

REASONS AND HINDRANCES TO ENGAGE IN PHYSICAL
ACTIVITIES AT UNIVERSITY SETTINGS

A Case Study of Unipoli Sport in Tampere

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ABSTRACT

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Students and employees are at risk to develop a wide range of diseases when adopting inactive lifestyle dominating by sedentary and screen time. Evidence suggests that physical activity has positive effects on humans and is essential for health enhancement. The purpose of this study is to identify the users of university sport services and to explore what services they use. This study also aims to analyze motives and reasons to engage in university sport services. Moreover, barriers to physical activities among students and university staff are explored.

The study applied a mixed method approach utilizing an online survey-type questionnaire (maptionnaire). The study sample consisted of 280 university students and staff (220 females, 55 males, 5 preferred not to answer; with a mean age of 30,67). A modified Exercise Barrier Scale (EBS) was applied to measure perceived barriers among university students and staff. The modified scale has demonstrated a great level of internal consistency Cronbach's Alpha = ,84.

The majority of users are females, students, and from the University of Tampere. Users are likely to engage in group activities followed by gym training, and ball games. The most common reasons to undertake activities through university sport services were a good location, low costs, and convenient distance. The most hindering features that prevent participants from engaging in university sport facilities is the problem that facilities are overcrowded and too far away. The modified EBS identified time expenditure to be the greatest barrier. Moreover, a significant difference yield item *'I do not feel comfortable to show my body in front of others'* for gender ($p=.007$) and for status at university ($p=.001$).

The greatest advantage of university sports services continues to be a low-pricing together with a convenience of schedule, location, and distance. Since a majority of users are females and students, it would be adequate to engage more males, staff, and an international students and staff as well as to lower the threshold for entering physical activities. Despite university sport services having limited premises to provide for a large number of users, the range of physical activities is relatively wide though certain opportunities for expansion should be taken into consideration. Moreover, a unique nature of universities has the capacity to create friendly and welcoming environment that prevent from feelings of discomfort and embarrassment leading to greater sports participation. Future studies should collect larger data that equally represent various social groups focusing on social aspects of university sports and physical activity context.

Keywords: Physical Activity, University, Reasons, Hindrances, Barriers.

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List of abbreviations

EBS – The Exercise Barrier Scale that was applied in the study to measure barriers to physical activity modified from the original Exercise Benefits and Barrier Scale (EBBS) developed by Sechrist, Walker, and Pender (1987).

PA – In this study, the abbreviation PA encompasses concepts of physical activity, exercises, and sports.

SDT – Self-determination theory; explores the nature of human motivation, personality development, and mechanisms to regulate behaviour.

WHO – World Health Organization; an agency of the United Nations focusing on international public health.

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1 INTRODUCTION

Humankind has always strived to improve the quality of life. The physical, social, economic, and living environments contribute to the overall satisfaction with one's life quality. On the one hand, societal and technological progress creates greater possibilities to be physically active in numerous ways as well as facilitates overcoming barriers to a healthy way of living and ultimately enhances life conditions. On the other hand, technological advancement simplifies communication, employment, and education resulting in lifestyles associated with a sedentary behavior leading to the development of risks of various diseases. What is more of a concern, a study carried out by Matthews and colleagues (2008) outlined an alarming trend showing an increase in sedentary time and a decrease in physical activity (PA) during young adulthood. This trend is most likely to continue in the following course of life especially in types of work where employees spend most of the time seated. This is a significant finding giving the notion that people often disregard the crucial role of PA enhancing physical, social, and psychological health.

In fact, it is a physical activity that plays a crucial role in enhancement and maintenance of one's health. A key essence of PA rests in a multiple physical, mental, and social benefits particularly in terms of health enhancement and prevention of diseases. In addition, regularly undertaken PA enhances vital bodily functions, improves a respiratory system, and strengthens musculoskeletal mechanisms (Warburton, Nicol, & Bredin, 2006). Moreover, there is a positive relation between PA and lower rates of osteoporosis, fractures, non-degenerative diseases or various forms of cancer (WHO, 2010). In the matter of a mental well-being, PA lowers levels of stress, depression, and anxiety. Further, PA benefits social dimension when creating and nurturing friendships, or expanding networks. Besides, maintaining an active lifestyle is important especially when sedentary behavior imposes people at risk of an emergence of non-communicable diseases that occur with insufficient PA (Owen, Healy, Matthews, & Dunstan, 2010)). Therefore, PA has a vital impact on people's health and it would be detrimental to the matter not to utilize this immense potential for public capital.

The significance of PA in a contemporary society is irrefutable. Public authorities have the responsibility for the implementation of actions that concerns public. Beyond controversy, during

the time dedicated to studies or work, individuals tend to spend a lot of their time sitting, being inactive (Owen et al., 2010). To hinder the negative course of effects, universities as a key public establishment have the capacity to positively influence the development of inappropriate health behaviors that are immense among university students and staff. Moreover, for students, universities can be viewed as some kind of a transitional platform for entering the working life. In this study, three Tampere universities attempt to provide the best care of their students and staff enabling them to involve in a wide variety of sports and exercise activities, with the emphasis on their satisfaction with provided services.

Since most of research examine reasons to engage in physical activities related to individuals or their close surrounding it is important to explore specific reasons and hindrances to PA considering environment where they spend most of their day time. Due to these circumstances, this study employs the socio-ecological model and the self-determination theory that complement one another and provide better understanding of a specific reasons and hindrances to engagement in physical activities at university settings.

The thesis consists of three main sections. The first part contains introduction and literature review that aims to provide readers with the background information on the studied phenomenon and present the significance of the researched matter in question. The second part of the paper comprises proposed aims of the study, research tasks, and hypotheses together with the implementation of the study. The concluding section consists of presenting and discussing the results of the study. In the end, conclusions, limitations of the study, and recommendations for future studies are proposed.

1.1 The role of the researcher

The entire process of research is, for me as a young researcher, at all stages a challenge. Accepting such challenge helps me to develop in many dimensions. As a person, conducting research shapes my character, morals, and values. As a researcher, to seek for valid information and applying appropriate methods in regard to study objectives enhances my research skills, critical thinking, and non-subjective observations.

In addition to the research significance of the study, I am personally interested in conducting this

kind of research. I am a student myself and I have personally experienced diverse university environments in Slovakia, Czech Republic, Croatia, and lately in Finland. During the time of my studies in these countries, although I was there as a foreigner, I got an opportunity to be an inside-type of an observer and perceive things differently. I have exchanged thoughts and opinions with professors mainly from the field of sport and physical activity and other fields, like biology or chemistry on student's and university staff's PA behaviors during their time at the University. Thus, carrying out this study will, hopefully, lead to increased sport and PA participation among students, university personnel and employees in general.

With respect to this study, my role as a researcher is somewhat ambiguous. As abovementioned, I have been a student myself for many years experiencing quite similar situations at different campuses. Hence, on the one hand, I may tend to be biased when conducting this study and interpreting the findings. On the other hand, studies and research have always led me to the definite objectivity developing an ability to conclude impartial synthesis. Moreover, the study design may bear only partial inclination to the bias, if any at all. That is, because the study is carried out based on mixed method approach. In quantitative studies, participants are not influenced by researcher's presence, and therefore, results of the study can be achieved repeatedly, and data can yield correlations which, in overall, diminishes the effects of bias (Simon, 2011). In qualitative studies, the researcher is required to refer to any form of possible subjectivity, the supposition of bias precondition and describe the relationship with the subjects of the study (Neuman, 2014). In regard to this study, the role of the research is rather remote with a certain level of separation from the subjects resulting in open-mindedness.

2 THE VALUE OF PHYSICAL ACTIVITY

I firmly believe that all of us have already asked self the question about the meaning and importance of physical activity. For instance, is it important to be physically active? Does it really make sense to exercise? Alternatively, how is PA beneficial to our overall health? I also believe that it did not take a long time to find out that people are physically active practically every day and that PA is essential for our existence throughout the entire course of life. In addition, taking part in organized physical activities develops important social skills like cooperation, responsibility, empathy, and self-control, and therefore, participates in the creation of public capital. However, after finding a correct answer to these simple, yet crucial questions, it is necessary to go far beyond and understand the absolute value of PA. In order to do so, this chapter is going to present and discuss the great contribution of PA to health, research viewpoints on reasons and motivation to participate in PA, and ultimately, what kind of barriers people face when engaging in PA.

2.1 Physical activity and health

It goes without saying that physical activities and exercise are imperative to human health. The Constitution of the World Health Organization has acknowledged the importance of PA when defining health as:

"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1948).

With this definition in mind, health does not merely consist of one dimension but is much more complex. The Health is an effect of an optimal physical, mental, and social state and at the same time not showing signs of any kind of disease. In fact, it is PA that is integrated into every dimension of health and prevention from sicknesses. Following lines shed the light on the vivid essence that determines a sound state of health.

As a result of an increased PA levels, one can expect improved physical health in terms of enlarged physical exertion, endurance, speed, and balance (Van Kim & Nelson, 2013; WHO, 2010). Additionally, engaging in PA on a regular basis have an impact on mental (psychological)

health (Van Kim, & Nelson, 2013), especially releasing tension and stress. Furthermore, PA affects, besides physical and mental elements of health, societal life and enables the creation of a new relationships (Gehl, 2011). Ultimately, depending on the type of activity, its quantity, and quality, PA contributes to the prevention of various diseases (Eime, Young, Harvey, Charity, & Payne, 2013; WHO, 2010). Thus, PA is interlinked with human and health in many dimensions, however, understanding PA as a vital contributor to health and fundamental essence of human life requires a further breakdown of the dimensions.

During the last decades, physical activity gained international recognition and extensive research has acknowledged that health benefits at the physical dimension are far more comprehensive. Undisputedly, PA is heavily affecting the entire bodily system and its physiology through additional hormone stimulation while reducing the level of a body fatness (Warburton et al., 2006). Besides, strengthened physical fitness enhances body composition and fine-tunes metabolism (Warburton et al., 2006). More importantly, there was found a positive correlation with improved musculoskeletal, respiratory, metabolic, and cardiovascular system (Eime et al., 2013; Warburton et al., 2006; WHO, 2010). Moreover, like Warburton and colleagues (2006) observed, regular physical activity with higher intensity strengthens muscles and improves overall physical fitness and balance ability. When regularly engaging in PA, improvements can be seen not only in the physical dimension of health but also at psychological.

In contrast to physical dimension, psychological dimensions of PA are not receiving that much attention. Despite the gap in research, yet, PA can positively contribute to mental health. For instance, Sharp and Barney (2016) have observed that there is an association of PA with improved mental well-being. As a result, physically active people are able to better manage and cope with stress. Eime and colleagues (2013) present the further potential of psychological benefits that encompasses enjoyment of oneself and achievement of competency and mastery. Similarly, Gehl (2011) proposed that healthy lifestyle with an appropriate amount of PA might potentially enhance self-esteem and self-efficacy. Thus, PA influences on diverse elements of the physical and psychological dimension of health, hence in like manners impacts social health.

Similarly, in terms of the physical and mental dimension of health, physical activity has the potential to positively affect social well-being. Positive social effects of physical activities were largely manifested (Eime et al., 2013; Gehl, 2011; Hardin, Fitzhugh, & Mirabito, 2012). PA

facilitates social interaction at the individual as well as at the communal level. Furthermore, from Hardin and colleagues study (2012), it is evident that physical activities that are fun and enjoyable result in positive social interactions and relaxation. The process of socialization is strengthened when engagement in PA is on regular basis with people that enjoy similar types of sports and physical activities. Being physically active influences expansion of social networks of friends and enhancement of relationships resulting in increased social interaction and reduced time of loneliness (Eime et al., 2013). Therefore, PA plays an irreplaceable role, besides physical and psychological well-being, in the socialization process and affects human social health.

Having acknowledged the imperative role of PA in physical, psychological, and social health, it is important to note another essential quality. PA significantly benefits health in the matter of prevention. WHO (2010), Warburton and colleagues (2006), Hamer and Chida (2009) and many others have clearly documented vital contribution to health through preventative characteristic of PA. Warburton and colleagues (2006) argue that regular PA prevents from loss of bone mineral density and osteoporosis. In addition, participating in different kinds of PA with various intensity can prevent from the emergence of noncommunicable diseases such as cardiovascular diseases, diabetes, colon and breast cancer as well as depression (Hamer & Chida, 2009; Warburton et al., 2006; WHO, 2010). Moreover, adequate levels of physical activity will decrease the risk of a bone and muscles fracture, helps control weight and prevent obesity (Warburton et al., 2006; WHO, 2010). Furthermore, Hamer and Chida (2009) found that physical activity minimizes the risk of neurodegenerative diseases, for instance, Alzheimer's, Parkinson's, and dementia. Hence, PA has an essential role in preventing diseases.

