Behavioral Profile, Lifestyle and Social Skills in Portuguese Adolescents

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Abstract
Background: Seventy percent of premature deaths in adults are due to behaviors initiated during adolescence. Therefore, it is essential to promote individual and social behaviors that educate adolescents in the ability to make healthy choices. Thus, the goals of this study were to characterize the lifestyle and social skills as well as to identify homogeneous subgroups in a sample of Portuguese adolescents.

Methods: We conduct a cross-sectional study including 1008 adolescents attending 7th to 9th grade of five middle schools from Tâmega and Sousa region, of Portugal. My Lifestyle Questionnaire and the Social Skills Inventory were used. To establish a profile of the participants, a Cluster Analysis (K-means) was performed and the Jaccard coefficient was used to assess the stability of the solution found.

Results: From the total sample, 556 adolescents with a mean age of 13.43 years (SD=1.1) were included in the analysis. The majority of the sample presented a good lifestyle (72.26% indicating good LS) and 50.7% of the adolescents had a highly elaborated repertoire of social skills. Moreover, three clusters were found. Cluster 1 (n=92) showed a less elaborate SS repertoire and was named the “Adjusted”. Cluster 2 (n=115) comprised adolescents with a good SS repertoire and was named the “Sociable”. Cluster 3 (n=258) was composed by adolescents with a highly elaborate SS repertoire and the best LS indicators, and was named the “Healthy”.

Conclusions: The group of adolescents in cluster called “Sociable” needs to be included in health education and social skills programs. NUT and MS behaviors have low values and, therefore, present a greater need for awareness, sensitization and intervention in the school context. Promoting a healthy lifestyle should be part of the academic curriculum and be transversal to all academic disciplines.

Background
The leading causes of illness and deaths among young adults are largely preventable [1] and about 70% of premature adult deaths are due to behaviors initiated during adolescence (tobacco use, drugs, and reckless driving) [2]. Therefore, any effort to understand and improve knowledge about health and risk behaviors in adolescents is warranted and welcomed.
In adolescents, the most studied Lifestyle behaviors are nutrition and physical activity, which are commonly associated, mainly because obesity is a chronic disease associated with an unbalanced diet and low levels of physical activity [3-5], with a worrying prevalence in Portugal, especially in the group of adolescents between 10 and 12 years old, where 23.1% are overweight and 9.6% are obese obesity [6].

Tobacco and alcohol consumption, sleep patterns, and protective sexual behaviors (which reduce the likelihood of unwanted pregnancies and sexually transmitted infections) are also important targets of studies and interventions [7-10]. Behaviors associated with road safety, which prevent injuries and accidents, are also important and include behaviors such as avoiding travelling with someone who has drunk too much, driving within speed limits, and wearing seat belts. Studies have also suggested a relationship between road accidents, alcohol and substances consumption [10, 11]. In addition, the use of drugs and medicines not prescribed by a physician, and the use of sedatives or amphetamines are associated with adverse consequences and with unhealthy growth patterns in adolescents [12-15].

Adolescence is a critical transitional period, but it is also the main phase in the developmental and construction of Social Skills of an emotional, physical and health profile, that promotes socially competent adolescents [16-19]. Moreover, having a good repertoire of Social Skills is a well-known protective factor for health problems. In addition, health habits and risk behaviors are learned early in the life cycle [20] with Social Skills being a positive predictor of a healthy Lifestyle. Thus, the lack of Social Skills has repercussions on physical and socio-emotional health, through the involvement in high-risk behaviors, which may lead to difficulties in adolescent development [16-19]. Therefore, it is essential to promote individual and social behaviors that educate adolescents in their ability to make choices, especially if we consider the influence of the adolescents` lifestyle on the health and well-being in adulthood [21-23].

According to Del Prette and Del Prette [16], the family and the school are the two main institutions and the contexts that have greater and direct responsibility for the integral development of adolescents. In addition, the school has a significant influence on the behavior and training of
adolescents through the development of behaviors, abilities and values influenced by peers [24, 25]. Thus, prevention and intervention in a school context should be prioritized in this population and, therefore, the goals of this study are: 1) to characterize Lifestyles and Social Skills in a sample of Portuguese adolescents, and 2) to identify homogeneous subgroups (clusters) that allow the analysis of the behavioral profile of Lifestyles and Social Skills in order to promote a healthy Lifestyle in this population, particularly in the group with the greatest need of being included in skills-based health education programs.

