ABSTRACT

Objective: evaluating the prevalence of sedentarism and smoking in patients entering care in physiotherapy attendance. Method: a cross-sectional study with 108 patients, in the Physiotherapy Clinic of the UNIRG University Center / Gurupi/Tocantins/Brazil. Questionnaires were administered to assess the level of physical activity, tobacco consumption and level of nicotine dependence. It was applied the Chi-square test, Yates or Fisher's exact test method with significance level of 5%. The study was approved by the Ethics Research Committee, Protocol. 0011/2009. Results: the prevalence of physical inactivity was of 68%, 10% smoking, 82% sedentary smokers and 18% active smokers. There were detected significant differences between being sedentary and smoking (p = 0,005); being a smoker man and present orthopedic problems (p = 0); being a smoker or sedentary woman, isolatelly, and have cardiovascular and respiratory problems, with p = 0 and p = 0,001 respectively. Conclusion: sedentarism and smoking are associated and are important risk factors for cardiovascular, respiratory and orthopedic diseases. Descriptors: Smoking; Sedentary Lifestyle; Physical Therapy.

RESUMO

Objetivo: avaliar a prevalência de sedentarismo e tabagismo em pacientes ingressantes no atendimento de fisioterapia. Método: estudo transversal, com 108 pacientes na Clínica Fisioterapéutica do Centro Universitário UNIRG/Gurupi/TO/Brazil. Foram aplicados questionários para avaliar o nível de atividade física, consumo tabagístico e grau de dependência nicotínica. Foi aplicado o teste Qui-quadrado, método Yates ou Teste exato de Fisher com significância de 5%. O estudo foi aprovado pelo Comitê de Ética e Pesquisa, Protocolo n. 0011/2009. Resultados: a prevalência de sedentarismo foi 68%, tabagismo 10%, fumantes sedentários foi 82% e fumantes ativos 18%. Foram detectadas diferenças significantes entre ser sedentário e fumante (p=0,005); ser homem fumante e apresentar problemas ortopédicos (p=0); ser mulher fumante ou sedentária, isoladamente, e ter problemas cardiovasculares e respiratórios, com p=0 e p=0,001 respectivamente. Conclusão: sedentarismo e tabagismo estão associados e são importantes fatores de risco para doenças cardiovasculares, respiratórias e ortopédicas. Descriptors: Tabagismo; Estilo de Vida Sedentário; Fisioterapia.

RESUMEN

Objetivo: evaluar la prevalencia del sedentarismo y el consumo de tabaco en los pacientes que ingresan al cuidado de la fisioterapia. Método: un estudio transversal con 108 pacientes en la Clínica de Fisioterapia del Centro Universitario UNIRG/Gurupi/Tocantins/Brazil. Se administraron cuestionarios para evaluar el nivel de actividad física, el consumo de tabaco y el grado de dependencia de la nicotina. Se aplicó el test de Chi-cuadrado, el método Yates o el Teste exacto de Fisher o con un nivel de significación del 5%. El estudio fue aprobado por el Comité de Ética E investigación, Protocolo n. 0011/ 2009. Resultados: la prevalencia de sedentarismo fue de 68%, 10 % fumadores, 82% los fumadores sedentarios, y 18 % de fumadores activos. Las diferencias significativas entre el ser sedentario y el fumador (p = 0,005), ser un hombre fumador y presentar problemas ortopédicos (p = 0), ser una mujer fumadora o sedentaria, asoleadamente, y tener problemas cardiovasculares y respiratorios, con p = 0 y p = 0,001, respectivamente. Conclusion: la inactividad física y el tabaquismo están asociados y son factores de riesgo importantes para las enfermedades cardiovasculares, respiratorias y ortopédicas. Descriptors: Tabacismo; Sedentarismo; Fisioterapia.
INTRODUCTION