Even though there is all the time increasing amount of scientific evidence drawing conclusions on positive effects of PA on human, there are some gaps to be filled. Nevertheless, due to presented arguments supporting the presence of PA in human life, it is crucial to recognize the vital contribution of PA to the prevention of one's health from various diseases and, furthermore, to the enhancement of physical, psychological, and social dimension of health. Although there is some evidence about the existence of psychological and social benefits emerging from engagement in PA, both are often secondary, left with very little advocacy and often overseen. Ultimately, the research can help to provide evidence that underlines the need to be physically

active, yet, in spite of everything, the final decision to get or not to get engaged is made by individuals themselves.

2.2 Diverse approaches to motives, reasons, and barriers to physical activity

To understand the reasons why some people engage in physical activity and others do not, it is important to discuss various viewpoints on reasons, motives, and barriers to PA. This part focuses on motives and reasons to engage in PA through the lenses of the self-determination theory (SDT) and the socio-ecological model together with the support of different research. Furthermore, elements that hinder the engagement in PA are accounted.

Ryan and Deci (2000) describes SDT as:

"the investigation of people's inherent growth tendencies and innate psychological needs that are the basis for their self-motivation and personality integration, as well as for the conditions that foster those positive processes" (p. 68).

The majority of research exploring SDT in societal conditions has been conducted in regard to facilitate and prevent the natural course of self-motivation and psychological development (Ryan & Deci, 2000). The SDT underlines that the nature of a motivation and reasons for particular behavior lies in the endeavor to satisfy the three psychological needs, autonomy, competence, and relatedness. Accordingly, satisfying these needs results in definite enhancement of mental health, self-esteem, and self-confidence. Moreover, the concept of SDT approaches human motivation by various forms of regulatory behaviors that differ in the degrees of self-determination and ranges between an intrinsic and extrinsic one.

Motivation can be viewed as the driving force behind all the actions of an individual. In terms of extrinsic motivation, the incentive is to achieve the individual distinct result of certain actions. That is in contrasts with intrinsic motivation which is defined by inherent satisfaction when performing an activity (Ryan & Deci, 2000). Therefore, individuals are motivated to engage in an activity simply because they value it, or because there is a sound external urge. The concept of intrinsic motivation in its nature inclines toward assimilation, competence, mastery, spontaneous interest, exploration, and self-satisfaction (Ryan & Deci, 2000). On the contrary, extrinsic

motivation takes place when an activity is carried out due to potential reward, triumph, prize, money and all sorts of external elements. The SDT also acknowledges the importance of external factors that have hindering effects on well-being, motivation, and personality development. For instance, social and environmental factors may either stimulate or inhibit intrinsic motivation. Previous research indicates that, on the one hand, intrinsic motivation can be reinforced by providing a supportive and positive feedback, whilst on the other hand, negative feedback thwarts motivation (Deci, 1975 as cited in Ryan & Deci, 2000). As a result, individuals struggle to utilize their entire potential, lack motivation and limited personality growth, having fewer acquaintances.

Yet different viewpoint has been recommended that helps to understand reasons and barriers to PA. Stokols (1996) view socio-ecological model (widely utilized for health promotion) as a framework that accounts mutual interrelations of people and their social and ecological environment. In addition, this framework aims to ease the understanding of facilitators and hindrances to PA considering individuals features as much as physical and social context (Mohammed, Md Said, Ariffin, & Jusoff, 2014). Therefore, socio-ecological construct put emphasis on external factors like family, peers, formal or informal settings, neighborhood, built environment and facility availability, that may, in fact, have an impact on health and PA behavior.

Based on Golden and Earp study (2012) the socio-ecological model is specific due to approaching the problem on several levels. At the individual level, the construct examines factors such as knowledge, self-efficacy, age, gender, values, economic and marital status, and many others that may have an effect on individuals' behaviors (Stokols, 1996). This framework reviews interpersonal relations within one's social network of family, friend, co-workers as well as investigates connections between community representatives (Mohammed et al., 2014). At the physical level, the construct explores built environment such as accessibility and availability of facilities, parks or type of transportation. The final level of the socio-ecological model is an organizational policy context accounting global, national and local policies related to healthcare or prevention of diseases and enabling rights for health. The model further investigates rules and regulations that influence on services delivered to individuals or groups (Golden & Earp, 2012). Each of these factors may either facilitate or hinder people's decision to engage in and maintain

PA practices. The individual dimensions of the socio-ecological model are displayed in the figure 1. which represents an interrelation with and supplementarity by the self-determination theory.

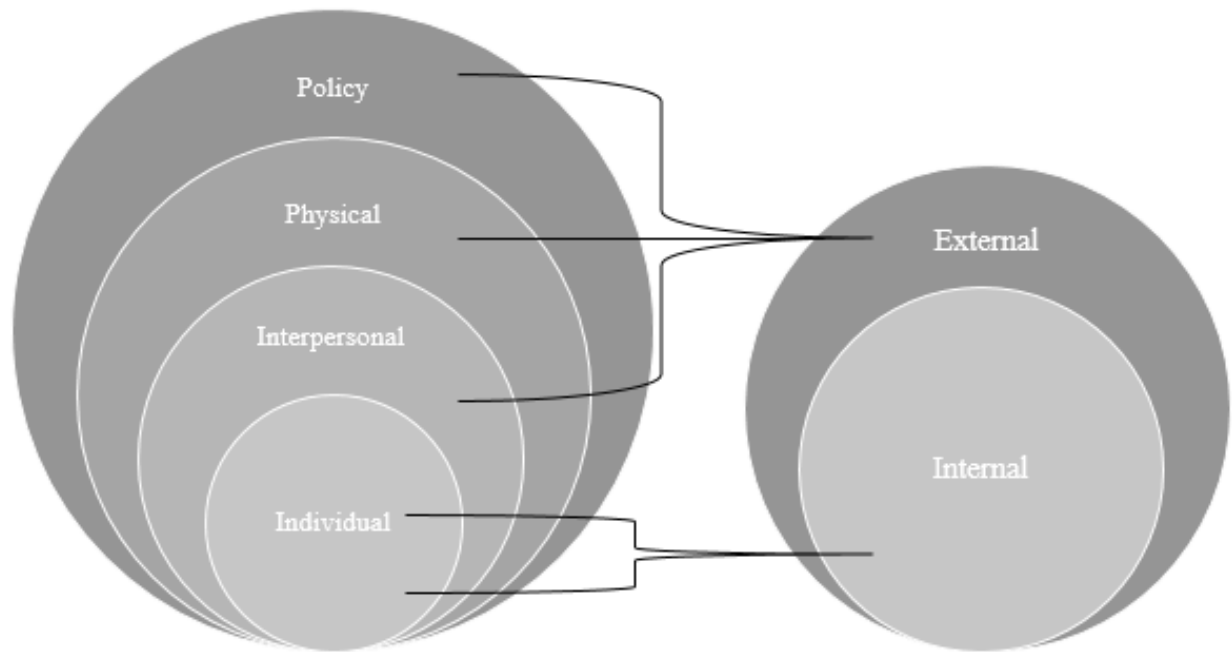


Figure 2. Complementarity of the socio-ecological model and the self-determination theory.

The SDT is mainly individual-oriented and does not entirely recognize the role of habitat which, in fact, determines behaviors of many. In contrast, the socio-ecological model accounts the importance of external factors like social support and the surrounding environment in which PA practices take place. Therefore, the socio-ecological model acts more comprehensively but is not examining factors to PA as in-depth as the SDT that provides a better understanding of reasons for and hindrances to PA. However, due to feasibility of the research and data accessibility and availability the study is not thoroughly investigating intrapersonal and policy dimension of the socio-ecological model and internal features of the SDT. Further, it is because of a large body of research have already well-explored causal relationships of intrinsic motivation and participation in sports and physical activities. On the contrary, the nature of community and built environment are components that were for a long time neglected and underresearched. Thus, the primary focus of this study is to examine social and ecological characteristics (interpersonal and physical factors) utilizing the socio-ecological model as well as external reasons and hindrances to PA through the SDT.

2.2.1 Motives and reasons to engage in physical activity

Apart from scarce theoretical fundamentals of human behavior, several studies (Cash, Now and Grant, 1994; Cracknell, 2015; Van Niekerk, 2010) and government bodies, including the European Commission (2018), pay attention to the significance of motives and reasons to engage in physical activities. Based on special barometer report (European Commission, 2018) on sport and physical activity, health improvement is clearly the most important reason stated by citizens of European Union. The second the most reported reason was fitness advancement. The third highest importance was given to the reason to relax, followed by the motive to have fun from activities and improvement of physical performance. About every fifth European decides to engage in PA due to weight control, physical appearance or being with friends. People from Nordic countries are very likely to report health and fitness improvement as the major reason that makes them engage in PA.

A large body of research (Egli, Bland, Melton, & Czech, 2011; Gómez-López, Gallegos, & Extremera, 2010; Lovell, El Ansari, & Parker, 2010; Marques, Martins, Peralta, Catunda, & Nunes, 2016) has shown that women and men have different motives to participate in PA. The recent report of the European Commission (2018) shows that men engage more in PA, compare to women, because of having fun, spending time with friends, improving physical fitness and experience the spirit of competition. Women, compare to men, are more likely to participate in PA due to the enhancement of physical appearance, counteracting the effects of aging, controlling weight and improving self-esteem (European Commission, 2018). Cracknell (2015) supports these findings by reporting that men are motivated to undertake PA because of affiliation and competition whilst women reported motives like physical appearance, enjoyment of exercise. Men and women differ in the type of motives, however, the decision to engage in PA is to some extent influenced by external factors.

Built environment and social context may influence greater involvement in PA especially in the case of outdoor activities that are affected by conditions, such as distance to places of PA or even fewer number of facilities (Gehl, 2011). Regarding ecological characteristics, Cracknell (2015) in the Health Club Management Handbook presents results of an online survey on a sample of 10,062 sports clubs members who reported as the most important reasons to undertake PA in the facility a convenient distance either from home or work, followed by reasonable price and

suitable opening hours. Other relevant reasons were the type of equipment and schedule of classes. Besides these reasons, participants mostly enjoyed work out in the gym and class exercises. Moreover, in regard to the social context of PA, especially class or group exercises where social interaction takes place, participants were motivated by the social outcome of exercise – an opportunity to meet new people. Based on the online survey, about 90 per cent of members appreciate face-to-face interaction with staff when exercising (Cracknell, 2015). Therefore, environmental and societal conditions distinctly contribute to the overall feeling that determines the decision whether or not people undertake PA.

Naturally, in regard to gender, motivation to engage in physical activity differ for males and females. Cash and colleagues (1994) conducted factor analysis found that women exercise because of to improve their endurance/stamina, cope with sadness and/or depression, cope with stress/anxiety, or meet new people. In addition, Van Niekerk (2010) revealed significant findings indicating that physical and mental health as well as achieving more confident appearance are more important reasons for women than men, which is supported by Cash and colleagues (1994). Moreover, women exercise due to reasons such as control of weight and weight loss (Van Niekerk & Barnard, 2011), prevention of ageing and improvement of physical appearance (European Commission, 2018) whereas men are physically active because of competitiveness, physical performance, having fun or simply to be with friends (European Commission, 2018).

In this post-modern era and highly consuming way of lifestyle, extrinsic reasons happen to receive more attention. Teixeira, Carraça, Markland, Silva, and Ryan (2012) reviewed research that dealt with forms of motivation concluding definite association of social commitment and skills development with larger engagement in exercise. In addition, individuals with more intrinsic motivation who have experience competence and mastery and have challenged themselves are more likely to maintain their participation in sports and physical activity levels for a longer time. Likewise, motives related to the enhancement of health and physical fitness are frequently reported by exercise participants (Lovell et al., 2010). In addition, some external reasons to the engagement in PA are determined by social context and facility's physical environment. These factors are often examined through the assessment of a service quality. For instance, facility ambience (overall feeling, well maintenance, and cleanliness) and operation quality (suitability of schedule and availability of information) were important elements of sport

facilities (Damásio, Campos, & Gomes, 2016.) At the environmental level it is relevant to consider appropriate location and parking availability for the users of sports facilities.

It can be argued that the impact of some extrinsic motivators, like appearance and fitness to engage in active behavior decreases over the time. According to Ryan and Deci (2000), the transition from external motivation to exercise to internal motives to engage in PA may result in long-lasting engagement in PA. Although there was no significant change in more intrinsic motives to be active, in the case of competence, the decrease in extrinsic motives along with the fairly high level of PA participation may represent a shift of attention toward a more intrinsic-like engagement in physical activity. However, regular and maintained engagement in PA, along with lower attention to extrinsic reasons to be involved in PA, could represent a positive outcome resulting in organized and habitual PA practices. Thereupon, it is obvious that people have a greater intrinsic motivation to participate in physical activity, primarily due to health maintenance, but for some reason, they are not capable to get involved.

2.2.2 What hinders people from being physically active

“Many individuals are motivated to improve their physical activity levels but often fail to act on their good intention” (Koring et al., 2012, p. 488).