Methods

Study design and sample

This is a cross-section study performed with adolescents attending schools in Portugal. Firstly, the Executive Boards of the five schools in the Tâmega and Sousa region were contacted in order to present the objectives and to request authorization for the study. Written consent from the family was required as well as the authorization of the National Commission of Data Protection. A consent letter was sent home 2 weeks before the measurements. Students’ participation was voluntary and were asked to give their verbal informed consent. Data collection took place between February to March of 2017. The questionnaires were applied by undergraduate nursing students, under the supervision of a team member, in the classroom, in the presence of a teacher. Regarding the guarantee of anonymity, the students were instructed not to write their names, when completing the questionnaire, placing it in a box placed in the room for that purpose, and the team members, at the end of the data collection, assigned a code for each questionnaire. The questionnaire took on average 30 to 40 minutes to complete. This study followed the ethical principles reported in the Helsinki Declaration. This study includes 1008 adolescents attending 7 to 9th grade of five middle schools from the Tâmega and Sousa region, of Portugal with a mean age of 13.43 years (SD=1.1). The majority of the adolescents are in the group aged between 12 and 14 years (85.2%) and the remaining 14.8% between 15 and 17 years, homogeneously distributed by the three years of schooling (7th grade=35.1%, 8th grade=33.6% and 9th grade=31.3%). Students (n=556) who completed 98% of each questionnaire were included in the analysis.
**Instruments**

A socio-demographic questionnaire, which included age, year of education and school was used.

*My Lifestyle Questionnaire* (MLQ) [26]: assesses adolescents' lifestyle and was based on the Lifestyle Assessment Questionnaire of Hettler [27]. The My Lifestyle Questionnaire is comprised of 28 items answered according to a 5-point Likert scale (1="almost never" and 5="almost always") and contain five subscales: Physical Exercise (PE, e.g. "I walk or cycle daily"); Nutrition (NUT, e.g. "I avoid eating fatty foods"); Self-care (SFC, e.g. "I sleep enough hours to feel rested"); Monitored Safety (MS, e.g. "When I travel by car in the front seat, outside the city, I wear a seat belt"); and Use of Drugs (UD, e.g. "I don't drink more than two alcoholic drinks a day"). The total scale ranges between 28 and 140 with the higher result indicating a healthier lifestyle. The total of the scale was transformed into a scale of 0-100%. The Cronbach alpha in the original version was 0.76 for the total scale and 0.42 in Monitored Safety, 0.67 in Physical Exercise, 0.52 in Use of Drugs, 0.78 in Nutrition and 0.67 in Self-care subscale. In the present study, the alpha for the total scale was 0.85 and 0.41 in Monitored Safety, 0.61 in Physical Exercise, 0.67 in Use of Drugs, 0.76 in Nutrition and 0.77 in Self-care subscale.

