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Health-Enhancing Physical Activity among University Students in Shanghai--A Case of Shanghai University of Sport

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ABSTRACT

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Shanghai is a highly populated city with over 430 000 university students. Finding out the level", motivations and constraints of health-enhancing physical activity (HEPA) participation among university students is a crucial reference for policy makers to further promote HEPA participation. Therefore, the aim of this research is to find out the characteristics of the university students participating in HEPA.

A quantitative data (n=226) was collected in order to answer the research questions about the level, motivations and barriers of HEPA participation among university students in Shanghai, and also to find out possible solutions in respect of promoting HEPA participation. The International Physical Activity Questionnaire (IPAQ) was used to measure the HEPA participation rate. The adapted Physical Activity Measure Revision (MPAM-R) was used to identify the motivations behind PA participation. SPSS 17.0 was applied to analyze all statistical data from 226 students in Shanghai University of Sport (SUS).

The main results of this thesis revealed the most popular exercises among university students are walking, running and swimming. Students in SUS have a relative higher HEPA participation compared to their counterparts worldwide. Female students have a lower participation rate than males. Different genders participated in HEPA for different reasons, for which males are for health while females for appearance. The most reported constraints for HEPA participation for both male and female university students is lack of time.

The main conclusions indicate that universities should further develop HEPA programs in order to make sure both male and female students have accessibility to their preferred exercises. For example, prolonging the opening hours of sport stadiums and providing sport classes were revealed in the study.

Key words: university students, health-enhancing physical activity, sport participation, IPAQ

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List of Abbreviations

HEPA: Health Enhancing Physical Activity

SUS: Shanghai Sports University

GASC: The General Administration of Sport of China

PA: Physical Activity

WHO: World Health Organization

CDC: The Centers for Disease Control and Prevention

HHS: The US Department of Health and Human Service

MVPA: Moderate-Vigorous Physical Activity

VPA: Vigorous-Intensity Physical Activity

GER: Gross Enrollment Ratio

PRC: People’s Republic of China

ST: Strength Training

HBM: Health Belief Model

SCT: Social Cognitive Theory

SDT: Self-Determined Theory

MOE: The Ministry of Education

1. Introduction

During last decades, the image of China has been further spread thanks to its excellent performance in many international sport events. Especially holding Beijing Olympics successfully and taking the first place in the medal table with 51 gold medals in 2008 brought the image of China as a powerful sport country worldwide. Since then, China is recognized as a powerful sport country. While competitive sport developing leaps and bounds, the level of mass sport is becoming another concern for Chinese sport policy makers.

China´s national report (2014) conducted by the General Administration of Sport of China (GASC) presents general facts about mass sport participation. According to the report, there were 0.14 billion Chinese citizens who are over 20-year-old have participated physical activities in 2014. Within different age ranges, 20-29 age group has the highest participation rate (48%). Among the whole national population, the percentage of people who actively participate in physical activities is 33.9 %; the figure increased 5.7 % comparing to 2007. The report categorizes the citizens who participate moderate to intensive physical activities at least 3 times a week and each activity last at least 30 minutes as active PA participators. Among 20-29 age group, only 13.7 % are active participators. By contrast, among 60-69 age group, active PA participators takes up 18.2 %. Besides, the PA participation rate increased along with the increase of educational level. It showed that the percentage of active PA participators among postgraduates, undergraduates, high school students, middle school students and elementary students are 25.6 %, 22 %, 18.1 %, 12.8 %, 8.5 % respectively (China national report, 2014).

The national report also exposed China is facing an increasing rate of obesity and overweight. The statistics indicated that the overweight rate among adults and seniors are 32.7 % and 41.6 % respectively, which increased by 0.6 % and 1.8 % comparing to the 2010 study. Besides, obesity among adults and seniors are 10.5 % and 13.9 %, increased by 0.6 % and 0.9 % separately. The researches (Hu et al., 2001; Vuori, 2004) have proved that the positive correlation between the increased risk of morbidity and mortality and excess body mass. The scholars believe that certain amount and intensity of physical activity could exert a positive effect on sedentary lifestyle and obesity.

To maintain an active physical lifestyle, some studies (Smith & Biddle, 2008; Burgeson et al., 2003; Forrester, et al., 2006) have clarified that schools have a crucial role when it comes to motivate students to engage in physical activities, also active physical lifestyle during the period in higher education may exert a lifelong positive influence on one´s physical activity participation. Two years ago, I started my masters studies in Finland. During the beginning several months, I was gradually introduced to different services offered by university. I was surprised by well organized, highly accessible and affordable sport services such as fitness classes, gym and swimming pool offered by university. Then in the fitness classes, I was shocked by the fact that the main participants are female. It made me realize the gap between China and Finland in terms of the sport services provided in universities as well as the level of sport participation among university students. During four years' study in Shanghai University of Sport (SUS), I found that most of my fellow students do not care about physical activities. Many friends of mine could spend whole day siting their rooms playing with computers, watching dramas or lying on their bed and playing with their phones.

The huge contrast I experienced in Finland and China arose my curiosity to find out about the situation of HEPA participation among Chinese university students. Besides, I am eager to know what motivates or discourages them to participate in health-enhancing physical activity. According to own experience, I had much more opportunities and options to do physical activities than the students in other normal universities. What maybe the reasons for my fellow students in SUS choosing secondary lifestyles? What is exactly the level of HEPA participation in Shanghai University of Sport? If the staff in Shanghai University of Sport had knowledge about the motivation and constraints perceived by students to participation in physical activity? Are the students' opinions about motivations and barriers perceived by students in SUS agree with previous studies in other countries and cities? In fact, in spite of many attempts regarding the encouragement of the students to participation in sport at the universities a huge number of them have sedentary life style. Owing to so far there is no answer to aforementioned questions, the aim of my thesis is to find answers to them. scarcely been done in this regard until now, the results could be valuable for those responsible for university sport.

2. Health Enhancing Physical Activity (HEPA)

Earlier research has shown that the definition of physical activity (PA) has been evolving along with the deepening interpreting of exercise and health. People intend to use replaceable words such as physical activity and exercise to refer to the bodily movement, which is produced by skeletal muscles that require energy expenditure and exerts a positive health influence (Pate, 1988). However, WHO (2016) pointed out in their statistic report that exercise is a sub-branch of physical activity which is organized and planned to aim at enhancing the physical fitness. Kylasov and Gavrov (2011) defined the PA in their study as any bodily movement that serves a purpose for physical fitness and overall health and wellness.

Owing to the tight connection between physical activity and health and wellness, the new concept of health-enhancing physical activities (HEPA) have been introduced by HEPA Europe (2005). HEPA refers to all type of physical activities, that are beneficial to one's health with minimum risks (SCforH, 2011). The types of health-enhancing physical activities can vary from walking to vigorous intensity activities. For example, one can achieve health benefits for a certain amount of cycling, swimming, dancing or even gardening or walking a dog every week (Foster, 2000).

As conclusion, HEPA is a relatively new term that has developed over the last three to four decades. The common accepted definition is the one proposed by the WHO which states any activity that produces health benefits with minimum risks (WHO, 2010). The concept emphasizes the positive effect that physical activities produce on human wellbeing. It enhances the connection between health, wellness and physical activity thus helps the public arise the awareness of the significance of daily subtle physical activities.

2.1. HEPA guidelines: moderate and vigorous; aerobic and muscle-strengthening

There are different ways to divide physical activities. First, physical activity can also be

categorized basing on the energy expenditure. Pastuszak, Lisowski, Lewandowska and Buśko (2014) clarified in their study that there are three level of PA which are vigorous intensive activity, moderate activity and walking. If a person engages in a physical activity that requires hard physical strength thus make him breathe much harder than he normally does, then this kind of physical activity is vigorous physical activity. If a person engages in a physical activity that requires mild physical strength thus makes him breathe somewhat harder than he normally does, then this kind of physical activity is moderate activity. Table 1 indicates the examples of types of moderate and vigorous physical activities (Cancer Org. 2016).

Table 1. Examples of moderate and vigorous intensity activities. Source: www.cancer.org

	Moderate intensive activity	**Vigorous intensity activities**
Exercise and Leisure	Walking, dancing, leisurely bicycling, ice-skating, roller skating, horseback riding, canoeing, yoga	Jogging or running, fast bicycling, circuit weight training, aerobic dance, martial arts, jumping ropes, swimming
Sport	Volleyball, golfing, softball, baseball, badminton, double tennis, downhill skiing	Soccer, field or ice hockey, lacrosse, single tennis, racquet ball, basketball, cross country skiing
Occupational activity	Walking and lifting as part of the job (farming, auto or machine repair work)	Heavy manual labor (forestry, construction, firefighting)
Home activity	Mowing the lawn, general lawn and garden maintenance	Digging, carrying and hauling, masonry, carpentry

Earlier studies about the level of physical activity points out that there are no official recommendations or guideline on physical activity for in the People Republic of China (Abula, Gröpel, Chen & Beckmann, 2015; Yang, 2014). As a result, those studies rely on recommendation on PA or exercise guidelines (Fagaras, Rabu, & Vanvu, 2016; Pardo et al, 2014). Currently, there are plenty of PA guidelines from different organizations all over the world; such as the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), the US Department of Health and Human Services (HHS). According to the recommendation by WHO (2011), adults aged 18–64 years should engage themselves at least 150 minutes of moderate-intensity physical activity (MVPA) throughout the week, or at least 75 minutes of vigorous-intensity physical

activity (VPA) throughout the week, or an equivalent combination of moderate- and vigorous-intensity activity. For additional health benefits, the amount of PA that adults should achieve is supposed to meet the equation of MIPA+2VIPA=300 (measured in minutes). Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week (WHO, 2011).

On the other hand, other guidelines categorized physical activity into aerobic activity and muscle-strengthening activity. Take the 2008 Physical Activity Guidelines for Americans (HHS) as an example, it clarifies that one needs to engage in two types of physical activity each week to improve comprehensive wellness. HHS (2008) explained in their guidelines that aerobic activity is also known as endurance activities. In this type of activities, the one needs to use their muscles group with a rhythm during a certain amount period. Aerobic activity usually makes one´s heart beat faster in compliance of body´s movement thus, a regular aerobic activity will bring a person a stronger and fitter heart and cardiovascular system. The typical aerobic physical activity includes running, brisk walking, bicycling, dancing, and swimming. In order to achieve different grade of health benefit, the duration and fluency of aerobic exercise can be different (HHS, 2008).

As the all guidelines mention, muscle-strengthening activities should not be ignored. HHS clarified in their fast feet that the health benefit brought by muscle-strengthening activities cannot be compensated with aerobic activities. Muscle strength is a core element of physique and an important part of well-being. Without muscle strength, it will be difficult to maintain a good level of physical fitness. According to HHS, bone and muscular will be enhanced through appropriate amount of ST. Furthermore, ST could help one to sustain muscle mass and metabolism, thus it is a great tool for loosing weigh. Other studies proved that strength training (ST) has a positive effect on one’s mental and physical wellbeing (Prata & Scheicher, 2015). The human locomotors system will benefit a lot form ST, it helps to maintain functional abilities, preclude sarcopenia (Porter, 2001), osteoporosis and orthopedic injuries (Roth et al, 2000). In addition, ST has been proved to lower the risk of s heart disease, cancer, arthritis, cardiovascular illness and type 2 diabetes, while also improving sleep and reducing depression. (Winett & Carpinelli, 2001; Negaresh, Ranjbar, Mo'men Gharibvand, Habibi & Mokhtarzade, 2017). Following international ST recommendation will help participants to lower the mortality rate among elderly people (Kraschnewski et al,

2016). Besides, compared with some other activities, ST is safe and feasible. For instance, one could use barbells or elastic band to work out their muscles anytime anywhere (Carpinelli et al, 1999).

In conclusion, the knowledge of HEPA guideline is vital for the public when it comes to organize PA and enhance physical fitness. It guides the citizens to choose different types of exercise, sport and to decide how often and how long should the exercise and sport should be practiced in order to achieve various fitness purposes.

2.2. Elite sport and mass physical activity participation in China

Former literatures (Liu & Wang, 2016; Wang, 2015) argue that Chinese traditional philosophy has a huge influence on the physical activity choices among Chinese citizens. Generally Chinese philosophy focuses on cultivating people´s body and morality so that Chinese citizens prefer gentle exercises during which they could relax internally and meditate. For example, Tai-Chi is commonly being practiced in the parks or squares in China. This traditional Chinese physical activity is a perfect illustration of Chinese philosophy; it pursues the balance and fusion of internality and externality, soul and body, firmness and smoothness as well as dynamic and static principles. Yang (2016) also obtained the same result in her survey; she found that Chinese senior citizens keep traditional physical activity habits. The most liked physical activities by senior citizens are jogging, fast walking, square dancing, cycling, Taiji.

