Study on Lifestyles and Stress Levels in Medicine Students

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Abstract

Background: Unhealthy lifestyles are preventable risk factors for chronic diseases. Intervening on them is a fundamental strategy of preventive health.

Objective: To evaluate lifestyle, stress levels, diseases and cardiovascular risk factors of medical students.

Methods: Cross-sectional, observational study with students from a medical school stratified into: Group 1 (G1) - from the 1st to the 4th period of the course, Group 2 (G2) - from the 5th to the 8th and Group 3 (G3) - from the 9th to the 12th. Two questionnaires were given: Fantastic Lifestyle and another one related to stress levels, diseases and cardiovascular risk factors.

Results: The study included 482 students, average age 21.7±2.7 years. The average score on the Fantastic Lifestyle questionnaire ranked G1 and G3 at Very good (72.1 and 71.3 points, respectively) and G2 in Good (69.2 points) (p=0.007). As for the stress levels, they responded High or Very High 22.3% in G1, 34.9% in G2 and 30.7% in G3 (p=0.008). The most prevalent diseases were dyslipidemia (7.4%), hypertension (2.6%) and depressive disorder (2.2%).

Conclusions: There was considerable worsening of lifestyle and stress levels from the 5th period, with partial improvement in the last two years of the course. There was a significant prevalence of dyslipidemia, hypertension and depressive disorder.

Keywords: Sedentary lifestyle; Risk factors; Cardiovascular diseases

Introduction

Lifestyles are defined as sets of habits and behaviors of response to everyday situations, learned through socialization and constantly reinterpreted and tested over the life cycle and in different social situations.

In Brazil, it is estimated that 30.0% of all deaths in people older than 20 are due to cardiovascular diseases (CVD). There is proven evidence that CVDs manifested in adulthood are the product of risk factors present since childhood and adolescence. These are directly related to unhealthy habits and unhealthy habits acquired throughout life, such as cholesterol levels, blood pressure, alcohol intake, smoking and physical inactivity. All these factors, coupled with poor management of stress, are preventable risk factors for chronic diseases, the epidemic of the 21st century.

According to the World Health Organization (WHO), chronic diseases account for about 86.0% of deaths and 77.0% of all diseases in the European Region of the WHO and have as a common etiology a set of factors fundamentally linked to lifestyles, generated through individual choices throughout life.

It is true that there is a growing expectation for increased longevity of the population, which is also linked to...
This study complies with CNS Resolution 466/12 and was approved by the Research Ethics Committee of the institution under no. CAAE: 15724913.0.0000.5065.

The Fantastic Lifestyle questionnaire considers the behavior of individuals in the last month searched and its result determines the association between lifestyle and health. The instrument has 25 questions divided into nine areas, namely: 1) family and friends; 2) physical activity; 3) nutrition; 4) cigarette and drugs; 5) alcohol; 6) sleep, seat belt, stress, and safe sex; 7) behavior; 8) introspection, and 9) work.

The questions are arranged in the form of Likert scale: 23 have five possible answers and two are dichotomous. The alternatives are arranged in columns for ease of encoding, and the left alternative is always the one of the lowest value or of smallest relationship with a healthy lifestyle. Encoding of the questions is performed by points, as follows: zero for the first column, 1 for the second column, 2 for the third column, 3 for the fourth column and 4 for the fifth column. The questions that have only two alternatives are assigned the following points: zero for the first column and 4 points for the last column. The sum of all points allows to reach a total score that classifies the individuals in five categories: Excellent (85 to 100 points), Very good (70 to 84 points), Good (55 to 69 points), Regular (35 to 54 points) and Needs improvement (0 to 34 points). It is desirable for the individuals to be ranked Good. As for the lowest score, the highest one will be the need for change. In general, the results can be interpreted as follows: Excellent - indicates that the lifestyle provides optimal influence for health; Very Good - indicates that the lifestyle provides adequate influence for health; Good - points out that lifestyle provides many health benefits; Regular - means that lifestyle provides some benefit for health, but also poses risks; Needs improvement - indicates that lifestyle has many risk factors. The questionnaire Fantastic Lifestyle was translated into Portuguese and properly validated in a previous study by Rodriguez-Añez et al. 8.

The second questionnaire was created by the researchers and included personal data such as gender, age, university course being taken, diagnosed diseases, medications being used, stress level and family history of diseases. The answers about previous illnesses and family history should be based on the knowledge of the students themselves about their health, with valid

**Methods**

Observational cross-sectional study that evaluated medical students from Escola Superior de Ciências da Santa Casa de Misericórdia (EMESCAM). The study objectively analyzed the stress levels and cardiovascular risk factors using a questionnaire developed by the authors and the lifestyle of students using the questionnaire Fantastic Lifestyle. The study included students properly enrolled in the course and who agreed to participate in the project after reading and signing the Informed Consent Form (ICF).

