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Sport Practice And Perceptions in University Students: A Mixed-Methods Study

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Abstract

Based on the mixed-methods approach using Grounded Theory, the present study described French University students' sport practice and explored their perceptions of sport and physical activity. A representative sample of 508 students completed a self-administered questionnaire and 27 of them were further individually interviewed. We analyzed frequency of sport, personal definition of sport versus physical activity or inactivity and health behaviors. We combined descriptive statistics of quantitative data from a tablet-based questionnaire with analysis of qualitative data from semi-structured interviews. Findings showed that 54.3% of students did not practice any sport, but 60.6% engaged in physical activities like walking or cycling. Students showed difficulties in distinguishing sport practice from physical activity. In conclusion, findings suggest considering perceptions and needs of sport and physical activity in young people when designing health promoting interventions. Such interventions should consider barriers and leverages to sport practice, such as the lack of time as well as students' need for more sport activities and less workload.

Key Words: *Sport, Students, Physical Activity, Representation, Mixed-Methods*

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1. Introduction

The notions of sport, physical activity and exercise versus inactivity are often confounded. However, while often used interchangeably, sport, physical activity and exercise refer to different concepts. According to the World Health Organization (WHO) (World Health Organization, 2010), sports are included within the larger concept of physical activity which is defined as any bodily movement produced by the skeletal muscle that uses energy. Compared to planned, structured and repetitive exercise, sports have a set of rules or goals to train and excel in specific athletic skills. Competiveness is not a prerequisite for sports. Physical activity is mentioned in several health policies and is highly recommended to maintain or improve individuals' health (Bull, 2018). Specific recommendations

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concerning sport activities are less frequent, especially in France, and mixed with physical activity guidelines. However, any type of body movement has beneficial effects on people's physical and psychological well-being (Rissanen, 1991; Thorlindsson, Vilhjalmsson, & Valgeirsson, 1990).
Practicing a sport is particularly important in young people. Sports teach young people about coping with pressure and the need to stick with training in order to feel healthier. Furthermore, engaging in a sport can help to create habits and health benefits that last long into adulthood. Active adolescents and young adults have more chances to become active adults, thus improving one's physical fitness and prevent non-communicable diseases (Eime, Young, Harvey, Charity & Payne, 2013). Almost half of adolescents aged between 12 and 17 years practice a sport after school, but percentages decline rapidly in the University period, between 18 and 25 years, apart for students-athletes (Pène & Touitou, 2009). In France, like in other countries, almost 42% of students report not doing any physical activity, 38% moderate physical activity and 20% intense physical activity as reported by the French Ministerial Observatory of Physical Activity and Sedentariness (ONAPS, 2012). This decrease is often associated with elevated odds of mental health problems and higher depression scores in University students (Miller & Hoffman, 2009; Taliaferro, Rienzo, Pigg, Miller, & Dodd, 2009). Reasons why students practice less sport activities in leisure time are fragmented and not consistently documented. Some national reports outline lack of time, lowered motivation, high cost and sport facilities' opening hours not compatible with students' work schedule. According to the largest students' cohort in Europe, the Internet-based Students' Health Research Enterprise (i-Share) (i-Share, n.d.), 66% of 14 140 University students declare practicing less sport than during high school, citing lack of time (76%) and lack of motivation (40%) as the main reasons for this decrease in sport activities. Furthermore, other factors can influence sport practice like gender, the environmental conditions, economic conditions etc. (Gómez-López, Gallegos & Extremera, 2010; Irwin, 2007). Other types of activities seem to be preferred by students such as screen time, e.g. surfing the net or watching movies and TV series, or reading (Australian Sport Commission, 2017).
In addition to sport, students are also practicing physical activities at lower rates than recommended, i.e. 150 minutes per week of moderate-intensity endurance activity or at least 75 minutes per week of sustained-intensity endurance activity, or an equivalent combination of moderate and sustained-intensity activity, in periods of at least 10 minutes each (World Health Organization, 2010). Levels of physical inactivity can also rise up to 90% in young adults in France (Santé Publique France, 2017). In light of this rather alarming data, several interventions have been designed and implemented in University campuses, as reported by previous systematic reviews (Kahn et al., 2002; Plotnikoff et al., 2015; Skår, Sniehotta, Molloy, Prestwich, & Araújo-Soares, 2011). Quasi-experimental studies and randomized controlled trials have proven the effectiveness of these interventions. However, the low appraisal of such interventions and the steadily low rates of students' sport or physical activity still represent a major public health concern. Providing a picture of both sport and physical activities in this population and exploring how students perceive them in their daily life would help understand this phenomenon. In particular, in-depth information on barriers and leverages that block or hinder the beginning and continuation of an active lifestyle is needed. This information is important to increase motivation and adherence in active conduct (Gómez-López et al., 2010).