The *Social Skills Inventory* (SSI) [28] assesses Social Skills in adolescents and is comprised of 38 items which assess the social skills based on everyday situations of social interaction. Items are divided into six subscales skills: (1) Empathy (EMP, e.g., “When I notice that a colleague is in trouble, I offer my support”); (2) Assertiveness (ASS, e.g., “When a person makes a request that I find improper, I refuse”); (3) Self-control (SC, e.g., “I react calmly when things don’t go as I wish”); (4) Civility (CIV, e.g., “When I’m leaving a place, I say goodbye to everyone”); (5) Affective Approach (AA, e.g., “When I want to date someone, I tell him/her at the first chance”); and (6) Social Development (SLD, e.g., “At school or in my job, I make oral presentations in groups when requested”). The items are based on a 5-points Likert scale: 0=“0-2 times”, 1=“3-4 times”, 2=“5-6 times”, 3=“7-8 times”, 4=“9-10 times”, regarding the number of times the adolescent presents the indicated action or reaction. A higher result indicates a better Social Skills inventory repertoire. To minimize the social desirability effect, 15 out of 38 items were formulated in the negative sense. Data were converted into a percentile system.
for both, total scale and the subscales. In each percentile category, an interpretation defined by the authors is associated: category 1: percentile between 01-25- Below the Lower Average repertoire of Social Skills; category 2: percentile between 26-35- Lower Average repertoire of Social Skills; category 3: percentile between 36-65- Good repertoire of Social Skills; category 4: percentile between 66-75- Elaborate repertoire of Social Skills; and finally, category 5: percentile between 76-100- Highly Elaborate repertoire of Social Skills. The Cronbach alphas in the Brazilian adolescent version [29] were the followings: 0.89 for the Total Scale; Empathy 0.82; Self-control 0.73; Civility 0.75; Assertiveness 0.68; Affective Approach 0.70; Social Development 0.61. In this study, alpha of the total scale was 0.95 and the alphas of the subscales were the following: 0.64 Social Development, 0.73 Affective Approach, 0.77 Self-control, 0.80 Assertiveness, 0.88 Civility, and 0.90 Empathy.

**Data analysis**

Data analysis was based on descriptive, correlational and classificatory statistics, supported by SPSS software version 24. Descriptive statistics (Mean/Standard Deviation) were used to characterize the sample and to present the descriptive values of the questionnaires. In the analysis of missing values in the Social Skills Inventory, the global scores were calculated only for the adolescents who answered the 38 items, which is why, for this analysis, 442 adolescents were not analyzed. Then, a Pearson correlation was performed, given the normality of the sample, in order to know the relationship between Lifestyle and Social Skills. To establish a profile of the participants, a Cluster Analysis (K-means) was performed considering the Social Skills Inventory percentiles of the total scale and subscales, as well as the total scale and subscales of the My Lifestyle Questionnaire (considering a 0-100 scale %). A solution of 3 clusters was adopted, being the most adjusted to the results. The stability of the solution was tested by Jaccard coefficient. The analysis was performed using software R version 3.4.3. (package fpc). Kruskal-Wallis tests were used in order to analyze the differences in terms of sex and age. Finally, descriptive statistics (M/SD) were used to characterize the sample in cluster 2 because it was the one that most needed an intervention in education and health promotion. A Pearson correlation to know the relationship between subscales and, finally, differences tests (T-tests) to verify if there were differences in gender and age in this cluster, were performed. The level
of significance was set to 0.05.

Results

**Sample characterization**

Regarding Lifestyle, the total mean score, in percentage (0 to 100%), is 72.26%, thus indicating a healthy Lifestyle. The Monitored safety subscale had a mean score of 65.69% and the subscale, Nutrition had the lowest mean score, 59.97%, however, still higher than 50%.

Concerning Social Skills, the mean percentile was found to be 67.33 (corresponding to an overall mean score of 108.13). Half of the sample (50.7%) showed a highly elaborated repertoire of Social Skills, 11% had an elaborate repertoire, 20.1% a good repertoire of Social Skills and 2.7% had a lower than average repertoire of Social Skills. However, 15.5% of the students had a below the lower average repertoire of social skills.

**Relationship between Lifestyle and Social Skills Subscales**

Positive and significant relationships were found between the Social Skills Inventory and the My Lifestyle Questionnaire (Table 1) indicating that adolescents with higher Social Skills showed a healthy Lifestyle and vice versa.

Insert Table 1

**Cluster Analysis**

Cluster 1, the “Adjusted” (n=92), correspond to adolescents who have a less elaborate repertoire of Social Skills but have good indicators in all subscales of Lifestyle. In this cluster, students from categories 1 and 2 were included, i.e., those who presented results categorized as “below the lower average” and the “lower average of social skills” (see categories of percentiles defined in instruments section).

Cluster 2, the “Sociable” (n=115) comprised adolescents with a good repertoire of Social Skills (category 3 of percentile) with good indicators of Lifestyle, in the Physical Exercise, Self-care and Use of Drugs scales (although not as good as those in the cluster 1). However, this group showed poor
Lifestyle indicators in the Nutrition and Monitored Safety subscales.