The individuals who failed to meet the inclusion criteria, did not sign the ICF, did not accept to give written answers to the questionnaires or did not fill it out completely were excluded. The sample was obtained by convenience, trying to cover and include all students enrolled.

increased prevalence of chronic diseases, as well as the sequelae related to them. Therefore, there is currently great interest about lifestyle and quality of life, since these factors are closely related to those health conditions, and with appropriate information it is expected to increase control of chronic diseases and actions to guide health promotion policies. Therefore, intervening on these determinants emerges as a key strategy of preventive health, which will yield significant gains both in reducing the prevalence of chronic diseases and in the economic, social and individual costs associated to these diseases. However, despite all medical information currently available about the relationship between health and lifestyle, university students and young adults increasingly present behaviors considered to be of risk.

Research on lifestyle and stress levels in medical students are not comprehensive and the data obtained can be considered rare, which is a problem because such studies are essential for the adoption of preventive measures. Also, studying the quality of life of medical students is important in the context of medical education improvement proposals.

The objective of this study is to evaluate lifestyle, stress levels, diseases and cardiovascular risk factors of medical students.
responses in the questionnaire, without requiring any supporting documentation, such as medical reports or laboratory tests. For the measurement of stress levels in the last month investigated, the response options in the questionnaire were Very high, High, Moderate, Low and None, also according to the perception of each student.

Information was collected by voluntary, individual and anonymous fill-out of questionnaires, given from April to June 2013. Individuals included in the study were stratified into groups for comparative analysis according to the six-month period in progress in the medical school: Group 1 (G1) - students from the 1st to the 4th period of the course, Group 2 (G2) - students from the 5th to the 8th and Group 3 (G3) - from the 9th to the 12th period.

Data obtained in writing were transcribed and organized into a Microsoft Office Excel spreadsheet for statistical analysis. Quantitative variables were expressed as means and standard deviations. Qualitative variables were expressed by their absolute and relative frequencies. Student’s t test was used for independent samples; the chi-square test and Fisher test were used for comparisons of frequencies. In this study, p values <0.05 were considered statistically significant.

Results

From 732 students enrolled, 482 medicine students were included in the study. 274 (56.8%) females and 208 (43.2%) males. Average age was 21.7±2.6. Of the students evaluated, 170 (35.3%) belonged to G1, 195 (40.4%) belonged to G2 and 117 (24.3%) to G3. For diseases diagnosed, the most prevalent were: dyslipidemia in 5.8% in G1, 5.6% in G2 and 12.8% in G3 (p=0.04); hypertension in 1.1% in G1, 3.1% in G2 and 4.3% in G3 (p=0.08) and depressive disorder in 1.8% in G1, 3.0% in G2 and 1.7% in G3 (p=0.07).

As for the stress levels experienced in the last month investigated, frequency of High or Very high responses in each group is expressed in Figure 1.

The average score obtained in the Fantastic Lifestyle questionnaire was smaller in G2 compared to the other groups. Figure 2 represents the average score for individuals from G1, G2 and G3, classifying them according to the scores achieved in Very good, Good and Very good, respectively.

Considering gender, there was a mean score on the Fantastic Questionnaire of 70.5±9.4 for males and 70.8±8.8 for females (p=0.39).

Score lower than desirable in the Fantastic questionnaire, that is, corresponding to the categories Regular or Needs improvement (<54 points) was observed in 1.8%, 9.2% and 5.1%, respectively, in G1, G2 and G3 (p=0.001).

Table 1 represents the average score obtained by the groups in each of the questionnaire area, plus the percentage that this score represents in the total points of each area.
Table 1
Average score of the Fantastic Lifestyle questionnaire areas and percentage of the total

