These determinants were related to traditional structural mechanisms such as gender, age, level of education, economic situation and state of health of the respondents. In addition, factors related to the time devoted to mass media and technology activities were included as a new elements of analysis, which provided valuable information for a better understanding about the participation in sports and physical activities in adults.

This study includes five chapters to address different inquiries about sports participation in adults. Chapter 1 details the study of sport and physical activity in sociology. It shows that the practice of sports should be studied as a fundamental part of society, since it is linked to different spheres of our daily social and cultural life. Moreover, this chapter emphasizes the importance of the study of traditional and new factors that may enable or restrict the participation of adults in sports and physical activities.

Chapter 2 shows the methodological tools and techniques to the study of sports participation in adults. This chapter describes in detail the main objectives and research questions of this project, which focus on analysing the main changes and continuities from 2001 to 2015 about the practice of sports and physical activities in adults, and the determinants that make its practice possible. In order to answer these issues, the “United Kingdom Time Use Survey” was analysed. This survey helped us to incorporate the time factor in the study of sports and other activities, such as the time spent using mass media and technology on a daily basis. In addition, an information analysis strategy was designed, which described in detail the procedures and statistical analysis carried out in the investigation.

Chapter 3 presents the main results of this project. The main characteristics of the adult population in the United Kingdom in 2001 and 2015 were examined, as well as the major differences in relation to the levels of participation in sports and physical activities, and the weekly time they devote to them. Then, the main activities that adults perform during the week were detailed, emphasizing the time they spent on the use of mass media (watching television, video, listening to radio, etc.) and technology (gaming, computing,

internet and use of cell phones). This allowed us to determine and measure, through statistical analysis, the impact of these factors on the participation in sports and physical activities in adults.

Chapter 4 analyses and evaluates the main results of the investigation. It was highlighted the methodological importance of the use of time diaries to address issues related to sports participation, and the use of mass media and technology. This methodological tool gave us a more detailed look about how these activities take place in the daily lives of adults and how they prioritise and organise them. Then, the implications of the role of the social and technological factors were discussed, as mechanisms to identify the gaps and inequalities in sports participation in adults.

Finally, in chapter 5, a general balance of the main strengths and limitations of the investigation was exposed. These ideas focused on both theoretical and methodological aspects related to the study of sports and physical activities today. Based on this analysis, research needs were raised that may contribute to the generation of new knowledge that will help us to provide greater opportunities for adults to actively engage in sports and physical activities in the United Kingdom.

I. CHAPTER ONE: THE STUDY OF SPORTS AND THE DETERMINANTS OF SPORTS PARTICIPATION

Sports are an important part of our society because they are associated with the main spheres of our social and cultural life (Coakley and Pike 2009). Thus, sociological research of sports seeks to analyse sports as a complex social phenomenon that considers not only individuals' actions but also their interaction with social structures. This chapter outlines the theoretical framework of my investigation and it provides a synthesis and critical appraisal of the research area. This section analyses how the study of sports has been addressed from sociology and what new topics or methodological trends are emerging in the study of sports. In addition, the place that sports occupy in our contemporary society is discussed and it is explained in detail how this research can contribute to a better understanding of the factors that could affect sports participation in the United Kingdom.

1.1. The sociological study of sports in a digitized world.

As a result of the transformations experienced in contemporary societies, in particular regarding the concern of our life conditions related to the state of our mental and physical health; Luschen (1980) indicates that sports became a widely practised activity in society, and consequently the study of this social phenomena attracted the interest of sociologists. For instance Florian Znaniecki (1951) soon highlighted the importance of sports and physical activity within education. Soon after, in the early 1960s, a line of research on topics related to sports began to develop from sociology and other social sciences, which sought to “go beyond the descriptive level by providing theoretically informed analyses and explanations of sports activity” (Snyder and Spreitzer 1974, p. 468).

The institutionalization of sports as a sub discipline of sociology was formalised through the constitution of the *International Council of Sports* in Geneva in 1964, which was mainly driven by the International Sociological Association (ISA) and other organizations. This event laid the foundations for the increase of academic publications related to sports and the creation of sports journals such as *The International Review for the Sociology of Sports* (IRS) in 1966, *The Journal of Sport and Social Issues* (JSSI) in 1977 and *The Sociology of Sport Journal* (SSJ) in 1984.

Despite these positive developments, the study of sports has been addressed with a certain degree of indifference within sociology, because it was usually associated with irrelevant or simplistic topics. However, in the last few decades, we have seen a major shift in “attitudes toward the sociological study of sports and leisure, and a substantial growth in the research and literature that focuses on the relationship between sports and society” (Boyle and Haynes 2009, p. 3).

Sports sociology seeks to understand sports as a constitutive part of our society and studies its relation to the main areas of our life such as family, education, economy, politics, health, religion and media; whilst simultaneously helps recognise the various issues around sports participation (Coakley and Pike 2009). In that sense, the sociology of sport not only seeks to analyse the individual benefits involved in the practice of sports and physical activities, but also for its role in society (Seippel 2018). Thus, sports sociology is interested in knowing how individuals and social groups are engaged in sports and physical activities under specific contexts or social conditions.

Over the past years, the topics studied by this discipline have been diverse, but researchers have prioritised those linked to politics, economics, education, gender, race and ethnicity (Dart 2014; Eckstein et al. 2010; Seippel 2018), which also are part of the body of traditional sociological research. The main findings of these investigations explains how people construct or strengthen their identities around sports and what mechanisms enable or restrict their participation in sport activities (Coakley and Pike 2009). Furthermore, the research in this field has privileged the application of qualitative methodologies over quantitative research (Coakley 1987; Dart 2014), micro-oriented studies over macro approaches, (Eckstein et al. 2010) and the use of certain theoretical perspectives such as cultural studies, interactionism and functionalism (Frey and Eitzen 1991; Seippel 2018).

Currently, the main initiatives resulting from these studies and approaches are focused on removing social barriers and increase opportunities to make sports more accessible and inclusive for everyone (Coakley and Pike 2009; Kokolakis et al. 2011; Moens and Scheerder 2004). This research emphasizes the social function of sports and physical activities that brings benefits for both individuals and society. Also, it takes into account that the development of sports activity is the responsibility not only of the people who

practice it, but also the organizations and institutions that generate the conditions that makes this activity possible.

Nowadays, new topics have emerged within this discipline, mainly in relation to technology and media (Seippel 2018). In addition to the traditional social mechanisms that affect the participation in sports in adults such as gender, age, education, and others; we also need to pay more attention to the role played by mass media and technology in explaining the increase or decrease in levels of sports participation in society. Media and technology have become more and more relevant within our daily life, because they modify and create new social and cultural practices (Schroeder 2002) and transform our everyday time and space (Green 2002). It is widely accepted that technology and media provide us new ways to access information, communicate and organise our daily activities. For example, in 2000, the report of the Office for National Statistics (ONS) about internet access in Great Britain shows that only 25% of people had internet access at home, while in 2018 this percentage rose to 90%. In addition, in 2006, 35% of people reported that they used the internet on a daily basis, whether through cell phones, computers or other technological devices. In 2018, this figure was 86%, which indicates that we currently make extensive and intensive use of digital media and new technologies as a large part of our daily activities (Office for National Statistics 2018).

These technological transformations also create some challenges that we must face and understand, such as the speeding up of our lives, the preference for online over offline activities, the loss of interpersonal skills and aspects related to digital exclusion. Moreover, Bittman and Wajcman (2000) point out that these technological developments could have an impact on the way we manage our leisure and free time. Current studies show that media technologies are used as means to share information, images or videos about people's sports performances (Nigg 2003). This enables that both "online and off-line sporting experiences are complementing and supplementing the other, and contributing to a transnational imaginary in which many feel a sense of belonging to a larger community beyond their immediate social groupings" (Thorpe 2017: 562).

Moreover, mobile apps and products linked to sports are used to engage and encourage people towards a more active life. According to the State of Mobile Report of Flurry Analytics (2016), the year-over-year growth of mobile use of sports apps has been 40%,

these include both apps that facilitate sports (i.e. running and cycling apps) and sports entertainment apps (i.e. ESPN, Sky Sports, etc). This may indicate that “the sporting goods industry has embraced technology in developing products that can motivate and coach people to become and remain active” (Janssen et al. 2017:13)

However, it is still limited the knowledge we have today about the impact of these technological changes on the use of our leisure and free time in adults, specially the time they spend practicing sports. Thus, we need to explore in detail how and to what extent the time we spend in activities related to mass media and technology could restrict or promote sports participation in our everyday life (Moens and Scheerder 2004; Nigg 2003). Also, it is important to know how these elements interact with other factors based on the social, economic or educational conditions of people.

1.2. Social factors and sports participation

The social factors of the participation in sports and physical activities include elements that are intrinsic and extrinsic to the individuals, which mediate and influence people’s decisions to get involved in sports. These factors or structural mechanism are generally based on the age, gender, social class, income, race or education (Coakley and Pike 2009; Kokolakakis et al. 2011; Moens and Scheerder 2004; Best 2010). In addition, the sociological analysis of sports considers the context and concrete social situations where these activities are carried out (Frey and Eitzen 1991). We should be aware that the practice of sport varies from place to place and time to time. That is, sociological research on sports has to “avoid the inference that sport has an essential and timeless quality apart from the context in which people create, play and change sports in society” (Coakley and Pike 2009:12).

These factors have been widely studied and documented in sports research. For instance, regarding authors like Kokolakakis et al. (2011) point out that as people get older the participation in sports decreases. However, this do not imply that these people completely abandon the sports activities, since they may get involved in other types of sports or physical activities that fit their needs and interests (Coakley and Pike 2009). Another important aspect is related to gender and the participation of women in sports. Nowadays, there is still the idea that women’s non-participation in sports is due solely to their lack of interest in these activities (Cooky 2009; Moens and Scheerder 2004). However, Coakley

and Pike (2009) point out that women face more barriers than men, which are based on the trivialization of women's sports practice, prejudices about their sexuality, the risk of being harassed or abused, lack of media coverage, among other issues.

The level of education is another important aspect that affects sports participation. Kokolakis et al. (2011) indicates that people with higher level of education tend to participate more in sports and, in turn, are more aware of the benefits of its practice. Moreover, Stempel (2005) points out that the educational level operates as a distinctive element of social class, which may lead to access and opportunities to practice sports or physical activities.

In addition, the economic resources can determine people's decision not getting involved and spent time in sports activities, since they may be considered a luxury or something difficult to afford (Coakley and Pike 2009). For example, housing conditions can be used as a proxy of people's economic situation. Tunstall et al. (2013) indicates that people with lower incomes tend to have fewer housing choices, and these choices are usually linked to private or social rented homes. Moreover, a report of the results of the "The National Survey of Culture, Leisure and Sports" found that the levels of participation in sports varies by tenure of housing, and those people who live in social rented homes tend to participate less in sports or physical activities (Department for Culture, Media and Sport 2011)

Finally, several studies agree on the importance of the practice of sports and physical activities to maintain a good state of health (Waddington 2000; Bergeron 2007; Pate et al. 2000). In that sense, a culture of health prevention is emphasized. This may encourage people to seek and expand their opportunities for participation in sports and incorporate them as a priority activity in their daily lives (Coakley and Pike 2009). The literature reviewed indicates that all these social factors play an important role in determining the conditions in which people get involved in sports and physical activities.

1.3. Mass media, technology, use of time and sports

Current studies in sports sociology and media focus mainly on examining content in *mass media*, and the way in which people use and interact with these contents (Coakley and Pike 2009). These studies have provided understandings on how people construct their experiences and identities around sports within specific social and cultural contexts. In

addition, studies have also addressed the media impact on sports-related practices (Coakley and Pike, 2009; Gantz and Wenner, 1991). The main ideas of later studies are focused on the positive and negative effects of the use of mass media in sports and physical activities and have sparked some debate around these issues.