1.1. Study's framing: Grounded theory

We used Grounded theory (GT) as a systematic methodology, i.e. set of techniques and procedures, to gather and analyze data (Glaser & Strauss, 2017). This approach allows the generation of new theories but also the inductive examination of speeches and verbatim. It is particularly used in public health as a complement to the hypothetico-deductive model frequently used in epidemiology. GT is particularly valuable when the topic of interest is not well-assessed and previously studied in a specific population, e.g. perception of sport in young people. More specifically, GT seeks to explain "how" and "why" people behave in certain ways in different contexts and domains like health and lifestyle. Furthermore, this methodology is used when the aim of the study is to analyze representations of a particular phenomenon. Furthermore, GT has the advantage of bringing structure and rigor to the analysis of qualitative data (Foley & Timonen, 2015). Especially in a mixed-methods

approach, GT is advised to complete data from questionnaires that are explorative and not validated and to provide a fine-grained understanding of process behind patterns in quantitative data.

1.2. Research objectives

This study was aimed at describing in University students their (1) sport and physical activity, and (2) perception of sport versus physical activity and attached barriers and leverages. Results would help better appraise which reasons underpin students' low levels of physical activity, and inform future interventions to promote physical activity in University campuses.

2. Methodology

2.1. Study design and participants: This was an exploratory cross-sectional study using a mixed-methods approach combining quantitative and qualitative data. We adopted a convergent parallel design where all data were collected simultaneously, then analyzed separately and, finally, cross-checked (Creswell & Clark, 2010). Participants were recruited between April and May 2019 in the four campuses of the University of Bordeaux, France. Self-administered tablet-based questionnaires were distributed by two peer-investigators to students at the end of their courses, in the corridors or in the University facilities (library, restaurant etc.). In order to obtain a representative sample, participants were chosen according to pre-defined fixed quota sampling based on sex and fields of study corresponding to the general student population of Bordeaux according to the 2017 enrolment report: 60% of female students, and 40% Health Studies, 30% Law and Economics, 20% Technical Sciences and 10% Human and Social Sciences. Students had to be ≥18 years old to be eligible. Students who accepted to participate to the study were required to sign a consent form and then handed a tablet containing the self-administered questionnaire, which took 5 to 10 minutes to complete. At the end of the questionnaire, students were free to leave their e-mail address or phone number for participating to the qualitative phase taking place one week after each inclusion. Students were contacted by e-mail, SMS or phone call. Participants underwent a semi-structured interview in the research center of the authors or in the premises of the University campuses, according to students' wish. Interviews lasted on average 15 minutes, were anonymous and audio-recorded. Participants to the qualitative phase were given two cinema tickets each by way of compensation for their time and availability. The study was approved by the University Research Ethics Committee.

2.2. Measurements: The gathering of quantitative data was carried out by means of a questionnaire including 28 items divided into three sections: section 1 included 6 items on sociodemographic characteristics; section 2 included 13 items on physical and sport activity (frequency, type, evolution in time, perception of sport); and section 3 included 9 items of physical and mental health. Section 2 was inspired by existing instruments like the Global physical activity questionnaire (GPAQ) (Armstrong & Bull, 2006) and the College Alumnus Physical Activity Questionnaire (CAPAQ) (Ainsworth, Leon, Richardson, Jacobs, & Paffenbarger, 1993). Answers to questions were dichotomous, multiple choice or interval. The questionnaire is available as *Appendix 1*.
The interview guide was composed of three main themes: representation/perceptions of physical or sport activity or exercise; health behaviors; and use of new technologies for physical health. Each theme included between one and nine sub-themes, e.g. "What's physical activity for you?" or "Why did you decide to practice a physical activity?". The interview guide is available as *Appendix 2*.