<table>
<thead>
<tr>
<th>Areas</th>
<th>G1 average (%)</th>
<th>G2 average (%)</th>
<th>G3 average (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family and friends</td>
<td>7.1 (88.7)</td>
<td>6.8 (85.0)</td>
<td>7.1 (88.7)</td>
</tr>
<tr>
<td>Physical activity</td>
<td>3.2 (40.0)</td>
<td>2.8 (35.0)</td>
<td>3.1 (38.7)</td>
</tr>
<tr>
<td>Nutrition</td>
<td>8.1 (67.5)</td>
<td>8.0 (66.6)</td>
<td>8.1 (67.5)</td>
</tr>
<tr>
<td>Cigarettes and drugs</td>
<td>14.1 (88.1)</td>
<td>13.8 (86.2)</td>
<td>14.3 (89.3)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>9.9 (82.5)</td>
<td>9.4 (78.3)</td>
<td>9.5 (79.1)</td>
</tr>
<tr>
<td>Sleep, seat belt, stress, and safe sex</td>
<td>14.2 (71.0)</td>
<td>14.1 (70.5)</td>
<td>14.6 (73.0)</td>
</tr>
<tr>
<td>Behavior</td>
<td>4.2 (52.5)</td>
<td>3.6 (45.0)</td>
<td>3.6 (45.0)</td>
</tr>
<tr>
<td>Introspection</td>
<td>7.8 (65.0)</td>
<td>7.3 (60.8)</td>
<td>7.7 (64.1)</td>
</tr>
<tr>
<td>Work</td>
<td>3.1 (77.5)</td>
<td>2.9 (72.5)</td>
<td>3 (75.0)</td>
</tr>
</tbody>
</table>

G1 – from the 1st to the 4th period of the course; G2 – from the 5th to the 8th period of the course; G3 – from the 9th to the 12th period of the course

Discussion

Joining a university is a period of change for young adults. Achievement of greater autonomy, taking on responsibility and often leaving the parents’ home cause changes in the lifestyles of university students. With new interferences in the environment after entering the academic world, unhealthy behaviors, such as smoking or increasing the consumption of alcoholic drinks often increase or commence. The highly demanding medical occupation, with lots of responsibility and stress has been identified as a fundamental factor for the emergence of physical and emotional problems in this class. However, this reality can already be seen in medicine students. Emotional and personal demands with the progression of the course are indisputable, and as Loureiro et al. advocate, medical schools provide an opportunity to learn the skills required to (successfully) practice medicine, but can also be the place where new habits make these students and future professionals susceptible to CVD.

By analyzing the groups of EMESCAM medicine students as for previously diagnosed diseases, it was noted that there was an increase in the prevalence of hypertension and dyslipidemia as the course progressed. More important than advancing age in this stage of life, this fact is probably associated with increased diagnosis from the 5th six-month period as a result of stress, worsened eating habits and adoption of an increasingly more physically inactive lifestyle. As for hypertension, specifically, it can be said that the prevalence found is below the average found in the Bogalusa Heart Study, which evaluated individuals in the young adult age group of 19-34 years and found a prevalence of hypertension of 13.9%.

It is known that the quantification of lifestyle is a challenging and imprecise task as it consists of many dimensions, which are naturally difficult to be directly measured in an objective way. The Fantastic Lifestyle questionnaire is an instrument developed in the Department of Family Medicine at McMaster University, Canada, by Wilson et al., in order to help doctors who work with primary prevention to better understand and measure the lifestyle of their patients. It has proven to be a tool that overcomes these adversities, considering that many studies point to its validity and good level of consistency for determining the lifestyle of both healthy and unhealthy individuals. In a pioneer study, the authors included patients of a family health program in...
Canada, aged 16-65 years, in a convenience sample, whose exclusion criterion was pregnancy. Points ranges currently used for classification in the questionnaire were obtained from the results of the original study, in which 70.0% were below the average of a population of 100 patients of family health, and an average score of 56.0% was obtained by a group of low socioeconomic status women.

Regarding habits and addictions evaluated in the course of this study, it was found that EMESCAM medicine students, in general, presented Good to Very Good lifestyle. The study showed that the scores obtained by the questionnaire were close to 70 points, similar to the results found by Rodrigues-Añez et al., who evaluated 62 undergraduate and graduate young adults using the Fantastic Questionnaire, with a mean age of 21.3 years, and found that 21.0% scored 55-69 points (Good) and 61.3%, 70-84 points (Very good).

Physical activity, analyzed by the Fantastic questionnaire, presented the lowest scores among all fields. Similarly, the literature indicates that physical inactivity is present both in students entering university and those completing the course. Silva et al. emphasized the need for advising university students to adopt a healthy lifestyle and the offer of physical activity programs on campus.

In those areas which analyze alcohol, tobacco and other drugs, it was found that the students obtained high scores, characterizing better quality of life in this regard. However, although this is a positive point, considering the dangers of smoking, excessive consumption of alcohol and use of illicit drugs, studies have found that increased consumption, especially of illicit substances and alcohol has been increasingly observed in the population of medicine students. These studies also report that there is no Brazilian medical school that, so far, has adopted any action including clear policies on the use of drugs and alcohol by students through activities and training advising them to better cope with stress, and early detection of use of drugs, which have proved useful in preventing the abuse of drugs and alcohol.