By the contrast, the Western PA tradition is directed by science knowledge. It inherits the features from ancient Greek lifestyle. Their spirit of admiring nature and being brave to struggle makes westerners prefer competitive sports (Liu & Wang, 2016). According to the National Health and Nutrition Examination Survey 1999–2006 (Dai et al., 2015), the most common physical activities among US adults are walking/hiking (36 %), ball games (19 %), dancing/aerobics (14 %), lawn/garden (13 %), and bicycling (12 %). Among all the sports, the top 10 popular sports in America are American football, basketball, baseball, ice hockey, soccer, tennis, car racing, golf and volleyball. These are typical competitive and vigorous western sports which aim at achieving ´´faster, higher and stronger ´´

The development of elite sport dates back to 1952 when the president Mao Zedong addressed the significance of developing sport in China and improving public health for the first time. He also pointed out that morality, knowledge, and physique should be the core values of Chinese educational system. In 1982, President Deng Xiaoping further illustrated the importance of promoting sport in China. He believed that the development of sport is also a proof of cultural and ideological advancement in China. Besides, sport performance on international level can be used as a way to illustrate Chinese national power and strength; it can have positive influences on economic and cultural progress. When the State Council of PRC took Sport Law and Mass Fitness Plan Outline into effort, it facilitated the booming of sport in China to a great extent.

The first component of sport in China is elite sport. China's comprehensive national power has been developing with unprecedented rapidity in recent years meanwhile China elite sport also took huge strides. Back to 1956, Cheng Jing who broke world record of bantamweight lifting, became the very first Chinese world record keeper. Not until 1984 China achieved a breakthrough in the Olympic Game when the sharpshooter Xu Kaifeng gained the first gold medal of pistol shooting in Los Angle Olympic Games. This was followed by 2008, an extraordinary year for Chinese people, as they witnessed another milestone when China not only successful held Beijing Olympics but also gained 51 gold medals in Beijing Olympics. This spectacular achievement has brought the image of China worldwide. After that, China took the first place in the medal table with huge advantages in 2010 Guangzhou Asian Games. With these progresses made step by step, nowadays, China is well known as a powerful competitive sport country. Elite sport has been progressing leaps and bounds; it symbolizes that China has been advancing considerably in respect of economy, politics, technology, culture as well as ideology.

The second component of sport in China is mass physical activity participation. Mass physical activity participation in China has been developing even though not as notable as elite sport. According to Wang´s study in 2005, there was 31.4 % of the whole Chinese population that participated in sport activities; the proportion increased gradually which was 33.9 % in 2000, 37.1% in 2004 and over 40% in 2010. The improvement of China sport is attributed to government support and investment. The financial allocation on cultural and sport department has raised considerably from 1952 (13.47 billion Chinese Yuan) to 2009 (1238.21 billion Chinese Yuan); increased almost

92 times (Li ,2013).

Although the overall advancement shows that the central government has put great effort on spreading physical activities, the gap between the level of elite sport and mass PA in China still concerns some researchers. Mass sport should be the cornerstone of China sports development, it helps to enhance Chinese people's health and wellness thus to improve the living standard of among them. However, with government's efforts on promoting health enhancing physical activities, China still faces an increasing obesity and overweight rate (National Fitness Survey, 2014).

The General Administration of Sport of China (GASC) (2014) clarified in their mass physical fitness report that overweight and obesity are still main problems currently. The overweight rate among adults and seniors are 32.7 % and 41.6 % respectively, which increased by 0.6 % and 1.8 % comparing to the same study in 2010. Besides, obesity among adults and seniors are 10.5 % and 13.9 %, increased by 0.6 % and 0.9 % separately.

Besides the obesity and overweight, the report also pointed out that the "grip force" and "back force" among adults aged 20 to 59 have been decreasing considerably. In 2014 National Fitness Survey addressed that Chinese do not care about muscle strength training and the most Chinese people prefer walking as their daily exercise, and the rates of participating in bodybuilding or muscle strength training is rather low, less than 5 %. Muscle strengthening training accounted for only 4.6% of the public daily exercise, the participation rate ranks outside of the top 10 most frequently practiced exercise. In other words, the muscle strength among adults is weakening so that more effort needs to be put on promoting HEPA in order to help the public to achieve comprehensive health benefits.

In conclusion, elite sport has developed significantly in the recent years, and in contrast, the promotion of mass physical activity has been left behind. The national survey exposed two major concerns; firstly, the obesity and overweight rate increased, secondly, the muscle strength among adults decreased. To tackle current problems, mass physical education should be further addressed. According to the previous studies, forming active physical habits during education period is a vital part for advancing mass sport (Bray and Born, 2004; Gísladóttir et al, 2013; Kwan et al., 2012; Sigmundova et al., 2013), especially during the transition from high schools to universities. Physical activity in higher educations could considerably facilitate the improvement of family

sport environment and mass physical activity participation.

2.3. The significance of HEPA in higher education

University students take up a large proportion of the Chinese population. Since 1999, the enrollment of college and university students has increased. The gross enrollment ratio (GER) of higher education was 9.8 % in 1998, the ratio increased to 15 % in 2002, then it reached 24.2 % in 2009 (Peng and Wang, 2012). According to the statistics from Ministry of Education of PRC (2016), there are 2879 higher educational institutions in the country with about 36 million enrolled students, which makes China the country that has the highest amount of university and colleges students in the world. Among those, 59 institutions are located in Shanghai with proximate enrolled 590 000 students. China has entered the phase of mass high education which means the amount of university students will keep increasing and continue taking a large proportion of society (China Statistics Bureau , 2017).

Owing to the university students making up a large group in Chinese society, many Chinese researchers have addressed the significance of promoting sport programs among higher educational institutions. Firstly, higher education institutions are the conjunction point where school sport starts to transit to sport in society. In addition, campus culture and sport culture together are the spirits and core values among higher education institutions; they are also the source of advanced social culture. Thus, universities and colleges encouraging sport development is vital to culture cultivation (Liang, 2013; Wu and Li, 2016).

Secondly, the level of PA declines when young adults are in transition into early adulthood. Within this period, the most drastic fall of sport participation rate normally happen when at the beginning of university (Kwan et al., 2012; Sigmundova et al., 2013). Universities are supposed to enhance their sport programs in order ensure students that can follow a healthy habit at this important stage of life (Gísladóttir et al, 2013). Other studies report that one third of youths who were physically active in high schools became physically inactive after they entered universities (Bray and Born, 2004). Keating, Guan, Pinero and Bridges (2005) found out in their survey that about 40 to 50% of university students have inactive lifestyle.

Thirdly, sport in higher educational institutions provide students who are in their golden

learning period to cultivate the fundamental values of life such as a sense of fair play, team work spirit, a sense of achievement, competitiveness (Doyle, Filo, Lock, Funk & McDonald, 2016). Chinese scholar Liang (2013) also believed that sport is a great approach to develop students' abilities within different aspects. For example, sport participants can learn more beyond the classes, sport gives a great lesson on persistence, patience and practice. Sport participants know clearly that the one achieves goals is the one never gives up; also, harder work brings better performance. Moreover, collegiate students can gain better leadership skills, time management skills and strong mindset via team sports (Chen, 2017). The traditional stereotype in Chinese society of doing sport is that it will drag down academic performance because it takes up too much time and leave students no spare time and energy to study. However, Muñoz-Bullón et al. (2016) clarified in their research that participating formal sport exert a positive effect on achievement of academic goal.

Fourthly, there is a significant number of researches that have proved physical benefit of PA brought for collegiate students. A plenty of researches worldwide have focused on the association between decreasing rate of PA and increasing rate of obesity and other illness risks (World Health Organization, 2010). Because the most sport guidelines help to spread health-enhancing knowledge, physical activity participation has also been proved to help students to build healthy lifestyles such as awareness of nutrition balance, the avoidance of smoking. Thus, youthful sports participants keep healthier lifestyle than nonparticipants (Winnail et al, 1997). Physical activity can limit bones, muscles and joint issues decay, reduce stress and depression, and generate improvements in well-being (Chobaniev et al, 2003; El-Gilany et al, 2011, Fagaras et al, 2015).

Last but not least, from social perspectives, researchers have found the evidence that sport and physical activities protect students from alcohol abuse, drugs abuse and crimes (Biddle & Faulkner, 2002). Moreover, adults who were taking part in more physical activities, reported more satisfaction about their life. The respondents reported the satisfaction of their need of relatedness, autonomy, and competence (Ferrand et al and Stahi, 2012). The university environment is universally acknowledged as a social networking base. Through sport and physical activities, students are easier engaging in socialization. The building of social relationship it is essential for mental, emotional and physical health (Chen, 2017).

On the other hand, not all the researches are optimistic about sport participation. Some scholars (Molero, Gripenberg & Bakshi, 2016) have pointed out that sports participation may rise the rate of risk-taking actions among collegiate students, such as steroid abuse. However, the advantages of PA participation could far outweigh than disadvantages if higher educational institutions execute sport programs with caution.

2.4. HEPA level in higher education worldwide

Researches on health-enhancing physical activity participation among university students have been conducted worldwide. In 2017, Pengpid and Peltzer conducted a study on health-enhancing physical activity among university students in ASEAN member states. The results (seen in Table 2) revealed the levels of HEPA among university students in Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore Thailand, Vietnam. In general, 52.2 % health-enhancing physical activity in ASEAN was reported. Among all the countries, Malaysia and Singapore have relatively higher participation (70.0 % and 61.2 % respectively).

Table 2. Health-enhancing physical activity among university students in ASEAN member states. Source: Pengpid and Peltzer 2017

	N	HEPA Moderate	HEPA high	Male		Female	
				Moderate	High	Moderate	High
Cambodia	1,349	29.4	10.1	30.1	13.8	28.7	6.2
Indonesia	967	34.6	9.1	36.9	14.7	33.7	6.8
Laos	806	21.6	28.5	31.1	42.9	16.7	21.2
Malaysia	1,023	47.6	22.4	47.6	22.4	44.1	6.4
Myanmar	472	18.9	12.1	19.6	25.5	18.9	12.1
Philippines	780	38.6	19.7	33.0	35.5	40.5	14.3
Singapore	888	38.7	22.5	41.3	27.4	36.1	17.5
Thailand	1607	31.4	17.6	30.3	26.9	31.7	15.5
Vietnam	817	41.2	25.5	37.4	30.2	45.0	20.8
All	8,709	34.7	17.5	36.4	24.6	33.7	13.3

In Latin America, researchers García, Herazo and Tuesca (2015) also adopted IPAQ and MPAM-R to find out the level of HEPA and motivation among Colombian university

students. The research revealed that a high prevalence of physical inactivity among university students in Colombia. Among 900 respondents, 22% of them achieved high level of HEPA while 54.8% achieved moderate HEPA level while 13.2% were reported be physically inactive. Among active students, gaining health benefit is the main driving force for PA participation. Furthermore, one third Brazilian university students were reported physically inactive by scholars Fontes and Vianna in 2009. These studies confirmed with other studies in Asian countries that female students are less active.

In Europe, Martínez, Puig and García (2014) revealed that HEPA level among Spanish university students was quite high. Only 17.6% of students were physical inactive, 19.7% had moderate and 62.7% high HEPA levels. Some researchers also did comparison study between Polish and Turkish university students using IPAQ. The results showed that Polish students were more physically active than Turkish students. More than half (78%) of Polish students exhibited a high HEPA level while only 2% of Polish students had a low level of physical activity. In comparison, only 26% of Turkish students reached high HEPA level while 20% of the Turkish students showed a low level of physical activity. Moderate level of HEPA were higher amongst Turkish students (54%) than Polish students (20%) (Bednarek, Pomykała, Bigosińska & Szyguła, 2016).

Moving to African countries, a research (El-Gilany, Badawi, El-Khawaga & Awadalla, 2011) on HEPA level among university students in Egypt reported an optimism result as well. Among 1708 surveyed students in Mansoura university, only 11.3% of respodents were physical inactive while 36.7% reached high level of HEPA. On the other hand, the students in south-western Saudi Arabia are reported shockingly inactive. Over half of the population has a low level of PA participation (58%), while only 12.9% of them reached high level of HEPA (Awadalla et al., 2014).