2.3. Analysis

Concerning statistical analysis, values are presented as numbers (%), means (± standard deviations, SD) and range (minimum-maximum). Univariate comparisons were made using Chi-square or Fisher exact tests for qualitative variables and Student tests for quantitative variables. Observed differences were considered statistically significant if the p-value was less than 0.05. Concerning qualitative GT analysis, three investigators worked in triangulation. Transcripts of the semi-structured interviews were analyzed per participant and across individuals. Themes and subthemes were explored following the interview guide.

3. Findings

3.1 Sociodemographic characteristics

A total of 596 students were approached to participate to the quantitative data collection. Of them, 508 finally completed the self-administered questionnaire (85.2% participation rate). Of our quantitative sample, the majority of participants were female (n=300/508, 59.1%) as expected from the quota sampling. Their mean age was 21.4 years (SD 2.0). More than half students were enrolled in the first three years of study (n=294/508, 57.9%). The majority were Economy and Laws (n=163/508, 32.1%) and Medical (n=138/508, 27.2%) students. Most of them (n=332/508, 65.4%) were living in an apartment and only 9.6% (n=49/508) in a student residence. Half of them rated their health as good (n=268/508, 52.8%) and reported good sleep quality (n=263/508, 51.8%).
Of the 508 students of the quantitative phase, 78 were contacted and 27 voluntarily enrolled in the qualitative phase (34.6% participation rate) representing a saturated sample per sex, age and field of study. Of them, 16 were female. The mean age was 22 years. All years of study and disciplines were represented, even if 12 students were doing health-related studies.

3.2 Description of physical and sport activities

Quantitative results showed that more than half of the students (n=276/508, 54.3%) were exercising at least two times per week, at least 30 minutes each time, at an intensity causing light sweating, which corresponds to a physical activity considered regular according to international recommendations. When asked more broadly whether they feel they practiced regularly a physical activity, the percentage was higher, i.e. 60.6% (n=308/508); for them, physical activity corresponded to an average of 2.5 days per week; they were also mostly practicing sport individually (n=268/508, 87.0%) and the same percentage (n=268/508, 87.0%) was doing it as a recreational activity. For 43 of them (13.7%), sport was practiced as a competitive physical activity. The semi-structured interviews also showed a very physically active sample: all 27 students declared practicing or having practiced sport, reporting that this was an important component of their daily life.

"Sport has always been a part of my life. When I was little I did a lot of different sports."
Female, 21 years, Law and Economics student

"All my life we've always played sports at my house."
Female, 22 years, Health student

The majority of students did not cycle at all during the week (n=328/508, 64.5%) while a third (n=179/508, 35.2%) used the bike at least once a week to move from one place to another. Travels were of at least 10 minutes for concerned students. During the week, students walked at least 10 minutes per day with an average of 3.99 (SD 1.69) days. During the weekend, students walked more, i.e. 1.27 (SD 0.69) days out of 2 days. In contrast with physical activity, we also asked students to report their physical inactivity. On average, students spent 7 hours and 29 minutes (SD 2 hours and 48 minutes) per weekday and 6 hours and 58 minutes (SD 3 hours and 12 minutes) per weekend day sitting for working/studying, beyond their sleep time. However, during the qualitative phase, students reported being more physically active during the week than on weekends. Indeed, they preferred to juggle study and sports during the week, using physical activity to relieve study stress. Conversely, the weekend was mostly devoted to intense revision (during mid-term exams) or rest time.

"It's the studies that take most of the time for sport."
Male, 19 years, Technical Sciences student

Data from the qualitative phase showed that students think of sport as the opposite of physical inactivity. In general, students were confused about different terminologies (physical activity or sport or exercise versus physical inactivity) and were not able to clearly define each term. Regularity and need for performance were the most frequent criteria to distinguish sport from exercise and physical activity.

"Sport is all types of physical activities, jogging, indoor sports, individual or collective."
Male, 21 years, Medical student

"[Physical activity] *it's something voluntary, something we're going to do on top of that, it's not like walking from point A to point B, I don't consider it a physical activity.* […] *You can be sedentary and still be physically active."*
Female, 19 years, Technical Sciences student

"Physical activity, for me it includes everything that is sport. […] *It comes down to this."*
Female, 20 years, Law and Economics student

"[Physical activity] *for me it's the practice of sport."*
Female, 21 years, Human and Social Sciences student

Regardless of its definition, for students, physical activity was recognized as very important for their health and students made a direct link between mental well-being and physical activity.