Some authors argue that media can encourage and promote the participation of people in sports. Media provide a platform to show different sporting events to people, and this information can influence people's decision to attend these events as spectator or get actively involved as players (Lines 2007). Also, sporting role models in media might influence individuals to participate in sport activities. For example, they can use media to promote women's participation in sports, through messages that help debunk stereotypes and change attitudes towards certain sports that are practised mainly by men (Hardin and Greer 2007).

However, media could have a negative effect on levels of sports participation as well, especially electronic media, since they could promote a sedentary lifestyle. Leisure and free time are intended for activities such as watching television, videos or listening to music, which in most cases did not involve any type of physical activity. Another negative effect is associated with social isolation (Turkle 2017). Excessive media consumption may lead to poor social relationships, and in turn, causes people seek to fill their social needs with the company of the television or other type of media (Srivastava et al. 2018). Finally, media can reproduce certain ideals or performance expectations that people could not meet, which leads them to give up practicing sports (Coakley and Pike 2009).

Additionally, the changes that occur in sports are sometimes influenced by *new technologies*, and these technologies can have different meanings and uses for people and diverse social groups (Klein and Kleinman 2002). For instance, new technologies provide the opportunity for different actors to innovate or improve sports practices related to the safety, equipment, connectivity, etc. Thus, sport research points out that technology is a factor that might allow people to expand and create new forms of involvement with sports (Thorpe 2017).

New technologies can be used to massify the scope of the initiatives that promote these activities (Nigg 2003) or to improve the training and performance of athletes, reduce their

risk of injuries or provide assistive equipment for people with physical disabilities (Coakley and Pike 2009). On the other hand, researchers have also paid attention to the negative effects of the use of technology (i.e. internet, computer and video games) such as violence, addiction, social isolation and physical inactivity (Jonasson and Thiborg 2010). On this last point in particular, there is still little research about how technology could affect sports participation in people who make use of these technologies (Dart 2014).

Another issue arising from reviewing previous research is that the factor of *time* is often left aside in the sociology of sports. Time, and the everyday use of time, might also be an important factor with the potential to show the different constraints that exist for sports practice today. Time use studies have shown that people spend much of their time in leisure activities such as watching television, socializing with friends, reading or playing sports (Aguilar and Hurst 2009); so we should analyse sports as a time-consuming activity (Moens and Scheerder 2004) as part of a myriad of activities (leisure, work, personal care, entertainment, etc.), which compete with each other for the use of time on a daily basis (Kokolakakis et al. 2011).

Moreover, currently people report that they feel short of time to carry out sports or physical activities and the time they spend on these activities “has become scarcer and more harried” (Bittman and Wajcman 2000, p. 165). However, we should be aware that the time we spend practicing sports is not only related to the amount of “free time” we have available, but it is also affected by different social, economic and technological factors (Thibaut et al., 2017), as introduced before. These technological factors seem to be relevant in order to explore how people manage their time; since we are constantly shaping the uses of technology to “take more control of [our] time rather than being victims of the uncontrollable instantaneous time” (Wajcman 2008, p. 67). Furthermore, research exploring the relationship of sports engagement and media and technology with a time perspective is scarce.

To frame this type of study, we need to understand the methodological implications to collect and analyse information about how people spend their time. Most of the studies related to the use of time use as a methodological tool the “Time Diaries” to know in detail what people do during their daily activities. Time diaries are methodological tools that allow us to capture the type and sequence of people’s daily activities in a specific period

of time, this period usually include the report of activities on a daily or weekly basis. Robinson and Godbey (1999) point out that this method requires that people chronologically report all the activities they have carried out during one or more days of a specific week. The activities reported in these days can refer to “productive” tasks (work, child care, housework, study, and so on) “maintenance” (personal care or sleep) or “expressive” activities (including hobbies, mass media, social life, sports).

According to the study of Gershuny et al. (2017), the data provided by time diaries presents high reliability. The objective of this study was to test self-reports in time diaries against objective measurements using wearable cameras and accelerometers in real time. The main findings detail that there are no significant differences between the time recorded in the diaries and the time registered with the cameras and accelerometers both at the individual and aggregate level. Moreover, the research suggests that time diaries reduce the tendency of participants to give socially desirable answers.

In view of the above, this research seeks to contribute to the public discussion about sports participation in the adults in the United Kingdom and explore some ideas about the use of new technologies and patterns of media consumption through the analysis of the time spent on these activities daily. Also, this research allows us to pay more attention to how the practice of sports is linked to structural components and processes in society. Thus, this research prioritizes the use of macro-approaches over micro-oriented analysis to investigate the changes that have occurred in the different levels of sports participation and the impact of the technological development in these activities.

II. CHAPTER TWO: RESEARCH METHODOLOGY

Considering that sport is an activity that is related to several aspects of our social and cultural life, it is necessary to place sports not only as an interesting topic of sociological research, but also as an important one. Moreover, sports practice should not be studied isolated from the context where it occurs and the changes that have taken place in society in recent years should not be ignored. One of these changes is generally associated with the vertiginous increase in access and use of digital media and technology services that has generated great concern about how we have incorporated these changes into our daily activities.

This research explores to what extent the time we spend using technology and media is related to the practice of sports or physical activities in our daily life. First, it is described how the selected epistemological approach help to outline clearly the methodological proposal of the research. Second, the research design includes a detailed description of the data of the time use surveys, the sampling frame, the research tools and ethical considerations of the investigation. Third, the strategy of analysis allows to find distinctive features or patterns of the research topic. Finally, the issues related to the methodological choice and how these limits could be addressed in future research are considered.

2.1. Epistemological approach

This project is addressed mainly through a post-positivism research approach. This perspective emerges as a critical response to the positivism perspective. Positivism is a conceptual and methodological framework with its own set of values, beliefs and assumptions. It is mainly characterized by the use of operational definitions, variables that express patterns and relationships between them, statistical techniques, large datasets and it pursues the verification of hypothesis through empirical evidence (Gartrell and Gartrell 2002). The knowledge produced by this perspective is based on observable facts that can be measurable and quantifiable, leaving aside any type of external factors or constraints.

Post-positivism (as the positivists) points out that the reality can be studied through the scientific method (which is strongly associated with quantitative methods). However, this perspective recognises that the study of social reality is not totally objective and cannot be

known with certainty, since reality is also historically and socially conditioned (Crotty 1998). Moreover, this perspective allow focusing on aspects related to the validity, reliability and replicability of the research, and it uses theory to break up the reality into empirical data. Thus, this perspective can provide an objective view and general picture of the practice of sports contextualized in the current British society. In addition, this perspective provides an important methodological framework that help to determine the relevance and influence of mass media and technology in the involvement of people in sports or physical activities.

2.2. Research design

This study uses a *cross-sectional design* to address the issues associated with sports participation and the use of time in our daily activities with particular focus on the role of new media and technologies. According to Bryman (2012) this type of design “entails the collection of data on more than one case (usually quite a lot more than one) and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables (usually many more than two), which are then examined to detect patterns of association” (p. 58). Thus, this design allows us to identify if there are variations in the group as a whole or in specific subgroups, taking into account certain attributes or characteristics of the cases analysed. Additionally, we can examine relationships between variables and draw certain inferences using sophisticated statistical techniques such as regression analyses (Bryman 2012; Somekh and Lewin 2005).

Finally, this type of design is intimately related to the epistemological choice of this project. It uses secondary data as a main source of information. Thus, the analysis is based on existing data, which was used to answer questions that go beyond its original purpose (Smith 2008). The data came from a specialized large-scale household survey, which used techniques and instruments of data collection based on quantitative methodologies. Moreover, the research findings can be verified through empirical evidence and this information gives the opportunity of making statistical generalizations about the phenomenon studied (Williams 2016).

2.2.1. Objectives and research questions

The main objective of this project focuses on exploring the determinants or factors that enable or restrict the participation in sports or physical activities in adult people in the

United Kingdom. These determinants are related to the social characteristics of adults (social factors) and with the use of technology and mass media in their daily activities. To address this research, the following research questions were considered:

- How and to what extent social factors or social characteristics of adults influence the time these people spend on sports, technology and mass media?
- How does the amount of time devoted to the use of media, technology and sports and physical activities related to each other?
- To what extent do the social factors and the time spent using technology and media explain the participation in sports or physical activities in adults in The United Kingdom?
- What are the main changes from 2001 to 2015 that adults experienced in activities related to the practice of sports and the use of media and technology?

2.2.2. Sources of information and sampling frame

The data used in this project is part of the “open resources” catalogue of the United Kingdom Data Service¹. Considering the research questions, this project used as a main source of information the “*United Kingdom Time Use Survey*”, which was carried out in the year 2001 and 2015. This survey provides important information about how people spend their time in daily activities. Additionally, the survey has a set of specific questions related to the practice of sports and relevant data about the characteristics of the household members. Other surveys such as “Taking Part: The National Survey of Culture, Leisure and Sport, 2017-2018” and “Active Lives Survey 2016-2017” (both conducted only in England) were excluded, because they do not gathered information about sports participation in all the countries of United Kingdom.

The advantage of these data is that consider individuals and families who live in Wales, Scotland, England and Northern Ireland. The sampling procedure of the survey was carried out through a multi-stage stratified random sample. This type of sampling ensures that our sample has a similar distribution as the population, taking into account certain stratifying criteria (Bryman 2012; Somekh and Lewin 2005). The first stage consisted of a primary sampling of postcode sectors (PAF) in Wales, Scotland and England, whereas

¹ UK Data Services: <<https://www.ukdataservice.ac.uk>>

in Northern Ireland the addresses was selected from the Land Property Services Agency (LPSA). Both procedures took into account the population density of the regions and the socioeconomic background of the people. Then, the dwellings and households with occupied residential addresses were selected. Finally, all members over eight years old from the selected households were asked to complete an individual questionnaire and two days diaries (Gershuny and Sullivan 2017; Office for National Statistics and Ipsos-RSL 2003).

The periods covered by the survey (2001 and 2015) used the same methodological criteria of sampling and data collection, so the changes and transformations occurred around the use of technology and mass media can be analysed and compared, as well as their influence on sports participation during this period of time. This project focuses on analysing the determinants of sports participation in adults, so the data selected only considers people aged eighteen years old and above (+18) who completed their individual interviews and time diaries (Table 1)

Table 1. Coverage and sampling procedure

	Survey 2001	Survey 2015
Dates of fieldwork	June 2000 – September 2001	April 2014 – December 2015
Countries	England, Wales, Scotland, Northern Ireland	England, Wales, Scotland, Northern Ireland
Unit of observation	Individuals and Households	Individuals and Households
Population	Individuals over eight (+8) years old living in UK	Individuals over eight (+8) years old living in UK
Sample size	11,664 individuals in 6,414 households	9,388 individuals in 4,238 households
Time dimensions	Cross-sectional (one-time) study	Cross-sectional (one-time) study
Sampling procedures	Multi-stage stratified random sample	Multi-stage stratified random sample

Source: United Kingdom Time Use Survey, 2001 and 2015.

2.2.3. Research tools

This study uses secondary data as a main source of information. The “United Kingdom Time Use Survey” provides information about the households and the characteristics of the individuals surveyed. These individual questionnaires contain demographic,

educational, health and economic information of each household member. These variables are named “social factors”.

The survey also includes the “time-use diaries”, which record information about the daily activities of the household members. According to Hellgren (2014), a time diary has the following distinctive features: “it measures when during the day an activity takes place (timing), it indicates how long each activity lasts (duration), and records the number of times an activity occurs during the day” (p. 1522). In addition, these daily activities were registered sequentially, including where and with whom they are carried out (Robinson and Godbey 1999; Hellgren 2014).

These surveys recorded people’s activities that occurred during two specific days of the week (one weekday and one weekend day). The respondents had to record what they are doing in intervals of ten minutes and other information such as secondary activities, location or mode of transport, presence or absence of people and level of enjoyment of the activity (Table 2).