Cluster 3 (n=258), the “Healthy”, corresponds to adolescents with an elaborate, but especially highly elaborate repertoire of Social Skills (categories 4 and 5) and the best Lifestyle indicators (Figure 1). Table 2 shows the sample number and the average values of the variables considered in each cluster.

Insert Figure 1 and Table 2

Differences in age and gender between clusters

There were significant differences in age between clusters 1 and 2, and cluster 2 and 3 ($X^2_{(2)}=15.18, p<0.05$) but there were no differences between clusters according to gender i.e. the group of Sociable adolescents had a higher mean age than the groups of Adjusted and Healthy adolescents (M=14.0, SD=1.12).

Sample Characterization of Cluster 2, the “sociable”

The group of Sociable adolescents included a majority of boys (61.74%, n=71) with ages raging between 12 and 14 years old (70.43%, n= 81). As it was possible to verify, the Sociable adolescents presented lower indicators in the subscales of Nutrition and Monitored Safety. Analysing these two scales in detail (Table 3), the results showed that in the Monitored Safety subscale, item 13 is the one that presented the lowest value (*MLQ13-*“I do not drive (car, motorized, etc.) when I drink too much, or I do not travel with someone who drank too much” and in Nutrition subscale, item 22 presented the lowest value (*MLQ22-*“I avoid eating foods that are made with sugar” (Table 3).

Insert Table 3

Relationship between the Nutrition and Monitored Safety subscales and the Social Skills subscales

There was a positive and significant relationship between the Nutrition subscale and the Civility
subscale \( r=0.21, p<.01 \). However, no significant relationships were found between the Monitored Safety and Social Skills subscales.

**Gender and age differences in cluster 2, the “sociable”**

Significant gender differences were found in the subscale Physical Exercise \( t_{(86)}=2.55, p=.013 \) i.e. girls do less exercise compared with boys, yet no differences were found according to age.

**Discussion**

The results suggest that this sample of adolescents presents a healthy lifestyle, assessed by the Lifestyle Questionnaire. Although higher than 50\%, the Monitored Safety and Nutrition subscales were the subscales with a lower average score. With regard to Social Skills, half of the sample has a highly elaborate repertoire and, as the literature indicates and was expected, the adolescents with the healthiest Lifestyle are those with improved Social Skills resources [30]. In addition, a solution of three clusters was found where cluster 3, the “Healthy”, was the biggest one and cluster 2, the “Sociable” was the most in need of skills-based health education programs.

Regarding the Monitored Safety subscale, the item that assesses if adolescents travel with someone who drank too much was the one that presented lower values \( (M=3.43, SD=1.91, \text{ranging between 1 to 5}) \). This result may be related to the mean age of the present sample and not a risk behaviour. However, it is worth mentioning that, in Portugal, the greatest occurrence of road accidents in motorized two-wheeled vehicles occurs mainly in male adolescents [32, 33] and, in the European Union, the highest prevalence of deaths has been observed in male adolescents between the ages of 15 and 29 years [33]. In addition, one of the main causes of death and disability is alcohol consumption [33], and the injuries related to accidents or violent behaviors frequently associated with alcohol consumption are indicated as the major cause of death in childhood and adolescence (from 5 to 19 years) [34]. Although recent data suggests a decreasing trend in the prevalence of alcohol consumption in both sexes at age 15, it suggest an increase in 16-year-old female adolescents [35], emphasizing the urgent to need to address this major cause of death and disability in adolescents, especially if associated with driving behaviors. Fortunately, according to the most recent results of the Health Behaviour in School-aged Children study in Portugal [31], from 6742 adolescents, most of
them have never tried tobacco (93.7%), rarely use alcohol (90%), or drugs (96.1%), and 88.2% have reported never getting drunk.

Concerning the Nutrition subscale, the item that evaluates the consumption of foods with sugar had the lowest average score, highlighting that a high proportion of adolescents do not avoid foods with sugar. These results are in line with the national scenario that, as demonstrated in the Health Behavior in School-aged Children study, more than half of the Portuguese adolescents who participated in the study, reported consuming sweets and soft drinks at least once a week and more than two-thirds said that they sometimes ate unhealthy foods [36-39]. Despite the encouraging results of the present study, which highlight a healthy Lifestyle in a representative sample of adolescents in the Tâmega and Sousa region, nutrition / food and monitored safety require greater investment in implementing skills-based health education programs given the association of Social Skills with Lifestyle (ranging between r=.07 and r=.25 with p<.01 and p<.05).