There is a whole range of research on issues that restrict people to engage in PA (Damásio et al., 2016; Lovell et al., 2010; Pluim, Earland, & Pluim, 2014; Sechrist et al., 1987). Some individuals perceive one while many others several barriers. Many of those do not have the will to overcome barriers whereas others rather simply avoid engaging in PA due to various reasons. Also, there is a group of people that consider PA as not beneficial. The nature of limitations is complex and vary from environmental obstacles, health impairments, to personal reasons or obstacles set by individuals themselves without any external influence. Certain barriers are very common, and the majority of people happen to experience them at some point. However, some experience more specific factors that hinder their engagement in PA which can be grouped into groups of time expenditure, social restraints, exercise milieu, or physical exertion (Sechrist et al., 1987).

One of the limitations is that PA does not figure high on the list of preferences. Investing time into activities that matter, like education, career or family responsibilities, makes physical activity less important. Built environment in which individuals live is heavily affecting the satisfaction of the physical need. Gehl (2011) in his paper refer to relevant features influencing people's ability to engage in a regular dose of PA. For instance, the neighborhood does not have access to sport and PA fields. Further, within the area of living there are too few places for people to exercise or a limited number of sidewalks, bike trails or open areas. Given instances of barriers to undertaking PA belong to the category of exercise milieu as identified by Sechrist and colleagues (1987).

Lack of time is one of the most reported reasons that is perceived as a barrier to undertake PA on a regular basis. Special Eurobarometer report (European Commission, 2018) show that European citizens reported lack of time to the main reason preventing them from being physically active. For some people exercising takes too much of their time (Damásio et al., 2016; Lovell et al., 2010; Sechrist et al., 1987). In addition, the importance given predominantly to family and relationships over exercise is another barrier that was identified. Moreover, time expenditure relates to the convenience of schedule. That is due to the reason, that facilities do not have suitable opening hours (Sechrist et al., 1987). In addition, PA and exercise require a lot of effort which gives the impression of a hard work. Thus, experienced fatigue from and after the PA and exercise sets another barrier. Demonstrated causes of physical exertion and time expenditure are associated with an inability of people to engage in PA and exercise.

Another group of barriers hindering greater engagement in PA have a societal character. Sechrist and colleagues (1987) for this category account lack of acquaintances that share a common interest in PA. Likewise, the ability of individuals to engage in regular physical activities is jeopardized by exposure and feelings of vulnerability. What is more of a concern, some individuals do not consider themselves fit enough or lack the confidence to show their body in public. Besides, on some occasions, people experience embarrassment when exercising (Lovell et al., 2010). Although restraints exposed by societal conditions are well-observed, several elements of environment contribute to the repulsive or even self-restrained impression of PA still remain.

Different studies (Gehl, 2011; Pluim et al., 2014) point out other reasons that restrain engagement in PA and exercise even though the facilities and places are accessible. In the study conducted by

Pluim and colleagues (2014) one of the reasons to abandon regular PA was safety around and within the facility. To ensure safeness, Gehl (2011) emphasized that during late evening hours, the area around facilities should be well-lit and nearest roads with visible and safe pedestrian crossings. The interior of sports facility should have signs that guide users stay and movement within buildings. In addition, exercise equipment should include guidelines for appropriate manipulation and prevent from injuries caused by unskilled manipulation. It is essential to ensure safeness of sport and PA facilities, yet authorities lack to grasp its capacity.

It has been researched that several external factors hinder the engagement in organized PA. For instance, Cracknell (2015) recognized the importance of price. Although the quality of services is in a linear relationship with the price, with higher price lesser individuals continue their membership. Moreover, taking part in regular PA can higher costs, which, in turn, eventually become a barrier. Similar to price expectations, satisfaction with sports instructors is decisive. Cracknell (2015) refers to unprofessional approach and inappropriate communication skills that make individuals drop out. Thus, participation in sport and PA practices is affected by different circumstances and eventually do not allow to experience the good of PA and its positive outcomes.

3 OVERLOOKED MERITS OF UNIVERSITIES

Universities every year open its doors to increasing number of students, which means to employ more workers, both from the academic and non-academic field. In Finland 2016, there were 140 792 students enrolled in the university of applied sciences education and 154 736 students at university type of education (Official Statistics Finland, 2016). In total, 1.28 million Finns pursue some kind of education leading to a qualification or degree. Considering the overall size of the population in Finland (5 513 130) this is a considerably large number of scholars having great impact and role in society. Since every fourth person engages in the educational process, it is fundamental role of the education field to make a significant impact on future generations' values, attitudes, and behaviors.

When universities take the initiative, public and social capital is reinforced. This account is supported by Lovell and his colleagues (2010) who see multiple positive effects when universities stimulate students and staff by various activities. For instance, universities should utilize the knowledge that physical activity enhances cognitive performance, concentration, and logical thinking. Moreover, Coalter (2005) presents the view that sport and physical activity have the greatest potential for the delivery of social capital such as health, education, crime reduction and economic development. Similarly, as a result of a favorable university settings that facilitate long-term engagement in PA, extensive public benefits are even reinforced. Thus, specific university context eventually contributes to greater social capital through enhancing its capacity to influence PA behaviors of students and staff.

Although it has been recognized that PA positively contributes to the society, there is little research how universities can utilize given premises. University students not only represent a specific under-researched population that can benefit from increased PA levels, but university settings do not create a supportive environment that would develop positive attitudes towards PA (Lovell et al., 2010). What is more of a concern, university personnel is even less researched group in terms of their health and PA behavior. University settings, especially educational nature, are generally neglected with an overlooked capacity to positively influence PA habits of their students as well as employees. Moreover, according to Leslie, Sparling, and Owen (2001) universities have the capacity to influence on individuals' levels of PA and provide unique

opportunities for campus communities to positively shape physical activity behaviors of their students and university personnel. University is unique and one-of-a-kind public institution that can reconstruct attitudes, behaviors, and opinions about the importance of PA for individuals as well as society.

Notwithstanding, the time spend at university is not always pleasant and do not ultimately contributes to the creation and growth of common prosperity. Indeed, for many individuals, university time is challenging with a lot of pressure causing stress. Sharp and Barney (2016) described some of the stress agents like academics or family together with (unfulfilled) expectations of self and others. Other factors, such as lack of time, sleep disorders and studying in a different country were identified to bring about the stress. Similarly, in terms of university personnel and academics, the particular nature of universities, workload and work performance may lead to burn out and emotional exhaustion (Watts & Robertson, 2011). Despite of the fact that the time at university can be challenging, PA is capable to combat these undesirable effects of university settings. More importantly, universities and PA are qualified for other distinguishable aids.

3.1 Crucial period to adopt a healthy lifestyle

University students are undoubtedly in the transition stage from adolescence through young adulthood to adulthood. Considerable evidence has revealed a significant decline in PA behavior participation among university students worldwide. The highest rate of decline in physical activity occurs between the ages of 18 to 24 years (US Department of Health and Human Services, 2000). Moreover, similar to sedentary behaviour at workplace, the study time is associated with an extensive sitting time (Matthews, 2008). Such a pattern of inactive behavior from adolescence to young adulthood may result in an increased number of people with noncommunicable diseases. Therefore, it is critical for university students to be motivated to adopt and maintain health-enhancing physical activity levels during this transition period.

Although awareness about positive effects of PA and exercise is widely acknowledged, people still lack the ability to sufficiently engage in physical activities. University students are unable to

experience all additional benefits due to lack of physical activity (Wengreen & Moncur, 2009). In addition, there is evidence that every third student moving to the university engage in lower levels of physical activity or become inactive (Matthews et al., 2008; Mohammed et al., 2014). According to Wengreen and Moncur (2009) and Sparling and Snow (2002), nearly a quarter of students is prone to gain a significant amount of weight during the first year at campus. In addition, Matthews et al., (2008) observed that sedentary time during college increase nearly two hours every day on the level of 8 hours of sitting a day. Despite this tendency to adopt inactive lifestyle, appropriate university setting is capable to stimulate a positive PA and health behavior.

University is a suitable time to manage health behaviors providing opportunities to positive modifications. Achen (2015) conducted a pilot study examining the engagement of college students in physical activities stating that

"campus potentially helps students develop lifelong health behaviors that can prevent long-term health problems" (p. 132).

This is strengthened by Leslie et al., (2001) who noted the environment such as campus, is the best time and place that offers opportunities for positive alternation of individuals' health behaviors. For instance, students' life quality was improved, degree of stress reduced which positively affected their grades and remained maintaining their condition (Achen, 2015). Since the lifestyle patterns obtained during late adolescence and young adulthood are very likely to be persistent throughout the course of life, university settings should approach their occupants with all the seriousness. This is underlined by knowing that universities educate and develop cultural, social, political leaders and decision-makers (Leslie et al., 2001).

3.2 Sport and physical activity practices at university settings

University sport practices differ across cultures, countries, and universities within individual countries. Some universities do not provide any sport or exercise activities at their campuses while other run university sports on a regular basis or as single events. Those who provide might be restricted just for their students and not including university personnel. The north-American model at university settings is predominantly characterized by competitive spirit while the

European model inclines more for sport and PA participation of masses. To outline the scope of university sports, the best example provides the International University Sports Federation (FISU) that organize every second year both winter and summer student-athletes games known as Universiade. Besides this, the FISU operates World University Championship, World University League and University World Cup (FISU, 2018).

A large body of research focuses on examination of the levels of and PA practices and its effects on students. The majority of studies explored PA practices of students in their free time outside of university campuses or as tailor-made interventions. Only narrow pool of studies examined sports and exercises within university settings and among those, most of them focuses on universities with sports-related curriculum. Tomlinson, Young and Holt (2012) compare sports world of Europe and North America. In the United States, sports were predominantly organized and practiced in school, college, and university context while in Europe sport was govern by voluntary clubs spreading out based on the idea of sport for all. Educational system in the United States have developed a concept of common and comprehensive extracurricular movement including sports while in many European countries sports clubs and schools operated separately. In Europe, mostly gymnastics have been involved in the school curriculum being of more educational and patriotist nature. On the contrary, in the United States sports like basketball, American football, track and field were developed into heavy competitive system where American universities employ professional coaches instead physical education teachers (Tomlinson et al., 2012). Hence, sports and PA within educational context is an integral part of an American society while in European countries is unconventional.

3.3 A case of Unipoli Sport in Tampere

Currently, the Unipoli Sport offers sports services on three campuses, the Tampere University of Technology (TUT, Tamppi arena located in Hervanta), the University of Tampere (UTA, Atalpa near the city center) and the Tampere University of Applied Sciences (TAMK located in Kauppi). The Unipoli Sport was launched in the autumn 2013 to provide versatile and high-quality sports services for students and university employees from Tampere. Every university employs own sport manager responsible for coordinating Unipoli Sport services. Any student and staff from

these three universities can become a member after paying fee for individual semester or a whole academic year at their home university. After paying fee, members are entitled to request access rights to use Unipoli Sport services at other campuses. In the autumn 2017 there was 7,900 university students and personnel paying the membership fee. Moreover, there is an option to pay one-time fee. Also, the Unipoli Sport provides additional information communicates with university students and staff through its web page, social media, information boards, universities' intra pages and members can subscribe newsletters that are issued monthly.

The Unipoli Sport offer several services. Group exercises are organized weekly in the form of classes led by sport instructors. A wide variety (nearly 100) of exercises is offered grouped into aerobic, fitness, and balance classes. Ball games take place every week in which can participate individuals or groups practicing certain ball game (for instance volleyball, futsal, basketball, badminton). The Unipoli Sports also offers courses for a certain sport or activity at the beginner or advanced level with none or additional fee. There are nearly 100 different courses organized every year. Archery, argentine tango, fencing, fitness kickboxing, riding and all kinds of yoga are only some of courses the members can undertake. Every campus has its own gym and members can access it during the week days between 06:00 till 22:00 and weekends. Beginners in gym training have an option to ask for advices and help when gym instructor is available. Personal and group services are another option to get involved with the Unipoli Sport and take part in consultation, individual or group gym instructions, personal training and massage. More detailed information is available on web page ([Unipoli Sports](#)).

A key advantage to be a member of the Unipoli is that you can choose in which university sport facility to exercise according to your own schedule, close to your place of studies or work, nearby your or friend's home, or just a nice bike ride away after having paid a membership fee at university were being employed or study.

One of the reasons why was this study conducted is the fact, that these three universities are going to merge and therefore operate as one big University in the city of Tampere. This unification also affects sports services and the way they are going to provide its services in the future.

4 PURPOSE OF THE STUDY, RESEARCH QUESTIONS, AND HYPOTHESES

4.1 Purpose of the study

Based on gather information, theoretical principles, and own experience, the main purpose of the study is to examine motives and reasons to engage in and barriers to physical activities at the University settings. In addition to the main purpose, study aims to explore, characterize and describe the users of the University Sport services and identify what services they use. As a result, the thoughts upon further development of the University Sport services are proposed.

4.2 Research questions

- I. Who are the users of university sports services and what services they use?
- II. What reasons do students and university personnel have to engage in university sports services?
- III. What are the hindrances to engaging in physical activities at university settings?
- IV. What are the needs and desires for sport and physical activity related services of university students and personnel?