Cardiovascular risk factors, such as smoking and sedentary lifestyle are highly prevalent, and can be associated with both increased morbidity and mortality and health spending.\(^1\) Over 2 million deaths annually can be attributed to physical inactivity due to its impact on increase of non-communicable chronic diseases, while smoking increases the risk of death from cancer, cardiovascular, cerebrovascular and respiratory diseases.\(^2\)

Studies confirm an association between the occurrence of a sedentary lifestyle and smoking.\(^3\)\(^4\) Teenage smokers tend to be sedentary, exercise during adolescence interfere in the genesis of smoking and continuity at older ages.\(^5\) In addition to the probable influences between the beginning of smoking and sedentary lifestyles, regular exercise can contribute to the discontinuance of smoking\(^6\), as the exercise is a protective factor against the top of that habit\(^7\), and that the decrease of smoking reduces the incidence of morbidities.\(^7\) In smokers there are falling rates of sickness and death when they cease to be sedentary.\(^8\)

Knowledge about the relationship between physical activity and improved health are well reported and it is known that physical inactivity is a risk factor for chronic diseases. The physiological gains of regular exercise and quitting smoking can act effectively in increased levels of population health, as these are controllable risk factors. To take preventive action becomes necessary to know the prevalence of focal level of physical activity and smoking, to investigate the possible association and its relationship to the diseases brought by patients, in order to encourage adoption of educational campaigns to promote health in population.

OBJECTIVES

- Evaluating the prevalence of sedentarism and smoking in patients starting physiotherapy care.
- Checking whether there is an association between being sedentary and being a smoker, and identifying declared diseases.

METHOD

This is a cross-sectional study with a sample chosen conveniently, held in the University Center UNIRG/Gurupi/TO/Brazil, the School of Physiotherapy Clinic. There were invited to participate in the survey all individuals above 15 years old, of both sexes, entering service in physiotherapy. The sample was completed with 108 volunteers and the data collection occurred between March and May 2009. The inclusion criterion was to be joining as patient care to the Clinical School of Physiotherapy UNIRG University Center between March and May 2009. Exclusion criteria submit any disease or musculoskeletal limitations that prevented the practice of physical activity.

The study was conducted through the application of a questionnaire on-site customer service. All volunteers completed the questionnaire International Physical Activity Questionnaire version 8 (IPAQ - 8), short form, to assess the level of physical activity.\(^9\) The IPAQ - 8, short form, questions the amount of days, hours and minutes of physical activity held in the last week, and leisure, labor occupation, commuting and housework activities. The IPAQ ranked levels of physical activity in sedentary, insufficiently active, active and very active.

Likewise answered the questionnaire based on the model validated by WHO for evaluation of tobacco consumption\(^10\), in which they were asked about tobacco use, the opinion on the existence of places with smoking bans, the age of onset, duration of abstinence tobacco for former smokers, the number of packs of cigarettes smoked per day, duration of tobacco consumption, having received advice to quit smoking, the type of the smoking product consumed (manufactured cigarettes with filter or unfiltered cigarettes, cigars or pipe), the intention to quit smoking, as the practice of smoking in the home and in the presence of family, and the presence of diseases. The number of pack-years was calculated.

According to WHO criteria was considered the individual smoker who consumed cigarettes or any smoking product regularly or occasionally at the time of the study, and regular smokers who consume at least one cigarette per day and occasional smoker who smokes but not every day. It was considered non-smoker that individual who never smoked or who is a former smoker, smoked and not smoke currently.\(^10\)

Only for current smokers was performed the evaluation of the level of nicotine dependence by the modified tolerance questionnaire Fagerström.\(^11\)

To compare the proportion of active and sedentary, between smokers and non-smokers the Chi-square (2 x 2) test by the method of Yates (Yates corrected chi-square), or Fisher’s exact test was applied when indicated. ODDS
RATIO (OR) was calculated to determine the chance of a smoker being sedentary. The frequencies, prevalence and reasons ratios for smoking, physical inactivity and certain diseases were declared to trace the profile of the population studied. For the implementation of descriptive and inductive statistical analysis, data were grouped into categories as follows: sedentary (sedentary and insufficiently active), active (active and very active), smokers (regular smokers and occasional smokers), and non-smokers (former smokers and those who never smoked).