The results also showed that medicine students presented worse scores in the fields of behavior, introspection, work, sleep, seat belt, stress, safe sex and nutrition. Going further, these results are not unique to students in the first year of the course, but are part of everyday life of students of all years of the course, getting worse in the overall score mainly from G2, which supports Wolf, who says that the medical school is not good for the health of students, considering the stress inherent in the course, the consolidation of their identity, acquisition of ethical attitudes and values, and a different lifestyle based on sacrifices that hinder the balance between personal and academic life.

Just like the decrease in score observed in the areas of behavior and introspection, Alves et al. found that during the medical school, the psychological well-being of students presents a significant decrease. This can probably be explained by the fact that the course is mentally challenging and often causes disproportionate psychological pressures to students, who often do not feel prepared and suffer from such obstacles.

The stress quoted by Wolf has also been evaluated by this study, which showed high levels of stress, considered to be high to very high, especially in students from G2 (3rd and 4th years). Some factors related to the medical and academic program could explain the low results found in this group, such as being a period in which students do not only have to attend classes for long hours, including many assessments and a lot of subjects, often complex, but also because they are beginning their practice in hospitals and healthcare facilities, hence leading them to be in contact with diseases and with death, in addition to concerns about the chosen career. All these factors lead the students to give up physical activity and socializing with family and friends, and give up healthy eating, contributing to a rushed and stressful lifestyle.

From the 5th year of the course (G3), the students begin their activities in medical internship, during which the knowledge they have acquired are cemented in medical practice, to develop greater confidence and ability to deal with situations that were new, and this may be the reason for a significant reduction in stress caused by demanding situations experienced in previous years. However, the nature of the study, although is properly quantifies the lifestyle, makes them unable to answer precisely what are the reasons for these findings.

It can be said that for a medicine student to become a professional trained to preserve and restore health, they must be aware of the prevention aspects associated with quality of life and lifestyle. They should also understand that quality of life covers other areas, in addition to physical health, which also includes mental and social health.

As Wolf says, healthy medical students are likely to be healthy physicians, becoming role models of healthy
lifestyles for their patients. This ideal is to be achieved and there are several means to do so. According to Zonta et al.\textsuperscript{2}, some strategies can be adopted to reduce stress during medical school, and this includes the appreciation of social relationships and daily life relationships, and a better balance between study and leisure and time management. Other measures are: taking care of health, eating, physical activity and sleep. These authors also suggest that those involved in medical education be more concerned with the medicine student’ quality of life.

CVD may persist after completion of higher education, as shown by Marochi et al.\textsuperscript{2} who found that the cholesterol levels of the physicians analyzed in the study were above the recommended values in addition to the high prevalence of overweight and obesity, which also shows a trend to inappropriate lifestyle after the undergraduate course, representing a sharp increase of future adverse events in the population of medicine students. Medicine students are exposed to adverse situations and often adopt habits considered inappropriate or unhealthy, although medical education advocates exactly the opposite. These habits, in turn, may result in cardiovascular risk factors that persist throughout life.

In general, the medical school has a direct influence on the student’s health, either for healthy or unhealthy habits. Ultimately, medical education may contribute to the development of chronic diseases such as hypertension and dyslipidemia. Although there is limited research evaluating the well being of medicine students, studies like this are extremely important in the current scenario of reformulation and improvement of medical education, in addition to providing results that prove the importance of promoting different policies of promotion of health throughout the course.

Some limitations of this study should be mentioned, such as the potential untruth of some information provided by the participants in the questionnaires, and the fact that there is no comparison with students from other courses and in the same age group. However, these limitations do not invalidate the findings, because this is a cross-sectional study that, despite pairing, raise interesting hypotheses about the lifestyle of medicine students in that region today. Further studies are required in order to detect the determinants of these changes in the quality of life and lifestyle of university students.

Conclusions

There was considerable worsening of lifestyle and stress levels from the 5th period, with partial improvement in the last two years of the course. Dyslipidemia, hypertension and depressive disorder were the most prevalent diseases.

Potential Conflicts of Interest

This study has no relevant conflicts of interest.

Sources of Funding

This study had no external funding sources.

Academic Association

This study represents the Final Term Paper (TCC) of Medicine of Felipe Poubel Timm do Carmo and Mariana Carvalho Gomes Martins from Escola Superior de Ciências da Santa Casa de Misericórdia de Vitória.

References