Table 2. Example of time diary questionnaire

Day: (Weekday or Weekend)		Activities			
Time	What are you doing? (Main activity)	What else did you do? (Secondary activity)	Where were you? – Transport or location	Were you alone or with somebody with you know?*	How much do you enjoy this time?***
07:00 – 07:10	<i>Had breakfast</i>	-	<i>At home</i>	<i>Alone</i>	3
07:10 – 07:20	<i>Had breakfast</i>	<i>Watching tv</i>	<i>At home</i>	<i>Alone</i>	3
07:20 – 07:30	<i>Had breakfast</i>	<i>Watching tv</i>	<i>At home</i>	<i>Alone</i>	3
...					
16:00 – 16:10	<i>Play football</i>	-	<i>On foot</i>	<i>Child 0-7</i>	7
16:10 – 16:20	<i>Play football</i>	-	<i>On foot</i>	<i>Child 0-7</i>	7
16:20 – 16:30	<i>Play football</i>	-	<i>On foot</i>	<i>Child 0-7</i>	7
...					

*Categories: Alone, Spouse/partner, Mother, Father, Child aged 0-7, Other person, other persons you know.

**Only the 2015 survey includes this question. The scale goes from 1 to 7, where 1=Not at all and 7=Very much.

Source: United Kingdom Time Use Survey, 2001 and 2015.

In addition, the information recorded by the time diaries gives account of ten main activities related to personal care or sleep, employment, household and family care, mass media, travel, social life and entertainment, hobbies and games, study, sports, volunteer work and meetings. Although, there are certain challenges for accurately estimating the duration of people’s daily activities, since they could not remember all the events that occurred during the day or they could hide information about activities that are not considered as a priority or typical in their daily life.

Despite these problems, time diaries give us the opportunity to know from first-hand “the rhythm and sequencing of daily activities, the occurrence of multiple simultaneous activities, the duration of specific activities, the enjoyment of time spent in different activities and the social context of the activities” (Gershuny and Sullivan 1998, p. 69).

This project analyses the activities associated with the time that people spent using mass media, technology and practising sports and physical activities. These selected variables help us to understand how social factors and other mechanisms determine the decisions of adults to engage in sports and physical activities. The following table (Table 3) details the conceptualization and operationalization of each variable to analyse. Moreover, only the variables included in both surveys were considered.

Table 3. Selected variables of individual questionnaires and time diaries*

	Variables	Categories / Activities	Definition	Observation	Source
Social Factors	Age	16-24	Group of age of the adult respondents (%)	Recoded from scale variable in the 2001 and 2015 survey	Individual questionnaires
		25-29			
		30-44			
		45-64 (Ref.)			
	Gender	Male	Gender of the adult respondents (%)	-	
		Female (Ref.)			
	Level of education	Degree or higher	Highest qualification achieved (%)	Categories recoded only in the 2001 survey	
Higher education					
A level or equivalent					
Secondary					
Tenure of accommodation	Owns outright	Tenure of accommodation of the adult respondents (%)	Categories recoded in the 2001 and 2015 survey		
	Own with a mortgage				
	Rented (Ref.)				
State of health	Very good	Opinion of the adults about his/her state of health (%)			
	Good				
	Fair or bad (Ref.)				
Attendance to sport events	Yes	Adults who attended to any type of sport events (%)	-		
	No (Ref.)				

Variables	Categories / Activities	Definition	Observation	Source
Use of mass media and technology	Technology	Use of telephones	Total average time (hh:mm) that adults spend using technological devices per week	The average time at each moment of the day (morning, afternoon, evening and night) and the type of company (with people or alone) were also recorded.
		Use of computers / internet		
		Video / computer games		
	Mass media	Watching television	Total average time (hh:mm) that adults dedicate to mass media activities per week	
Watching videos or films				
Participation in sports and physical activities	Sports and physical activities	Listening radio or music	Total average time (hh:mm) that adults dedicate to sports and physical activities per week.	Time diaries
		Walking		
		Running		
		Biking, skiing, skating		
		Ball games		
		Fitness		
		Water sports		
	Other activities			
Sports participation	Yes	Adults who recorded as a primary activity their time of participation in sports or physical activities (%)	-	
	No (Ref.)			

* The selected variables are in both individual surveys of the period 2001 and 2015 (see appendix N°1 and N°2 for further details)

Source: United Kingdom Time Use Survey, 2001 and 2015.

Finally, it is important to state how the quality of the research was assessed. The concepts of reliability and validity were adapted, taking into account the type of research and the conducted methodology. Thus, reliability implies that researchers have to guarantee that “complete records are kept of all phases of the research process [...] in an accessible manner” (Bryman 2012, p. 392). In other words, this project documented in detail the procedures followed and the evidence gathered, so that this research may be subject to scrutiny and replication by other researchers. In time diaries, reliability focused in the codification process of the activities mentioned by the respondents. Different interviewers codified the same time-diaries, obtaining high levels of agreement in the assigned codes (Office for National Statistics and Ipsos-RSL 2003; Gershuny and Sullivan 2017).

Furthermore, according to Bell and Waters (2018), another aspect we have to pay attention is if there is coherence between the evidence and the concepts develop in this research project (internal validity) and to what extent the results can be generalized across different social settings (external validity). In both surveys, the responses depend on the self-report method, but clear and precise indications were given to each participant of what time-diaries intended to measure, thus avoiding any type of ambiguity or bias in their answers. Moreover, the sampling procedures in this type of cross-sectional study

guaranteed that the UK population was adequately represented and the results could be statistically generalizable.

2.2.4. Procedures of data collection

The main method of data collection for *individual questionnaires* was face to face interviews. The interviewers carried out this procedure using a Computer Assisted Personal Interviewing (CAPI). This interviewing technique ensures the quality of the information, since it significantly reduces the errors and inconsistencies of the respondents. In some cases, proxy interviews were conducted if the subject was unable to finish the interview due to physical, mental or other problems. In the case of *time-diaries*, the interviewers left the diaries with the participants, but they give specific instructions on how it should be completed. In addition, through telephone calls or text messages, respondents are reminded to complete the instrument at the agreed time with the interviewer. Then, the diaries are collected in person at the interviewee's house and the interviewer verifies if there are questions that were omitted or not answered (Gershuny and Sullivan 2017; Office for National Statistics and Ipsos-RSL 2003).

2.3. Strategy of analysis

The information provided by the individual questionnaires and time diaries helps to answer the questions raised in the investigation. For this purpose, the research was placed in two periods of analysis. The first period corresponds to the year 2001, where technological devices and digital media were not widely used in our everyday experience with the world. The second period corresponds to the survey of 2015. This period is characterized by profound social and technological transformations, and these changes continue to have a great impact and a fundamental role in the way we do things and experience the world around us.

To answer the research questions, first, the social characteristics of the adults surveyed were described, and after that the main changes that have taken place from 2001 to 2015 were presented. Then, sports participation was defined, and the main characteristics of this activity were detailed. Based on that information, this project explored the relationship between the social factors with the participation in sports and physical activities. This relationship was tested through the chi-square independent test. This allowed us to know if sports participation is still structured by social inequalities (Moens and Scheerder 2004)

or is also influenced by other factors. Thus, the study of the elements that affect the practice of sports helped us to inquiry aspects of inequality within these activities in society (Coakley and Pike 2009).

Second, the time that adults spend in their daily activities was described. The total time of these activities was calculated on a weekly basis. In addition, the emphasis was placed on the analysis of the activities related to the use of technology, mass media and the practice of sports and physical activities. Then, this project examined the relationship between the time that adults spend on sports with the time dedicated to the use of mass media and technology. According to Moens and Scheerder (2004) these factors could be the new social determinants of sports participation, since they include other relevant aspects of our current daily life. In that sense, this allows us to know if mass media and technology are relevant factors to explain sports participation (or its lack) in adults in the United Kingdom.

Finally, binary logistic regression models were built to explain and predict the probability of an adult to participate in sports and physical activities. For this, the project considered the social characteristics of adults and the time devoted to the use of technology and mass media as factors that could determine the decision of adults to get involved in sports and physical activities. In each of these procedures, the main changes or continuities that have been occurred in the practice of sports and physical activities were evaluated in both periods of the survey.

III. CHAPTER THREE: RESULTS

The results presented in this chapter are based on the analysis of the secondary data from the “United Kingdom Time Use Survey” (UKTUS) of 2001 and 2015 (Table 4). Taking into account both periods, we analyse the main changes and continuities regarding adults’ sports participation in the United Kingdom. For this purpose, the selection of the cases was based on adult household members (16 to 64 years old) who completed their individual interviews and time diaries. Surveys in which participants were absent or refuse to respond were discarded. Therefore, the final sample consists of 6,828 adults interviewed in 2001 and 5,665 in 2015. These data were weighted to ensure that our sample is representative of the population in the United Kingdom.

Table 4. Survey Sample

	Survey 2001	Survey 2015
Sample size	11,664	11,421
Adult household member (16 to 64 years old) surveyed	8,170	7,110
Individual interviews and time diaries of adults completed	6,828	5,665

Source: United Kingdom Time Use Survey, 2001 and 2015.

First, this chapter presents the social characteristics and the incidence of sports participation of people surveyed in 2001 and 2015. The main changes in the profile of the respondents in each of the analysed variables were described. Additionally, the influence or impact of these factors on the different levels of sports and physical activities (PA) was examined. Second, it was analysed the importance of sports and physical activities in our daily life through time diaries. This data collection instrument details the time that people dedicate to these activities during the week. In addition, it was evaluated the relationship between sports activities and other leisure activities, particularly use of mass media (television, radio, music and video) and technological devices (phones, computers, internet and video games). Finally, it was examined to what extent these new determinants (mass media and technology) influence the participation in sports and physical activities in adults in the United Kingdom.

3.1. The practice of sports and physical activities in the United Kingdom.

It is generally thought that the practice of sports or other physical activities is just a free individual choice, but sociological research on sports points out that social factors could

determine the participation of people in these activities (Coakley and Pike 2009; Eckstein et al. 2010; Moens and Scheerder 2004).

To review this theory, this project has considered different social factors (Table 5) and have analysed its relationship with sports participation in two periods of time, 2001 and 2015. First, these social factors consider different aspects of sociodemographic (gender and age), educational (level of education), economic (tenure of accommodation, attendance to sport events) and health (state of health) characteristics of adult respondents. Thus, these social factors could be relevant to establishing a relationship with the practice of sports or physical activities in adults.

As it can be observed in table 2, there have not been major changes in the distribution of age, gender, health status and the presence of the participants in sporting events from 2001 to 2015. On the other hand, the most relevant changes occurred in the tenure of accommodation and educational level of the adults. The results indicate that in 2001, 27.3% of people had higher education (11.4%) or a degree (15.9%) and most of them (72%) live in their own home. In 2015, the percentage of people with higher education (15.8%) and degree (19.9%) increased, but the proportion of people who live in their own home decreased (63%).

Table 5. Adult social factors in the United Kingdom

	Survey 2001		Survey 2015	
	N	%	N	%
Age group				
16 – 24	880	12.8%	995	17.3%
25 – 34	1,577	23.0%	1,239	21.5%
35 – 44	1,703	24.8%	1,170	20.3%
45 – 64	2,701	39.4%	2,359	40.9%
Total	6,862	100%	5,763	100%
Gender				
Male	3,302	48.1%	2,799	48.6%
Female	3,560	51.9%	2,964	51.4%
Total	6,862	100%	5,763	100%
Level of education				
Degree or higher	1,074	15.9%	1,693	29.9%
Higher education	7,73	11.4%	897	15.8%
A level or equivalent	8,56	12.6%	1,226	21.6%
Secondary	1,703	25.1%	1,466	25.9%
Other	2,368	35.0%	388	6.8%
Total	6,862	100%	5,671	100%

	Survey 2001		Survey 2015	
	N	%	N	%
Tenure of accommodation				
Owns outright	1,290	18.8%	1217	21.1%
Own with a mortgage	3,627	52.9%	2,437	42.3%
Rented	1,934	28.2%	2,109	36.6%
Total	6,850	100%	5,763	100%
State of health				
Very good	2,782	40.6%	2,134	37.0%
Good	2,665	38.9%	2,465	42.8%
Fair or bad	1,409	20.6%	1,163	20.2%
Total	6,862	100%	5,761	100%
Attendance to sport events				
Yes	1,051	16.6%	825	14.3%
No	5,024	83.4%	4,938	85.7%
Total	6,314	100%	5,763	100%

Source: United Kingdom Time Use Survey, 2001 and 2015.