Regarding the second objective of this study, the cluster analysis allowed the identification of three groups of adolescents with different behavior profiles. One of the clusters identified was named “Adjusted” because the adolescents in it showed less elaborate repertoire of Social Skills but good Lifestyle indicators. This group seems to have sufficient Social Skills to adopt good and healthy behaviors. The second cluster was named “Sociable” because this group of adolescents showed high social abilities but some difficulties in adopting healthy and adequate Lifestyles especially regarding Nutrition and Monitored Safety, suggesting a protective effect of Social Skills [30]. The third cluster was called “Healthy” because it was the group of adolescents with highly elaborate repertoire of Social Skills, and with the healthier Lifestyle.

In addition, results showed that the Nutrition subscale was related to Civility skills, suggesting that the promotion of this social competence can, in turn, increase health awareness and health behaviors, especially with regard to diet and nutrient planning. Interestingly though, no significant relationships were found between the Monitored Safety subscale and Social Skills. This result may be related with the age range of the sample and with the fact that these adolescents did not have the legal age to drive yet (>18 years old). However, among the Monitored Safety behaviors evaluated in the
questionnaire used in the study ("When I travel by car, I put my seat belt; I did not travel with a driver who drank too much; When I travel with someone, I like to maintain speed limits"), not travelling with a driver who drank too much, was the behavior reported with less frequency. It is also noteworthy that this group of adolescents, designated as “Sociable”, was older than the group of adolescents in the “Adjusted” and “Healthy” clusters, but even so, ages ranged from 12 and 14 years old. Probably, the adolescents in this group are still too young to drive with friends. We also found that girls in this cluster do less exercise compared to boys, as the literature indicates [9]. Knowing that levels of physical activity are below those recommended by WHO [38], this result emphasizes the need to promote the involvement of girls in physical activity. However, we did not find differences in Lifestyle according to age, which may be related to the homogeneity of the sample (70% of the sample of this cluster consists of adolescents between 12 and 14 years of age).

**Limitations and directions for future research**

This study has some limitations that should be pointed out. The instruments used were self-reported and anthropometric data of adolescents, while demographic data of parents (such as age, socioeconomic status and household composition) were not collected. The study included only adolescents from the Tâmega and Sousa region, requiring a careful generalization of the findings. However, it is important to highlight that this region is characterized by a high prevalence of Tuberculosis [40] which, in addition to other factors, is also related to an unhealthy Lifestyle [41]. For future studies, we suggest an assessment of adolescents and their parents given the direct influence of parents’ Lifestyle on their children's Lifestyle [42, 43]. Moreover, White and Halliwell [44] found that adolescents’ perception of the mealtime environment contributes to the protective effect of family meals i.e. family meals were significantly associated with a lower likelihood of alcohol and tobacco use. In addition, parental styles should be evaluated; especially the parental style of the mother, since literature has been suggesting that it influences the children's adoption of high-risk behaviors [45]. Screen time consumption is also a concern given the association with a reduced level of physical activity [46] and future studies should control this variable. Several studies have shown an advantage in the use of text messages, internet programs and chats, apps (e.g. what’s app), as
effective tools to instigate behavior changes in adolescents [47, 48]. This is, in fact, a controversial topic that needs further research.

**Implications for practice**

This study reveals some implications for practice. In relation to the sample under study, we suggest regular health education sessions focused mainly on sugar intake behaviors, meal planning and travel safety with a driver who drinks too much (i.e. Social Skills training), as well as promoting the involvement of girls in the practice of physical activity. Given that previous behavior is the best predictor of the intentions to adopt healthy behaviors, namely, having a balanced diet, practicing sports, not drinking alcohol and not smoking or taking drugs [49] we suggest that health education sessions should be implemented in the school context [50, 51]. However, there are several activities that could be included in the physical activity curriculum that would be more attractive for girls than football or volleyball. Thus, the promotion of a healthy Lifestyle should be included in the school curriculum and be transversal to all academic disciplines.