Among university students of 23 countries the prevalence of inactivity in leisure time varied with cultural and economic development factors, averaging 23% (northwestern Europe and USA), 30% (central and eastern Europe), 39% (Mediterranean), 42% (Pacific Asia), and 44% (developing countries) (Haase, Steptoe, Sallis & Wardle, 2004). This variation in the level of physical inactivity between different countries is a reflection of socioeconomic development, technology and urbanization.

3. Health-Enhancing Physical Activity Participation among University Students

Active physical activity participation among students is valued a lot by the Chinese government. According to the guidelines released in 1996 by the CPC Central Committee and State Council, good physique is the precondition for young adults contributing knowledge and skills to their country. A better physique lays a solider foundation for youngsters to realize their life goals. The high level of physical activity among students is also regarded as a presentation of dynamics of the country. Ministry of Education of the PRC (2002) also explained the importance of PE in universities in the Outline of Sports Courses in Universities. It will equip students with sports skills and health knowledge, therefore; lead to a long-lasting healthy habit. Through sport courses, students will improve themselves physically, psychologically and socially. In 2016, the newest 2016 - 2020 Mass Sport Guideline, released by the CPC Central Committee and State Council, pointed out that sports for all can interpret comprehensive national power and economic strength of a country. It is also a tool to achieve a higher of level of satisfaction towards life among Chinese citizen. As an addition, the guideline also illustrates that government will regard young adults (15-34 years old) as the target prompting group for the next five years. In conclusion, physical education cannot be ignored; it guarantees that every student has enough time and opportunity to engage in physical activity and build a healthy exercise habit.

The Chinese government puts a lot of attention and effort on promoting mass physical activity especially with a focus targeting student population. Nevertheless, many researches express their concerns of PA improvement among higher education (Zhao, 2013; Li, 2017). Firstly, there is a shortage of stadium and equipment in universities. With the growing amount of university students, the improvement of the facilities cannot keep up with the pace. It leads to the inferior quality of physical education among higher educations. Secondly, the comprehensive qualities of sport teachers are relatively low compared to those in western countries. In China, the sport teachers are more skilled oriented which means the academic education level of them are not high enough. Most of them lack sport sciences knowledge which makes them only focus on students´ physical performances instead of personal development in general. It significantly hinders the overall advancement of physical education. Thirdly, the

evaluation system for physical activity is rigid. By taking PA exams, all the students are evaluated by final grades through unified tests. The standard does not adjust accordingly instead, it quantifies physical performances and neglects individual differences and interests and detriments the development of individual potentials. Last but not least, owing to all the mentioned reasons, the ideology toward physical activity among students is not updated along the time. Still there are many Chinese students who regard physical activity as a tool to gain physical skills or just to an obligate to get grades. They do not find the enjoyment or interest by engaging in sport courses in universities (Zhao, 2013).

The same concern about PA participation among university students does not only apply to China. Keating's survey (2005) in the US revealed that 40-50% of college students are physically inactive and health and PA professionals in higher education have not been able to effectively increase students' PA behaviors. Another research on physical participation among university students (Sigmundova, Chmelik, Sigmund, Feltlova & Frömel, 2013) reported that only 9 % university students in Czech Republic met the criterion of 10,000 steps every day. In 2010, Rouse and Biddle showed the same concerns about sedentary behavior among university students in UK. Their study revealed that university students spent 8 hours per day on inactive activities such as studying, watching television, gaming, computer activities, sitting and talking, shopping and hanging out.

Therefore, by identifying all the factors, the decision makers in HEPA promotion programs will easily tackle the problems and further reform physical activity programs and administration in order to help students to build a better PA habit.

3.1. The influencing factors upon HEPA participation among university student

Even though individuals decide about their lifestyles, the decision is not only determined by person´s abilities and skills. Environmental constraints can significantly outweigh personal motivation. In other words, physical activity is combination of social and self-regulated behaviors. To form a regular HEPA participation habit is a long process which involves formation and maintenances. Many studies have looked into the determinants of physical activity participation. As Dishman, Sallis and Orenstein (1990) found out in their research, the influential elements across population, cultural

backgrounds and social norms are personal intention, ability, skills, faith and reinforcement. Other determinants such as knowledge, attitude, belief regard to health, individual needs, feelings, lifestyle, personality and environment could alter the adoption and maintenance of physical habits. Besides, family and fellows' support, accessibility of facilities, health care program can easily shift the exercise habit. The disposition is also shaped by a combination of health care agents, environmental prompts; and accessibility of facilities.

Deliens, Deforche, De Bourdeaudhuij & Clarys (2015) argue in their research that active or passive lifestyles are determined by multiple factors including individual perception such as their self-discipline, the amount of free time; social factors such as family and friends´ support; physical environment such as accessibility, financial situation; macro environment such as publicity. As for university students, their active and sedentary behavior is connected to university features such as accommodation, university culture, academic pressure. They believe that in order to promote PA in higher educations, there must be well built information strategies about on-campus sport activities, affordable sport subscription such as fitness courses in curricula or bike services around campus.

Based on former literatures, three factors are most discussed which are physical activity consciousness, motivation and barriers. To identify these factors is crucial for any HEPA programs tailored for further promotion activities.

3.1.1. HEPA consciousness and HEPA behavior among university students

So far, many researches have been done within PA participation among Chinese university students. The topics vary from awareness, consciousness, and incentives for students' PA participation. The results of most studies agreed on the fact that university students have a high awareness towards wellness and they do recognize the benefit and importance of active physical habit (Lin 2002, Chen& Wang, 2008). Zhang and Si (2009) proved that 96.6 % of university students are aware of the significance of healthy behaviors. Liu (2011) also verified by his survey that high proportion of university students (90.13 %) agree that participating in PA is vital to health. The high HEPA consciousness in China contributes to the media exposure, the improvement of employing values system (knowledge, ability and physique are all valued through

selecting), sports policy reform among colleagues and universities (Yu, 2002). On the other hand, current situation of PA participation questions us if the awareness can be transformed to behaviors.

There is a debate about the correlation between health consciousness and behaviors going on among different studies. Lin (2002) pointed out that health awareness correlates sports behavior to a great degree. Her research further indicates that people who have a better understanding of physical activity per se intend to get engaged in health behaviors more. However, the survey conducted by Zhang and Si (2009) shows that only 21.9 % of university students responded as always participate in sports, 45.6 % responded as sometimes participate, and 20.9 % responded as it depends when they are asked about the frequency of participating in sports. In other words, Zhang and Si's result is a counter-agreement to Lin's; they believe that environmental and emotional elements influence students' choice considerably.

Besides China, researchers worldwide also present mixed result in this regard, Cameron et al. and Plotnikoff et al (2007) implied the same conclusion as Lin, they agree the relevance between sports consciousness and sports behaviors. In contrast, Morrow et al. insist that two elements do not associate with each other. In 2016, Abula et al. verified that PA consciousness and actions associate with each other but there is little change among Chinese university students in terms the level of participation.

This situation brings a question that if the high awareness has a positive connection with high level of physical activity participation among Chinese university students. Besides, since all the studies focus on the correlation between awareness and behavior, few studies actually discuss if the students have the knowledge of health-enhancing physical activity. For example, if one knows which frequency and duration suits him/her the most and if one knows that muscle strengthening activities are as important as aerobic exercises.

3.1.2. Gender differences and HEPA behavior among university students

Another influencing factor on the level of HEPA which were argued by researchers abroad and domestic is gender difference. The different statistics show that male students have a higher level of PA participation than female. Yu (2005) verified through his mass survey on PA participation among university students that males (61.42 %) are

more inclined to spend their free time on doing PA. Meanwhile, only 39.70 % of female universities students agreed to do so. Pan et al. (2016) also provide a valid evidence that 19.7 % of male students always engage in physical activities while only 11.7 % female students responded the same. On the contrary, females (14.9 %) over numbered males (7.9 %) in the category of never exercise.

As for the gender difference in respect of frequency of participation, Du's study (2007) revealed that most male students engage in physical actives 2-3 times per week, however, most female students report once in one week. Sports participation rate among female college students is rather low and they do not have regular exercise habits (Wang, 2014). Tong (2003) also indicates her concern about sport participation among female college students. According to her study, female students spend their free time on self-studying, playing poker, playing video games, shopping, surfing the Internet, and making new friends. In general, they spend most of their time on entertainment activities instead of health-enhancing physical activity.

Even though plenty of researches showed a consistent result that female university students are less active than male, some scholars hold a different opinion. For example, Sun (2009) proved that both female and male students expressed their interest in PA, taking account over 80% of while sample population. Chen and Cheng's survey in 2008 on sports consciousness and sports behaviors among universities students in Shanghai found that even more girls (32.7 %) report that they love sports very much than boys (19.2 %). Their study also indicated the level of PA participation is similar between female and male university students in Shanghai.

Not only the level of PA participation varies between females and males, their selections over PA also differ significantly. On the basis of the studies of Yu (2005) and Pan et al. (2016), male students prefer aggressive competitive sports. For instance, male's students who would choose football and basketball exceed females 6.5 % and 11.8 % respectively. Meanwhile, females are more likely to do flexible and moderate exercises such as badminton, swim and dance. Zheng (2012) agreed in their study by saying that you can hardly see girls play basketball, volleyball or football as hobbies, in most cases, boy dominate the courts.

Owing to the flexible schedule of university students, they have various choice on what time of the day to take part in what kind of activities. According to Pan et al. (2016),

female university students prefer to work out in the evening (45.7 %), followed by afternoon (39.4 %), morning (11.7 %). Meanwhile, the majority of male university students would rather exercise in the afternoon (53.9 %) or evening (28.9 %); only a few chose mornings (9.9 %).

As a conclusion, there are many differences with respect to health-enhancing physical activities between male and female students. Thus, identifying those differences from various aspects is crucial for universities to arrange courses, build facilities and provide services in order to maximize the benefits of HEPA for both female and male students.

3.2. The motivation and barriers of physical activity participation among university students

To identify the motivations and barriers for physical activity participation is crucial for HEPA program planners and decision makers in government or schools to further develop efficient programs. Physical inactivity has been identified as the fourth leading risk factor for global mortality causing an estimated 3.2 million premature deaths globally among citizens (WHO, 2015). The HEPA programs are supposed to engage more participants and effectively arouse awareness of potential risk-physical inactivity.

So far, many researchers have been eager to find out the motivation and barriers behind physical activity participation. Some studies focus on the motivation analysis while plenty of studies focus on barriers. Identifying the elements why individuals do and not maintain HEPA habit is complicated and involved with aspects of personal, interpersonal, environmental level as well as policy determinants (Brownson, Baker, Housemann, Brennan & Bacak, 2001). The researches which investigate the factors on motivation and barriers on HEPA could be a valuable reference with regard to HEPA promotion intervention as well as generating optimistic public health results.

3.2.1. Motivation of physical activity participation among university students

Researches have tried to find out the motivations for physical activity participation. The definition of motivation was formally defined by psychologists differently. Cox and Klinger (2004) used a combined definition by Ferguson (1994) and Chaplin (1968) in their book Handbook of Motivational Counseling. To their understanding, the motivation is “one of our body mechanisms resulting in incentive, consistence, power

and direction of behaviors towards a goal". Weinberg and Gould (2011) believed that motivation is the incentives and goal of one's struggle. In this study, the motivation refers to reasons of people's behaviors in order to fulfill their needs; a similar concept as Yang's study (2015): Reasons and Characteristics of Shanghai Elderly Sport Participation.

Different motivational theories have prevailed in sport sciences studies during different periods. For instance, Maslow's Motivation Theory (1943) was mostly used for analyzing physical participation. It argued that behaviors are led by impetus to fulfill the desire and needs. The theory specified that the motives can be summarized by five perspectives including physiological demand, security demand, love demand, affection and ownership, esteem demand, and self-actualization demand. For example, Yang (2014) used Maslow´s motivation theory to identify the reasons of sport participation among senior citizens in Shanghai.

Another significant theory brought by Albert Bandura in 1986 is social cognitive theory, it clarified the leaning process of human being and the triggers of human actions. The theory illustrates that observing others in external environments helped people to gain new knowledge; therefore, they intend to conduct the similar behaviors. In this process, the self-efficacy, which refers to one's belief in their own competence; can be improved along the time. The applications of the theory vary from psychology, education, and communication. The topics include balanced-nutrition diet, physical activity participation and health education. By applying this theory on physical activity participation, researches find out the motivation for HEPA participation are self-challenge and skills gaining. For instance, students play basketball in order to gain skills, for examples, learning techniques, and team work skills and pressure management.