Second, the participation in sports and physical activities is composed of different activities that can be practiced individually or collectively. In this research, to measure the levels of sports participation in adults, the set of all sports and physical activities was considered. Table 6 indicates that the level of sports participation (proportion of adults who recorded as a primary activity their time of participation in sports or physical activities within time diaries) have increased from 2001 to 2015.

In 2001, 25.5% of people were involved in some sport or physical activity as a main or primary activity², while in 2015 it rose to 35.4%. Table 3 also shows that the most important activity in both periods was walking which increased from 10.5% in 2001 to 16.8% in 2015. In addition, both running and fitness are activities that adults have raised their levels of participation in the period analysed.

Table 6. Participation in sports and physical activities of adults in the United Kingdom

	Survey 2001		Survey 2015	
	N	%	N	%
Walking	623	10.50%	9,68	16.80%
Fitness	448	7.90%	670	11.60%
Ball games	394	7.10%	305	5.30%
Running	70	2.40%	201	3.50%

² The main or primary activities strictly connected with work, are included in the category of "employment"

	Survey 2001		Survey 2015	
	N	%	N	%
Water sports	214	4.50%	169	2.90%
Biking, skiing or skating	93	2.70%	145	2.50%
Other activities	396	7.10%	300	5.20%
<i>Participation in sports and physical activities</i>				
<i>No participation in any activity</i>	5,042	74.5%	3,702	64.5%
<i>Participation in one activity</i>	1,282	18.9%	1,578	27.4%
<i>Participation in two or more activities</i>	443	6.5%	460	8.0%
<i>Participation in at least one sports and PA</i>	1,725	25.5%	2,039	35.4%

Source: United Kingdom Time Use Survey, 2001 and 2015.

In order to know whether the social factors such as gender, age group, educational level, tenure of accommodation, state of health and attendance to sport events (as independent variables) have an effect on sports participation (as a dependent variable), the chi-square test was used to determine the relationship between these variables.

Table 7 shows that there is a statistically significant relationship between all the independent variables with the dependent variable in both periods of the survey. That is, the proportion of adults who practice sports or physical activities are quite different in each factor. For example, there is a significantly greater proportion of men than women involved in sports and physical activities, and the adults with a higher educational level were more involved in these activities than people with a lower level of education. Moreover, the results indicate that older respondents participate less in sports and physical activities, as well as adults with health problems and those living in a rented home in both waves of the survey.

Table 7. Relationship between the participation in sports and physical activities with the social characteristics of adults in the United Kingdom

	Survey 2001			Survey 2015		
	Sports participation		Chi-square	Sports participation		Chi-square
	No	Yes		No	Yes	
Gender						
Male	71.1%	28.9%	39.22	61.7%	38.3%	18.26
Female	77.7%	22.3%	(Sig.=0.000)	67.1%	32.9%	(Sig.=0.000)

	Survey 20001			Survey 2015		
	Sports participation			Sports participation		
	No	Yes	Chi-square	No	Yes	Chi-square
Age group						
16 – 24	69.8%	30.2%		60.4%	39.6%	
25 – 34	74.1%	25.9%	13.29	60.2%	39.8%	37.55
35 – 44	76.1%	23.9%	(Sig.=0.004)	63.5%	36.5%	(Sig.=0.000)
45 – 64	75.3%	24.7%		68.9%	31.1%	
Level of education						
Degree or higher	64.4%	35.6%		53.0%	47.0%	
Higher education	72.9%	27.1%	91.38	65.1%	34.9%	172.48
A level or equivalent	74.7%	25.3%	(Sig.=0.000)	66.2%	33.8%	(Sig.=0.000)
Secondary	74.4%	25.6%		71.3%	28.7%	
Other	79.7%	20.3%		80.6%	19.4%	
Tenure of accommodation						
Owens outright	70.3%	29.7%	33.15	60.5%	39.5%	31.88
Own with a mortgage	73.7%	26.3%	(Sig.=0.000)	62.5%	37.5%	(Sig.=0.000)
Rented	78.9%	21.1%		69.1%	30.9%	
Status of health						
Very good	70.3%	29.7%	54.21	55.6%	44.4%	151.01
Good	75.9%	24.1%	(Sig.=0.000)	66.5%	33.5%	(Sig.=0.000)
Fair or bad	80.4%	19.6%		76.6%	23.4%	
Sport events						
Yes	67.6%	32.4%	28.88	51.1%	48.9%	75.82
No	75.8%	24.2%	(Sig.=0.000)	66.7%	33.3%	(Sig.=0.000)

Source: United Kingdom Time Use Survey, 2001 and 2015.

From this descriptive analysis, we can say that the levels of participation in sports and physical activities have increased from 2001 to 2015 across all social factors observed. Moreover, social factors are important to explain the involvement of adults in these type of activities and there are still significant differences between categories in each of the analysed variables. Thus, sociological research have to continue paying attention to the study of sports and physical activities linked to these social components, because they could help us to have a broader understanding of the social inequalities that could arise due to the lack of appropriate conditions or opportunities to participate in these activities. In addition, the study of sports and physical activities give us valuable information to develop better policies to increase public participation in these activities, and know the factors that hinder a broader participation across the population in the United Kingdom.

3.2. The use of time in our daily life: sports, mass media and technology.

The analysis of the participation of adults in sports and physical activities could be improved if we also measure the time that adults spend on these activities and the impact of new determinants such as the use of mass media and technological devices. According to Moens and Scheerder (2004), sports participation remains structured by traditional social and cultural mechanisms, but new issues need to be addressed to identify other factors that may be affecting sports participation today.

To do that, this research uses the UKTUS questions about ten groups of activities, which examine how adult people distribute their time during the week, considering categories such as personal care, employment, study, social life, sports, hobbies, mass media and others. Table 8 shows that most of respondents' time is spent in maintenance activities such as personal care or sleep (approximately 45% of their time per week in both periods of the survey). However, there is another group of activities that are associated with the use of media and technology in our leisure time that also take an important part of our daily life (12% in 2001 and 18% in 2015).

In 2001 survey, adult people spent an average of 20 hours and 30 minutes during the week in leisure activities related to hobbies, games and mass media activities, while in 2015 survey this figure was 21 hours and 32 minutes per week, an increase of nearly 1 hour. Also, the time that adults dedicated to sports and physical activities increased in 30 minutes during the period considered (from 1 hour and 40 minutes in 2001 to 2 hours and 10 minutes in 2015).

Table 8. Duration (hh:mm) of the main activities of adults in the United Kingdom

	Survey 2001				Survey 2015			
	Weekday	Weekend	Week*		Weekday	Weekend	Week*	
			hh:mm	% of response			hh:mm	% of response
Personal care/sleep	50:24	22:28	72:53	99.9%	52:11	22:54	75:06	99.9%
Employment	22:37	02:24	25:01	62.5%	20:27	02:38	23:05	62.4%
Study	01:07	00:11	01:18	6.8%	02:18	00:28	02:47	11.5%
Household and family care	14:31	07:04	21:35	96.2%	13:15	06:24	19:40	96.8%
Volunteer work	01:05	00:37	01:42	25.0%	01:07	00:31	01:39	22.0%
Social life and entertainment	05:36	03:48	09:25	88.3%	05:06	03:25	08:32	85.4%

	Survey 2001				Survey 2015			
	Weekday	Weekend	Week*		Weekday	Weekend	Week*	
			hh:mm	% of response			hh:mm	% of response
Sports and physical activities	01:02	00:38	01:40	25.5%	01:23	00:46	02:10	35.4%
Hobbies and games	01:22	00:45	02:07	32.1%	02:59	01:24	04:23	56.6%
Mass media	12:19	06:07	18:27	97.1%	11:16	05:51	17:08	94.9%
Travel	07:37	02:52	10:29	97.2%	10:02	03:27	13:29	96.9%
Other	01:28	00:40	02:09	45.4%	00:00	00:00	00:00	0.0%
Total	120:00	48:00	168:00	-	120:00	48:00	168:00	-

*The percentage of response indicates the proportion of adults who carried out each of these activities during the week.

Source: United Kingdom Time Use Survey, 2001 and 2015.

For the purpose of this research, specific activities linked to the use of technology, mass media and the practice of sports were selected. It should be noted that not all specific activities of each of the groups mentioned above were included. For example, the activities strictly connected with work were excluded as well as the activities not related to the use of leisure or free time. Also, it is important to mention that time devoted on most of the activities related to social life and entertainment were not considered, because the questions of the UKTUS did not inquire aspects of the use of technology and media as a central component of these type of activities.

These selected activities can be seen in greater detail in Table N°9. In both periods of the survey, a substantial component of the use of “mass media” was mainly focused on watching television and any type of video watching (about fifteen hours per week). The “use of technology” was associated with the use of telephones, computers, internet or video games. In 2001, the time spent on these activities was about 1 hour per week, while in 2015 this figure reached 3 hours and 31 minutes per week.

As mentioned above, “walking” is the largest component of sports and physical activities. This is also supported by the results shown in Table 9. In 2001, the proportion of time that adults spent in this activity represented 23.9% (24 minutes per week) and in 2015 was 30.1% (39 minutes per week). This indicates an increase of 15 minutes in the period under study. Additionally, there has been an increment in the time that adults devote to fitness (aerobics, weightlifting, body building, etc), from 17 minutes in 2001 to 34 minutes in 2015. The only decrease occurred in the activities related to ball games (basketball,

football, rugby, cricket, etc). These activities declined from 29 minutes in 2001 to 21 minutes in 2015.

Table 9. Duration (hh:mm) of the main activities and specific activities per week

Main activity	Specific activity	Survey 2001		Survey 2015	
		hh:mm	(%)	hh:mm	(%)
Mass media activities	Watching television	14:53	80.7%	14:39	85.5%
	Watching videos or films	00:35	3.2%	00:29	2.9%
	Listening radio, music or recordings	00:39	3.6%	00:27	2.7%
	Other activities*	02:18	12.5%	01:32	9.0%
	Total	18:27	100.0%	17:08	100.0%
Use of technological devices	Use of telephones or mobile phones	00:44	39.0%	00:43	17.0%
	Use of computers and internet	00:49	43.3%	02:22	55.8%
	Video and computer games	00:20	17.6%	01:09	27.1%
	Total	01:54	100.0%	04:14	100.0%
Sports and physical activities	Walking	00:24	23.9%	00:39	30.1%
	Running	00:01	1.9%	00:07	5.4%
	Biking, skiing, skating	00:05	5.0%	00:06	5.2%
	Ball games	00:29	28.7%	00:21	16.5%
	Fitness	00:17	17.5%	00:34	26.6%
	Water sports	00:07	7.2%	00:06	5.1%
	Other activities	00:16	15.8%	00:14	11.1%
Total	01:41	100.0%	02:10	100.0%	

*These activities (reading periodicals or books) were excluded within the total time dedicated to the use of mass media.

Source: United Kingdom Time Use Survey, 2001 and 2015.

Table 7 shows the differences between the average time of each activity according to the social characteristics of the participants. The average values of each activity are not distributed normally (Kolmogorov-Smirnov test, Sig=0.000), so non-parametric test of independent samples (Kruskal-Wallis and Mann-Whitney) were used.