"I need this. Even for my mind. I'm looking for physical and mental well-being."
Female, 23 years, Health student

"I'm looking for well-being above all, it's important to evacuate all this stress. I think we have an internal tension that needs to be released."
Male, 21 years, Medical student

"[I do sport] *for my self-esteem, it affects my mental health."*
Female, 20 years, Law and Economics student

Furthermore, the importance of social ties in the practice of physical activity was also mentioned. The vast majority of students agreed that it is easier to engage in physical activity when it is shared and that social ties are essential to encourage sport practice.

"And so the social link is very important whether it's with friends or to meet new people."
Female, 21 years, Health student

"It is important to be active in a group with other people. Playing with friends or family is motivating, I prefer it."
Male, 19 years, Technical Sciences student

Students reported the need for more sport practice (n=398/508, 78.3%) corresponding to about 3 hours and a half of additional time of sport during the week. They also felt that they were less active than their peers (n=171/508, 33.7%). In particular, 69.1% (n=351/508) of students reported a huge decrease of sport and physical activity compared to the school period. These quantitative results are in line with the semi-structured interviews where students declared not being satisfied with the time they spent practicing a sport.

"I kind of stopped doing sports a little bit compared to high school, I miss it, if I could do more it would be okay."
Male, 24 years, Medical student

"I'm not satisfied with my physical activity time, I'd rather do more. Not much more, but more regularly."
Female, 19 years, Technical Sciences student

"And by the time I got to college, I dropped everything. I don't have any regular physical activity at all."
Female, 20 years, Law and Economics student

The main reason for not practicing a physical activity was lack of time (n=303/508, 86.3%), due for 97.0% of students (n=294/303) to their study activities. Other reasons were sport facilities' opening hours non-compatible with class hours (n=84/303, 27.7%), lack of motivation (n=81/303, 26.7%), wish of not doing an individual sport (n=69/303, 22.7%), economic reasons (n=63/303, 20.8%) and absence of nearby sport facilities (n=40/303, 13.2%). Lack of time as the main reason for not practicing a sport was also reported by the qualitative sample. Even lack of motivation was mentioned, but also as a side effect of lack of time. This result is consistent with the reduced time dedicated to sport as mentioned above.

"No, I would like to practice more because at the moment I'm at the minimum due to lack of time, lack of motivation. But I would like to do it, for my image and for my mental health."
Male, 23 years, Medical student

"Time. Time is a big problem.[…]*. I think it's only a matter of time."*
Female, 19 years, Technical Sciences student

"And, since I am in college, I do less karate, because of lack of time, the need to organize myself to go to trainings and the increased workload."
Male, 23 years, Technical Sciences student

"I'm lazy, I don't have the motivation, I'd rather go out for a beer with some buddies than go to the gym."
Female, 20 years, Law and Economics student

Finally, as regards the new technologies (ex. smartphone apps and smartwatches) related to physical activity, only six students of the qualitative sample reported having and using one.

"I have another application for the gym, there are little reminders to tell us that we didn't do any sport, it really motivates me."
Female, 21 years, Health student

Among those who did not have them, some said they had tried, but had never found any real utility.

3.3 Univariate analyses

One of the aims of this study was describing in University students their sport and physical activity. For this, concerning statistical analyses, we compared results between students practicing a regular physical activity and those not practicing it by sociodemographic characteristics and self-rated health. Results are shown in Table 1 and point out gender and self-rated health as significant factors distinguishing students in terms of physical activity. Since our sample was representative of female and male students' distribution, the significance of the association with sex was robust.