4.3 Research hypotheses and assumptions

Based on the literature review, sample characteristics, and type of data collected, following hypotheses are postulated:

- I. Female participants compare to males engage in various types of activities.
- II. There is a difference between self-reported reasons to engage in physical activity among female and male participants as well as students and university staff.
- III. Women perceive greater magnitude of barriers than men do.
- IV. University staff, compare to students, report different barriers to engaging in university sport services.

In addition to hypotheses, it is assumed that:

information gathered from open-ended questions supports main findings and therefore, assists to understand attitudes and behaviours of university students and staff.

5 IMPLEMENTATION OF THE RESEARCH

The following chapter explains reasons behind a choice of applying an appropriate research approach. Further, this section aims to support, guide, and facilitate the decision that researcher made to select an appropriate research method. The paper provides arguments that acknowledge suitability of chosen study technique. Selected method aims to provide valuable insights upon studied dilemma. Besides this, chapter explains the development of the data collection tool. Furthermore, information regarding means of data collection and dissemination of the instrument is outlined. In addition, an account of demographic characteristics of the sample is presented followed by a complex data analysis. Finally, the validity and reliability of the research is presented in the latter part of this chapter.

5.1 Research methods

Successful implementation of the study and achievement of study objectives are determined by the ability of researcher to master methodology. In social sciences it is habitual to employ quantitative, qualitative, and even a mixed method approach. To obtain a profound understanding of a research topic adopting one method is inadequate. When examine various aspects of beliefs, experiences, reasons, motives, or behaviours it is appropriate to utilize both quantitative and qualitative approaches (Neuman, 2014).

Jick (1979) sees potential of qualitative and quantitative methods in mutual complementation rather than segregation. In this course Ragin (1994) specifies:

"Most quantitative data techniques are data condensers. They condense data in order to see the big picture... Qualitative methods, by contrast, are best understood as data enhancers." (p. 92).

As a matter of course, the singularity of both approaches stem from data gathered. Qualitative research collects textual data, symbols, pictures, and videos that convey certain qualities. On the contrary, quantitative research is based on data that indicate quantity expressed in numerical, homogenized, unequivocal formats (Neuman, 2014; Jones & Gratton, 2004). Besides, qualitative research focus on in-depth investigation of rather smaller samples whereas quantitative studies

strive to reach larger representative samples. Furthermore, one can distinguish these approaches when comparing techniques to collect data. Quantitative models collect data via questionnaires, pen and paper inquires with standardized, closed-ended questions whilst qualitative studies may collect data through open-ended questions, interviews or observations (Jones & Gratton, 2004). However, the selection of one method as more suitable and relevant than another might result in bias and insufficient conceptualisation of research. Therefore, intermingling these two approaches in this study result in a mixed method approach that is supported by collection of both qualitative and quantitative data.

This study aims to describe the matter in question. Characteristic outcome of descriptive research is a complete picture of the phenomenon. It is less of a concern for descriptive researchers to explore novel issues and explain why something happens. Instead, like Neuman (2014) pointed out, the focus of descriptive research to provide an accurate profile of an investigated issue (describe processes and relationship as well as give a verbal or numerical picture), present basic background information or a context, create a set of categories or classify types.

5.1.1 Selected method of data collection

Since the study examines three university campuses, a survey type of questionnaire appears to be the most suitable instrument. Undertaking survey research advances the study when gathering a large numerical data as well as to collect thorough information about participant's behaviour, attitudes, opinions, and perceptions enabling profound analysis. Considering survey as a specific form of questionnaire, Marshall and Rossman (1999) note that

"questionnaires typically entail several questions that have structured response categories and may include some that are open-ended" (p. 129).

According to Jones and Gratton (2004) structured units are generally constructed beforehand so that survey is made up of questions and some number of choices to select from. These types of questions are known as closed-ended, and therefore, such surveys are focused more quantitatively. In contrast, surveys that possess more open-ended questions are considered to be of a qualitative nature (Andres, 2012).

One might wonder why the survey. Because surveys are appropriate when the intention is to examine self-reported beliefs, behaviours, opinions, attitudes and even knowledge or expectations (Neuman, 2014). In addition, most surveys weigh many variables. This enables to gather descriptive information and test multiple hypotheses in a single survey. In addition, survey is valuable and effective tool that can be carried out in a number of ways with questions ranging from standardized closed-ended to those that are open-ended (Andres, 2012; Neuman, 2014). An advantage of open-ended survey derives from the capacity to generate more profound responses, support main findings, an approach issues in more comprehensive way than close-ended. Thus, in order to gain insights on given topic through collecting various opinions and perceptions of respondents, utilizing open-ended questions was of the utmost importance.

5.1.2 The development of the survey questionnaire

To design an appropriate and relevant data collection instrument is one of the most important research tasks. First of all, the review of accessible literature and essential research related to the topic was conducted. Data concerning attitudes, behaviours, practices, and viewpoints of people, primarily university students and university employees towards perceived motives for and barriers to PA were collected.

The core of the survey is based on the previous studies that dealt with reasons for exercising (Cracknell, 2015; Damásio et al., 2016; Van Niekerk, 2010) and perceived barriers to physical activity (Lovell et al., 2010; Sechrist et al., 1987). The cornerstone of the survey was formed from Exercise Benefits/Barriers Scale (EBBS) originally developed by Sechrist and colleagues (1987) that is used to measure perceived benefits and barriers to undertaking physical activity (available in the appendix). This scale was widely utilized. Gontarev, Kalac, and Aleksovskaja (2016) applied this scale to measure perceived barriers to exercise among female adolescents in Macedonia. Nolan, Sandada, and Surujlal (2011) examined South African first-year university students utilizing the EBBS. In Brazil the validity and reliability of the EBBS was tested on a sample of people of old aged people (Damásio et al., 2016). In the United Kingdom, the EBBS assessed perception of female university students on barriers to exercise (Lovell et al., 2010).

Under normal conditions, there are 29 items referring to benefits and 14 items asking about perceived barriers. All items are sorted in random sequence. However, based on previous research and objectives of this research, the least relevant items were modified to examine reasons and barriers to PA among university students and personnel. The modified Exercise Barriers Likert Scale utilized in this research survey (Table 1.) is adapted from the original Exercise Benefits and Barrier scale (Sechrist et al., 1987).

Table 1. The Exercise Barriers Likert Scale.

Barrier Statements	Strongly disagree	Disagree	I do not know	Agree	Strongly Agree
Exercising takes too much of my time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise tires me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Places for me to exercise are too far away	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am too embarrassed to exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It costs too much money to exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise facilities do not have convenient schedules for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not know anyone who would go exercise with me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise takes too much time from family/relationships commitment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not feel comfortable to show my body in front of others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise is hard work for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are too few places for me to exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical activity is not my priority	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not feel fit enough (others seem to be in very good shape)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Due to the reason that the original version of the EBBS (Sechrist et al., 1987) was not entirely suitable for the research, minor adjustments to better encompass the objectives of the study were executed. Final design of survey was approved by senior researcher and other advisers from the

Faculty of Sport and Health Sciences at the University of Jyväskylä in cooperation with Unipoli Sport authorities. Despite that, solely amended EBS is not sufficient to thoroughly investigate participant's subjective perception of constraints to physical activity at the campus area. Thereupon, in addition to the EBS, survey contains 7-item hindrances as well as open-ended questions. This 7-item scale contained specific type of hindrances that members of the university sport services are likely to face. Participants could choose from options *yes*, *no* and *prefer not to say*. Only *yes* and *no* answers were used for statistical analysis. However, the design of the survey questionnaire did not require all the participants to fill in this particular part.

The final design of research survey was developed in several stages. During the first phase research questions and hypotheses were transformed into survey questions (variables) after rethinking and rewriting survey questions for clarification and wholeness of the questionnaire. For the second phase, questions and variables were embedded into Maptionnaire (detailed description in the following sub-chapter) that served as a tool to gather data. In addition, the survey contained triggering questions to direct respondents to target page. In fact, this is contingency type of survey (Neuman, 2014) where respondents are directed to the following questionnaire section which is related to the first question but asking for detailed information about given issue. The most relevant branching variables were occupation (student, staff, or both) and Unipoli membership (member, non-member). Target pages were tailor-made to address the peculiarities of variables.

The online survey consists of several pages. Introductory page provided brief description of objectives of the study followed by page authorising confidentiality of the study. The next were socio-demographic variables (occupation, gender, age, nationality, and Unipoli membership). Additional demographic variables like marital status, housing conditions, and parenthood were asked further in the survey (target pages).

Those participants who identified themselves as students were asked to provide additional information regarding their campus, type of academic degree, right to study, and duration of studies. Similar to students, employees were asked to provide information about their employer, role at the University and duration of the employment. Consequently, participants were asked to identify their preference for the proximity of PA from their home, work or campus.

After this part of the survey was completed, tailor-made pages and questions of the survey focused on University sport services. The singularity of this part lies in that members of Unipoli were requested to locate one or more sports facilities on the map. To make orientation and location on the map easier, University Sport facilities Tamppi Areena, Atalpa, and TAMK were marked as a default landmarks. Upon successful facility location, respondents were required to identify the kind of activities they undertake and what reasons are driving them there. In addition to closed-ended predetermined choices, open-ended question inquiring specific reasons to undertake physical activities at that specific location were asked.

5.1.3 Data collection tool

In this modern age when computers, mobile phones and internet access is available almost everywhere, the most convenient instrument to gather data and reach out to the masses of people, is to design an internet-based survey. Even though, the Maptionnaire is originally used for map-based research it was very convenient and suitable tool for this research. Participants were asked to locate on the map places where they are physically active, places they like to exercise as well as places where they do not like to exercise.

Maptionnaire itself consists of integrated map and survey type questionnaire (link to the online survey [maptionnaire](#)). It was in 2005 that the Maptionnaire was developed at Aalto University out of environmental SoftGIS method. It allows anyone to locate places where events are happening with the additional option to customise survey to find out about one's perceptions, opinions, and feelings on given issue. Further, in regard to academic research, Maptionnaire surveys also collect qualitative data inquiring of human's experience related to particular location. Additionally, to enhance credibility of the use of this tool, Maptionnaire was implemented when examining public relations (for instance municipalities of Helsinki or Stockholm), at the academic establishment (Australia), community-based and non-governmental organizations (Hämäläinen, 2017).

5.2 Dissemination of the survey

Collecting data took place from November 6th 2017 till November 27th 2017. Dissemination of the survey was executed through these channels:

- I. e-mail list of members of the Unipoli with enclosed link to a survey URL,
- II. email lists of students as well as email lists of staff of campuses,
- III. survey was published on the Unipoli website during the period of data collection.

The survey was spread through these channels repeatedly. The three universities attend 35,000 students and employs about 4,500 university personnel. However, these numbers are changing every month and as a matter of fact, the chosen way of the survey dissemination did not allow to thoroughly estimate the response rate. Overall, 280 valid responses were collected which indicates rather scant proportion of participants taking part in the study survey.

At this point, it is important to note, that outreach of the survey was limited. In part, due to the fact that survey disseminated through email were not distributed to all students and staff members of the Campuses because not all email accounts were available for the study. The study was carried out in cooperation with Unipoli sport services and therefore Unipoli utilised already established channels to reach out their members. Since the survey was displayed only on the Unipoli website and not on the websites of the individual Campuses majority of the study sample are members of the Unipoli sport services.

5.3 Sample characteristics

Socio-demographic information was gathered to characterize the study sample. Participants' age ranged from a minimum of 19 years to 64 years with the mean age of the sample 30,67 (median 25, SD 11,565). Overall, the sample consists of 220 women and 55 men, 5 respondents preferred not to answer. In terms of status at one of Tampere universities, sample consists of staff (N=121), students (N=158). Among respondents, 263 referred Finnish nationality in comparison to only 16

respondents of a different nationality. Regarding membership at the Unipoli, 234 respondents reported being a member whereas 45 respondents were not members of university sports services.

Table 2. The sample characteristics.

	Variables	Number of respondents
Gender	Female	220
	Male	55
Status at university	Students	158
	Staff	121
Membership at university sports services	Members	234
	Non-members	45
Nationality	Finnish	263
	Foreign	16
University	Tampere University of Technology	72
	University of Tampere	93
	Tampere University of Applied Sciences	87

The Tampere University of Technology employs 45 respondents, The University of Tampere 36, and the Tampere University of Applied sciences 23 (figures include staff and both student/staff). From those 48 works in administration, 32 in the research and 18 is lecturing/teaching. The majority of staff is working over 4 years. Regarding students, 28 respondents reported enrolment right at the Tampere University of Technology, 57 at the University of Tampere, and 64 at the Tampere University of Applied Sciences. Sample consist of 69 students at Bachelor, 40 at master, doctorate and other degree 29 participants. The duration of the studies was distributed equally.

5.4 Data analysis

Actual data analysis was performed in two steps. First, quantitative data were statistically analysed using IBM® SPSS® statistics software Version 24.0 available at the University of Jyväskylä. Second, qualitative data underwent content analysis through coding process. Detailed description of statistical analysis is provided in following subchapters.