The results indicate that in both periods of the survey, adult men spend more time than women in both activities related to sports and the use of media and technology. These activities also have a strong relationship with the age and level of education of the respondents. In both periods, the youngest and educated adults are those who spent more time using technological devices and practicing sports and physical activities. On the other hand, we notice that older and less educated people usually devoted more time to mass media activities. Table 7 also denotes that in both periods of the survey, being healthy increased the average time that adults spent in sports activities, while those in poor health

tended to spend more time using mass media. Moreover, the adults who attended to sport events and have their own home, spent more time in sports and physical activities.

Table 10. Independent sample test by main activities and social characteristics of adults

	Sports and physical activities (hh:mm)		Mass media Activities (hh:mm)		Use of technological devices (hh:mm)	
	2001	2015	2001	2015	2001	2015
Gender						
Male (a)	02:11 ^b	02:35 ^b	17:44 ^b	17:08 ^b	02:09 ^b	05:14 ^b
Female (b)	01:14	01:46	14:39	14:09	01:40	03:17
Sig. ($\alpha < 0.05$)	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$
Age group						
16 to 24 (a)	02:10 ^{c, d}	02:53 ^d	16:43 ^{b, c}	14:27 ^d	02:33 ^{b, c, d}	07:09 ^{b, c, d}
25 to 34 (b)	01:36	02:15 ^d	15:28 ^d	13:03 ^{c, d}	01:52	03:46
35 to 44 (c)	01:33	02:00 ^d	15:04 ^d	14:23 ^d	01:51	03:27
45 to 64 (d)	01:41	01:54	16:59	18:02	01:44	03:38
Sig. ($\alpha < 0.05$)	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$
Level of education						
Degree (a)	02:16 ^{b, c, d, e}	02:44 ^{b, c, d, e}	12:27 ^{b, c, d, e}	12:09 ^{b, c, d, e}	02:29 ^{c, d, e}	04:20 ^{c, d, e}
Higher education (b)	01:52 ^c	02:05 ^{d, e}	13:52 ^{c, d, e}	15:17 ^{d, e}	02:29 ^{c, d, e}	04:24 ^{d, e}
A level (c)	01:37 ^d	02:08 ^{c, d}	16:10 ^e	15:08 ^{c, d}	02:09 ^e	04:15
Secondary (d)	01:38 ^e	01:51 ^e	16:12 ^e	18:05 ^e	01:52 ^e	03:53
Other (e)	01:24	01:15	18:31	23:15	01:23	04:38
Sig. ($\alpha < 0.05$)	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$
State of health						
Very good (a)	01:58 ^{b, c}	02:53 ^{b, c}	14:19 ^{b, c}	13:20 ^{b, c}	01:56	04:08
Good (b)	01:36 ^c	01:56 ^c	16:01 ^c	15:11 ^c	01:52	03:57
Fair or bad (c)	01:17	01:21	19:58	20:37	01:53	05:02
Sig. ($\alpha < 0.05$)	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	-	-
Type of accommodation						
Owens outright (a)	02:11 ^{b, c}	02:42 ^c	15:59 ^{b, c}	16:14 ^{b, c}	01:50	03:57 ^{b, c}
Own/mortgage (b)	01:38 ^c	02:07 ^c	14:29 ^c	14:17 ^c	01:50	03:48
Rent (c)	01:27	01:54	19:20	16:45	02:04	04:54
Sig. ($\alpha < 0.05$)	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	$\alpha=0.000$	-	$\alpha=0.000$
Sport events						
Yes (a)	02:27 ^b	03:24 ^b	15:47	15:00	01:44 ^b	03:53
No (b)	01:31	01:57	16:20	15:42	01:57	04:18
Sig. ($\alpha < 0.05$)	$\alpha=0.000$	$\alpha=0.000$	-	-	$\alpha=0.000$	-

The subscripts indicate the differences between the categories of each of the variable. The Kruskal-Wallis and Mann-Whitney test were used to test these differences.

Source: United Kingdom Time Use Survey, 2001 and 2015.

Another important aspect of the use of time in adults refers to the sequence of their activities. This will provide us a better understanding of the time of the day in which these activities are carried out. I will consider one-hour intervals in each of the selected group of activities. It will help us to see which activities overlap each other and which of them may contribute with the participation of adult people in sports and physical activities.

Figure 1 shows us that most of the time that adults spend on mass media activities occurs mainly between 18:00 and 00:00 (about 11 hours per week). During the mornings and afternoons, these activities do not consume much of their time. These results are quite similar in both periods, since there were not significant changes on the time that adults dedicated to these activities per week. On the other hand, Figure 2 indicates that the use of mass media was usually carried out with people, but more recently there has been an increment in the time that adults perform this activity in solitude. In 2001, 27% of the time (4 hours and 17 minutes per week) of this type of activity was carried out without any type of companionship, while in 2015, it went up to 35% (4 hours and 45 minutes per week).

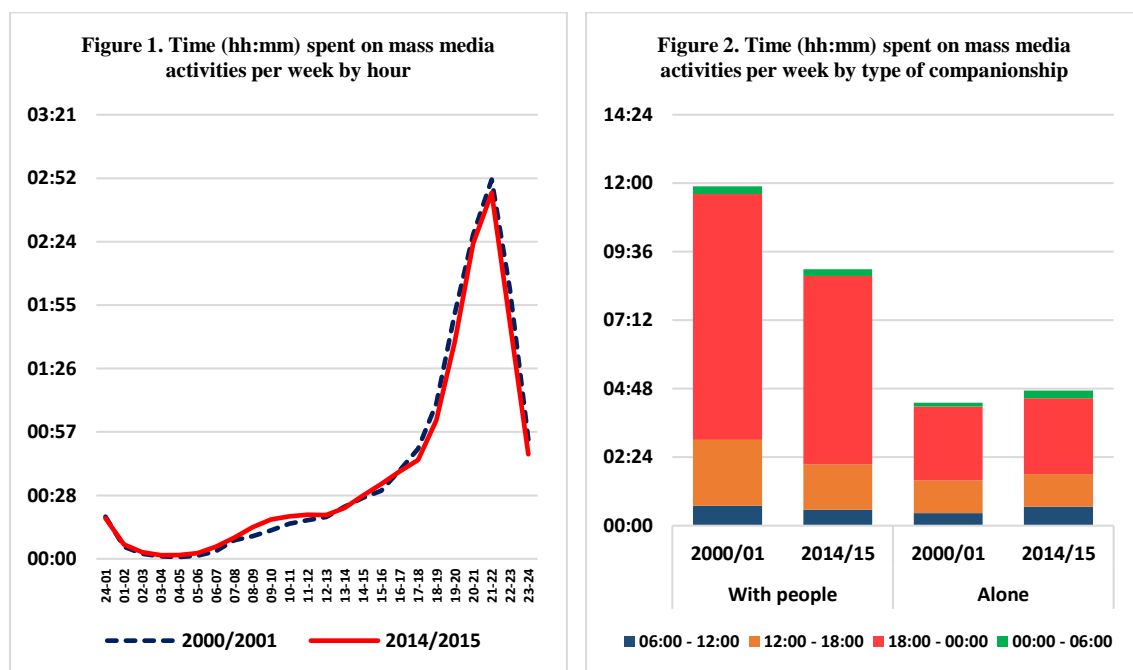
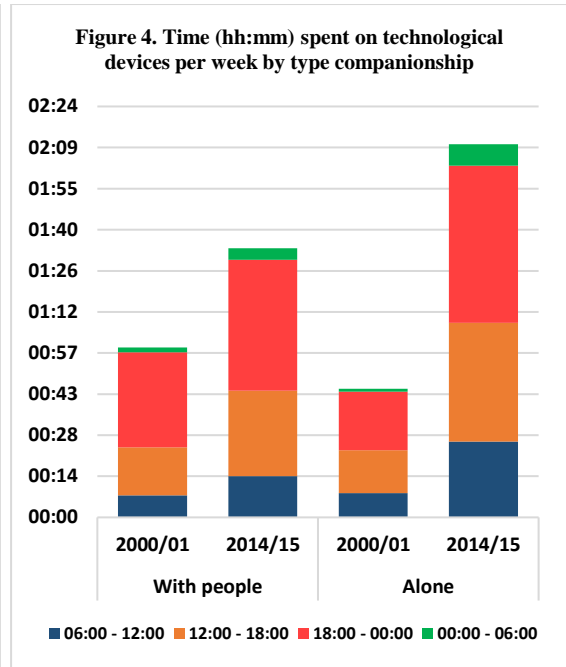
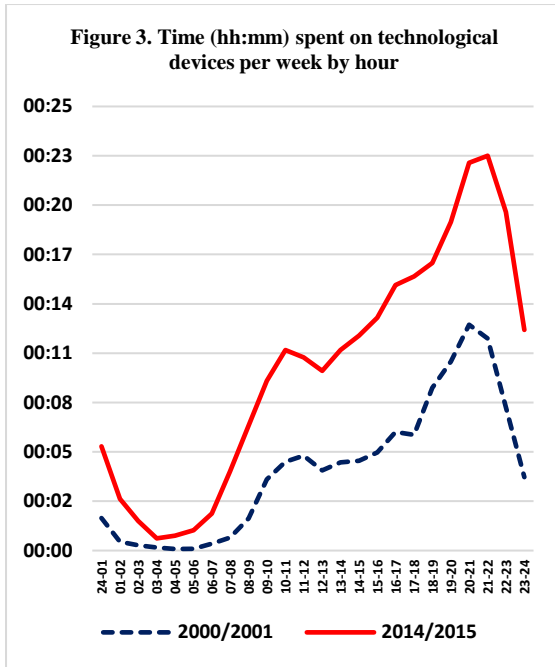
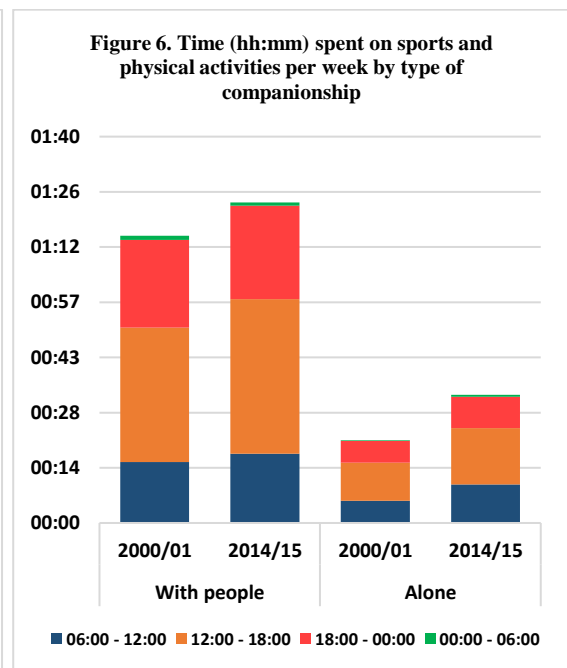
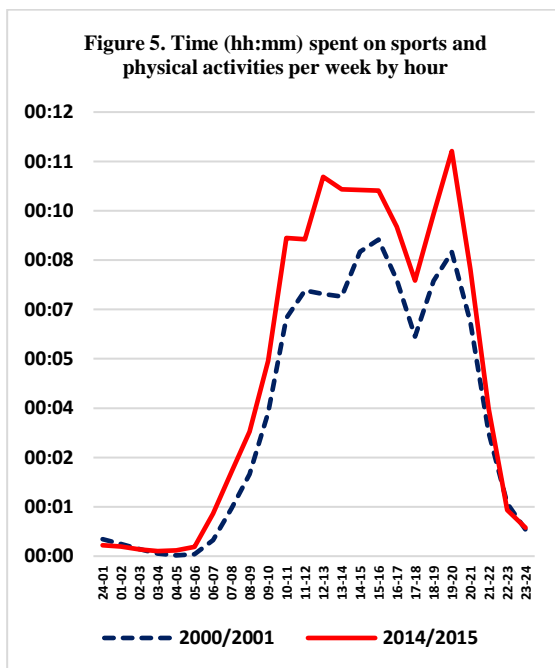


Figure 3 denotes that the time that adults spend on technological devices has increased substantially from 1 hour and 54 minutes per week in 2001, to 4 hours and 40 minutes per week in 2015. Also, these activities occur at different times of the day, mainly in the afternoons and in the evenings in both periods of the survey. In addition, Figure 4 shows that in 2001, more than half of the time devoted to these activities (57%) was carried out with the company of people, but in 2015 decreased to 42%. It also increased the time that adults spend accompanied (from 1 hour to 1 hour and 34 minutes), but so did the time of solitude (from 45 minutes to 2 hours and 10 minutes).