Table 1.
Comparison between students who participate in regular physical activity and those who do not (n=508)

	Regular practice of a physical activity (N=276)		**Non-regular practice of a physical activity (N=232)**		
	N	**%**	**N**	**%**	**P***
Sex					
Females	144	52.2	156	67.2	**<0.0001**
Males	132	47.8	76	32.8	
Place of living					
Apartment	201	72.8	180	77.6	0.2579
Other	75	27.2	52	22.4	
Years of study					0.5554
1st-3rd	163	59.1	131	56.5	
>3rd	113	40.9	101	43.5	
Field of study					
Humanities	24	8.7	27	11.6	0.7803
Economy	90	32.6	73	31.5	
Sciences	54	19.6	39	16.8	
Medicine	75	27.2	63	27.2	
Health	33	11.9	30	12.9	
Self-rated health					
Very good	60	21.7	13		**<0.0001**
Good	151	54.7	117		0.3726
Average	56	20.3	91		**<0.0001**
Bad	9	3.3	11		0.4935

Fisher test or Chi-square test or Student t test

4. Discussion and Conclusion

This study showed moderate levels of sport and physical activity in students. Even if results were slightly higher than national and international studies (Australian Sport Commission, 2017; Irwin, 2007; ONAPS, 2012; Pène & Touitou, 2009; Santé Publique France, 2017), we observed a self-reported decline in physical activity in students compared to primary and high schools. In fact, students declared they wished to practice more sport, which is an interesting result since it conveys the need to increase the offer and the visibility of sport activities inside and outside the campus

premises. Even if sport facilities exist within the campuses, students might not know where and when they are available. More effort on communication about these facilities as well as the impact of sport on health could be placed on campus interventions to promote well-being among students.

Female students were practicing less sport than their male peers. As proven also in previous literature (Eccles & Harold, 1991; Eitle, 2005), it is important to consider this gender-based difference in order to better tailor interventions aimed to improve students' physical activity. Furthermore, less physical activity was associated with poorer self-rated health as reported in a previous systematic review (Dogra et al., 2018). University life and its entire ecosystem are stressors and very time-consuming for students who are forced to make a choice between performing well in their studies and engaging in physical activity. In fact, findings of this study also point to the idea that university life exposes students to stress related to the need for academic performance and success, which is sometimes associated, in some fields, with strong competition and, in others, with uncertain opportunities.

Another important finding of this study concerns the reasons for not practicing sport. As reported in previous research (Gómez-López et al., 2010), lack of time is the main barrier to begin or continue sport and intense physical activities. This might suggest that the low adherence to sport might be linked to study time and workload. Future interventions might take this into account, proposing, for instance, to replace some time spent in class with sport activities included in the study programs. While maintaining a high performance level, students' workload could also be reduced. These initiatives might be the subject of new policies for healthier University campuses. Concerning policies, encouraging physical movement from place to place in the campuses and in the city (e.g. cycle tracks, lighted routes) might represent good political strategies to promote students' physical activity

Students were also confused about the distinction between sport and physical activity. Their contradicting answers demonstrated that while doing regularly physical activity (cycling, walking, stair climbing), they perceived themselves as non-active individuals. Students felt frustrated about the fact of not practicing a sport, thus not recognizing the relevance of their daily physical activity. However, independently from definitions, most of the students of our quantitative sample were not very active and recognize that their inactivity was a problem.

The main strength of this study resides in its mixed-methods design allowing for a deeper understanding of barriers and leverages to practice a sport. This is one of the rare studies using this methodology thus adding to the literature on this subject. Furthermore, the results of the qualitative phase were almost all in line with those of the quantitative phase thus showing study consistency. Strengths of this study also included the representativeness of its sample composed of a large number of students.

This study is not without limitations. First, the sample of the qualitative phase was composed of voluntary participants. Since the topic was announced, we might infer that students interested in sport decided to answer to the semi-structured interviews thus biasing the results. Second, although the sample of the quantitative phase was representative of the University of Bordeaux, generalizing the results of this study beyond these participants raises concern. The high rates of physical activity are slightly beyond numbers and percentages provided in the literature, which suggest to carefully consider our findings. A further limitation is the cross-sectional design of the study for the quantitative phase. The fact that questionnaires were completed during spring might have affected the results, since perception of physical activity is subject to seasonality (Bélanger, Gray-Donald, O'loughlin, Paradis, & Hanley, 2009). Finally, results of validity and reliability were not reported or measure taken for the quality of the research were not explained.