5.4.1 Quantitative data analysis

The socio-demographic characteristics of the study sample were examined through descriptive statistics. Sums, means, valid percentages, and standard deviation of frequencies were calculated for each variable. Socio-demographics such as gender and university occupation served as the independent variables. Further, variables were analyzed to explore correlation by independent samples t-test. One-way ANOVA was used to test significant relationship at $p < 0.05$ considered to be significant.

The analysis focuses on finding similarities and differences among the socio-demographic groups. Since the study sample is represented by university students, staff and those studying and at the same time being employed by university, it was good opportunity to compare these samples. Due to unequal distribution among units, those studying and working at the same time (both student/staff) and university personnel were merged into one unit which have allowed to establish relatively equal groups of students (N=158) and staff (N=121). Moreover, comparative analysis is performed between females (N=220) and males (N=55), between those who spend less than 3 years (N=102) and those that are engaged with the university for more than 3 years (N=113), and between those who reported being single (N=62) or in a relationship (N=189) at the time the survey was carried out.

5.4.2 Qualitative data analysis

Content from open-ended survey questions was analyzed utilizing qualitatively non-numerical analytical strategies (Andres, 2012). Overall, 36 pages of text (Times New Roman, font 12, spacing 1,5) from open-ended questions were collected. Answers of participant underwent specific coding process which ensured effective clustering to reveal significant findings. The main goal is to identify constructs and elements that are occurring periodically which therefore help to describe the matter in question. The common and relevant utterances were grouped into categories and themes according to default characteristics that determine researched phenomenon and supply or strengthen the findings stemmed from the survey. Jones and Gratton (2004) supports this method when noting that in order to acquire scientific knowledge it is essential to

arrange data coded in words into categories that are utterly distinguishable from one another. Hence, responses which refer to the corresponding theme were organized into specific research categories. The open-ended questions that participants were asked to provide answers for are presented in the table 3.

Table 3. Open-ended questions from the survey.

	Question statements	Number of responses
Q1	Is there any specific reason that makes you come over to this particular place? (for example, pleasant environment, nice facility staff, feeling safe, fresh air, nice painting on walls, etc.)	38
Q2	Please, could you write any specific reasons WHY you have unpleasant experience in here? (for instance, neighbourhood is dirty, street lamps in the area are not working, etc.)	19
Q3	What do you think that Unipoli Sports could do to improve services and promote PA among university staff and students?	167
Q4	In case you have any comments or suggestions, please write it below or do not hesitate to contact us.	31

The main reason to apply open-ended questions was to gather information that supports quantitative findings. To identify specific reasons to be physically active at the university Q1 was applied and 36 open-ended responses were gathered. Regarding Q2, out of 32 users that have marked University Sports facility with unpleasant experience 19 (59.38%) participants have provided open-ended response. Likewise, of the same importance was to determine specific features that help to improve University Sports services. For this reason, two open-ended questions, Q3 and Q4, were asked to gathered information that can help to improve the Unipoli sports services. Overall, 167 responses out of 280 participants (59,6%) provided an answer for the Q3 and 31 respondents answered Q4.

5.5 Validity and reliability

Applying sample survey as research method allow the study to perform objective, unbiased and scientific collection of data through probability sampling. Survey was constructed based on previous research conducted in a similar way and customized to fit the purpose of the study. To

ensure that the survey fulfill objectives of the study, students of Faculty of Sport and Health Sciences were asked to test the online survey and provide feedback. This procedure is in line with recommendation of Marshall and Rossman (1999) that survey should be tested in a small sample to make sure that survey is reliable and serves the purpose of the research.

Compare to the use of simple and a single indicator measure the survey contains scales and indexes enhancing the quality of measurements (Neuman, 2014). As a result, multiple use of scales and indexes improve reliability and validity of the study. Moreover, the use of various indicators that measure several aspects of a construct improves content validity. In addition, study employs Likert scale that is simple and ease of use and when several ranked items are combined, more comprehensive multiple indicator measurement may be achieved. However, the use of scale has two limitations. First, combinations of several scale items may produce the same overall score. Second, the response set also called response style and response bias, is the tendency of some people to answer a large number of items in the same way (usually agreeing) out of laziness or a psychological predisposition. Therefore, one might be answering “strongly agree” out of habit or a tendency to agree (Neuman, 2014). This is very likely to happen when questionnaires are rather large. For this reason, the questionnaire is divided into several parts and triggered pages to avoid the tendency of agreement with items or monotony of the survey.

Taking into consideration the fact that survey is self-administrated, a trial group was asked to test the survey. Besides, language barrier was a major issue that could affect the reliability of the data collection. Original version of the study survey was developed in English language by non-native English language. However, due to the fact of having knowledge that majority of potential respondents are native Finns, the final version of the survey was translated to Finnish language and checked by undergraduate student of Finnish language for misspelling and content sense-making. The final version was approved by a senior lecturer from the University of Jyväskylä. Despite this, several complains about survey occurred. For instance, respondents complained mismatch in English and Finnish version about one of the campus name, however, these issues were fixed accordingly. It is important to note, that both languages vary a lot and therefore it was difficult to prevent from discrepancy as questionnaires were adjusted to make sense in the language in which it was carried out.

The research also adapted a subtle form of a triangulation. Jick (1979) views triangulation in a practical combination of multiple methods carried out in a study of the same phenomenon. That is, if quantitative survey includes multiple scales or indices and open-ended questions may reveal some valuable divergence that could have been overlooked. Most importantly qualitative data, in particular, may be of substantial use by drawing attention to data and propose conclusions that other methods may omit (Jick, 1979). According to Jones and Gratton (2004) foundations of triangulation are gained in few instances. The first dimension of triangulation is achieved when study collects various forms of data. Further, when study examines particular phenomenon based on different theories another dimension of triangulation is obtained. This study achieved theoretical form of triangulation by applying the socio-ecological model as well as the self-determination theory. The ultimate benefit of triangulation is viewed in the compensation of the weaknesses of each method applied in the study. Thus, integrating the best practices of both methods while at the same time inhibiting weaknesses of methods reinforce validity, reliability, and overall significance of the study implementation and outcomes.

From the statistical point of view, reliability was measured via Cronbach's Alpha reliability coefficient. Modified Exercise Barrier scale indicated alpha level = ,84 which means that scale has an adequate level of inter-item reliability. Further analysis found that deleting any item would not significantly increase or decrease the alpha level.

6 RESULTS

This part of the paper presents the most relevant findings. The chapter comprises of brief description of significant results from quantitative data analysis complemented by outcomes from qualitative data analysis. This chapter is divided in four different sub-chapters that are organized in accordance with proposed research questions and corresponding hypotheses. Therefore, the first sub-chapter is concerned with characterization of the users of the University Sports Services and type of services the users are engaged in. The second subchapter deals with reported reasons that make participants to undertake sport and PA services at the university settings. The third subchapter covers results of reported barriers and hindrances that participants face in order engage in PA practices. The fourth subchapter takes on particular demands for sport and PA services and issues regarding the University Sports Services from participant's point of views. Every subchapter aims to provide an answer for specific research question and either accept or reject postulated hypotheses in regard to the investigated phenomenon.

6.1 Users of university sports services and what services they use

Group exercises and gym training are the most commonly used services. Ball games and courses are also relatively frequently undertaken. Very small number of participants engage in outdoor activities, personal services or martial arts.

Table 4. Basic characteristics of users and types of services. (%)

Types of services	Women	Men	Students	Staff	Less than 3 years	More than 3 years
Group exercises	83	21	71	70	73	68
Gym training	63	81	72	59	73	62
Ball games	16	60	23	20	23	25

ANOVA yield significant differences (available in appendices table 2.) between men and women for group exercises (Sig.= .000), gym training (Sig.= .024) and ball games (Sig.= .000). 83 per cent of women engage in Group exercises compare to 21 per cent of men. On the contrary, 81 per cent of men engage in gym training, whereas nearly 63 per cent of women exercise in gym.

Regarding ball games, about 60 per cent of men engage in ball games whilst only 16 per cent of women do.

For groups of students and staff, statistical analysis did not show any significant differences. Both groups engage in group exercises on the similar level (students 71%, and staff 70%). About the same proportion of students (72%) exercise in the gym compare to nearly 59 per cent of staff. Substantially less students (23%) and staff (20%) engage in ball games.

There were no significant differences between groups of respondents staying at university for period shorter than 3 years and those staying for more than 3 years. Group exercises perform nearly 73 per cent of participants staying at university for less than 3 years and about 68 per cent of those staying for more than 3 years. The same proportion of participants (73%) with shorter period spent at university uses gym, while nearly 62 per cent participants with longer time at university exercises in a gym. Nearly every fourth respondents either occupying university for less than 3 years (23%) or more than 3 years (25%) engage in ball games.

Group exercises are more popular for those participants who share their apartment (75%), are in a relationship (73%), have kids (81%) and come from the University of Tampere (81%). In regard to gym training, respondents who live alone (74%), are in a relationship (69%) but have no kids (71%) and come from the Tampere University of Applied Sciences (84%). Ball games enjoy subjects who live alone (32%), without kids (26%) and from the Tampere University of Technology (31%). Courses are popular for those who share apartment (22%) but are not in a relationship (23%) and do not have kids (23%) attending or being employed by the Tampere University of Technology or the University of Tampere (both 25%). More detailed characteristics of users of university sports services and what services they engage are available in the appendices (Table 1.).

6.2 Reasons to be physically active at university settings

The most stated reason to be physically active at one of the three University Sport facility is a good location (table 5.). Other very frequently reported reasons are low costs and convenient distance. Type of activities respondents like and suitable schedule or the University Sport

facilities were of moderate importance to participants of the survey. Hygiene and cleanliness, good locker rooms, overall feelings, and friendly and helpful staff were less common reasons.

Table 5. The most frequently reported reasons to engage in PA at university settings. (%)

Reasons	Overall	Women	Men	Students	Staff	Single	In a relationship
Good location	85	84	90	82	90	81	84
Low costs	82	84	78	84	78	83	81
Convenient distance	79	77	81	82	71	79	76
Type of activities I like	60	66	39	63	56	58	60
Suitable schedule	53	59	32	50	57	48	54
Hygiene and cleanliness	35	39	28	40	30	35	38
Good locker rooms	30	29	37	39	17	42	26
Overall feeling	29	31	24	34	22	33	32
Friendly and helpful staff	26	26	28	26	27	31	26
Exercising with friend	25	25	29	33	13	35	21

ANOVA statistical analysis did not find any significant differences between males and females, students and staff, nor singles and those in a relationship. However, the Independent Samples T-test yield significant difference for items '*Type of activities I like*' Sig.(2-tailed) = .027 and '*Suitable schedule*' Sig.(2-tailed) = .048 (See Appendices Table 3.). There were no differences found between other socio-demographic groups.

Women are likely to come and exercise at the University due to its good location, low costs, and convenient distance. In addition, women reported that the type of activities they like, suitable schedule, and hygiene and cleanliness are other very important factors that determine their choice to exercise at the University. Men value the most good location, low costs and convenient distance, followed by type of activities and good locker rooms. Students indicated the most frequently low costs, good location and convenient distance. For them, also type of activities, hygiene and locker rooms are very relevant features. Staff ranked good location, low costs and convenient distance as top reasons followed by suitable schedule and type of activities. Participants in a relationship reported good location, low costs and convenient distance as the

most important reasons, followed by type of activities they like and suitable schedule. Respondents, who were single indicated low costs, good location and convenient distance as highly relevant reasons to engage in university sport services. Lesser importance was given to the type of activities, suitable schedule and good locker rooms.

There were 35 open-ended responses specifying reasons why participants engage in sport services at particular Unipoli sports facility. The Majority of responses provided women (30) and staff (20). The most frequently stated reason was convenience (in terms of general convenience, schedule and distance/location) of Unipoli services reported 13 times. The second the most common reason were range or type of activities (8 times), followed by equipment (6 times) and sport instructors (5 times). In addition, participants reported hygiene of facilities as specific reason or undertake services as substitute for other facility.

Atalpa received 13 specific reasons among which the most reasons were range/type of activities, convenience in terms of schedule and distance/location and sport instructors. For TAMK Unipoli sport facility 12 specific reasons were provided. Participants gave importance to the convenience of timetable and location, equipment and type of activities as specific reasons to come here. Tamppi areena received 9 reasons that involved convenience of time and location/distance, sport instructors, range/type of activities and equipment or facility itself.

Having closer look at the location where participants prefer to exercise, 87 per cent respondents (N=244) prefer to work out nearby home, 46 per cent (N=128) favour Campus area, and 38 per cent (N=106) like to exercise in the area close to their workplace. Some of the respondents reported to use the services in at least one of the University Sport facility. 3 per cent of users use services on all three campuses, 20 per cent exercises at two sport facilities, and the majority of users, 77 per cent engage in exercises only in just one campus.