The significance level for statistical treatment was of 5% (p < 0.05).

Obeying the ethical standards of human research project was approved by the Ethics Committee in Research of the University Center UNIRG under the Protocol 0011/2009.

RESULTS

There were interviewed 108 volunteers, where 70 (65%) were women and 38 (35%) were men. There was no exclusion.

From the interviewees it was found that 73 (68%) were sedentary and 35 (32%) were active, 97 (90%) were non-smokers and 11 (10%) were smokers, where most, 9 (82%) were sedentary smokers, and only 2 (18%) were active smokers. When comparing the individuals regarding the gender, women were more sedentary than men, with respective prevalence of 52 (71%) and 21 (29%), while men had a higher prevalence of smoking than women, being, respectively, 6 (55%) and 5 (45%).

The average age was 44 years (SD ± 20). When stratifying the sample in individuals below 40 years old (<40) and individuals aged 40 years old or older (≥ 40), it was observed that the risk factors were more prevalent in individuals aged ≥ 40 years old, where the sedentary occurred in 42 (68%) and smoking occurred in 7 (11%), while for individuals aged <40 years old, the inactivity occurred in 31 (67%) and smoking in 4 (9%). In assessing the total group was observed that the highest prevalence was detected among 73 sedentary (68%) in relation to the actives, and 11 smokers (10%) compared to non-smokers.

The majority of respondents, 101 (93.5%) declared itself in favor of ban on smoking in public places, while 7 patients (6.5%) declared themselves against. The mean age of occurrence of first smoking experience was 19 years (SD ± 9). Regarding use of packs per day, the average of a pack a day (± 1 SD), the duration of smoking in years was on average 21 years (SD ± 16), and the number of pack-years, which is the total number of years of smoking multiplied by the number of packs smoked per day was 7 pack-years (SD ± 21).

Most respondent smokers and former smokers, 22 (51%) subjects reported not having received advice to quit smoking, and 21 (49%) reported having received advice to stop the habit. Among smokers, seven subjects (63.6%) reported consuming only filtered cigarettes, 2 (18.2%) consumed cigarettes and filter, while 2 (18.2%) only unfiltered cigarettes. Of the smokers, 11 (100%) stated the wish of stop smoking.

Most smokers 6 (54.5%) reported smoking indoors, while 5 of them (45.5%) reported not smoking in the house, however 7 smokers (63.6%) reported not smoking in the presence of family members, as only 4 (36.4%) reported smoking in the presence of family. The most prevalent degree of nicotine dependence was very low in 8 subjects (72.7%), followed by medium 2 (18.2%) and low 1 (9.1%).

The degrees of high and very high nicotine dependence were not detected in this sample. Among former smokers, 21 (65.6%) reported having quit smoking more than 10 years, 9 (28.1%) reported having abandoned between 1 and 5 years, while the minority represented by 2 individuals (6.3%) are abstinent between 5 and 10 years.

For the characterization of diseases presented, these have been grouped into major groups, since all patients had more than one disease. When inquiring about the diseases brought were detected mostly women, 18 (25.7%) have cardiovascular and orthopedic diseases related to postural problems, while 16 men (42.1%) exhibit purely orthopedic diseases (Tables 1 and 2).
Table 1. Distribution of volunteers according to diseases presented by sex.