These results provide information for better designing campus-based interventions to promote sport and physical activity among students in their leisure time or also in class-practice sessions. Knowing the barriers and leverages for students to practice a sport can guide University institutions in proposing sport activities which are adapted to students' need. Results can also help understand how to build and offer sport facilities which might be frequented by students at the time and pace that best

suit them. Finally, evidence is provided for conceive and implement policies in favor of physical activity in the University setting in France as in any other country with major universities.

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APPENDIX 1. The study questionnaire

<1> Your characteristics

(Please circle the number of those that most apply, and put the specific number in "|__|".)

1. Do you have any physical impairment when you practice sports or enjoy physical activities?
   ① Yes
   ② No

2. Age: |__|__| year-old

3. Sex: ① Female
   ② Male

4. Where do you currently live?
   ① With your family
   ② In a student residence
   ③ In an apartment
   (1) Specify: ① Alone
   ② With a partner
   ③ With one or more housemate(s)

5. School year:
   ① Undergraduate |__| grade
   ② Graduate (master) |__| grade
   ③ Graduate (doctoral) |__| grade
   ④ Other: _____ |__| grade

6. Study field:
   ① Human and social sciences (psychology, sociology, letters, arts)
   ② Sports studies
   ③ Law, Economics, Political studies
   ④ Technical sciences (math, informatics, physics, chemistry)
   ⑤ Medicine
   ⑥ Health studies (public health, pharmacy, dentistry)

<2> Your physical activities

(Please circle the number of those that most apply, and put the specific number in "|__|".)

1. Do you exercise at least 2 days per week, at least 30 minutes each at an intensity that causes a slight sweat?
   ① Yes
   ② No

2. Do you practice one or more regular sports?
   ① Yes
   ② No

(a) If yes, how many days do you usually practice?
|__| days/ week

(b) If yes, which is the average duration of the practice of your activity?
① Less than half an hour
② Between half an hour and 1 hour
③ 1 hour
④ Between 1 and 2 hours
⑤ More than 2 hours

(3) If yes, which type of sport?
a) Practice as: ① Individual (tennis, athletics, swimming etc...)
② Team (football, rugby, handball etc...)

b) For: ① Recreation
② Competition

c) Do those sports cause large increases in breathing or heart rate like [running or football] for at least 10 minutes continuously?
① Yes
② No

3. Would you like to practice more sport?
① Yes
② No

a) If yes, how much time would you like to practice sports?
|__| hours/ week

4. Compared to when you were in high school, is your physical and sport activity now…
① Less important
② More important
③ Equivalent

(1) If less important, because:
① I don't have enough time

a) If yes, it is because of:
① my study
② my other extracurricular activities
③There are no sport facilities near my house or my university
④ The opening hours are not compatible with my schedule
⑤ Economic problems
⑥ Not motivated
⑦ Not keen to do sports alone

5. (For graduate students) Compared to when you were in undergraduate, is your physical and sport activity now…
① Less important
② More important
③ Equivalent

(1) If less important, because:
① I don't have enough time
a) If yes, it is because of: ① my study
② my other extracurricular activities
② There are no sport facilities near my house or my university
③ The opening hours are not compatible with my schedule
④ Economic problems
⑤ Not motivated
⑥ Not keen to do sports alone

6. How many days do you cycle from one place to another for at least 10 minutes?
For example to go to work, to go shopping...
(1) Days per working week: |__| days/ week
(2) Days per weekend: |__| days/ weekend

7. If you cycle, how much time do you usually spend on your bike per day?

(1) In Weekdays:
① Less than half an hour
② Between half an hour and 1 hour
③ 1 hour
④ Between 1 and 2 hours
⑤ More than 2 hours

(2) In Weekends:
① Less than half an hour
② Between half an hour and 1 hour
③ 1 hour
④ Between 1 and 2 hours
⑤ More than 2 hours

8. How many days do you walk from one place to another for at least 10 minutes?
For example to go to work, to go shopping…
(1) In Weekdays: |__| days/ week
(2) In Weekends: |__| days/ week

9. If you walk, how much time do you usually spend walking from one place to another per day?
(1) In Weekdays:
① Less than half an hour
② Between half an hour and 1 hour
③ 1 hour
④ Between 1 and 2 hours
⑤ More than 2 hours

(2) In Weekends:
① Less than half an hour
② Between half an hour and 1 hour
③ 1 hour
④ Between 1 and 2 hours
⑤ More than 2 hours