In general, health education sessions should include factors that protect the adoption of risk behaviors, engage the main contexts of adolescent life, and address various health behaviors and target risks [36, 52]. The school context is in fact, privileged to carry out actions of this nature, but the inclusion and involvement of both adolescents and parents becomes fundamental. The promotion of an available repertoire of Social Skills that educates adolescents to a competent social style in Lifestyle choices is essential [53, 54]. Moreover, promoting emotional regulation as well as adaptive coping strategies is crucial for health promotion, especially in this population [55]. For example, self-regulation cognitions are positively related to healthy eating in adolescents [56]. Managing emotional regulation during class, conflict resolution, decision making, and choice may help adolescents in the adoption of health and protection behaviors. The most recent report of the Health Behaviour in School-aged Children study in Portugal [31], recommends the continuation of adolescent health programs, including sex education in schools, higher age limits for alcohol consumption and obligatory use of seat belts and helmets, in order to promote healthier lifestyles in adolescents, prevent deaths and disability.
Conclusions
This was the first study focused on the relationship between Lifestyle and Social Skills in Portuguese adolescents that identified adolescents at risk of having an unhealthy Lifestyle, using short questionnaires and a simple cluster analysis technique. Therefore, in general, the adolescents in this sample had a healthy Lifestyle and a highly elaborated repertoire of Social Skills. The “Healthy” cluster was the largest in the sample and was composed of the adolescents with highly elaborated Social Skills and good indicators of healthy Lifestyle. In addition, the results emphasize that the students included in the group called “Sociable” are the ones that need to be included most in skills-based health education programs. Nutrition and Monitored Safety behaviors have low values and, therefore, present a greater need for awareness, sensitization and intervention in the school context. Promoting a healthy lifestyle should be part of the academic curriculum and be transversal to all academic disciplines.

Abbreviations
LS- Lifestyle ;
MLQ - My Lifestyle Questionnaire;
SSI - Social Skills Inventory;
SS – Social Skills;
EMP – Empathy;
SC – Self Control;
CIV- Civility;
ASS – Assertiveness;
AA – Affective Approach;
SLD-Social Development;
PE –Physical Exercise;
NUT – Nutrition;
SFC – Self Care;
UD – Use of Drugs;
Declarations

**Ethics approval and consent to participate**

According to national regulations, the study is registered, authorized and funded by the Evaluation Committee at the CESPU_Institute of Research and Advanced Training in Health Sciences and Technologies, Porto, Portugal and according to the national legislation in Portugal in 2017, and was registered in the Portuguese Data Protection Agency (Nº 13764/2015;1877), Portugal. The Principal Investigator contacted the Executive Boards of the five schools in the Tâmega and Sousa region in order to present the objectives and to request authorization for the study from the Portuguese National Agency of Education (Nº0508300002). After obtaining the authorizations, a written informed consent was signed by the adolescents’ parents.

This study followed the ethical principles reported in the Helsinki Declaration.

**Consent for publication**

Not applicable

**Availability of data and materials**

The dataset used during the current study is available from the corresponding author by reasonable request

**Competing interests**

The authors declare that they have no competing interests.

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Advanced Training in Health Sciences and Technologies.

**Authors’ contributions**

All authors were responsible for the data collection.

CM, SL, SP and RE conceived and designed the study. TH, GS and LA performed the statistical analysis. AN, FR and SP wrote the first draft of the manuscript and RE, CM and SL were responsible for the several revisions of the manuscript. SP, SL, RE, FR and CM provided critical comments and joined other authors in revising the manuscript and approving the final submission. All authors have read and approved the manuscript in its current form.

All authors approved the final manuscript and CM is the guarantor.