<table>
<thead>
<tr>
<th>Disease</th>
<th>Female patients</th>
<th>Male patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiorespiratory and posture diseases</td>
<td>18 (25.7)</td>
<td>16 (42.1)</td>
</tr>
<tr>
<td>Orthopedic, postural and sport diseases</td>
<td>15 (21.4)</td>
<td>9 (23.7)</td>
</tr>
<tr>
<td>Cardiovascular diseases associated with other</td>
<td>14 (20.0)</td>
<td>7 (18.4)</td>
</tr>
<tr>
<td>Aesthetic-dermatological diseases</td>
<td>12 (17.2)</td>
<td>3 (7.9)</td>
</tr>
<tr>
<td>Lung, postural and orthopedic diseases</td>
<td>7 (10.0)</td>
<td>2 (5.3)</td>
</tr>
<tr>
<td>Neurological disorders associated with other</td>
<td>4 (5.7)</td>
<td>1 (2.6)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>70 (100)</strong></td>
<td><strong>38 (100)</strong></td>
</tr>
</tbody>
</table>

Table 2. Distribution of volunteers according to diseases presented by sex.

<table>
<thead>
<tr>
<th>Diseases</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthopedic diseases associated with other</td>
<td>47</td>
<td>43.5</td>
</tr>
<tr>
<td>Cardiovascular diseases associated with other</td>
<td>40</td>
<td>37</td>
</tr>
<tr>
<td>Other diseases</td>
<td>21</td>
<td>19.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>108</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**DISCUSSION**

Being sedentary is associated with being a smoker (p = 0.005); among men to be smokers and have orthopedic problems is associated (p = 0.000); among women smoking, and sedentary be alone is associated to have cardiovascular and respiratory problems, respectively with p values of p = 0.000 and p = 0.001. When analyzing the overall group was observed to have orthopedic problems are associated with being sedentary (p = 0.0006), smoking (p = 0.000) and being sedentary smokers (p = 0.035). When analyzing the overall group was observed to have cardiovascular problems are associated with being sedentary (p = 0.000), smoking (p = 0.000) and being sedentary smokers (p = 0.010). By applying the odds ratio (OR) or odds ratio (OR) revealed that the likelihood of inactivity occur among smokers is eight times higher than that of nonsmokers, p = 0.005. In other analyzes was not detected significant differences.

The comparison between physical inactivity and smoking showed significant difference between the combination of these factors and with the diseases presented by patients. The high participation rate (100%) contributes to the reliability of the results.

In this study the prevalence of physical inactivity was of 68% with a predominance of females (71% females and 29% males). Another study also found similar prevalence of physical inactivity 69.3% and 54.5%.² Women were also more sedentary in other research.²

When analyzing the factors that influence the levels of physical activity in adolescents in Canada, the authors found that female determines lower physical activity.³ Moreover the prevalence of smoking was 10%, especially in males (55% in males and 45% females). A similar prevalence of smoking among college students (7.2%) was also detected in the same region.¹²

The national study performed by INCA detected a similar prevalence of smoking in Aracaju (12.9%), also more prevalent among men.² The smoking prevalence in the country is similar, but is slightly higher in the more industrialized regions which may explain the low prevalence found in this study.¹³

It was also observed that most smokers are men, are sedentary and are older than 40. According to studies conducted sedentary lifestyle, male and advancing age have a direct relationship with the genesis of smoking.¹⁰,¹³

A sedentary lifestyle may be associated with progression of age, the reduction in physical activity.¹⁴ When comparing the proportions of active and sedentary with smokers and non-smokers, there was a significant difference between being sedentary and smoking simultaneously (p = 0.005). The chance of being sedentary smokers is eight times that of non-smokers (p = 0.005).
Also to this study it was observed that smoking is associated with reduced exercise training. Lower prevalence of smoking are found in young athletes. In addition, exercise is also considered protective against smoking initiation. It is known that smoking influences the sedentary lifestyle and that both are risk factors for disabling diseases, besides being associated with reduced ability to year.

Show orthopedic diseases was significant among male smokers (p = 0.000). Among women, smoking (p = 0.000) and being sedentary (p = 0.001) alone was associated with presenting cardiovascular and respiratory problems. For the overall group, orthopedic disorders were associated with physical inactivity (p = 0.0006), smoking (p = 0.000) and both factors together (p = 0.035). Similarly, cardiovascular problems were significant and presented linked to sedentary lifestyle (p = 0.000), smoking (p = 0.000) and both factors associated (p = 0.010).