10. Compared to other students of the same age and sex, how would you grade your physical activity
(1) In Weekdays:
① much higher
② higher
③ average
④ lower
⑤ much lower

(2) In Weekends:
① much higher
② higher
③ average
④ lower
⑤ much lower

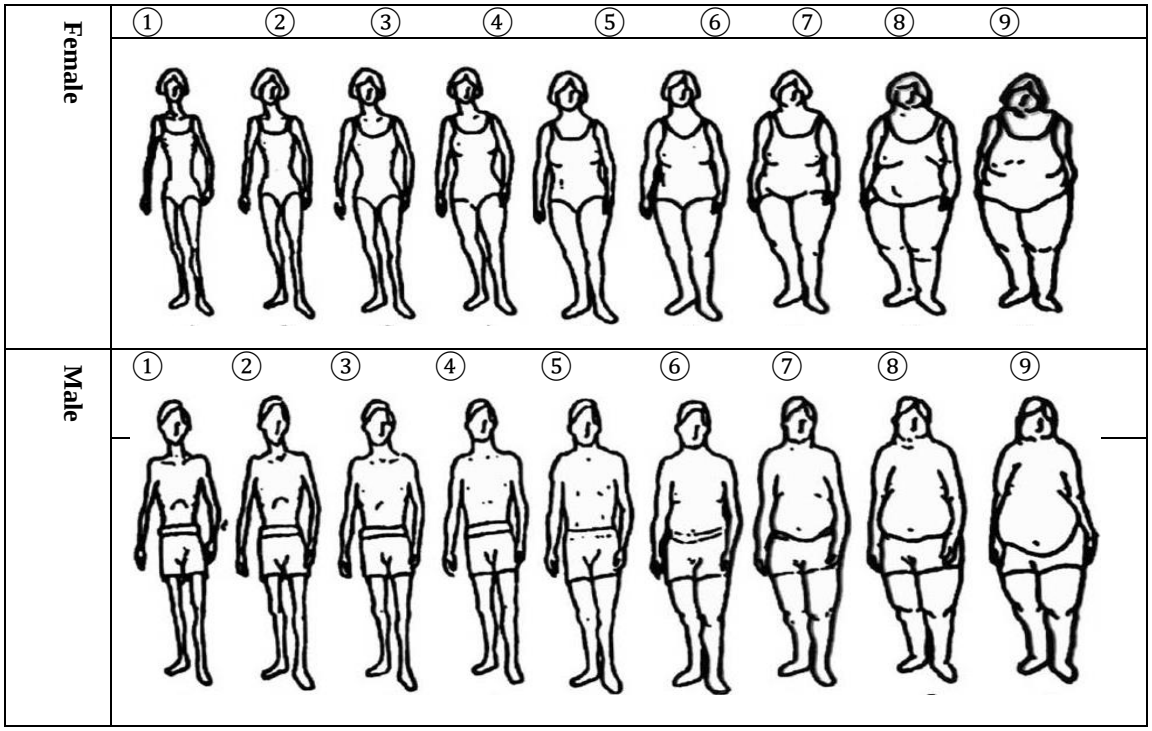
11. How much time do you spend sitting or reclining while being awake?
Sitting or reclining at work, at home, getting to and from places, or with friends [sitting at a desk, sitting with friends, reclining for naps, traveling in car, bus, train, reading, playing cards or watching television], but do not include time spent sleeping.

During a typical weekday: |__|__| hours |__|__| minutes
During a typical day of Weekends: |__|__| hours |__|__| minutes

12. What is your height and weight? (Round off at the first decimal place and answer in integer.)

Height: |__|__|__| cm
Weight: |__|__|__| Kg

13. Indicate which silhouette you think you mostly look like at present.



<3> Your health

1. How do you rate your health?
   - ① Very good
   - ② Good
   - ③ Average
   - ④ Poor
   - ⑤ Very poor

2. Over the last 2 weeks, how often have you been bothered by any of the following problems?

(1) Little interest or pleasure in doing things.
- ① Not at all
- ② Several days
- ③ More than half the days
- ④ Nearly every day

(2) Feeling down, depressed or hopeless.
- ① Not at all
- ② Several days
- ③ More than half the days
- ④ Nearly every day

(3) Trouble falling or staying asleep, or sleeping too much.
- ① Not at all
- ② Several days
- ③ More than half the days
- ④ Nearly every day

(4) Feeling tired or having little energy.
- ① Not at all
- ② Several days
- ③ More than half the days
- ④ Nearly every day

(5) Poor appetite or overeating.
- ① Not at all
- ② Several days
- ③ More than half the days
- ④ Nearly every day

(6) Feeling bad about yourself_ or that you are a failure or have let yourself or your family down.