The time that adults spend on sports and physical activities occurs mainly in the afternoons (from 12:00 to 18:00) and in the evenings (from 18:00 to 20:00). This represents approximately 64% of the time in both periods. Moreover, most of these activities are still carried out with the company of people (around 72% of the time in 2001 and 2015), which indicates that the social component in sports is essential to increase the time of participation of adults in these activities.



The relationship between the time consumed by these activities between the two waves of data can be seen in Table 11. It shows that in both periods of the survey, the time that adults spend in mass media activities have a negative impact on the time we dedicate to the practice of sports and physical activities. In 2001, the use of technological devices also had a negative relationship with the participation in sports. However, the 2015 survey indicates that this negative correlation occurred when adult people used these technological devices with people during the afternoons.

Table 11. Relationships among main activities and participation in sports and physical activities

		Time spend on sports and physical activities ⁽¹⁾	
		Survey 2001	Survey 2015
Mass media activities	Hours per week	- 0.066 **	- 0.096 **
	Hours with people per week	- 0.060 **	- 0.065 **
	Hours from 12:00 to 18:00	- 0.033 **	- 0.077 **
	Hours from 18:00 to 00:00	- 0.071 **	- 0.089 **
	Hours with people from 12:00 to 18:00	- 0.028 *	- 0.052 **
Use of technological devices	Hours per week	- 0.026 **	
	Hours with people per week	- 0.027 **	
	Hours from 18:00 to 00:00	- 0.028 **	
	Hours with people from 12:00 to 18:00		- 0.026 *
	Hours with people from 18:00 to 00:00	- 0.024 **	

[1] To determine the relationship among these variables, Pearson's correlation coefficient was used.

Source: United Kingdom Time Use Survey, 2001 and 2015.

To sum up, from 2001 to 2015, adult people dedicate more time to sports and physical activities, as well as to the use of technological devices (phones, computer, internet and video games). Meanwhile, there were no major changes in the time that adults dedicate to mass media activities (listening music or radio, watching television and watching videos). The respondents mainly spend the afternoon and evening hours to activities related to the use of mass media, technology and the practice of sports. In addition, both mass media and sports activities are usually carried out with people, however there has been an increase from 2001 to 2015 in the time that people stay alone while carrying out these activities. In 2001, the activities associated with the use of technology were also mainly performed with people, but this situation changed in 2015, since most of the time dedicated to these activities was carried out in solitude. Finally, social factors were very relevant to describe and explain the time that adult people spend on these types of activities in their daily lives.

3.3. The determinants of participation in sports and physical activities in adults

Taking into account the results presented above, we built four nested binary logistic regression models that consider both the social factors and the determinants associates with the use of mass media and technology. Models 1 and 3 take into account the social factors of the participation in sports and physical activities in 2001 and 2015, respectively. These models allow us to measure and establish a baseline of the effect of social factors on the practice of sports. Then, models 2 and 4 include variables of the use of mass media and technology for each period of the survey, which help evaluate whether or not these factors are also important in predicting the probability of participating in sports and physical activities in adults in the United Kingdom. Table 12 presents these four logistic regression models.

Table 12. Binary logistic regression model of sports participation in adults in the United Kingdom

	Survey 2001				Survey 2015			
	Model 1		Model 2		Model 3		Model 4	
Constant	-1.937***	[1.44]	-1.688***	[0.18]	-2.191***	[0.11]	-1.803***	[0.16]
Gender								
Male	0.344***	[1.41]	0.390***	[1.48]	0.226***	[1.25]	0.275***	[1.32]
Age group								
16-24 years	0.236**	[1.27]	0.248**	[1.28]	0.427***	[1.53]	0.418***	[1.52]
25-34 years	0.012	[1.01]	0.011	[1.01]	0.284***	[1.33]	0.247***	[1.28]
35-44 years	-0.052	[0.95]	-0.056	[0.95]	0.216***	[1.24]	0.191**	[1.21]
Level of education								
Degree or higher	0.596***	[1.81]	0.557***	[1.75]	1.044***	[2.84]	0.929***	[2.53]
Higher education	0.285***	[1.33]	0.278***	[1.32]	0.536***	[1.71]	0.459***	[1.58]
A level or equivalent	0.081	[1.08]	0.070	[1.07]	0.515***	[1.67]	0.442***	[1.56]
Secondary	0.226***	[1.25]	0.220***	[1.25]	0.310**	[1.36]	0.270	[1.31]
Type of accommodation								
Owens outright	0.448***	[1.57]	0.446***	[1.56]	0.456***	[1.58]	0.446***	[1.56]
Own with a mortgage	0.189***	[1.21]	0.168**	[1.18]	0.215***	[1.24]	0.195***	[1.21]
Status of health								
Very good	0.412***	[1.51]	0.389***	[1.47]	0.701***	[2.02]	0.630***	[1.88]
Good	0.154	[1.17]	0.139	[1.15]	0.357***	[1.43]	0.301***	[1.35]
Sport Events								
Yes	0.297***	[1.35]	0.284***	[1.33]	0.524***	[1.69]	0.519***	[1.68]
Mass media activities								
Hours per week alone	-	-	0.011**	[1.01]	-	-	0.001	[1.00]
Hours 12:00 - 18:00	-	-	-0.011	[0.99]	-	-	-0.031***	[0.97]
Hours 18:00 - 00:00	-	-	-0.017***	[0.98]	-	-	-0.014***	[0.98]
Use of technology								
Hours with people 12:00 - 18:00	-	-	-0.016	[0.98]	-	-	-0.037**	[0.96]
Hours 18:00 - 00:00	-	-	-0.034***	[0.96]	-	-	-0.003	[1.00]

	Survey 2001		Survey 2015	
	Model 1	Model 2	Model 3	Model 4
<i>Collinearity (Mean VIF)</i>	1.39	1.34	2.03	1.86
<i>Nagelkerke R Square</i>	0.044	0.054	0.093	0.106
<i>Log Likelihood</i>	6870.17	6836.92	6961.49	6908.62
<i>Prob > chi2</i>	0.000	0.000	0.000	0.000
<i>Number of cases</i>	6,210	6,210	5,553	5,553
Significant codes: 0 '****' 0.001 '***' 0.01 '**' 0.05 '.' 0.10				

The value in brackets [] denotes the odds ratio of each variable. The categories of reference for each categorical variable are as follows: gender (Female), age group (45 to 64 years), level of education (Other), type of accommodation (Rented place), status of health (Fair or bad) and attendance to sport events (No).

Source: United Kingdom Time Use Survey, 2001 and 2015.

Both models, 1 and 3, indicate the effects of social factors on sports participation. In 2001 and 2015, the odds of sports participation for men were 41% and 25% higher than the odds for women, respectively. In spite of this reduction of the difference in sports participation by gender, the results indicates that there is still a gap in female participation in sports. Additionally, we can also see that the chances of participating in sports and physical activities decrease once people get older. In 2001, the only difference was between people aged 16 to 24 with those aged 45 to 64. The probability of participating in sports in young adults (16 to 24 years) was 27% higher than the oldest group or the category of reference (45 to 64 years). In 2015, these differences were more significant between each age groups.

The educational level of adults is another fundamental element in predicting the probability of participation in sports and physical activities. In both periods of the survey, adults with a degree or higher education tend to participate more in sports than those with a lower educational level. That is, the barriers to participate in sports and physical activities are accentuated in adults with a low level of education. Regarding the effects of the economic background, the survey of 2001 and 2015 indicates that adults are more likely to participate in sports if they do not live in a rented place.

The probability of participating in sports decreases if the person does not have good health conditions. In 2001, the odds for sports participation in adults who have “very good” health was 51% higher than adults with “fair or bad” health, while in 2015 this probability doubled. Thus, being in poor health limits and reduces the choices to practice sports or any other physical activity. In addition, in 2001 and 2015, the odds of sports participation for

adults who attend sport events were 35% and 69% higher than the odds for adults who have not attended these events, respectively. Moreover, we should not only understand the attendance at sport events as individual preferences, but also we have to take into account the resources that make this activity possible.

Second, the models 2 and 4 add the variables that capture the effect of the time that adults spend using technology and mass media. In 2001 and 2015, adults who spent more hours using mass media during the evenings (18:00 to 24:00), tend to devote less time to sports and physical activities. It is necessary to point out that in 2001, spending time alone in activities related to mass media had a positive and significant effect on sports participation. This may be because the use of mass media in solitude does not consume much of the time of adults in the day, and leaves space to carry out other types of activities during their free time. In 2015, adults who spent time using the mass media during the afternoons (12:00 to 18:00) were less likely to participate in sports. This might be because much of the time that adults devote to sports and physical activities also occur at these hours of the day.

The time spent in activities related to the use of technology also has a negative effect on sports participation. However, we should take into account that this negative effect only occurs in specific situations. In 2001, an increase of one unite (1 hour) in the time devoted to technology during the evening (18:00 to 00:00), decreases the odds of sports participation by 4%. In 2015, this negative effect occurs if adults spend more time in technology during the afternoons (12:00 to 18:00) and in the company of people. This may be due to the fact that the use of technology would be replacing the social role that sports activity also fulfils.

In order to illustrate the effect of the selected variables in models 2 and 4, the probability of participation in sports and physical activities was calculated according each of the profiles shown in Table 13. The results indicate that, considering similar profiles, the probability of participating in sports and physical activities is reduced by spending more time in activities related to mass media and technology. However, the most significant impact is still caused by the social factors (i.e. gender).

Table 13. Probability of sports participation*

Example	Year of the survey	Gender	Age	Education	Type of accommodation	Sport events	Health	Media		Technology		Probability of sports participation (%)	
								Hours alone	From 12 to 18	From 18 to 00	People 12 to 18		From 18 to 00
1	2001	Male	40	Higher education	Owms mortgage	Yes	Good	4	4	4	2	2	34.0%
2	2001	Male	40	Higher education	Owms mortgage	Yes	Good	6	6	6	4	4	31.0%
3	2001	Female	40	Higher education	Owms mortgage	Yes	Good	4	4	4	2	2	25.9%
4	2001	Female	40	Higher education	Owms mortgage	Yes	Good	6	6	6	4	4	23.3%
5	2015	Male	40	Higher education	Owms mortgage	Yes	Good	4	4	4	2	2	46.8%
6	2015	Male	40	Higher education	Owms mortgage	Yes	Good	6	6	6	4	4	42.6%
7	2015	Female	40	Higher education	Owms mortgage	Yes	Good	4	4	4	2	2	40.1%
8	2015	Female	40	Higher education	Owms mortgage	Yes	Good	6	6	6	4	4	36.1%

* These cases are examples of respondent profiles.

Source: United Kingdom Time Use Survey, 2001 and 2015.

In conclusion, in both periods of the survey, social factors play an important role on the participation in sports and physical activities in adults. However, it is important to highlight that mass media and technology increase the power of explanation (R square) of both baseline models that include only the social factors (model 1 and model 3). That is, both models 2 and 4 are the ones that best explain and predict the probability of adults participation in sports and physical activities. Moreover, this increase is mainly explained by the social component of the use of mass media and technology and the time of the day that these activities were carried out. These factors allow us to understand how adults organise, prioritize and perform certain activities during their daily lives.