Self-determination theory (SDT) is an approach to motivation that highlights people's psychological needs. Deci and Ryan (1985) pointed out that human beings have an instinct to fulfill three basic needs autonomy, competence, and relatedness. SDT illuminated the differences between intrinsic motivation and extrinsic motivation. For example, two people run half hour every morning. One of them enjoys running because he likes the fresh air and relaxing environment along the river, running brings him pleasure and satisfaction. However, the other one does not like running but told by his

doctor that running can help him to keep physical fitness; for him running is out of the belief to certain outcome. Therefore, with the same behaviors one of them is intrinsically motivated and the other one is extrinsic motivated. SDT covers a broader range of motivation and a deeper insight of motivations through different aspects, it is adopted to analyze HEPA participation among university students by a lot researchers. A number of researchers (Kilpatrick, Hebert & Bartholomew, 2005; Hai & Jia, 2017) have listed eight factors that motivate individuals to participate in physical activities. These factors were skill development, fun, friendship, achievement or status, competence or competition, energy release, fitness and situational factors

Chinese studies illuminate that most students engage in sports for its physical benefits. To be physically and mentally healthy is one of the biggest incentives for students to take part in PA (Sun, 2016; Zhang, 2016). Another motivation has been widely approved is to enrich leisure time. Universities students have much more free time comparing to elementary, middle and high school, thus; choosing extracurricular activities is necessary and crucial for self-development. The studies showed that a lot of students would choose doing exercise to enrich their free time. As we know, interest is the best teacher, so there are also plenty of students do sport out of interest. Xia and Zhang believed that the motivations of university students engaging in PA can be analyzed from three different aspects, appearance, capability, social network. 47.9% students agreed on the motivation of appearance; they want to have a better shaped body. Zhang and Si (2009) illustrated in their finding that 85% students believe that sports are helpful to confidence building.

3.2.2. Barriers of physical activity participation among university students

Barriers, limitations, constraints are symphonies which could refer the element, factor, or subsystem that works as a bottleneck. It restricts an entity, project, or system (such as a manufacturing or decision-making process) from achieving its potential (or higher level of output) with reference to its goal (Businessdictionary, 2017). Regarding to studies on barriers on sport participation, many researches (Minkel, 2010; Gürbüz1, Öncü & Emir, 2012; Mirsafian & Mohamadinejad, 2014) have used The Hierarchal Model of Leisure Constraints adapted by Crawford, Jackson, and Godbey in 1991. The

model provided a theoretical frame work for constraints studies on PA participation by categorizing constraints into intrapersonal constraints, interpersonal constraints and structural constraints. Intrapersonal constraints could be a person´s value or believe which has been proved as the strongest determents for physical activity participation (Carroll and Alexandris, 1997). The typical intrapersonal constraints are lack of self-confidence or lack of energy and no motivation. The examples of interpersonal constraints include no accompany, choices or no information, no support from family and friends. Structural constraints include factors such as the lack of opportunities or the cost of activities that result from the external conditions in the environment (Mannell and Kleiber, 1997). For example, no resources, no time, or no transportation or facilities could be structural constraints on students´ PA participation.

To date, there are different studies about barriers to PA participation have applied the Hierarchal Model of Leisure Constraints. As previous studies indicate, fear of assault, gender, race, religion and other factors alter the preferences and choices on physical activities among different cultural groups (Ainsworth et al., 2000, Minkel, 2010). For example, Hiu et al. (2007) found out in her study that students in Australia are more physically active and have higher intention to be more active; they have lower level of interpersonal, physiological and confidence constraints but a higher level of financial constraints compared to their counterparts in Hongkong. It indicates that the results of the same topic could vary from country to country and city to city. Owing to there is no study has investigated the HEPA participation level in Shanghai, the study aims to identify the barriers perceived among university students in Shanghai.

Another prevalent theory that has been widely used in barriers studies on sport participation (Du, 2007, Scott and Mowen,2010; Mirsafian & Mohamadinejad, 2014) is the health belief model (HBM hereinafter). HBM contends that social and psychosocial elements could influence health actions in which the faith in health is most crucial one. HBM consist of four dimensions which are perceived susceptibility, perceived severity, perceived benefits and perceived barriers. Among four dimensions, perceived benefits and barriers are most commonly discussed in sport participation studies. Because the theory states that if an individual will engage in a health behavior such as physical activities or balanced diet depends heavily on perceived barriers and perceived benefits of relevant behaviors. In 1984, Jan & Becker, illustrated in their study the¨ HBM a

decade later¨ that perceived benefits refer to the positive effect on health or the possibilities of reducing health risks generated by some feasible and efficient behaviors.

Perceived barriers refer to the undesirable aspects of some behaviors which may keep someone from undertaking the optimal actions. Usually, the perceptions such as being expensive, dangerous, having side-effect, tiring, though, challenging, inconvenient or time consuming etc. are most common. Thus, perceived benefits can positively, barriers can negatively influence the participation in activity (Buckworth and Dishman 1999, Buckworth, 2001). As discusses in former chapters, we can presume that knowledge of PA is a precondition of active PA participation instead of a guarantee. Besides, other studies have verified that no enough time, no knowledge, no accessibility to facilities, lack of family support, financial problem, no accompany are the main constraints to PA participation. (Scott and Mowen,2010; Mirsafian & Mohamadinejad, 2014.)

Chinese researchers have also investigated the barriers of the university students' physical activity participation. Nevertheless, the drawback is that universities or colleges do not provide sport courses. Besides inaccessibility of sports facilities and fields, is another main drawback (Du, 2007; Lin, 2002). Wang (2015) adds in his study that according to the Chinese tradition, the images of girls are thin and soft, therefore, girls do not get enough support from parents for their sports activities. Laziness is also a key reason why girls do not move their bodies (Tong, 2003).

In summary, currently, there is a limited-amount studies on developing long term strategies on tackling inactive lifestyle among population such as adult women and university student. So far, the long-term success of strategies to increase PA in adult women has been insufficient, and in order to develop effective health strategies, it is necessary to further investigate women's motives for PA and the challenges they face in attempting to be active. Besides, universities and colleges are reported as the most critical period when it comes to build a healthy habit. As mentioned in former chapter, sedentary lifestyle has been proved worldwide as a health risk among university students. Within this context, motivation and barriers investigation are important mediators of PA behavior change.

4. Research Design and Methodology

4.1. Research questions

There are no data on the prevalence of HEPA in China currently. For this reason, this study has two aims: (i) to assess the prevalence of HEPA in a university student population in Shanghai. (ii) and to identify the motivation and constraints of physically active and inactive individuals. The research questions are:

1. What is the level of HEPA participation among university students in Shanghai?
2. Are there any gender differences on the level of HEPA participation among university student's population?
3. What kind of physical activities do university students mostly engage in?
4. What are students' motivations in engaging in HEPA?
5. What are barriers for student to engage in HEPA?

4.2. Quantitative data collection

The data collection of this research adopted questionnaire. The survey was conducted in Shanghai University of Sport in May and June 2017. Shanghai University of Sport has over 60 years history with academic achievement featured with sport science. SUS offers bachelor, master and doctoral programs as well as post-doctoral researches in sport science.

Currently, SUS has more than 4000 full-time undergraduate students on campus, 1000 postgraduate students, 1400 international students, 1400 adult students, and more than 700 teaching and administration staff, among whom 82 are professors and 170 associate professors.

To identify the characteristics of HEPA participation among undergraduate students in Shanghai University of Sport, a questionnaire was designed into three parts.

1. The first part was to collect demographic information including gender, age, study

grade, department. Four questions were designed to find out about the level of awareness among university students of the significance of PA, and the knowledge of HEPA guideline. To identify the choices among university students, the students were asked to write down their top 3 favorite physical activities. The choices provided were based on the results from "Global participation in sport and leisure-time physical activities: A systematic review and meta-analysis" conducted by Hulteen et al. in 2017. The examples presented in the questionnaire were running, swimming, walking, cycling, basketball, soccer, resistance training, badminton, baseball, tennis, golfing, hiking, martial arts.

2. The second part of the questionnaire was to measure HEPA participation level. To measure the level of HEPA among university student, the Chinese version of self-administrated International Physical Activity Questionnaire (IPAQ) short version of last 7 days were used. The reliability and validity of the questionnaire had been proved by previous researches. There was also good evidence of the (good) psychometric essence of this questionnaire among university students in the PRC (Macfarlane et al., 2007; Qu and Li; 2004). The study is based on IPAQ scoring criteria in order to distinguish different level of HEPA (see Table 3). The cut-off limits of HEPA low level, HEPA moderate level and HEPA high level are according to current WHO PA guidelines (2012).

Table 3. Physical Activity categories and HEPA cut-off levels based on the IPAQ Scoring protocol (http://www.ipaq.ki.es).

HEPA category	Cut-off levels
Low	No activity reported, or some activity is reported but not enough to qualify as HEPA
HEPA moderate	3 or more days of vigorous-intensity activity for at least 20 min per day or 5 or more days of moderate-intensity activity or walking for at least 30 min per day or 5 or more days of any combination of walking, moderate-intensity or vigorous-intensity activities achieving a minimum of 600 MET-minutes/week
HEPA high	3 or more days of vigorous-intensity activity accumulating at least 1500 MET-minute/week or 7 days of any combination of walking, moderate-intensity or vigorous-intensity activities achieving a minimum of 3000 MET-minutes/week.

The IPAQ questionnaires has a standard calculation formula which bases on four parts which are vigorous activity, moderate activity, walking and sitting in last seven days. For the data analysis, vigorous-intensity PA was valued of 8.0 METs (metabolic equivalent task), moderate PA was assigned 4.0 METs and walking was assigned 3.3 METs. Total PA (MET-minutes/week) was calculated as the product of the time dedicated to each activity multiplied by the specific MET for that activity. The calculation formula can be seen as following table 4.

Table 4. Health enhancing physical activities MET calculation formula based on the IPAQ Scoring protocol (http://www.ipaq.ki.es).

Physical Activity Category	**Calculation formula**
Walking MET	3.3 x minutes x days;
Moderate MET	4.0 x minutes x days;
Vigorous MET	8.0 x minutes x days;
Total Physical Activity MET	sum of Walking + Moderate + Vigorous MET minutes/week scores.

3. The third part of the questionnaire ws to identify the motivations and barriers behind colligate students participating HEPA. Currently, there are several instruments for measuring the motivation on PA participation. For example, Exercise Motives Inventory-2 (EMI-2) developed by Markland and Ingledew in 1997. It includes 51 items to identify the motives from 14 aspects; enjoyment, health pressures, ill-health avoidance, nimbleness, positive health, revitalization, social recognition, strength and endurance, stress management, and weight management, affiliation, appearance, challenge, competition. This questionnaire covers all aspects of motivations but will consume participants too much time. Another popular questionnaire is Physical Activity Measure Revision (MPAM-R). The validity and reliability of those instruments were proved worldwide by many researches (Battistelli, Montani, Guicciardi & Bertinato, 2016; Albuquerque et al., 2017). However, owing to a long questionnaire may bore the respondents, this study adopted Motivation for Simplified Version of MPAM-R in Chinese which was, designed by Chinese researchers Chen, Wang, Rong, Pan & Bao in 2013. The validity and reliability were tested through massive quantitative study in China. The shortened questionnaire includes 15 questions identifying the motivations

from 5 aspects which are social, appearance, health, enjoyment and competence.

As for the barriers of PA participation among university student, A 12 self-administered items questionnaire was used. The items were designed according to previous studies among young adults (Cheng et al., 2003; Kenneth et al., 1999; 2005; Arzu, Tuzun & Eker, 2006; Sallis and Hovell, 1990; Sallis et al., 1992; Ziebland et al. 1998). The same as motivation part, the items in barriers part were also rated on 5-point Likert-type scale (Ware, 1993). The perceived barriers for PA participation among university students in Shanghai University of Sport were divided into 2 categories: internal barriers and external barriers. Three subcategories of internal barriers are: lack of energy, lack of motivation and lack of self-efficacy. Three subcategories of external barriers are: lack of resource, lack of social support and lack of time. There are two items related to each subcategory in the questionnaire. Besides, the scores of two items were summed up to find score of the category. The sums of the categories' scores were used to calculate total internal and external barriers.