6.3 Barriers and hindrances to physical activity at university setting

From the modified Exercise barrier scale, the greatest barrier was reported for time expenditure (M=2.26) followed by social restraints (M=1.94), exercise milieu (M=1.92), and physical exertion (M=1.90) (table 6.). More specifically, barrier item '*Exercise facilities do not have convenient schedules for me*' was perceived as the greatest barrier for respondents

(M=2.60), followed by '*Exercising takes too much of my time*' (M=2.35). On the contrary, the least perceived barrier is item '*Physical activity is not my priority*' (M=1.50) and item '*I am too embarrassed to exercise*' (M=1.65).

Table 6. The Exercise barrier scale and sub-scales.

Barriers Items	M (SD)
Exercise Milieu Sub-scale	
Places for me to exercise are too far away	2.05 (1.11)
It costs too much money to exercise	2.20 (1.17)
Physical activity is not my priority	1.50 (0.85)
There are too few places for me to exercise	1.92 (1.01)
Time Expenditure Sub-scale	
Exercising takes too much of my time	2.35 (1.11)
Exercise takes too much time from family/relationships commitment	2.12 (1.21)
Exercise facilities do not have convenient schedules for me	2.60 (1.22)
Physical Exertion Sub-scale	
Exercise tires me	1.89 (0.97)
Exercise is hard work for me	1.91 (1.02)
Social Restraints Sub-scale	
I do not know anyone who would go exercise with me	2.11 (1.24)
I do not feel comfortable to show my body in front of others	1.84 (1.18)
I do not feel fit enough (others seem to be in very good shape)	2.14 (1.27)
I am too embarrassed to exercise	1.65 (1.05)

The EBS analysis did not reveal any significant differences between males and females when accounting the whole EBS. Similarly, in terms of sub-scales no significant findings were explored for gender differences. In spite of this, the Independent Samples t-test yield significant difference for the item '*I do not feel comfortable to show my body in front of others*' (Sig. 2-tailed =.007; males M=1.43, females M=1.93) which was the only item indicating significance.

Similar to gender differences, analysis did not detect any significant differences between students and university staff when comparing means of the entire EBS scale. In like manner, three out of four sub-scales, did not yield significant difference. However, significant difference was found for the EBS sub-scale Social Restraints (Sig. 2-tailed =.002; students M=2.13, staff M=1.68). When was statistical analysis performed for individual EBS items, four have demonstrated significant difference between university students and staff that are displayed in the table 7.

Table 7. One-way ANOVA for individual EBS items between students and university staff.

EBS items	Means		F	Sig.
	Students	Staff		
I am too embarrassed to exercise	1.87	1.38	15,041	,000
I do not feel comfortable to show my body in front of others	2.05	1.56	11,33	,001
I do not feel fit enough (others seem to be in very good shape)	2.38	1.84	11,860	,001
Exercise takes too much time from my family/relationship commitment	1.94	2.35	7,449	,007

Three out of four individual items belong to the sub-scale of social restraints indicated statistically significant differences. As first, university staff (M=1.38), compare to students (M=1.87), perceived significantly lower embarrassment while exercising. For the second item, staff (M=1.56) reported significantly smaller discomfort to expose their body in public compare to student participants (M=2.05). For the third item, staff (M=1.84) perceive themselves as significantly fitter and in better shape in contrast to students (M=2.38). Apart from the social restraints items, students (M=1.94) noticed that exercise does not take too much time from their family/relationship commitment while for staff (M=2.35) it takes significantly greater amount of time.

The independent t-test was computed to measure correlation between those students and staff that stayed at university for less than 3 years (N=102) and those who stayed for more than 3 years (N=113). Significant difference yield item '*Exercise facilities do not have convenient schedules for me*' (2-tailed sig. =.034; less than 3 years M=2.41, more than 3 years M=2.76) indicating that for those who are at university for period longer than 3 years, in contrast to those being at university for shorter time, the University Sport services have unsuitable schedule. Similarly, the item '*Exercise takes too much time from my family/relationships commitment*' (2-tailed sig. =.015; less than 3 years M=1.97, more than 3 years M=2.38). Those who are at university for more than 3 years perceive exercise as an activity taking significantly more of their time from either family or relationships commitments compare to those occupying university for shorter time.

Alongside the modified EBS that was meant to identify general barriers to PA, the survey gathered data on hindrances that are more specific in relation to particular university sports

facility. Participants were asked to provide more quantitative and qualitative data when locating one of the three University Sport facility and answering pop-up questions. This part of the questionnaire was selected only for members and those who felt like sharing their unpleasant experience. As a result of voluntary choice, rather smaller proportion of the sample provided answers that helped to identify hindrances to practice PA at the university settings. Despite this, some of the findings need to be consider. First, participants were required to provide answers for 7 items scale. Second, participants were asked to answer open-ended question (see 5.4.2 qualitative data analysis - Q2) to specify unpleasant experiences which allow to gather more in-depth information regarding hindrances related to University Sport facilities. The figure 2. illustrates the University Sport facilities where users felt somewhat unpleasant.

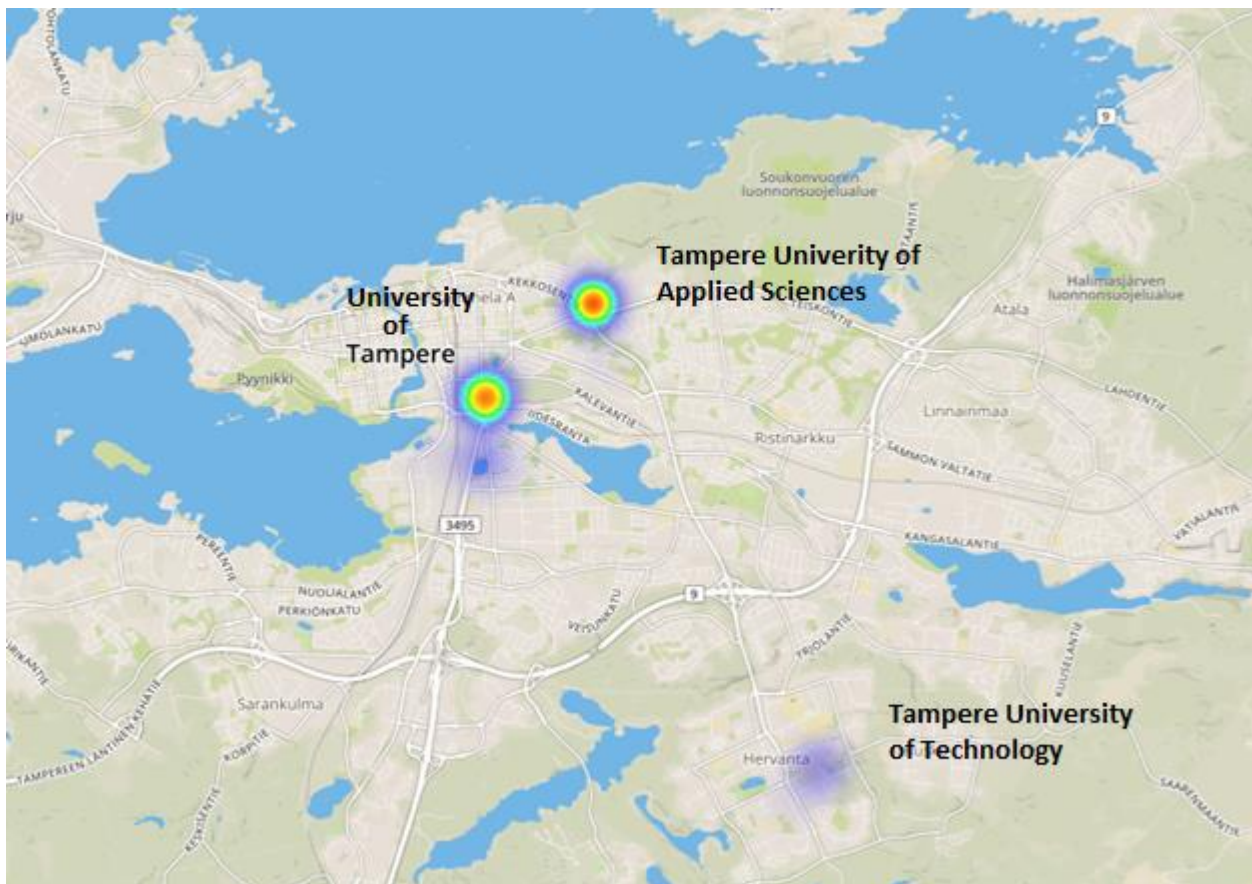


Figure 2. Heat map of university sports facilities that users have had unpleasant experience.

In terms of quantitative data, 75 per cent of participants thinks that facilities are overcrowded. Even larger proportion (92%) of participants from the University of Tampere is of the same opinion. About 60 per cent consider distance preventing from exercising (item *too far away*).

This is considerable greater issue for students (67%) than for staff (43%) and for participants from the University of Tampere (75%). The total score for hindrance item *Is expensive* showed that for half of the participants the University Sport services are expensive. Although there were no great differences among gender, 67 per cent of staff view services being expensive compare to only 25 per cent of students. *Unsuitable schedule* is an impediment for nearly 48 per cent of participants with no great differences among groups. Similarly, no large differences were reported for item *is not safe* and 36 per cent of participants agreeing to be the point of obstruction. About 35 per cent of participants believes that *staff should improve their communication skills* with notable 56 per cent of the University of Tampere, 43 per cent of men and just only 15 per cent of women having this opinion. Women (85%), in contrast to men (57%), think that staff communicates well enough. On a similar note, merely 16 per cent of participants perceive *sport instructors as non-professional*. Even less women have the same perception, while men are more critical towards sport instructors with nearly 29 per cent stating that instructors are not professional. Detailed distribution of hindrances across the sample is displayed in the table 8.

Table 8. Distribution of hindrances across members of university sports services. (%)

Hindrance item	Total	Women	Men	Students	Staff	TUT	UTA	TAMK
Overcrowded	75	75	71	74	77	57	92	64
Too far away	60	63	56	67	43	60	75	50
Unsuitable schedule	48	44	57	50	43	50	56	45
Expensive	50	43	67	25	67	50	33	50
Not safe	36	35	29	38	33	25	40	33
Insufficient staff communication skills	35	15	43	29	29	-	56	27
Unprofessional sport instructors	16	0	29	15	17	-	25	17

TUT - Tampere University of Technology; UTA - the University of Tampere; TAMK - Tampere University of Applied Sciences.

Overall, the greatest hindrance is perceived to be the fact that facilities are very crowded, and its location is relatively far away. Perhaps surprisingly, the University Sports services seem to be expensive as well as having unsuitable schedule. Also, one third of participants realized that facilities are not safe, and about the same proportion of participants thinks that staff should

improve communications skills and slightly little less is doubting their professionalism. In total, men compare to women, reported relatively larger positive association with hindrances items and having more negative perception of the University Sport services. Altogether, staff in contrast to students as well as participants from the University of Tampere compare to two other universities demonstrated greater positive adherence with hindrances items.

For the qualitative data collection, 32 members of the University Sport services marked at least one of the University Sport facility and reported having unpleasant experience. There was only 6 men and 24 women answering this question (two respondents did not specify their gender) and 21 students and 11 university staff members reported negative experience. Most of the complaints were related to Atalpa (18), followed by Tamk (8) and Tampi arena (6). Just two participants reported unpleasant experience in more than one University Sport facilities. The most common hindrances reported by members of the university sport services were damaged and outdated facility equipment, unmaintained locker rooms, crowded facilities, inconvenient schedule, limited parking abilities and language barrier.

In terms of Atalpa, 18 participants had negative experience and 10 participants provided an answer for the open-ended question. Students and females were more active, and 13 times reported negative experience when exercising in Atalpa. There were complaints related to ecological factors, such as inconvenient parking space or limited and outdated equipment. Furthermore, tight spaces make the facility overcrowded and some respondents indicated worsen air quality. Concerning non-Finnish speaking users, the facility is not properly equipped with English information as well as inability of sport services staff to communicate in English.

The Tamk University Sport facility was marked 8 times indicating unpleasant experience. Females (7) and university staff (5) complained the most. More information by answering the open-ended question provided 6 participants. Of those who answered the question referred to crowded space when it is rush hour alongside the notion that locker rooms are small and in bad condition/damaged - which was also observed for some of the facility equipment. Similar to Atalpa, staff is in some instances unable to communicate in English which caused unfavourable experience. To the overall negative experience contribute inconvenient location and facility design.

In relation to Tamppi arena, 6 participants identified exposure of issues causing unpleasant experience. Among those, 5 students and 4 females were in such situations. Participants reported limited and outdated equipment, unsuitable opening hours, and insufficient storage capacity in locker rooms.