IV. CHAPTER FOUR: ANALYSIS AND DISCUSSION

This chapter presents the review of the main findings of the research. First, the methodological importance of the research and the gaps it fills in the literature of sports sociology are presented. Second, the role and importance of the traditional and new determinants of sports participation are analysed. Finally, the implications and main contributions of the research results are discussed in relation to the literature reviewed and the context where the activities analysed took place.

4.1. Analysing sports, mass media and technology through time diaries.

Time diaries allow us to measure and report patterns of people's daily activities. These activities, in turn, require that "individuals make choices about what activities to carry out and when to carry them out in relation to other activities and other people during the day" (Hellgren 2014:1518). That is, this instrument gives an account of specific lifestyles that reflect how people experience and organise their daily lives. Usually, this wealth of information is not used to its full potential in research, since many of the analyses remain only in reporting aggregated durations or frequencies per activity during the day or week (Hellgren 2014; Gershuny et al. 2017), instead of engaging in a detailed analysis in relation with other factors. This research incorporated other elements of analysis of time diaries such as the type of companionship and the specific moment of the day in which these activities are carried out.

We need to understand that sport is a time consuming activity (Moens and Scheerder 2004), and this study corroborates that adult people have different ways to manage and organise their time in order to carry out sport activities. The analysis of time-related mechanisms helped us to understand how these factors impact on the availability of people's time to participate in sports. In addition, several previous research indicated that the practice of sports and physical activities is still influenced by structural mechanisms such as age, gender, education or economic status of people (Coakley and Pike 2009; Kokolakis et al. 2011; Moens and Scheerder 2004; Best 2010). The results of this research confirm that in the long-term analysis, these social factors continue to play a fundamental role in the participation in sports and physical activities in adults.

However, there is still little research about the effect of the use of mass media and technology in sports participation in adults (Dart 2014; Moens and Scheerder 2004). Most of the recent research done in this area focuses on the analysis of physical activity in children and adolescents with inconclusive results (Devís-Devís et al. 2012; Sisson et al. 2010; Straker et al. 2013). Also, these investigations usually measure the time of participation in these activities through questions where the participants have to remember what they did in a specific day, week or period of time. This research, overcome these issues through the analysis of large-scale diary surveys and allows us to identify specific activities that the participants did at the precise moment in which they were carried out.

Time diaries provided a reliable representation of activities related to media and technology that occur on a regular basis in people's lives. These activities were recorded in greater detail in both time diary surveys, which followed the same methodological criteria for the collection and systematization of the information. Therefore, it was possible to make comparisons of the main changes and continuities occurred in the period analysed as well. Thus, the analysis of media and technology gave us a more in-depth understanding and proved to have great relevance in the explanation of sports participation in adults. Moreover, in each of these activities the social (type of companionship) and temporal (moment of the day) components were included.

To sum up, this study incorporated both traditional factors to explain sports participation, and those new determinants linked to the use of media and technology. In addition, the surveys allowed us to include the element of the use of time for the analysis of the daily activities of adults. Finally, these cross-sectional large-scale surveys of 2001 and 2015, provided us a general and representative picture of the practice of sports and physical activities in adults, and its change over the period of analysis.

4.2. Changes and continuities of the participation in sports and physical activities.

Based on the results obtained and the literature reviewed, this study showed that are several factors that influence the decision of people to participate or not in sports, as well as the time they devote in these activities. First, the effect of social factors on sports participation is discussed, taking into account also the main differences in the time that adults devote to this activity. Second, the implications and the role played by the use of media and technology in our daily life are examined, as well as their relationship with sports activity.

Finally, in each of these levels of analysis, the main changes and continuities of the determinants of sports participation in adults are explained.

4.2.1. Social factors and time spent in sport and physical activities

The results of this research indicated that there are significant differences, not only in the proportion of adults who practice sports according to their social, economic or educational background, but also in the time they devote to this type of activity.

First, gender relations is one of the central topics of sociology of sports (Coakley and Pike 2009). The results confirmed that there was a greater proportion of men than women who practiced sports activities and, in turn, spend more time on them. This can be explained due to different barriers that women have to face in order to achieve equality in sports. One of the common barriers is related to the trivialization of women's sports (Coakley and Pike 2009) which points out that the performance of men is much better than women, therefore attracts larger audiences and is more profitable (Hebl et al. 2004).

Other studies (Keith Bryant et al. 2004; Moreno-Colom 2017) point out that specific activities such as parental care, household work or domestic duties are typically feminized because the high rates of participation in women. Also, these activities consume much of women's daily time, which means that there is little room for them to engage in other activities such sports and physical activities (Moreno-Colom 2017; Keith Bryant et al. 2004).

Thus, the participation of adults in sports and physical activities continues to take place in a field usually defined as masculine (Cooky 2009; Moens and Scheerder 2004; Bittman and Wajcman 2000). However, from 2001 to 2015, the time that women dedicate to sports and physical activities has increased by 44%, while in men it was 18%. In addition, Balish et al. (2016) suggest that in contexts with greater gender equality, men and women are more likely to devoted more time to physical leisure activities. The authors also indicate that this effect is more pronounced in women, since it increases women's autonomy and provides more opportunities for women to invest time in activities related to sports.

Second, the results showed that the level of participation in sports and physical activities has increased in all age groups from 2001 to 2015, but it decreases as adult people age. The data also indicated that the main differences were between younger adults (16-24 years) and older adults (45-64 years). This may be due to the fact that not only sports participation levels, but also sports preferences among adults vary depending the age (Kokolakakis et al. 2011). In addition, these preferences are mainly related to the type of sports or physical activity that adults practice (Breuer and Wicker 2009; Coakley and Pike 2009). In both periods of the survey, younger adults tend to spend more time in collective and high-impact sports, and older adults devoted more time to individual and low-impact sports.

Third, in the period analysed, the proportion of adults who practice sports and have higher education or a degree increased considerably. Only those adults with secondary education or lower remained with the same levels of sports participation. Another aspect that should be stressed is that the educational gap in sports participation has increased. For example, in 2001 the difference between those adults with highest and lowest educational level was 51 minutes, while in 2015 this figure went up to 1 hour and 29 minutes.

Several authors (Kokolakakis et al. 2011; Moens and Scheerder 2004; Stempel 2005) agree that the educational level remains a central factor in explaining sports participation, since adults may have more awareness of its benefits and promotes a “stronger sense of personal control and self-efficacy for physical activity, healthier influences from social network members, and greater access to resources that facilitate physical activity” (Shaw and Spokane 2008:770). Furthermore, it is important to highlight that an increase of the practice of sports and physical activities in young people may have a positive impact on educational returns in adulthood (Kari et al. 2017). That is, the younger we get involved in sports and physical activities, the more opportunities to pursue higher education.

Fourth, economic conditions also play an important role in adults to take part in sports and physical activities. The tenure of accommodation and the attendance at sport events were taken into account as proxy indicators of the economic status of adults. Rented housing presented the lowest level of sports participation in both periods of the survey. These homes are usually located in poverty areas, where people face various social and

economic barriers and disadvantages (Tunstall et al. 2013). Additionally, the results of this research agree with the findings of Dowson and Downward (2009) that point out the attendance to live sports events has a positive relationship with the economic situation and the levels of sports participation of the people. That is, people with more economic resources tend to get involved both passively (spectators) or actively (players) in sports and physical activities. Thus, sports can be understood as a good or service (Lera-Lopez et al., 2011), which is mediated by economic factors that restrict or enable its practice.

Finally, the results of the surveys of 2001 and 2015 indicated that adults who are healthy tend to participate more in sports and physical activities. The time dedicate to this activity increased approximately 55 minutes in adults with a very good health and 19 minutes in those adults with a good health. No significant changes were recorded in adults with a fair o bad state of health. Therefore, the gap in sports participation between adults with a very good state of health and those with a fair or bad health increased from 40 minutes in 2001 to 1 hour and 32 minutes in 2015.

These results emphasize the importance of health as a mechanism to encourage people to be more active. Thus, many of the efforts of the institutions and organizations around the United Kingdom and other European countries focus on promoting healthy lifestyles in people through the participation in sports and physical activities (Lera-López and Marco 2018). These initiatives, in turn, seek to create awareness of the social cost and negative consequences (diseases, obesity, depression, etc) of being physically inactive. For instance, the “The New Strategy for an Active Nation – 2015” of the United Kingdom seeks to position sport as a social good which contributes to the improvement of people’s life, and generate the necessary conditions for present and future generations.

In conclusion, it can be observed that there has been an increase from 2001 to 2015 in the proportion of adults who practice sports and physical activities and in the time they devote to this activity. However, there are two main changes that we should highlight. One of them emphasizes that the increase in sports participation was not homogeneous in all categories of the variables analysed. The main changes occurred in women, young adults (16-24 years), adults with a degree or higher education, adults with a good economic status and those who are healthy.

The other important change is related with the increase of the gap in sports participation in adults. These differences are mainly accentuated between the top end and bottom end categories of the variables associated with age, educational level and health status. Only in the case of sports participation in men and women, this gap narrowed from 57 minutes in 2001 to 48 minutes in 2015. Therefore, although we agree that the time of participation in sports and physical activities has increased substantially, this has become more unequal among adults according to the social factors analysed (with the exception of the variable related to the gender of adults).

4.2.2. The use of mass media and technology

In contrast to the research that address sports participation through traditional structural mechanisms, the impact of new determinants, such as the use of mass media and technology, on sports participation in adults has been little examined.

First, the results of this research showed that these new determinants also had a significant relationship with some of the social factors previously mentioned. These factors helped us to characterize the profile of these adults who spent time in activities related to media and technology. The table 14 indicates the social characteristics of adults who spent more time in activities related to mass media and technology. The table also shows the major significant differences among the categories of each of the variables. If the time devoted to these activities was similar with no significant differences among categories, the results were not reported.

The profile of adults who devoted more time to mass media activities was very similar in 2001 and 2015. These people are generally men, aged 45 to 64 years, with a low educational level, live in rented houses and have a fair or bad state of health. It is important to notice that the rest of the adults also consume mass media, but less intensively. On the other hand, the profile of technology users is quite different from mass media users. In 2001 and 2015 the profile of these users was mainly composed of young adult men (16-24 years). With regard to the other characteristics of adults, these presented variations from period to period and in some cases there were no differences in the time that adults devoted to the use of technology.

Table 14. Profile of adult users of mass media and technology

	Use of Mass Media		Use of Technology	
	2001	2015	2001	2015
Gender	Adult men (17:44 per week)	Adult men (17:08 per week)	Adult men (02:09 per week)	Adult men (05:14 per week)
Age	Adults aged 45-64 (16:59 per week)	Adults aged 45-64 (18:02 per week)	Adults aged 16-24 (02:33 per week)	Adults aged 16-24 (07:09 per week)
Level of education	Adults with less than secondary education (18:31 per week)	Adults with less than secondary education (23:15 per week)	Adults with a degree or higher (02:29 per week)	Adults with less than secondary education (04:38 per week)
Type of accommodation	Adults in rented houses (19:20 per week)	Adults in rented houses (16:45 per week)	<i>No significant differences among categories</i>	<i>No significant differences among categories</i>
Attendance to sport events	<i>No significant differences among categories</i>	<i>No significant differences among categories</i>	Adults who do not attend sport events (01:57 per week)	<i>No significant differences among categories</i>
State of health	Adults with fair or bad health (19:58 per week)	Adults with fair or bad health (20:37 per week)	<i>No significant differences among categories</i>	Adults with fair or bad health (05:02 per week)

Source: United Kingdom Time Use Survey, 2001 and 2015.

Being aware that these factors affect differently the time adults spend on activities related to media, technology and sports, allows us to understand that these activities are experienced in a particular way and occupy certain priority aspects of the daily life of adults.