During the data collection in Shanghai University of Sport, one student was recruited for handing out the survey in the campus. We prepared 250 copies of survey and aimed to get all the copies filled. Owing to the survey is targeted at three faculties which are School of Sport Journalism and Foreign Studies, School of Kinesiology and School of Economics and Management. The student who handed out the survey in campus asked about the students' major, the students from mentioned three faculties were invited to fill the survey.

The respondents were asked to return the survey on the site, we accompanied them while they were filling the questionnaire in case they have some questions about the survey. Meanwhile, a professor Song Jie, from School of Sport Journalism and Foreign Studies, helped us to hand out the survey in his classes. Owing to his help, the data collection moved forward faster. In the end, we got 194 paper versions of survey back in total. Meanwhile, we ask students to spread online questionnaire to their friends, as result we get 34 online responds in the end. According to IPAQ protocol, the valid samples should have all the numbers for all examined variables. if there are not sure, don't know or refused or data are missing in walking, moderate or vigorous days or minutes, then that case is removed from analysis. Therefore, 16 samples were

abandoned owing to missing data.

5. Results

Results of the analysis are divided into the following parts. First, demographic information illustrates the gender, age, faculty and study grade of sample students. Besides, the analysis of the specific questions provides the fact that how much knowledge of HEPA that the students have. Second, the main choices of physical activities are listed and it provides the information of the most popular PA among university students in China. Third, through analyzing the fluency and duration of sport habits, the level of HEPA among target group are indicated. Final, the motivations and barriers of students PA participation are discussed.

5.1 Demographic backgrounds of respondents

The respondents of the questionnaire were students from the Shanghai University of Sport, all from three faculties as mentioned in previous chapter. As we can see from the table, among 226 valid respondents, there are 102 male students (45.13 %) and 124 female students (54.87 %). Owing to the help of the professor, we received more valid responses from Faculty of Sport Journalism and Foreign Studies (46.02 %) than School of Kinesiology (25.22 %) and School of Economics and Management (28.76 %) respectively.

As for the study grade, most of the respondents were in their second or third year of their study. Also, as Table 5 shows, the respondents were age from 19 to 25. This age range is fitted into the WHO global recommendations on physical activity for health for adults between 18 to 64 years old. The results point out that 24.78 % of students perceive their health as excellent and most of students have at least fair health. Less than 1 % students reported their health as poor.

Table 5. Basic information of respondents

		Frequency	Valid Percent	Cumulative Percent
Gender	Male	102	45.13	45.13
	Female	124	54.87	100.00
Age	Maximum: 25	4	1.77	1.77
	20-25	210	92.92	94.69
	Minimum: 19	12	5.31	100.00
Faculty	Sport Journalism and Foreign Studies	104	46.02	46.02
	Kinesiology	57	25.22	71.24
	Economics and Management	65	28.76	100.00
Study Grade	Freshman	18	7.96	7.96
	Sophomore	92	40.71	48.67
	Junior	94	41.59	90.27
	Senior	22	9.73	100.00
Is your health in your opinion	Excellent	56	24.78	24.78
	Good	144	63.72	88.50
	Fair	24	10.62	99.12
	Poor	2	0.88	100.00
I am aware the health benefits that physical activities produce	Yes	214	94.69	94.69
	No	12	5.31	100.00
I have the knowledge of international recommendations of physical activity for my age.	I don’t know	122	53.98	53.98
	Right Answer	24	10.62	64.6
	Wrong Answer	80	35.6	100.0
I am aware of the significance of muscle strengthening activities in order to gain comprehensive health benefits	Yes	202	89.38	89.38
	No	24	10.62	100.00
I have the knowledge of international recommendation for the frequency of muscle training-strengthening activities	I don’t know	154	68.14	68.14
	Right answer	20	8.85	76.99
	Wrong answer	52	23.01	100.00

In terms of the knowledge and awareness that universities students have for HEPA, the data analysis supports the results of the most previous studies. It shows the fact that university students have a high awareness about the benefits and importance of active physical habits. (Lin 2002, Chen& Wang, 2008; Si, 2009, Liu 2011). The importance of the PA was acknowledged by 94.69 % of the respondents; however, only 89.38 % of the respondents also admitted the significance of muscle strengthening for achieving a comprehensive health benefits. Besides, the results also revealed that even with high awareness of HEPA, the students barely had the knowledge of either proper frequency and duration of PA or muscle strengthening activities for their age. As indicated in the Table 4 , only 10.62 % of respondents had the right answer when asked what is the international recommendation for the frequency of PA. When they were asked about the of muscle strengthening activities, the correct rate was even lower (8.85 %). The results show the current problems in PA participation among universities are that the students have a high awareness of physical activity participation but they lack basic knowledge about physical activity.

5.2 The favored physical activities among students in Shanghai University of Sport

Table 6. The main choices of PA among students in Shanghai University of Sport

		N	Percent	Percent of Cases
Choices	Running	104	15.34%	46.02%
	Swimming	91	13.42%	40.26%
	Walking	84	12.39%	37.17%
	Badminton	76	11.21%	33.63%
	Basketball	64	9.44%	28.32%
	Tennis	58	8.55%	25.65%
	Muscle Training	56	8.26%	24.78%
	Table Tennis	42	6.19%	18.57%
	Biking	40	5.90%	17.70%
	Soccer	26	3.83%	11.49%
	Chinese Martial Arts	13	1.92%	5.76%
	Hiking	12	1.77%	5.31%
	Golf	10	1.47%	4.41%
	Volleyball	2	0.30%	0.90%

Total	678	100%	300%

The results of this research support this argument (see Table 6). The top ten most liked physical activities among university students in Shanghai University of Sport are running, swimming, walking, badminton, basketball, tennis, muscle training, table tennis, biking, and soccer. The results illustrate that university students prefer more intensive physical activity compared to Chinese senior citizens. As we can see from the table, swimming, basketball, and tennis are more popular than traditional Chinese sport such as Chinese martial arts. It shows that the western sport culture has influenced Chinese young adults in a great extent.

5.3 The level of HEPA among students in Shanghai University of Sport

As Table 7 indicates that students in Shanghai University of Sport are quite active in health enhancing physical activities. Only 12% of student reported to have a low level of physical activity participation, which cannot be counted as HEPA. 72 % of the students had a moderate level of HEPA participation and 16 % of achieved a high level of HEPA participation. As we can see from the Table 6, female students had a relative lower HEPA participation compared to their male counterparts. 17 % female students are reported have low level of PA participation while only 6 % male students fell into this category. Even though female students were more inactive in general, it is noticeable that higher percentage of female achieves high HEPA level (19 %) than male (13 %). Among all the faculties, the students from department of Kinesiology have more active lifestyle; only 7 % of them reported to be inactive. Along with the study proceeds, the students get more and more active, it may result from the lesson schedule that they have in different grades. The freshmen always have heaviest workload during four-year program. The juniors have less classes and seniors mainly focus on their research and thesis.

Table 7. HEPA level among students in Shanghai University of Sport

	N	%	Physical activity level (%)		
			Low	HEPA level	
				Mod.	High
Gender					
Men	102	45.13	6	81	13
Women	124	54.87	17	64	19
Faculty					
Sport Journalism and Foreign Studies	104	46.02	13	67	20
Kinesiology	57	25.22	7	77	16
Economics and Management	65	28.76	15	74	11
Study Grade					
Freshman	18	7.96	22	67	11
Sophomore	92	40.71	15	66	18
Junior	94	41.59	9	73	18
Senior	22	9.73	5	90	5
Total	**226**	**100**	**12**	**72**	**16**

By comparing the statistics worldwide with the data of this research, Chinese university students are reported a relatively more active lifestyle. This result contradicts former studies on PA participation level which reported that one third of Chinese university students are physically inactive (Hallal et al., 2012; Awadalla et al., 2005). On the other hand, the results also agree with some of previous literatures (Liu and Dai, 2017; Awadalla et al., 2014; Fagaras, Radu & Vanvu, 2015) which pointed out in Chinese university students do less physical activity in their leisure time compared to European students. Furthermore, it is noticeable that with most amount of students fall into category of moderate HEPA level, the percentage of high HEPA level is much lower than all the other countries. It indicates the further promotion of HEPA is necessary in order to achieve a higher percentage of high HEPA participation.

5.4 The motivation for students' physical activity participation

In the third part of survey, the students were asked to give score from 1 to 5 on the choices of motivations of sport participation. There are 16 items of motivation which can be categorized into social (Item 5,10,15), appearance (Item 2, 7, 12), competence (Item 4, 9, 14), health (Item 1,6,11) and enjoyment (Item 3,8,13). As presented in Table 7 , the item scored the highest to the lowest are *to define muscle to look better, to maintain strength to live healthy, to maintain or lose weight, to release stress and tension to keep mental health, to make myself happy, to improve my appearance, to obtain new skills, to enjoy doing physical activities, to maintain physical health and wellbeing, to improve existing skills, sport is a compulsory course in my university, to be with friends, to meet new people and make friends, interesting and fun activities, to be with other people in an activity, to maintain my current skills*. Among all the item, to define muscle to look better scored the highest with mean 4.19; and to maintain my current skill scored the lowest with mean 3.64.

Table 8. The motivation behind PA participation

	Minimum	Maximum	Mean	Std. Deviation
1.To maintain physical health and wellbeing	1	5	3.88	1.28
2.To maintain or lose weight	1	5	4.06	1.17
3.Because it is an interesting and fun activity	1	5	3.67	1.16
4.To obtain new skills	1	5	3.91	1.13
5.To meet new people and make friends	1	5	3.69	1.18
6.To release stress and tension, to keep mentally health	1	5	4.05	1.07
7. To define muscle, look better	1	5	4.19	1.02
8. To make myself happy	1	5	4.04	1.12
9. To improve existing skills	1	5	3.86	1.17
10.To be with my friends	1	5	3.74	1.20
11.To maintain strength, live healthy	1	5	4.10	1.00

12. To improve my appearance	1	5	3.98	1.11
13. I enjoy doing physical activities	1	5	3.90	1.02
14. To maintain my current skills	1	5	3.64	1.21
15. Be with others in activity	1	5	3.66	1.09
16. Sport is a compulsory course in my university	1	5	3.80	1.15
N	226			

*Means of the scores given to the options selected by the respondents: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree

Table 9 also shows that other most agreed motivation subcategories are health and enjoyment. Unlike this study identified appearance as the most important motives, former studies (Sun, 2016; Hua, 2003; García, Herazo and Tuesca, 2015) identified health as the main driving force.

Table 9. Motivation subcategories analysis

	N	Minimum	Maximum	Mean	Std. Deviation
Social	226	1	5	3.70	1.15
Appearance	226	1	5	4.08	1.11
Competence	226	1	5	3.80	1.17
Health	226	1	5	4.00	1.13
Enjoyment	226	1	5	3.91	1.12
Valid N	226				

Even though the association between awareness and behaviors is not confirmed; however, health awareness is a precondition for students have health motivation for PA participation. Thus, physical education plays have been taking effects. A study on constraints and motives for PA in Finalnd revealed that the most agreed motives are health and well–being as well as the interest in the activity itself. The Colombian study also confirmed that health (45.8%) the is main driving forces for PA participation followed by improving figures (32%) (García, Herazo & Tuesca, 2015)). On the other hand, Brazilian students describe their motivational factors as disease prevention, fitness, pleasure, as well as stress control (Fontes& Vianna, 2009). On the other hand, competence and social seem not as important. It is in accord with the choices results displayed in former chapter. Since the students prefer running, swimming and walking,

this kind of exercises bring less social benefits as ball games which require cooperation or high level of technical skills.

5.5 The barriers for students' physical activity participation

In this part, the students were asked to respond to the barriers that they have perceived for physical activity participation. There were 12 items in total which can be divided into 6 subcategories. Among which, 3 subcategories lack of energy (Item 8, 11) lack of motivation (Item 10,12) and lack of self-efficacy (Item 1,7) are internal barriers. Besides, external barriers were grouped to 3 subcategories: lack of resource (4,9), lack of social support (2,5) and lack of time (3,6).