6.4 Demands to improve university sports services

One of the objectives of the study was to gather viewpoints of users and gain valuable insights in order to create a foundation for developmental proposals that help to improve university sport services. To do so, two open-ended questions were part of the survey (see 5.4.2 Qualitative data analysis, Q3 and Q4). Both question gather in total 198 responses from university women (157) and men (40), staff (87) and students (119). From the content analysis it was observed that participants mostly reported thoughts related to the expansion and diversity of exercises and events. Furthermore, respondents desired changes and upgrades of facility's timetable and opening hours as well as remarked modifications of facilities themselves. Rather smaller group of participants required to lower the threshold of activities offered by the University Sport services and very few ideas very provided regarding fees. The table 9. displays the most frequent utterances grouped into themes.

Table 9. The frequency of the most common themes from open-ended questions.

Themes	Total	TUT	UTA	TAMK	Women	Men	Students	Staff
More and diverse exercises/events	44	14	18	12	37	7	29	15
Timetable/opening hours	34	10	16	8	25	9	17	17
Facility amenity and equipment	31	10	6	15	23	8	24	7
Threshold/beginners	18	5	6	7	18	-	11	7
Fee	6	3	1	2	3	3	4	2

TUT- Tampere University of Technology, UTA-University of Tampere, TAMK-Tampere University of Applied Sciences

In total, 44 respondents have referred to group exercises. Majority of respondents were females (37) that is in line with quantitative analysis showing that women engage in group exercises

predominantly. Similarly, students mentioned group exercises 29 times in their responses. Among university sport facilities, responses to group exercises were distributed relatively equally, with Atalpa receiving the highest amount of responses (18). To adjust timetables and opening hours desired mostly women and mainly at Atalpa. Facility amenity or equipment were frequently reported by women and students and at TAMK. To lower the threshold was reported by women only and relatively equally distributed among all three university sport facilities.

7 DISCUSSION

The aim of this part is to provide a research overview whether or not the findings of this study are in consistence with the similar research from the field. Discussion is organized in the way to provide an answer for stated research questions and either accept or reject postulated hypotheses. Due to feasibility and resources the study could not comprehensively examine reasons and hindrances to physical activity among university students and personnel neither through the self-determination theory nor the socio-ecological model. In fact, this was not the primary objective of the study since there is a numerous research utilizing both concepts therefore it was not necessary to fully utilize them, rather adapt them to the singularity of this study that help to direct the research and provide better understanding of the findings. As a result, the study examines social and ecological reasons and hindrances to participation in sports and physical activities at university settings.

7.1 Users of university sports services and what services they engage in

One of the purposes of the study was to identify the users of university sports services and what services they use. As recommended by Marques and his colleagues (2016), in order to identify study subjects, it is important to explore related socio-demographic variables. Factors like gender, age, type of education, location of residence, partnership status, the presence or absence of children in the household, the size of household and household income are closely related to the identification of motives and limitations to engage in physical activities. This study explored variables like age, gender, occupation and length of study rights or employment contract, residence location, marital and parental status, type of university, living conditions.

It can be argued that participants occupying settings for longer period are engaged in wider variety of activities offered by particular sport services. Cracknell (2015) observed that members of a sport club are more likely to use services for longer period due to low costs. In addition, it was found that older people retain their membership considerable for longer time than younger one. This observation is present in the study due to fact that university sport services are rather low-cost, and participants were of relatively higher age (mean age=30,67). In terms of students

the length of undertaking university sport services is limited due to their study time. Despite this, students being at the university for longer than 3 years engage in university sport service in greater extent. This is similar to the university personnel as majority of them is employed by university for over 4 years and this group was largely presented in the study sample.

This study found out that women prefer to exercise in a different way than men do. This was noted by Cracknell (2015) reporting that 74 per cent of women attend exercise classes. These peculiarities and desire of women for specific exercises led to the establishment of more than 550 women-only fitness facilities in the central Europe (Germany, Austria, Switzerland, Slovakia, Poland, etc.), over 208 in UK and 180 in France, Spain, Italy, and more than 18 clubs in Asia. He continues, that women are attracted by dance and yoga classes while free weights do not appeal to them. In relation to this study findings, the superiority of men over women is present in greater engagement of men in ball games. Since ball games are taking place in kind of a battle-field within competitive context where participants are required to show the best of their skills to dominate the opponent, ball games are traditionally less occupied by women leaving them with the perception of rather engaging in more feminine physical activities. Perhaps because of these contextual elements this study explored that women rather enjoy group exercises and courses whereas gym training and ball games are dominated by men. Therefore, the postulated hypothesis was observed to be valid due to significant differences meaning that female participants, compare to men, engage in different types of activities.

In terms of physical activity commitment, according to Marques et al. (2016) and European Commission (2018) the adults in Europe, especially those that completed at least secondary education tend to be more physically active and meeting WHO (2010) criteria for physical activity. In this study, all the study subjects are in some relation with university settings. Therefore, according to Marques et al. (2016) and European Commission (2018) the level of engagement in the physical activity should be rather high among participants of this study. This notion is demonstrated by finding that about two thirds of subjects engage in group exercises or gym training and over half of the respondents reported to be active outside of their campus.

In like manner, the bigger the household, the more active occupants of the household are (Marques et al., 2016; European Commission, 2018). This study gathered information on household conditions finding that those who cohabit, are in a relationship and have a child (or

children) are more likely to engage in group exercises. In addition, respondents in a relationship also exercise in a gym in greater extent compare to singles. This might be understood that individuals surrounded by other people are more physically active. It only supports the supposition that social support is relevant when it comes to sports participation. However, the study findings are in contrast to Hull et al. (2010) who found that cohabitating individuals are having more difficulties to engage in PA and people with children have significantly decreased their PA engagement. Despite this contradiction, due to conditions and societal contexts that vary a lot across the globe as well as within particular countries, it could be argued that there is a need for environments that enable people to participate in sport and PA regardless of their socio-demographic background and commitments. One of these kinds of environments are university settings, although for now restricted only for students, academics and university personnel, still having the capacity to open its doors to many and became more inclusive and supportive.

7.2 Reasons to practice sports and physical activities at university settings

Concerning the second aim of this study, to examine motives and reasons to physical activity practices at university settings, the study revealed rather controversial results. Based on results of this study the stated hypothesis (H2), assuming a difference in perceived reasons to use university sport services, must be rejected despite the fact that the study found significant difference between women and men. This finding could lead to a partial acceptance of postulated hypothesis, however only 2 items yield significant differences out of 16.

The vast majority of research focuses on examination and identification of barriers for a single population and lacking comparison between groups. For instance, Gontarev et al. (2016) and Kimm et al. (2006) explored barriers to PA only for adolescent girls. In addition, Lovell et al., (2010) focus on female-university students. Although there is limited research comparing perceive barriers to PA among men and women few studies pay attention to similarities and differences. Borodulin et al. (2016) examined barriers to leisure-time physical activity among adult population identifying lack of time as the most common barrier to PA. Their findings did not reveal any differences among men and women which is uniform with this study. Van Niekerk

(2010) observed significant differences between the genders for lack of time, social and environmental support that is divergent with this study findings.

Through the lenses of the SDT it can be viewed that different engagement in type of activities might be related to various forms of competency, mastery, challenge, competition, exploring new sets of skills among women and men. Activities like gym training, ball games or group exercises require specific performance techniques and to master different skills. Egli et al. (2011) found that men had a tendency to be more motivated by intrinsic factors, whereas women were more motivated by extrinsic factors. More specifically, men were more likely to mention enjoyment, challenge, competition, strength and endurance as motivating factors for exercise, whereas women were more likely to be active due to stress and weight management, and appearance. It can be argued that elements reported by men are to be achieved when undertaking gym training or ball games while group exercise are more related stress and weight control noted by women. Different findings have observed Gillet and Rosnet (2008) identifying women being less self-confident and competent with lower external regulation exhibiting more intrinsic motivation compare to their male counterparts. Therefore, it can be understood that women enjoyed activity itself rather than performing it due to external outcomes. This discrepancy in outcomes may be due to different levels of engagement in sport and PA as well as duration of intense practices. While Egli et al. (2011) conducted study on the sample of university students in PA classes Gillet and Rosnet (2008) examined higher level athletes. Another explanation of this divergence can be found in the SDT. Ryan and Deci (2000) describe the transition of extrinsic motivation towards more intrinsic eventually takes place after certain period of time when engaging in an activity due to external outcomes changes to inherent reasons. After all, there is a large body of research dealing with gender differences in exercise and PA motivation. Partly because of this, the present study pays greater attention to more specific reasons related to external, socio-cultural determinants.

In regard to interpersonal and ecological dimension of the socio-ecological model, few relevant features were identified. Contrary to the current study is Allender, Cowburn, and Foster (2006) review on participation in sport and PA indicating that social interaction is one of the most common reasons for young people in community settings. Despite university being specific type of a community, social aspects of sports participation were not identified as relevant reasons.

Participants of this study placed social interaction as one of the least reasons to participate in university sports. More decisive features determining participation in university sports services were identified at the ecological level. The most important reasons to use university sport services were good location, low price and convenient distance. This is concurrent with Cracknell (2015) who identified convenient location, schedule and price the most common reasons to use services of particular sport facility. Lesser commonality is with Damásio and colleagues (2016) study in which participants marked hygiene and cleanliness, price, well technical support and diversity of schedule as the assets that are crucial for facilities they visit. The present study unveiled suitability of schedule relatively important, hygiene and cleanliness as somewhat neutral and quality and variety of equipment were the least relevant reasons. This is supported by Cracknell (2015) where the equipment and offered activities were considered less important features. Indicating the type of activities as not relevant asset is controversial to the respondents of this study for whom it is relatively important asset.

Reasons that make participants to use university sport services could be summarized by response of the survey participant:

"Käytän siis kaikkien kolmen kampuksen unipolin kuntosaleja ja ryhmäliikuntatiloja. Yliopistolla käyn, koska se on lähellä kotiani, TAMKilla käyn, koska käyn koulua siellä (ja siellä on viihtyisimmät tilat) ja TTY:llä käyn, koska poikaystäväni asuu sen lähellä" [Student, Female]

[I use Unipoli gyms and group exercise facilities on all three campuses. I go to the university (University of Tampere) because it is close to my home and I go to TAMK (Tampere University of Applied Sciences) because I go to school there (and there are the most comfortable facilities) and I go to TUT (Tampere University of Technology) because my boyfriend lives nearby].

7.3 Hindrances to engaging in university sports services

With respect to the third and fourth objective of the thesis, the present study aims to explore perceived barriers and hindrances to PA at university settings. Accounting the social dimension of the socio-ecological model the study results revealed that female participants did report relatively greater magnitude of barriers with overall mean value $M=2.05$, versus males mean

value $M=1.89$. Despite this gap, the difference was accounted as insignificant when executing both independent t-test and ANOVA. The significant difference was found only for the item '*I do not feel comfortable to show my body in front of others*' indicating that males disagreed with the statement to greater extent compare to their female counterparts who do not feel as comfortable as men to expose their body in public. Similar difference was observed between university staff and students for the entire sub-scale of social restraints. Moreover, if women experience dissatisfaction and non-supportive feedback with their appearance and low social support most likely are going to feel unpleasant to expose their body. This can be supported by finding that women perceived greater social constraints compare to men. Further, Van Niekerk (2010) identified insufficient social and environmental support for female students who view these factors as greater threat to engage in exercise, compare to male students. The key question is why society creates an environment that favours men over women who are left disadvantaged and uneasy which ultimately have an impact on their self-confidence.

Time expenditure was perceived as the greatest barrier. This finding is consistent with different studies examining perception of barriers to PA among university students (Gómez-López et al., 2010; Van Niekerk, 2010) and non-exercising or sedentary adolescent girls (Gontarev et al., 2016; Kimm et al., 2006). The Special Eurobarometer (European Commission, 2018) found that 42 per cent of Europeans are not having the time to practice sports on a regular basis. This report also found that about every third Finn (29%) is having difficulties to find the time for any kind of sport or physical activity. Reporting lack of time as great barrier is in line with recent study conducted by Gontarev and colleagues (2016) on a sample of adolescent females in Macedonia. Although the study subjects were considerably younger (mean age 16.5) time expenditure was rated significantly higher than other barrier sub-scales. Similarly, Van Niekerk (2010) examined barriers to exercise among university students. His study results reported time constraints as the greatest barrier which supports current study outcomes. On the contrary, Nolan and colleagues (2011) found lack of time as not relevant barrier at all. Similarly, Lovell et al. (2010) identified time expenditure somewhat neutral. In their study the greatest barrier was physical exertion which is in contrary to present study reporting physical exertion as the least barrier. Such controversy in findings might be explained, in part, due to fact that Lovell et al. (2010) investigated only females who perceive physical exertion as greater barrier compare to men. Other explanations can be related to different fitness levels of participants in the studies as well

as respondents of this study rank PA high in their list of priorities. Moreover, 63 per cent of female participants engage in gym training that increases their fitness and therefore decreases the perception of physical exertion. However, this is still an enormous number indicating that female participants in this study pay attention to their physical fitness and most likely to their appearance.