Second, as mentioned in the chapter 3, the time that adults spend on sports and physical activities was correlated with the time dedicated to the use of media and technology. The results of the surveys of 2001 and 2015 pointed out that there was a significant negative relationship between the time that people devote to the use of media and the time they spend practicing sports or physical activities. This may be due to the fact that activities related to the use of media, consume a large part of the free time of adults, leaving little space for sport activities. The implications of this relationship is that by prioritizing activities based on sedentary lifestyles (i.e. watching television, videos, etc.) may affect not only our levels of physical activity, but also our health and social life (Coakley and Pike 2009; Srivastava et al. 2018). Thus, the results of this research suggest that in order to increase sports participation in adults, we should focus on strengthening the social

component of sports activity and seek to practice more sports and physical activities during the mornings or weekends where media do not consume much of our free time.

On the other hand, in the analysis of the use of technology in adults the results were quite interesting. In 2001, the time spent by adults using technology, had a negative impact on the time spent in sports. However, in 2015, the negative impact on sports participation only occurred when adults used the technological devices in the company of people and during the afternoons (12:00 to 18:00). In other words, this negative effect only happens when technology fulfils a socializing function and is carried out during the hours in which adults tend to spend more time in sports and physical activities.

Nowadays, the time devoted to the use of technology in the leisure or free time of adults should not be stigmatized, since its sports-related use should also be taken into account. That is, the results indicated that in 2015, the activities related to the use of technology did not completely replace the time that adults spend practicing sports and physical activities. Thus, today's technology may be used as a tool or instrument to engage a greater number of people, organizations and institutions that are interested in promoting and disseminating sport activities in our society (Nigg 2003).

V. CHAPTER FIVE: CONCLUSIONS

This investigation examined how adults spent their leisure or free time, particularly in activities related to the practice of sports and physical activities, technology use and mass media consumption. Through the analysis of time-use surveys in 2001 and 2015, the main changes and continuities associated with these type of activities were recorded.

First, this research showed the participation of adults in activities related to the practice of sports and physical activities has increased significantly from 2001 to 2015. That is, adults are more actively involved in sports and physical activities and, in turn, place this practice as a priority within their daily leisure or free time. Second, at the same time, there has been a significant growth in the use of technological devices, mainly in male younger adults. Finally, there were no major changes in the time that adults devoted to the use of mass media (watching television, watching video, listening to music or recordings). Thus, the results indicated that this activity remains one of the most important within the daily life of adults in the United Kingdom.

This thesis demonstrates that there have been important changes in the way adults organise their leisure or free time activities during the day. Delving deeper into this, the research emphasizes that these changes continue to be influenced by structural mechanisms or social factors such as gender, age, educational level, economic situation and health status. In order to observe if new determinants also influence these changes, the effect of the time devoted to the use of mass media and technology in sports participation, were studied as well. This research indicates that the time devote to the use of mass media still has a negative relationship with the practice of sports and physical activity in adults. On the other hand, the negative relationship between the use of technology and the practice of sports and physical activities only occurs in specific situations or circumstances. For instance, these relationships are more accentuated when the use of technology replaces the social function of sports or when it is carried out during the times of the day that are usually destined for the practice of sports and physical activities.

Therefore, new technologies give us plenty of options for entertainment in our leisure and free time, and currently adults also tend to devoted more and more time to these activities in their daily lives. Thus, we should take advantage of the use of new technologies to

promote sports and physical activities in adults and contribute to elimination prejudices or stereotypes associated with technology. Public policies related to sport should recognise the new technologies as an ally, rather than as an adversary. In addition, the promotion of sport strategies should not seek to restrict the use of technologies, but instead incorporate them as a core of its activity.

5.1. Strengths of the research

The main strengths of this investigation are: First, the approach that places sports as a central element in the analysis of society, emphasizing the social inequalities that arise of its practice and its importance within public agenda. This research indicates that the study of sports has the potential to provide meaningful information for public policies, because it is a field that it is related to different and relevant areas of our social and cultural life (Eckstein et al. 2010; Coakley and Pike 2009).

In addition, this investigation gave us a clearer look of the adults who have less chance to take part in sports through the analysis of the structural components of society. The understanding of these under-represented and vulnerable groups allows us to design new strategies within current public policies to guarantee the access for adults to sports and physical activities. One example of these strategies focuses on reducing the gender gap in sports participation. For instance, the “StreetGames – Us Girls”³ program takes into account the sports preferences of women in relation to the existing offer in sports clubs or other places where these activities take place. This strategy is an exceptional initiative that aims to empower and promote sports participation in women. To the date, this program has reached over 35,000 disadvantage young women in England and Wales.

Second, this research also includes elements of the use of mass media and technology and their relationship to sports participation. These elements have been extensively explored in children and young people, but have been less addressed in adults (Moens and Scheerder 2004; Nigg 2003; Thorpe 2017). This research also provides evidence about the increasing use of technology in adults, which can be exploited to its full potential if the needs and demands related to sports and physical activities in adults are met. For example, adults with health problems or physical disadvantages may use assistive sports technology as a

³ US – Girls: <https://network.streetgames.org/our-work/us-girls>

form of entertainment or an opportunity to generate a greater interest in sports among these group of people.

Finally, another important aspect of this research is that it considers the analysis of the use of time in the everyday activities of adults (Bittman and Wajcman 2000; Sullivan and Gershuny 2018) to understand sports activities within the broad array of leisure activities available to adults. This allowed to analyse how adults prioritise and organise their activities, and how does time availability influence the decision of adults to get involved in sports and physical activities.

To sum up, this research recognises the fundamental role of sports in society, seeks to make visible the main inequalities in the different levels of sports participation, introduces the role of the time that adults devoted to the use of mass media and technology and compares the main changes of the determinants of the participation in sports and physical activities in adults from 2001 to 2015.

5.2. Limitations of the research

This research used two cross-sectional large-scale surveys in 2001 and 2015. Although, this type of survey allows us to do a comparative analysis between these two periods of time, the individual changes of each of the adults surveyed were not measured. To determine these individual transformations, the adequate methodological approach would have been the longitudinal survey designs (Bryman 2012). However, due to the lack of longitudinal time-use surveys that measure sports activities and the use of media and technology in the United Kingdom, a cross-sectional design was chosen.

The disaggregated analysis of each country and region of the United Kingdom is still pending. This may give us a distinctive perspective of the main peculiarities of sports participation through a geographical approach, and may help us to determine the existence of potential sports spatial spillovers among countries and regions in the United Kingdom (Lera-López and Marco 2018). The identification and characterization of these peculiarities at the spatial or geographical level will allow us to design differentiated strategies or programmes related to sports and physical activities in each of the countries and regions of the United Kingdom, taking into account also the needs and interests of the adult population.

Moreover, the analysis of the particularities of each of the physical and sport activities, mentioned earlier in the research, were not considered. We should take into account that heterogeneity of sports, since sports and physical activities can be practised individually or collectively, can be recreational or competitive and they might be subject to change if people decide to play them in a different way. That is, the experiences and motivations of people who participate in a specific sport or physical activity are diverse and intimately related to the social contexts where it is practised.

Finally, a further significant limitation was associated with the small number of studies within the social sciences about the time that adults devoted to the use of mass media and technology related to the participation in sports and physical activities. However, this limitation can also be taken as an opportunity to develop the understanding about sports participation and include new methodological approaches to the study of sports from a macro-oriented analysis.

5.3. Future research avenues

This investigation sought to answer how certain social or technological factors determine the chances of adults to get involved and spend time in sports and physical activities. However, there are still certain questions or research needs to address. First, it is necessary to explore in detail the relationship between sports participation with other important spheres of adult life, such as work or study. Second, researchers should pay attention to the particularities of each sports and physical activities, as well as the social context where they take place. This will allow to know the sports preferences and social barriers that face specific groups of people within society. Third, the role of new technologies in sports needs to be addressed in greater detail. This may not only provide evidence of new ways in which people get involved in sports, but also identify the limitations that exist to access to these sports-related technologies. Finally, it is also important to analyse, through a qualitative approach, how adults perceive and experience the time devoted to sports and physical activities and the meanings that they give to this practice in their everyday life.

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APPENDICES:

Appendix 1. Codification of main activities in time diaries 2001-2015

Main Activity	Detail of main activities	Codes*	Specific activities
Mass media activities	Unspecified TV watching	8210	Watching television
	Watching a film on TV	8211	
	Watching sport on TV	8212	
	Other specified TV watching	8219	
	Unspecified video watching	8220	Watching video
	Watching a film on video	8221	
	Watching sport on video	8222	
	Other specified video watching	8229	
	Unspecified listening to radio and music	8300	Listening radio, music or recordings
	Unspecified radio listening	8310	
	Listening to music on the radio	8311	
	Listening to sport on the radio	8312	
	Other specified radio listening	8319	
	Listening to recordings	8320	
	Use of telephone	5140	Use of telephone
Use of technology	Computing – programming	7220	Use of computer and internet
	Unspecified information by computing	7230	
	Information searching on the internet	7231	
	Other specified information by computing	7239	
	Unspecified communication by computer	7240	
	Communication on the internet	7241	
	Other specified communication by computing	7249	
	Unspecified other computing	7250	
	Skype or other video call	7251	
	Other specified computing	7259	
Computer and video games	7330	Computer and video games	
Sports and physical activities	Walking and hiking	6110	Walking
	Taking a walk or hike that lasts at least 2 miles	6111	
	Other walk or hike	6119	
	Jogging and running	6120	Running
	Biking, skiing and skating	6130	Biking, skiing, skating
	Biking	6131	
	Skiing or skating	6132	
	Unspecified ball games	6140	Ball games
	Indoor pairs or doubles games	6141	
	Indoor team games	6142	
	Outdoor pairs or doubles games	6143	
	Outdoor team games	6144	
Other specified ball games	6149		

Main Activity	Detail of main activities	Codes*	Specific activities
	Gymnastics	6150	
	Fitness	6160	Fitness
	Unspecified water sports	6170	
	Swimming	6171	Water sports
	Other specified water sports	6179	
	Other specified physical exercise	6190	
	Productive exercise	6200-6290	
	Activities related to sports	6310-6312	Other activities
	Unspecified sports and physical activities	6000-6100	

*The codes of the activities were the same for both surveys.

Source: United Kingdom Time Use Survey, 2001 and 2015.

Appendix 2. Codification of the type of companionship in time diaries 2001-2015

Type of companionship*		Activity
2001	2015	
Alone or people you don't know	Alone	Alone
	With spouse / partner	
With other household members	With mother	
	With father	
With children up to 9 in the household	-	With people you know
With children aged 10 to 14 in the household	-	
-	With children 0-7 years	
-	With other person (include child +8 years)	
With other persons that you know	With other you know outside household	

*In all the main activities the same process of coding was carried out

Source: United Kingdom Time Use Survey, 2001 and 2015.

Appendix 3. Ethical approval



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02 May 2019

Our ref: SREC/3249

Juan Luis Azula Pastor

SOCSI

Dear Juan,

Your project entitled *'The use of time and the determinants of sports participation in the United Kingdom.'* has now been approved by the School of Social Sciences Research Ethics Committee of Cardiff University and you can now commence the project should all necessary forms of approval been received.

If you make any substantial changes with ethical implications to the project as it progresses you need to inform the SREC about the nature of these changes. Such changes could be: 1) changes in the type of participants recruited (e.g. inclusion of a group of potentially vulnerable participants), 2) changes to questionnaires, interview guides etc. (e.g. including new questions on sensitive issues), 3) changes to the way data are handled (e.g. sharing of non-anonymised data with other researchers).

In addition, if anything occurs in your project from which you think the SREC might usefully learn, then please do share this information with us.

All ongoing projects will be monitored and you will be obliged periodically to complete and return a SREC monitoring form.

Please inform the SREC when the project has ended.

Please use the SREC's project reference number above in any future correspondence.

Yours sincerely

Professor Alison Bullock
Chair of School of Social Sciences Research Ethics Committee
Cc: Roser Beneito-Montagut



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