As Table 10 indicates, the item ranked the highest to the lowest are *I've been thinking about other recreational activities with my friends are more entertaining than exercise; I have no leisure time for exercise because of my busy lesson schedule; my parents give academic success priority over exercise; I have no leisure time for exercise because of my social and family responsibilities; I have never energy as much as to able to do exercise; I have no exercise equipment available that I use; there is no fitness center that I could get to; I have not been thinking about my ability to exercise; I've been thinking about exercise is difficult and too tiring; my family or friends do not encourage me to exercise; I've been worried about my looks when I exercise; I have not been thinking about exercise has positive effects on my health.* The highest item *I've been thinking about other recreational activities with my friends are more entertaining than exercise* scored 3.51 with mean. The lowest item *I have not been thinking about exercise has positive effects on my health* scored 2.35 with mean.

Table 10. Barriers behind PA participation in Shanghai University of Sport

	Minimum	Maximum	Mean	Std. Deviation
1. I've been worried about my looks when I exercise	1	5	2.63	1.27
2. My parents give academic success priority over exercise.	1	5	3.14	1.18
3. I have no leisure time for exercise because of my social and family responsibilities	1	5	2.99	1.25
4. There is no fitness center that I could get to.	1	5	2.88	1.26
5. My family or friends do not encourage me to exercise.	1	5	2.64	1.13
6. I have no leisure time for exercise because of my busy lesson schedule	1	5	3.29	1.24
7. I have not been thinking about my ability to exercise.	1	5	2.70	1.34
8. I have never energy as much as to able to do exercise	1	5	2.97	1.29
9. I have no exercise equipment available that I use.	1	5	2.95	1.26
10. I have not been thinking about exercise has positive effects on my health.	1	5	2.35	1.37
11. I've been thinking about exercise is difficult and too tiring.	1	5	2.69	1.26
12. I've been thinking about other recreational activities with my friends are more entertaining than exercise.	1	5	3.51	1.33
13. I am afraid of injuries.	1	5	3.44	1.27
N	226			

*Means of the scores given to the options selected by the respondents: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree

Table 11 shows the ranking of 6 subcategories of perceived barriers among Chinese university students. The items rank from the highest to the lowest are *lack of time, lack of motivation, lack of resources, lack of social support, lack of energy and lack of self-efficacy* with respectively mean 3.14, 2.93, 2.92, 2.89, 2.93, 2.67. External barriers outweigh much more than internal barriers with respectively mean 2.25 and 2.98.

Table 11. Barriers subcategories analysis

	N	Minimum	Maximum	Mean	Std. Deviation
lack of energy	226	1	5	2.83	1.29
lack of motivation	226	1	5	2.93	1.47
lack of self-efficacy	226	1	5	2.67	1.30
Internal barriers	**226**	**1**	**5**	**2.25**	**1.36**
lack of resource	226	1	5	2.92	1.26
lack of social support	226	1	5	2.89	1.18
lack of time	226	1	5	3.14	1.25
external barriers	**226**	**1**	**5**	**2.98**	**1.24**
	226				

The most agreed barrier lack of time is not the excuse only for Chinese university students, Similar studies in Spain and Egypt reported the same outcome. Spanish scholar found that the three highest scored barriers corresponded to “too much work”; “lack of time for exercise” and “laziness”. A study (Webber & Mearman, 2009) in the UK further illustrated that time constraints negatively affect sports participation and this also applies to students who previously rejected sports. A Turkish study (Arzu, Tuzun, & Eker, 2006) on physical activity also verified that external barriers took more significant effect than internal barriers for students´ participation. They reported that “Lack of time due to busy lesson schedule”, “My parents give academic success priority over exercise. ”and “lack of time due to responsibilities related to the family and social environment” were most cited items for physical activity barriers.

Other external barriers such as lack of support and resources rank relatively high as well. This indicates that government still need put further effort mass physical education and universities still lack recreational facilities and quality operation that could attract the students to be physically active. These findings can be an indicator for the management team of the universities to consider in the future development of their sports and recreational facilities.

5.6 Gender differences in physical activity participation among university students

Table 12 shows the gender differences on physical activity choices. The five most liked physical activities by male students are running, basketball, muscle training, swimming and badminton. On the other hand, the most liked five physical activity by female are walking, running and swimming, badminton and tennis. Over half of female students (51.61 %) like walking while almost half of male students like running (48.04 %). Therefore, in order to further engage more female students in active activities, the universities could organize sport events related to female favorite physical activities such as running competition or offering swimming classes in order to attract their interest.

Table 12. Different choices among male and female university students

		Male		Female	
		N	Percent of case	N	Percent of case
Choices	Running	49	48.04%	55	44.35%
	Swimming	37	36.27%	54	43.55%
	Walking	20	19.61%	64	51.61%
	Badminton	28	27.45%	48	38.71%
	Basketball	48	47.06%	16	12.90%
	Tennis	20	19.61%	38	30.65%
	Muscle Training	40	39.22%	16	12.90%
	Table Tennis	22	21.57%	20	16.13%
	Biking	6	5.88%	34	27.42%
	Soccer	20	19.61%	6	4.84%
	Chinese Martial Arts	8	7.84%	5	4.03%
	Hiking	4	3.92%	8	6.45%
	Golf	2	19.61%	8	6.45%
	Volleyball	2	19.61%	0	0%
Total		306	300%	372	300%

As for motivational mediators, female participates for improving their appearance, health and enjoyment. On the other hand, male participates for health, competence and

enjoyment. By identifying the differences on barriers and motivations, it is easier to come up with the solution for less active female group.

Table 13. Motivation and barriers among different genders

	Male			Female		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation
Social	102	3.61	0.08	122	3.77	0.05
Appearance		3.78	0.13		4.32	0.05
Competence		3.90	0.08		3.73	0.24
Health		3.98	0.14		4.03	0.27
Enjoyment		3.85	0.08		3.96	0.21
lack of energy	102	2.79	0.19	122	2.86	0.10
lack of motivation		2.99	0.54		2.89	0.61
lack of self-efficacy		2.53	0.14		2.77	0.05
Internal barriers		**2.77**	**0.19**		**2.86**	**0.10**
lack of resource		3.05	0.03		2.80	0.04
lack of social support		2.99	0.17		2.81	0.32
lack of time		3.40	0.13		2.93	0.17
external barriers		**3.15**	**0.18**		**2.84**	**0.06**

6. Discussion

6.1 Physical activity awareness and knowledge

Currently, under the supervision of the Ministry of Education (MOE), PE is a mandatory course for all the students from the beginning of the elementary school until the second year of university. However, with all the mandatory courses the students take along the years, they still lack the information of what kind of intensity and duration of physical activity is the best for their health.

Former studies support this result and explain the situation; the problems lie on the education system that focuses on skills development instead of comprehensive learning. Finnish scholar Kajanus (2016) and Chinese scholar Wang (2005) agree that PA knowledge among university students is deeply influenced by the traditional ideology of sport that was promoted in the lower education. They both clarify that physical education among schools have militaristic features and nationalistic motivations. China PE classes mainly take place in the playground or sport field. The methodology of physical education is about practicing a sport by repetition. In this way, PE teachers fail to draw their students´ attention and activate their initiative. During physical education along the years, the subject is not treated as sciences instead it is a tool to improve physique (Yi & Wang, 2012).

Besides the methodology, Chinese researchers (Yi & Wang, 2012) also point out that PE content is repetitive and rigid, it detrimental when it comes to individual potential development. Wang (2005) thinks that owing to the limitation of facilities and equipment, the content of physical education among schools is homogeneous. The students do not have many choices so it is hard for them to develop their interests and be versatile.

Lee (2011) further illustrate Wang's arguments by mentioning in his article¨ The two extremes of Chinese characteristic physical education¨ that the number of gold medals cannot represent the physical condition of Chinese people. Lee´s statement has been supported by other researchers (Zhao, 2006; Chen, 2003). They believe that China failed to fund physical activity for the mass population, while it spends heavily on the

training of elite athletes in pursuit of gold medals. With fewer funding goes to sport programs in the schools, there is a shortage of facilities. Therefore, the authorities in schools have little encouragement for students to engage in physical activities. Furthermore, they also point out that parents and schools emphasize rote learning and preparation for examinations and discourage students from spending time being physically active. These are also tributes of student lacking of basic physical activity knowledge (Chen, 2003).

In conclusion, the HEPA education is taking effect on improving the PA awareness among university students; however, it is still not sufficient. The lack of knowledge among university students contributed to the ineffective physical education in previous study in primary and middle schools. The problems of PE in lower education are rigid methodology, homogeneous content, lack of facilities as well as lack of family encouragement.

6.2 Physical activity preferences among university students

Despite the differences between traditional Oriental and Western sport ideologies, researchers observe that Western sport culture had a huge influence on contemporary school sport in China and the choices of physical activity among students. The reason traces back to the early formation of school sport system (Quan, 2011; Zhang, 2002). Modern China has experienced a blank period of school sport owing to the policy of seclusion adopted by Qing dynasty. There was not any physical education in Chinese educational system until the emerge of Western culture after the Opium War. The process of modernization driven by the open policies started since then. Yangwu Party which supported opening-up and learning from western advanced knowledge established different western style schools. The schools copied foreign school curriculums; hired foreign teachers; adopted foreign military training approaches; promoted western sports such as fencing, track and field, ball games and gymnastics. Besides, the schools sent a considerable amount of students to the North America and West Europe to learn science subjects and advanced educational systems. This period was marked as the beginning of the formation of physical educational system among schools in modern China. In 1913, western competitive sports such as swimming, ball games and track and field prevailed not only in school but also in extracurricular activities. Plenty of schools started to organize sport competition since then. Thus, it is

not hard to acknowledge that modern physical activities preferences among university students are influenced by this historical root (Zhang, 2002).

When it comes to different choices of sport, the reasons vary a lot. It is widely acknowledged that table tennis and badminton are popular among Chinese citizens within all age ranges. This contributes to Chinese excellent performance in international competitions. As we know, elite table tennis and badminton games are dominated by the Chinese. For example, Chinese badminton player Lin Dan has won two-time Olympic champion and five-time world champion. On the other hand, Chinese table tennis players have taken up 60% of the men's World Championships since 1959 and nearly all of women's World Championships since 1971. Owing to the sport stars influence, badminton and tennis are also well-liked in China's free-time sector (Klingelhöfer, 2017).

Besides, table tennis has a huge influence on the Chinese diplomatic history. In April 1971, during the Cold War, American ping pong players visited Communist China. This trip is attributed for revitalizing diplomatic relations between the US and China after 22 years´ disconnection. Within one year later, Richard Nixon as the first American president visited the People´s Republic of China, after the outbreak of ping pong diplomacy. Therefore, Chinese people's enthusiasm for table tennis has a deep historical root (Wikipedia, 2017).

Nowadays, running, as a trendy activity, is one of the most highly participated recreational physical activities in China. It is reported that 44% active Chinese exercisers choose running as their main activity. The main driving forces behind for most runners are to improve health and immune system (male 79%, female 73%). Besides, 48% women regard running is a tool to lose weight and get in shape (Nielsen, 2015). With the advancement of technology and social networking, people started to regard running as a fashionable choice. Nielsen´s report also revealed that 60% sport participants like to show off their sport performance on social medias. The latest studies clarified that the popularity of walking and running is associated with public open space such as urban park. (Koohsari et al., 2015; Liu, Li, Li & Zhang, 2017). A positive correlation was found of urban parks with physical activity participation and mental health. Public open spaces are key built environment elements within neighborhoods for encouraging physical activities such as walking and running.

In conclusion, traditional Chinese philosophy has a huge influence on physical activity in China. The essence of cultivating body and morality through gentle actions has a significant difference with western sport ideology which aims for competing and achieving. However, the choices of physical activities in modern China has affected by both western and oriental culture. Gentle exercise such as brisk walking and Taichi is still popular among Chinese citizens especially senior citizens. The competitive physical activities such as running, swimming and balls games are quite popular among university students. Furthermore, these choices are not only influenced by culture; role model influences and technology development as well as facility accessibility are all important when it comes to alter one's choices of physical activity.

6.4 The motivations of students participating physical activity

The results show that most students exercise to define muscle and to look better. This result is in accord with current fitness booming phenomenon in China. According to Cass (2016), the fitness industry in China has soared drastically in the recent years. The reason behind the booming fitness industry can be summarized into following two reasons.