In regard to the fourth hypothesis and specific barriers to participation in university sport services, several ecological factors were identified. However, it must be noted that university students and staff differed in two out of 7 hindrance items. Students think that services are too far away to a greater extent compare to university personnel while price of sports services is a greater barrier for university staff. Overall, participants of this study reported that facilities are overcrowded and too far away which is in line with Lovell et al., (2010) where female university students perceived this barrier as the greatest. This can be understood when considering another finding that the vast majority of participants of this study prefer to exercise nearby home within convenient distance and therefore, the larger the distance to sporting venues the greater barrier. In addition, the finding that price of sports services is a great barrier is contrary to the Special Eurobarometer (European Commission, 2018) where the expenses as a reason for not practicing sports or physical activities were accounted by just 7% of Finns. This leads to a notion that certain societal groups find costs of being active relatively high imposing obstacle that is difficult to overcome.

7.4 Needs and desires for sports and physical activity services at university settings

Among other objectives, this study aims to identify what type of demands users have and what they wish to improve. Any kinds of services are regularly assessed in terms of service quality measurements. Subsequently, sport facilities improve their services based on characteristics that receive the least satisfaction rate. This study employed rather unorthodox approach to identify features that require greater attention in order to develop services. Ideas to advance university sport services were gathered through open-ended questions where respondents could provide any kind of thoughts, comments, positive or negative feedback regarding university sports services. This approach allowed to gather information that explicitly points out what should be managed

differently compare to satisfactory values being rather superficial information with no particular details. Damásio et al. (2016) note that understanding what users look for through the relevance given to certain aspects of the service assist in further development and direction of services based on what users request to improve.

Participants of this study mostly required to modify the range and diversity of sports and physical activities. Diversity of activities was identified considerably important by Damásio et al. (2016) who suggest that it should be taken into account when directing services towards customers. In this matter, it is relevant to account places and circumstances in which any unpleasant experience took place.

Alongside call for more and diverse range of exercises, participants expressed their request upon modification of timetable of exercises and opening hours of facility. In Damásio et al. (2016) versatile schedule was among the most important reasons for participation in sports. Similarly, Cracknell (2015) better class time management and schedule would encourage to engage in more active lifestyle nearly half of respondents. These findings only support the results of the present study. An example regarding timetable of exercises from responses:

"...ryhmäliikuntatunteja olisi mahdollisimman paljon ennen tai jälkeen työajan, eli lähinnä klo 15-16, tai 16-17 (tai jotain siltä väliltä), ja mahdollisesti myös aamulla klo 8-9 tai 9-10 (tai siltä väliltä)" [Staff, Female]

["...group exercises should be as much as possible before or after working hours, i.e. between 15 and 16, or 16-17 (or something in between), and possibly even between 8-9 o'clock or 9-10 o'clock in the morning (or in between)].

The wider the range of equipment the better chance that people attend sports facility. This notion is strengthened by the finding that 42 per cent of study sample would become more active if there would be better range of equipment (Cracknell, 2015). Damásio et al. (2016) reported that facility amenity and equipment were valued relatively important. The consistence with the present study can be seen by accounting that participants demand improvements related to facility amenity and equipment. Additionally, respondents were also concerned about threshold. Many users think that exercises are not designed for beginners and very often face higher demands in terms of

technique to perform sports and exercises or activities are of higher intensity and complexity of movements or coordination.

For instance:

"Aloituskynnyksen madaltaminen, esimerkiksi: Enemmän alkeiskursseja kuntosaliharjoitteluun jne. ja näiden mainostaminen nykyistä paremmin. Lisäksi enemmän tilaa kuntosaleilla madaltaisi kynnystä kun ei tuntuisi niin paljon siltä, että kaikki tuijottaa." [Student, Female]

[Lowering the starting threshold, for example: More beginners courses in gym workouts etc., and better promotion of them. Additionally, getting more space in the gym would lower the threshold of exercising. It would not feel like everyone is staring.]

For the big picture, besides already identified reasons to engage in sports services at university settings, participants were coming here despite not liking it. This can be understood by the notion that practicing exercises through university sports services is convenient and cheap as reported by one of the study participants.

"Harrastan mieluummin yksityisellä kuntosalilla, mutta käyn välillä yliopiston salilla, koska se on halpa."

[I prefer to go to a private gym, but sometimes I am going to university gym because it is cheap.]

This is the fundamental and the greatest advantage of university sport services. Nevertheless, in order to develop university sports services, it is important to account data gathered from other parts of the survey, and while maintain those features of services that have already received a positive feedback, focus on elimination of unpleasant experiences within university sports facilities.

8 CONCLUSIONS

The purpose of the study was to explore sociodemographic characteristics of users of university sports services in relation to what services they undertake. Further, the study examined motives and reasons to practice sports and physical activities within university settings. In like matter, the study aimed to research barriers and hindrances to engage in university sports services. In order to identify reasons and hindrances to undertake physical activities at university settings the researcher applied theoretical constructs. Findings underline the importance of approaching these issues through the socio-ecological model, rather than exploring internal or external contexts. In addition, a large number of studies have already examined and analyzed reasons and hindrances on intrapersonal level but less was explored regarding lived environment. Therefore, identifying socially and ecologically based settings that facilitate or hinder participation in sports provides a platform for future research and interventions designed to promote sports and physical activities at specific settings that reach out students, university personnel as well as people outside of campus.

The study found that the majority of university sports services are occupied by women and students. While women predominantly engage in group exercises men prefer gym training and ball games. Similarly, a larger proportion of students engage in gym training compare to university personnel. In terms of more inclusive university sports services and aiming at greater heterogeneity, perhaps, group exercises could attract more males via diversification of the range of group classes that would appeal to men as well. Since men traditionally dominate, even at university context, to exercise in a gym and practice ball games, on the same principle of developing more heterogenous and inclusive services, further actions should encourage females and university personnel for instance through organizing events and theme days dedicated to disadvantaged groups or lowering the threshold when entering these activities.

In relation to reasons why participants engage in university sport services, the most frequently reported were a good location, low costs, and convenient distance. In addition, for women, compare to men, the type of activities and suitability of schedule are significantly more important motives determining the engagement in university sports services. These findings only enhance

previous research and add value to distinguish men and women rationale for various kinds of reasons to practice sports.

One of the key points was to find best practices as well as raise caution on inappropriate practices that need to be improved. Recognizing needs and desires for enablers of PA enhances the likelihood to direct services to those having difficulties being active. It was found that location close to residence, campus and/or workplace, prices and flexible schedules are crucial features determining ones' physical activity patterns. Similarly, thoroughly explored factors that hinder opportunities to be physically active contribute to the identification of favorable settings. This study found that the most hindering factors related to university sport settings are overcrowdedness, excessive distance, and price.

Beyond educational nature, participants concluded that time expenditure and social restraints are the greatest obstacles when planning to engage in sports and exercise activities. From the study results it is evident that students and women perceive greater social restraints to participation in sports. One could argue that society is still reluctant to create conditions and environment that would leave some room for practicing sports and exercises, where women and youngster do not feel anxious or uncomfortable. Accounting the role of media that feeds society with ideal images of sportsmen with seemingly perfect fitness may result in a subconscious perception of irritation or inconvenience, making it impossible to become physically active and experience the real merit of physical activity.

8.1 Limitations of the study

Although the study was carried out in accordance to literature, previous research and in cooperation with academics a number of limitations should be considered. Some limitations occur in terms of data collecting technique. Questionnaires are overused, and it might be difficult to obtain credible answers. Important is to notice that participants are generally not willing to reveal all experience and being honest while responding. Thus, it is not possible to ensure the credibility and trustworthiness of collected data. Moreover, responses may have been unreliable or socially desirable, also due to the sensitivity of some studied matters. Due to social desirability, participants of self-reported study measures may tend to overestimate their abilities.

However, there is an evidence that social desirability accounts for only a small variance (Motl, McAuley, & Distefano, 2005), and self-reported technique is a reliable method for epidemiologic studies (Craig et al., 2003).

One cause of limitation is that the dissemination of the survey and collection of the data were not supported and carried out directly by the researcher which could scale down the response rate and the final study sample. This could be avoided by his physical presence at campuses while personally interacting with university students and personnel and asking them to fill in the questionnaire. Moreover, a greater number of non-members of university sports services and physically non-active occupants of universities would participate in the study and therefore the study would obtain more representative sample. As a matter of course, the majority of the study sample consist of active people who are familiar with university sports services.

Another reason for this diminish in number could be that some of the instructions were unclear or confusing and respondents could get frustrated and exit a survey without completing the entire questionnaire. Since respondents filled in the questionnaires at offices, homes, etc. the researcher could not answer to any possible queries that participants might have had at that time. Therefore, some of the returned questionnaires were invalid since participants filled in only very minor part of the survey or were not filled in properly. As a result of this, the interpretation of the study results may have some shortcomings. In addition, an insufficient thoroughness might have happened since open-ended responses were provided by participants in languages that are foreign to the researcher.

8.2 Future implications

Above all, it should be stated that future research should avoid abovementioned limitations and develop a longitudinal study focusing and the socio-ecological determinants of sports and physical activity participation within university settings. Such research should focus on societal and environmental conditions that enable sports participation for university students and personnel with the emphasis on groups of people with low activity levels. Indisputably, universities are crucial settings that have the capacity to develop and form opinions, perceptions, attitudes, and behaviors of young adults who would become future leaders and contribute to the

dynamics of society. Moreover, understanding the pattern of socially and ecologically based enablers and barriers as well as specific types of hindrances to sports and physical activities will help to direct further studies. Hence, from the point of view of social sciences of sports and public matter, future research should aim to answer the question:

How could university premises enable students and university personnel (and outsiders as well) to experience additional health benefits through the practice of sports and exercises at university settings?

Further studies should utilize the potential of universities that provide opportunities for sports, exercises, and physical activities leading to adoption of active and healthy lifestyle and ultimately positively contribute to society. Therefore, university premises should be explored more thoroughly through the socio-ecological model focusing on social and physical environment as well as policy context that determines extracurricular activities.

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APPENDICES

Table 1. Additional sample characteristics and activity engagement (in percentages).

Type of activity	Sharing apartment	Living alone	Single	In a relationship	Kids	No kids	TUT	UTA	TAMK
Group exercises	75	64	68	73	81	68	69	81	64
Gym training	64	74	63	69	57	71	60	62	84
Ball games	20	32	26	25	19	26	31	20	23
Courses	22	17	23	19	12	23	25	25	7
Outdoor activities	7	3	4	4	7	4	9	1	3
Personal services	4	3	6	3	10	2	7	3	3
Martial arts	2	3	6	-	–	3	4	–	4
Other	7	4	4	3	5	4	5	4	2

TUT - Tampere University of Technology; UTA - University of Tampere; TAMK - Tampere University of Applied Sciences

Table 2. ANOVA for gender differences and type of activities within University sport services

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Group Exercises	Between Groups	12,963	2	6,482	43,833	,000
	Within Groups	30,905	209	,148		
Gym training	Between Groups	1,739	2	,869	3,808	,024
	Within Groups	47,714	209	,228		
Ball Games	Between Groups	8,156	2	4,078	18,538	,000
	Within Groups	45,976	209	,220		
Outdoor activities	Between Groups	,023	2	,011	,276	,759
	Within Groups	8,595	209	,041		
Martial arts	Between Groups	,002	2	,001	,048	,953
	Within Groups	3,922	207	,019		
Courses	Between Groups	,923	2	,461	2,967	,054
	Within Groups	32,034	206	,156		
Personal services	Between Groups	,023	2	,011	,276	,759
	Within Groups	8,595	209	,041		

Table 3. ANOVA and Independent Samples T-test between males and females.

		ANOVA					Independent Samples T-test					
		Sum of Squares	df	Mean Square	F	Sig.	Equal variances assumed	F	Sig.	t	df	Sig. (2-tailed)
Type of activities I like	Between Groups	6,184	2	3,092	2,980	,053	Equal variances assumed	,079	,779	-2,231	200	,027
	Within Groups	208,576	201	1,038			Equal variances not assumed			-3,409	148,594	,001
Suitable schedule	Between Groups	8,851	2	4,425	2,235	,110	Equal variance assumed	,973	,325	-1,987	200	,048
	Within Groups	397,909	201	1,980			Equal variances not assumed			-3,424	195,028	,001

Table 4. Descriptive statistics of the Exercise Barrier Scale for all participants.

Exercise Barrier Item	N	Mean	Std. Deviation
Exercising takes too much of my time	262	2,35	1,114
Exercising tires me	261	1,89	,986
Places for me to exercise are too far away	264	2,05	1,105
I am too embarrassed to exercise	262	1,65	1,046
It costs too much money to exercise	262	2,20	1,172
Exercise facilities do not have convenient schedules for me	260	2,60	1,219
I do not know anyone who would go exercise with me	263	2,11	1,237
Exercise takes too much time from my family/relationship commitment	259	2,12	1,209
I do not feel comfortable to show my body in front of others	262	1,84	1,178
Exercise is hard work for me	260	1,91	1,015
There are too few places for me to exercise	262	1,92	1,012
Physical activity is not my priority	261	1,50	,849
I do not feel fit enough (others seem to be in very good shape)	262	2,14	1,265