① Not at all
② Several days
③ More than half the days
④ Nearly every day

(7) Trouble concentrating on things, such as reading the newspaper or watching television.
① Not at all
② Several days
③ More than half the days
④ Nearly every day

(8) Moving or speaking so slowly that other people could have noticed. Or the opposite_ being so fidgety or restless that you have been moving around a lot more than usual.
① Not at all
② Several days
③ More than half the days
④ Nearly every day

(9) Thoughts that you would be better off dead, or of hurting yourself.
① Not at all
② Several days
③ More than half the days
④ Nearly every day

3. How long do you usually sleep at night?
During a typical weekday: |__|__| hours |__|__| minutes
During a typical day of Weekends: |__|__| hours |__|__| minutes

4. During the last 3 months, how have you slept?
① Good
② Somewhat good
③ Neither good nor bad
④ Somewhat bad
⑤ Bad

5. During the last 3 months, have you had any difficulty falling asleep and/or maintaining sleep (awakening during the night)?
① Never or less than once a month
② Less than once a week
③ From 1 to 2 days per week
④ From 3 to 5 days per week
⑤ Every day or almost every day

6. During the last 3 months, have you felt extremely sleepy during the day?
① Never or less than once a month
② Less than once a week
③ From 1 to 2 days per week
④ From 3 to 5 days per week
⑤ Every day or almost every day

7. Usually, do you think you lack sleep (at least 1 hour less than what you need)?
① Never
② Several times a year
③ Several times a month
④ Several times a week
⑤ Always

8. Do you feel that your diet is generally healthy and well balanced?
① Yes
② No
a) If no, why?
① I do not have the economic resources to afford it
② I cannot easily access good products (supermarket, minimarket)
③ I do not know what a healthy and balanced diet is
④ I do not have the time to cook
⑤ This does not concern me at all

⑥ By choice (I cannot stop eating some products)
⑦ For other reasons

9. What is the first step you take when you want to improve your health condition?
① Eat well-balanced diet
② Do physical activities
③ Take supplements
④ Reduce alcohol consumption
⑤ Reduce smoking
⑥ Do as same as I do now
⑦ I don't know what to start.
⑧ Others (Specify: _____)

APPENDIX 2. The study interview guide

Representations/Perceptions	What's physical activity for you? In your opinion, when can a person be considered physically active? Do you think physical activity is the opposite of being sedentary? Do you think physical activity is important for your health? What is your relationship between physical activity and your physical and mental well-being? What is the relationship between diet and physical activity? *(Does the student play sports to regulate his diet, does he adapt his diet to his sport or is there no connection?)*
Health behaviors	Have you ever been physically active in your life? And now, are you doing any physical activity/sport? *If the student was active before, but not now:* Why don't you do it anymore? Would you want to do it again What kind of physical activities did you or do you do? Is it more by choice or by obligation? *(Ex: Cycling to go to class, going up 10 floors because there is no elevator, running to reduce stress)* Why did you decide to practice a physical activity? *(Determine the reasons - weight loss or weight gain? Hobbies? Feel better mentally? To meet new people)* If not, why? Do you have any difficulties with physical activity? What do you need to be physically active (motivation, friends, time, places, savings) Are you satisfied with your physical activity time? Would you like to do more? Less? Does lack of time prevent you from doing as much physical activity as you would like? Are there other reasons why you might not be able to do more? On a typical day of your student's week (when you have class), could you tell me when you think you might be physically active? And on a typical weekend day off? Can you tell me about your sleep? (Difficulty sleeping? Sleeping too much? Tired during the day?) Are you satisfied with your sleep? Is it important for you to manage your sleep well?
Use of new technologies for physical health	Do you have a health application and/or an IT object related to physical activity? If so, do you use it regularly? Do you consider it useful?