First, cultural erosion and western beauty standard have influenced Asian judgement to a great extent. Owing to the exposure to western movies, music video, commercials and magazines, fit bodies have becoming a new trend in China (Latham, 2007; French & Crabbe, 2010). As study reported, slender muscular male models have cause the increase of body dissatisfaction (Baird, Amy, Grieve & Frederick, 2006; Galioto & Crowther, 2013). Also, slim female models also cause concerns on body image among girls (Grabe, Ward & Hyde, 2008) Thus, young adults in university are trying to define their muscles to keep with the new trend.

Second, the Internet, technology and social networking has pushed the fitness wave even higher among young generation which dominates online world. Since 2015, Chinese social media have helped to promote the fitness tendency. With the exposure to others fitness record and healthy lifestyles, many young adults feel more motivated to obtain a fitter body by joining a training program. Furthermore, unlike senior citizens who have more flexible time, young adults prefer less time-consuming, less site-limited and less expensive activities. The technology makes their demands easily come true,

popular applications such as Coolfit, Fitmob and Keep offer people with free online fitness courses for muscle defining. Also, electronic devices which can record the number of steps, heart rate and other physical data, greatly encourage people to keep fit (Daxue Consulting, 2016).

As revealed in former chapter, appearance is the most important motivator for Chinese university students keeping an active lifestyle. This result corroborates with previous studies (Brudzynski& Ebben, 2010; Tang & Chen, 2013). The perception of body contributes a lot motivating student to engage in physical activities. Previous studies (Bergenholtz, 2014) identify that negative body image is connected to high level of sport participation. Moreover, South Korean also leads young Chinese people to pursue perceived ideal body with their pop culture and cosmetic surgery. Having a good appearance could help one to get a better partner, perfect job and all the material wealth that he or she wants (Bissell & Chung, 2009).

On the contrary, some researchers expressed their concerns that chasing body and appearance which are displayed on the mass media may bring body shaming thus increase the depression rate (Baird & Grieve, 2006; Grabe, Hyde, & Ward, 2008; Luo, Parish, & Laumann, 2005; Tang & Chen, 2013; Zhang, 2012). Besides, Chinese have more slim bodies, for this reason, being fat and chubby contradicts not only public images but also social common norms. Thus, HEPA promotion among university should not ignore the education on mental health as well. Helping students build a right value towards their body is important for motivating their participation as well as avoiding their depression

In conclusion, the main motivation for PA participation for students in SUS were appearance, health and enjoyment. This result agrees with former studies worldwide. Owing to current exposure to foreign entertainments, the beauty standard has been changing in Chinese society. The images of models in mass media bring more pressure to students on their appearance, thus, they tend to motivate themselves to participate physical activity in order to improve their appearance. In addition, as previous studies indicated, health and enjoyment are also important motives among university students. Since the students in SUS have a high consciousness of physical activity, it is not hard for them to be engaged.

6.5 The barriers of students participating physical activity

As for barriers, the results are in line with the previous researches on physical activities as recreation (Arzu, Tuzun & Eker, 2006). Young Chinese adults today have priorities of other recreational activities over exercises or sport. Primarily, they choose to fulfill their intimate needs such as building friendship, make more acquaints, amusement, sex, love or travelling. Another study stated that (Wei, Huang, Stodolska & Yu, 2015) the passive leisure activities such as watching TV and surfing on the Internet has a positive effect on the level of happiness. Therefore, when Chinese have leisure time, they prefer to do some quiet and peaceful activities. Wei, Huang, Stodolska and Yu´s survey (2015) has proved that these relaxing activities could significantly enhance the happiness among Chinese people. On the other hand, socializing, shopping and exercising could be too tiring and troublesome for them (Wang & Stringer, 2000).

Chinese people are known for being hardworking and their work oriented lifestyle (Li, 2009). One study points out that Chinese people experience a sense of guilt when it comes to leisure activities (Walker and Deng, 2004). Chinese university students dedicate a lot of time on their academic study and spend a lot of time on achieve their educational objectives (Wang, 2005). Wang´s study reveals that Chinese university students spend much more time reading and studying than American university students. On average, they read for 9.6 hours per week and study for 22.3 hours per week, compared to 4.4 hours per week of reading time and 9.1 hours per week of studying time for US students. It could be seen in the result of the survey that I have no leisure time for exercise because of my busy lesson schedule ranked the second highest among all the barrier items.

Moreover, Chinese people have prejudice against sport students. They discriminate them for being bad at academic performance or simply being less smart. Therefore, as reported in the result of the survey, my parents give academic success priority over exercise ranked the third highest barrier among all the items. The Chinese old saying that “strong limbs, simple mind” clearly shows a disapproving cultural attitude toward exercising activities for physical strength (Quan, 2011). Also, in China when one makes a mistake on mathematics, people usually make fun of him by saying his math is taught by PE teachers. Or if one makes a mistake on Chinese grammar, he will also be commented that his Chinese is taught by PE teachers. Owing to this negative cultural

attitude, Chinese student do not receive enough support and encouragement on physical activity participation from their parents.

In conclusion, Chinese university are occupied with their academic studies as well as social activities such as internship. Once they have leisure time, they do not have extra energy to do active leisure activities so that they are inclined to amusement and relaxation. As a result, the activities related to personal skills and talent development are frequently lacking. Besides, Chinese society value much more academic performance and have prejudice against sport students. Thus, the parents and family do not give fully support students actively engage in physical activities. As for those students who can overcome all the barriers to decide to do some exercises, they simply cannot find a fitness center to go or do not have equipment or field to participate the sport they would like to do. Furthermore, the respondents do not agree that being inactive is because they think exercise do not have positive effect.

6.6 Female physical activity participation

Previous studies on female physical activity level (Radu, Făgăraş & Vanvu, 2015) pointed out that a majority of female university students are sedentary. According a recent study (Lu, 2016) on leisure activities among female university students in China, surfing the internet and watch TV programs are the most prevalent choice (25.6%); besides, shopping (20.2%), party with friends (15.3%), watching films (13.3%), studying in the library (10%) are all more popular than exercising (5.6%). This study revealed this target group in Shanghai University of sport are quite active compared to the data worldwide. However, it universally (Hallalet al., 2012) proved that, male students are more likely to engage in health-enhancing physical activity than female students in university. Thus, an analysis focusing on the characteristic of PA participation among female students is very necessary for HEPA promoters tailor the programs with an emphasis on inactive female students.

A Chinese scholar (Sun, 2016) explained lower level of PA participation among female students by summarizing the reasons as following. Firstly, owing to psychological factors, female students have a low self-efficacy when it comes to physical activity and they are afraid of embarrassing themselves because they do not have high technical skills. Secondly, environmental factors such as inadequate sport facilities, old broken

equipment, badly organized and boring sport programs are stop them from taking actions to engage in active activities. Thirdly, family influence is vital for forming a positive attitude towards physical activity. In China, it is said that people with the same traits are more likely to form a group and usually the traits are inherited from family roots. So Chinese scholars believe low awareness of PA among older generation has taken a toll on current generation. Moreover, if the students do not get the support since they were young, it is hard to change their habits after they get into universities.

The thesis revealed both contradicted and coordinated outcomes with Sun´s study. The table 10 in previous chapter illustrates a different result that among all the barriers subcategories, lack of self-efficacy is the least agreed one. On the other hand, lack of time was reported as the most important mediator among both male and female students. As discussed before, this result is in accord with most of previous study. Moreover, the table highlights the fact that male students face greater external barriers while female have to overcome more internal barriers. Besides lack of time, male students reported that lack of resources as the second significant barrier. On the other hand, female reported that lack of motivation and lack of energy hinder them from participating PA.

In conclusion, female and male students prefer different choices, have different motivations, face different barriers. Owing to female students are less active than their male counterparts, HEPA promotors should take these aspects into consideration in order to engage female.

7. Conclusion

The first objective of this quantitative study was to find out if university students have a high awareness of physical activity. The result of this research is in accord with former ones that university students do obtain a high consciousness of physical activity. Unlike former studies argued about the connection between sport awareness and sport behaviors, this study focused on evaluate if the students have basic physical activity knowledge. The result revealed that having high awareness does not equal to having enough health knowledge, the students do not have the basic knowledge about the appreciated frequency and duration. It may also have explained why few Chinese university students reached high level of HEPA.

The second objective is to evaluate the level of health-enhancing physical activity among university students. Early global studies found that this target population is physical inactive and one third of Chinese university students maintain an inactive lifestyle. However, the results indicate that even though Chinese are not as active as their European counterparts, most of them can maintain a moderate active lifestyle. The proportion of HEPA is considerably higher than some South Asian countries and South American countries. By comparing the result with statistics from HEPA studies worldwide, we can conclude that percentage of Chinese students engaging in high level of HEPA is quite low.

The third objective is to identify the most liked physical activity among university students. Running, swimming and walking are prevailing among this population, it may be led by current fitness heat in Chinese society; besides, running and walking is less site limited and cheap options for students. Furthermore, western competitive ball games are prevailing among university students. It may result from the western influence since the formation of school sport system in modern China as well as current entertainment influence.

The fourth objective is to identify the influential determinants of health enhancing physical activity participation. The study revealed that appearance, health and enjoyment are the main driving forces for PA participation; on the other hand, external barriers such as lack of time, resources and supports weighed more when it comes to hinder students participating physical activities.

Last but not least, the study revealed gender differences existing in PA level, PA choices, PA motivations and barriers. Supported by former studies, the result shows that female students are less active than their male counterparts. Different gender prefers different physical activities while running, swimming and badminton are popular among both genders. The most agreed motivational factors among female are appearance, health and enjoyment while among male students are health, enjoyment and competence. As for barriers, both genders find it is hard to spare free time for physical activities. At the same time, male students also exposed that inadequate resources and support have taking toll on their active lifestyle. Female students on the other hand illuminated that lack of motivation and energy make them prefer passive activity during their spare time.

In conclusion, the main findings of this study are; 1. The students in Shanghai university of sport has a high awareness of the importance of PA and a little knowledge about it. 2, HEPA participation level among students in Shanghai University of Sport is relatively high; however, only small percentage of students can reach high HEPA level. 3. Male students are more active than female. 4. The most popular physical activities are running, swimming and walking. 5. The students engage in physical activities out of appearance purposes, health benefits and enjoyments. Moreover, they have to overcome the barriers such as lack of time, lack of resources and lack of support.

7.1 Future Suggestions

The results have a significant indication on further intervention of HEPA promotion in Chinese universities. First, HEPA promotion decision makers are highly suggested to draft a PA recommendation for Chinese citizens and further emphasize on health education. Health education should include both physical and mental health knowledge owing to current appearance chasing wave in China. The education programs can be expanded through social media since new technology has a significant influence on students' daily life. Second, Chinese government should put more investment on facility building among schools. As discussed in previous chapter, owing to the heavy emphasis on the development of elite sport, mass sport is far left behind. Without enough funding goes to school sport, the physical education cannot be well conducted. Third, training and hiring qualified PE teachers, it is vital when it comes offering dynamic sport courses and triggering interest among students. Forth, since this thesis verified that

female students are more likely to do PA for appearance needs, so Chinese university could develop fitness courses to help female students to lose weight and define muscles. Take example of University of Jyvaskyla, there are fitness classes in campus every Monday to Friday, students can choose classes according to their schedules. Besides, swimming pool is also in accessible distance from campus and the price is affordable for students. Fifth, in the case of Shanghai University of Sport, the results show that lack of time is the main barriers, it indicates that universities should put sport as a compulsory course to ensure students reserve time to engage in PA, besides, lack of resources is also reported as a significant barrier, it indicates that the sport program is not well organized in SUS even though the university has very good fields and facilities.

8. **Thesis Evaluation**

My research topic is what I am interested since I applied this master program. Studying in University of Jyvaskyla even trigger more my curiosity of finding out the reasons behind huge differences of PA habit between Finish university students and Chinese university students. In Finland, the physical activities and sports play an important role in student's everyday life. On the campus of University of Jyvaskyla, various sport services, equipment, and fields are offered for students. On the contrast, Shanghai University of Sport, as a sport university with enough equipment and fields, cannot provide the same quality sport services. For this reason, my research could be a reference for the decision makers in Shanghai University of Sport with regard to develop and promote HEPA program. Besides, I am glad that my study provides a reference for HEPA studies worldwide since current there is no physical activity study adopted IPAQ and health-enhancing concept in mainland of China.

Writing this thesis is a demanding and challenging work for me, because English is not my native language, it is inevitably for me to make mistakes in writing. But I tried my best to revise the text several times in order to perfect my vocabularies and grammar. Besides the language, collecting 226 samples and analyze all the data is time consuming and demanding as well. Owing to program schedule, I did not have enough time to collect more samples, and collecting date online did not have an optimal response. Fortunately, my professor and juniors in Shanghai University of Sport offered generous help with data collection. In general, this study allows me to practice all the academic knowledge that I acquired during two-year study and I am satisfied with the result that this study provides.