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Tables
Table 1. Relationship between Lifestyle and Social Skills Subscales

|                  | EMP | SC  | CIV | ASS | AA  | SLD | PE  | NUT | SFC | UD  |
|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| SSI- MP          | 1   |     |     |     |     |     |     |     |     |     |
| SSI- SC          | .657** | 1  |     |     |     |     |     |     |     |     |
| SSI- CIV         | .812** | .567** | 1  |     |     |     |     |     |     |     |
| SSI- ASS         | .784** | .584** | .704** | 1  |     |     |     |     |     |     |
| SSI- AA          | .684** | .524** | .524** | .594** | 1  |     |     |     |     |     |
| SSI- SLD         | .703** | .575** | .596** | .701** | .587** | 1  |     |     |     |     |
| MLQ- PE          | .016 | .067* | .052 | .030 | .120** | .195** | 1  |     |     |     |
| MLQ- NUT         | .080* | .157** | .100** | .069* | .072* | .104** | .247** | 1  |     |     |
| MLQ- SFC         | .240** | .217** | .227** | .228** | .167** | .230** | .225** | .403** | 1  |     |
| MLQ- UD          | .252** | .182** | .212** | .231** | .111** | .158** | .144** | .311** | .603** | 1  |
| MLQ- MS          | .123** | .074* | .119** | .154** | .078* | .114** | .153** | .246** | .337** | .284** |

Table 2. Sample number and the average values of the variables considered in each cluster

| Cluster        | n   | EMP   | SC  | CIV   | ASS   | AA  | SLD  | Total SSI | PE   | NUT   | SFC   | UD   | M     |
|----------------|-----|-------|-----|-------|-------|-----|-------|-----------|------|-------|-------|------|-------|
| 1. Adjusted    | 92  | 20.09 | 32.48 | 23.25 | 27.52 | 39.23 | 29.42 | 21.46     | 66.67 | 60.43 | 71.90 | 72.78 | 67.   |
| 2. Social      | 115 | 62.37 | 64.17 | 63.04 | 64.75 | 68.04 | 63.18 | 66.59     | 63.84 | 38.70 | 60.24 | 62.17 | 46.   |
| 3. Healthy     | 258 | 80.33 | 78.46 | 81.82 | 79.18 | 79.69 | 78.15 | 86.25     | 80.98 | 68.68 | 86.50 | 86.56 | 77.   |
| Monitored Safety items                                                                 | Minimum | Mean(SD) | Maximum |
|---------------------------------------------------------------------------------------|---------|----------|---------|
| MLQ .13: *I do not drive (car, motorized, etc.) when I drink too much*, or I do not travel with someone who drank too much | 1.00    | 3.43(1.9) | 5.00    |
| MLQ .14: *When I drive, or when traveling in some vehicle, I like to stay within speed limits* | 1.00    | 4.06(1.4) | 5.00    |
| MLQ .15: *When I drive in the front seat, out of town, I put the seat belt*           | 1.00    | 4.90(0.3) | 5.00    |

| Nutrition items                                                                 | Minimum | Mean(SD) | Maximum |
|----------------------------------------------------------------------------------|---------|----------|---------|
| MLQ .4: *I am careful what I eat so as to maintain the recommended weight for the height I have* | 1.00    | 4.01(0.9) | 5.00    |
| MLQ .5: *I am careful what I eat so as to reduce salt intake*                     | 1.00    | 3.75(1.0) | 5.00    |
| MLQ .6: *I plan my diet so that it is balanced in nutrient variety*               | 1.00    | 3.66(1.0) | 5.00    |
| MLQ .18: *I avoid eating fat foods*                                               | 1.00    | 3.98(0.8) | 5.00    |
| MLQ .22: *I avoid eating foods that are made with sugar*                          | 1.00    | 3.45(1.0) | 5.00    |

Figures
K-means Clusters. Cluster 1 (n=92) showed a less elaborate repertoire of Social Skills but have good indicators in all subscales of Lifestyle - was named the “Adjusted”. Cluster 2 (n=115) comprised adolescents with a good repertoire of Social Skills and with good indicators of Lifestyle, but poor Lifestyle indicators in the Nutrition and Monitored Safety subscales - was called the “Sociable”. Cluster 3 (n=258) is composed by adolescents with a highly elaborate repertoire of Social Skills and the best Lifestyle indicators and was called the “Healthy”.

Supplementary Files
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