This study had three important properties. First, our data were collected from the university students. This population was qualified as a major sector of young adults and our future social opinion leaders (Leslie et al., 2001). Second, even though there are plenty of researches focused on physical activity level of Chinese university students, none of them have adopted IPAQ and HEPA measuring mechanism. Comparing global physical activity level among university students can be difficult because studies using different standards to categorize the data. However, considering the expanding amount of HEPA studies worldwide, this study could be a good reference when comparing

global HEPA level among university students. Third, the combined examination on both motivations and barriers among university students is underdeveloped especially with a focused analysis on female students (Brown, 2005; Grubbs, 2002). The results could provide valuable information when universities further advance their sport services.

On the other hand, there are some inevitable limitations in my research. First of all, the students in Shanghai University of Sport may not represent all Chinese university students sufficiently. Even though the students do not practice sport as a profession but they study sport related subjects, it may make them more conscious of physical activity and knowledgeable of health and wellness. But owing to data accessibility, collecting data in this university is most feasible and convenient. Second, owing to the time limitation and funding, the amount of sample is not enough as well. Considering Shanghai is a highly populated city with millions of university students, hundreds of samples are way too small to identify the characteristic among this target group. The recommendation for further research is to enlarge the sample quantity to get more well-rounded results. The massive data is necessary for evaluating HEPA level among university students in Shanghai. Also, the further studies are suggested to involve varied students in other undergraduate programs, faculties and universities; perhaps different level of HEPA participation, motivations, internal or external perceived barriers could be identified.

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Appendix (Questionnaire)

大学生体育运动的状况及动机研究--以上海体育学院为例

您好，我是上海体育学院 15 届毕业生，目前在芬兰与韦斯屈莱大学攻读硕士学位，现需要做一份有关大学生参与体育锻炼的动机和阻碍的调查。请您仔细阅读每个题目，并依据您目前的实际情况和真实感受来回答。本次调查结果不记名、不公开，仅作为科学 研究之用，您的回答无对、错之分，请如实填写，衷心的感谢您的配合!

第一部分：基本信息

1.性别
○ 男 ○ 女

2.出生年份_____

3.所学专业及所属学院
○ 体育新闻与外语学院 ○ 运动科学学院 ○ 经济管理学院

4.学习程度
○ 大一 ○ 大二 ○ 大三 ○ 大四

5.自我评价健康状况
○ 极好 ○ 良好 ○ 合格 ○ 较差

6.我知道锻炼给健康带来的益处
○ 是 ○ 否

7.是否知道自己所在年龄段国际推荐的身体运动的频率及强度
○ 不知道
○ 至少 60 分钟高强度或 100 分钟中等强度运动每周
○ 至少 75 分钟高强度或 150 分钟中等强度运动每周
○ 至少 90 分钟高强度或 200 分钟中等强度运动每周

8.我知道，为了达到全面的健康促进，肌肉锻炼的必不可少
○ 是 ○ 否

9.是否知道国际推荐的肌肉锻炼频率
○ 不知道

○ 每周至少一天参与
○ 每周至少两天参与
○ 每周至少三天参与

10.你最喜欢的三种运动，例如
跑步 游泳 散步 骑单车 打篮球 踢足球 肌肉训练 羽毛球 网球 高尔夫 徒步 乒乓球
1. _____
2. _____
3. _____

第二部分：国际体力活动问卷

我们想要研究人们在他们日常生活中参与多少种的运动，这个问卷将讨论你在最近 7 天花在身体活动上的时间，请回答每一个问题，甚至如果你是一个运动不积极的人，请想一想你在工作时的活动、像是你在家裡或园艺的部份、从一个地方到一个地方及在你空间的时间运动或娱乐。

想一想在最近 7 天里你做过所有的较强烈的运动，较强烈的运动是指以费力的身体负荷且让你呼吸较正常更为急促的活动，只将至少十分钟的运动算在内。

1. 最近 7 天裡，你有多少天做过较强烈的身体活动，像是提重物、苦力、有氧运动或快骑脚踏车?

每周___天
___没有较强烈的体育活动（若填是，请转至问题 3）

2. 在参与较强烈的身体活动的那些天，你通常花多少时间做强而有力的身体活动？

每天___小时 ___分钟
___不确定

想一想最近 7 天你做过所有中强度的运动，中强度的运动是指以适度的身体负荷并且让你呼吸比正常费力一些的活动。只将至少十分钟的运动算在内。

3.最近 7 天裡，你花多少时间做中强度的身体活动，像是提轻的物品、正常的速度骑脚踏车或网球双打？
不包含走路
每周___天
___没有中强烈的体育活动（若填是，请转至问题 5）

4. 在参与中**强度的运动**的那些天，你通常花多少时间做这些中强度的运动？

每天___小时___分钟

__不确定

想一想最近 7 天你花多少时间在走路，包含工作、在家、从某地到某地、娱乐、游戏或休閒时的走路。只将至少十分钟的身体活动算在内

5. 最近 7 天裡，你花多少天步行，且每次至少 10 分钟？
每周__天
__没有超过十分钟的步行（若填是，请忽略问题 6）

6.在步行的那些天里，你通常花多少时间在步行？

每周__小时 __分钟
__不确定

第三部分：学生运动动机与阻碍调查

请根据自己真实感受打分，完全不同意 1 分，完全同意 5 分

	1	2	3	4	5
1. 我想拥有强健的体魄	○	○	○	○	○
2. 我想控制体重	○	○	○	○	○
3. 我想参加娱乐性强的活动	○	○	○	○	○
4. 我想获得新的运动技能	○	○	○	○	○
5. 我想认识些新朋友	○	○	○	○	○
6. 我想放松压力，保持身心健康	○	○	○	○	○
7. 我想保持或改善体形	○	○	○	○	○
8. 我想保持愉快的心情	○	○	○	○	○
9. 我想提升现有的运动技能	○	○	○	○	○
10. 我想增进与朋友的感情和友谊	○	○	○	○	○
11. 我想过健康的生活	○	○	○	○	○
12. 我想使我的外貌更有吸引	○	○	○	○	○
13. 我想享受运动	○	○	○	○	○
14. 我想保持目前的运动技术水平	○	○	○	○	○
15. 我想保持良好的社会关系	○	○	○	○	○
16. 体育是必修课	○	○	○	○	○

请根据自己真实感受打分，完全不同意 1 分，完全同意 5 分

	1	2	3	4	5

1. 我担心运动的时候会显得我很难看	○	○	○	○	○
2. 我家人更关注我的学业而不是我是否积极运动	○	○	○	○	○
3. 我有其他的社会或家庭责任，没有空闲时间去运动	○	○	○	○	○
4. 没有健身的地方可以去.	○	○	○	○	○
5. 我的朋友和家人不怎么鼓励我运动	○	○	○	○	○
6. 学校的课很多，我没时间锻炼 e	○	○	○	○	○
7. 我觉得我不具有运动的身体素质或天赋	○	○	○	○	○
8. 我没有精力去锻炼	○	○	○	○	○
9. 我没有可用的锻炼器材	○	○	○	○	○
10. 我觉得锻炼对我的健康没有什么积极帮助	○	○	○	○	○
11. 运动对我来说太难太累了	○	○	○	○	○
12. 我可以和我朋友做其他比运动更有意思的娱乐活动	○	○	○	○	○
13. 我害怕运动损伤	○	○	○	○	○

Questionnaire on Your Choices, Motives and Barriers of Sport Participation

Dear Mr./ Ms.,

I'm a master degree student of University of Jyväskylä in Finland. Now I am doing a research about the level and motivation of health-enhancing physical activities participation among university students. Please read every subject carefully, and answer it according to your reality and true feeling. This questionnaire is anonymous and not open, and only used to scientific research. Your answer will not be judged right or wrong, so please truthfully fill in. The results of the research are based on the average of the answers. We are grateful for your cooperation. Thanks for your participation.

PART ONE: BASIC INFORMATION

1.Gender

○ Male ○ Female

2.The year of birth _____

3.Faculty

○ School of Sports Journalism and Foreign Studies

○ School of Kinesiology

○ School of Economics and Management

4.Study Grade

○ Freshman ○ Sophomore ○ Junior ○ Senior

5.Is your health in your opinion

○ Excellent ○ Good ○ Fair ○ Poor

6.I am aware the health benefits that physical activities produce

○ Yes

○ No

7.I have the knowledge of international recommendations of physical activity for my age.

○ I don't know

○ 60min vigorous physical activity or 100 min moderate to vigorous physical activity per week

○ 75min vigorous physical activity or 150 min moderate to vigorous physical activity per week

○ 90min vigorous physical activity or 200 min moderate to vigorous physical activity per week

8.I am aware of the significance of muscle-strengthening activities in order to gain comprehensive health benefits

○Yes

○ No

9.I have the knowledge of international recommendation for the frequency of muscle-strengthening activities

○ I don't know

○ At least once per week

○ At least two days per week

○ At least three days per week

10. Name three of your favorite physical activities. For example, running, swimming, walking, biking, basketball, soccer, resistance training, badminton, tennis, golf, hiking, table tennis

1. _____
2. _____
3. _____

PART TWO: IPAQ SHORT LAST 7 DAYS SELF-ADMINISTERED FORMAT

We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the last 7 days. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

Think about all the vigorous activities that you did in the last 7 days. Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

1. During the last 7 days, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?

___days per week

___ No vigorous physical activities skip to question 3

2. How much time did you usually spend doing **vigorous** physical activities on one of those days?

___ hours___minutes per day

___Not sure

Think about all the moderate activities that you did in the last 7 days. Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

3. During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

___days per week

___No moderate physical activities skip to question 5)

4. How much time did you usually spend doing moderate physical activities on one of those days?

___ hours___ minutes per day
___Not sure

Think about the time you spent walking in the last 7 days. This includes at work and at home, walking to travel from place to place, and any other walking that you might do solely for recreation, sport, exercise, or leisure.

5. During the last 7 days, on how many days did you walk for at least 10 minutes at a time?
___days per week
___ No walking skip the question 6

6. How much time did you usually spend walking on one of those days?
___ hours___minutes per day
___Not sure

PART THREE: Motivations and Barriers of Physical Activity Participation

Measurement: Please Judge According to Your Comprehension: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree

	1	2	3	4	5
1.To maintain physical health and wellbeing	○	○	○	○	○
2.To maintain or lose weight	○	○	○	○	○
3.Because it is an interesting and fun activity	○	○	○	○	○
4.To obtain new skills	○	○	○	○	○
5.To meet new people and make friends	○	○	○	○	○
6.To release stress and tension, to keep mentally health	○	○	○	○	○
7. To define muscle, look better	○	○	○	○	○
8. To make myself happy	○	○	○	○	○
9. To improve existing skills	○	○	○	○	○
10.To be with my friends	○	○	○	○	○
11.To maintain strength, live healthy	○	○	○	○	○
12. To improve my appearance	○	○	○	○	○
13. I enjoy doing physical activities	○	○	○	○	○
14. To maintain my current skills	○	○	○	○	○
15. Be with others in activity	○	○	○	○	○

16. Sport is a compulsory course in my university	○	○	○	○	○

Measurement: Please Judge According to Your Comprehension: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree

	1	2	3	4	5
1. I've been worried about my looks when I exercise	○	○	○	○	○
2. My parents give academic success priority over exercise.	○	○	○	○	○
3. I have no leisure time for exercise because of my social and family responsibilities	○	○	○	○	○
4. There is no fitness center that I could get to.	○	○	○	○	○
5. My family or friends do not encourage me to exercise.	○	○	○	○	○
6. I have no leisure time for exercise because of my busy lesson schedule	○	○	○	○	○
7. I have not been thinking about my ability to exercise.	○	○	○	○	○
8. I have never energy as much as to able to do exercise	○	○	○	○	○
9. I have no exercise equipment available that I use.	○	○	○	○	○
10. I have not been thinking about exercise has positive effects on my health.	○	○	○	○	○
11. I've been thinking about exercise is difficult and too tiring.	○	○	○	○	○
12. I've been thinking about other recreational activities with my friends are more entertaining than exercise.	○	○	○	○	○
13. I am afraid of injuries.	○	○	○	○	○