Cigarette smoking increases the risk of disease increases spending on health and mortality, particularly cancer, cardiovascular diseases, cerebrovascular diseases and chronic respiratory. can interfere with exercise capacity and exercise performance. Smokers have worse physical condition than non-smokers, and high values of heart rate and blood pressure at rest and submaximal exercise, and lower maximal oxygen consumption. Smoking affects the coronary flow, myocardial function and excitability. In addition, there is a positive correlation between the increase in heart rate at rest and the development of cardiovascular diseases, especially in lifetime smokers, increasing the risk of death.

When performing muscle biopsies in smokers and non-smokers, researchers found that smokers have lower muscle oxidative capacity (higher percentage of type IIIB fibers and less type I), which could, according to the authors, to be associated with reduced activity practice physics. This finding suggests that smokers have lower skeletal muscle performance than non-smokers, which may be a limiting factor to exercise and a facilitator of orthopedic injuries agent.

The risk factors obesity, smoking and physical inactivity influence the occurrence of cardiovascular diseases. The inactivity and overweight are risk factors for hypertension, cardiovascular disease. In a cohort study with 647 Japanese-Brazilians was found higher mortality between diabetic and hypertensive sedentary. Researchers found high prevalence of cardiovascular factors and associated high prevalence of myocardial ischemia (15%), and concluded that male low HDL - cholesterol, history of smoking, LVH and LVEF < 60 % are predictors of myocardial ischemia.

A cross-sectional population-based study including 2,096 individuals over ten years, found that unhealthy diet, physical inactivity, smoking and alcoholism have this order relationship with the genesis of cardiovascular and respiratory diseases, among other. The first contact with cigarettes, for subjects in this study, occurred on average at 19 years. Early smoking is a predictor for the habit into adulthood. This allows us to infer this study because the tobacco consumption is prevalent in individuals aged 40 or more. The most prevalent degree of nicotine dependence was very low (72,7%), which may be related to the fact that they were smokers with consumption the smoking an average of seven years-packet.

Smokers and former smokers interviewed, 49% reported receiving advice to quit smoking, while 51% said they had not received, suggesting a failure in prevention policies. The high prevalence of smokers interested in quitting smoking (100%) suggests that this group shares for smoking cessation would be effective and possibly positive, since the intervention to the abandonment of tobacco consumption increases the chances of success.

The present study found a low prevalence of smoking which is beneficial to public health and should be maintained in the long term, by applying continuous preventive and educational measures. However, the high prevalence of physical inactivity is becoming worrying. The cross-sectional design is fast and low financially, but is limited by temporality and subjectivity of statements. Biochemical parameters and methods are more reliable physiological indicators, however unfeasible population studies by increasing spending.

The method of data collection (interview with personal contact) seems more reliable than interview without personal contact, but the number of declared smokers may be less than the actual cultural unacceptance by the fact of being a smoker, which may have led the underestimation of the prevalence of smoking. Physical inactivity decreases longevity, and increase the incidence of diseases. Simultaneously, smoking adds to the list of risk factors that increase morbidity and mortality. Smoking is considered by WHO the leading cause of preventable death worldwide.
There are well documented benefits of regular physical activity for the body. The association between physical activity and better health standards are widespread, since the low level of physical activity is a risk factor for the development of degenerative and cardiovascular diseases, establishing an inverse relationship between physical activity and mortality. Regular physical activity induces beneficial adaptations in the body. The proper physical training enhances the transport, tissue extraction and oxygen consumption, decreases sympathetic activity, reduces the resting heart rate and increases systolic ejection volume at rest and during exercise. Moreover, in young smokers for reducing morbidity and mortality when they become physically active. The acute effects of five minutes of exercise, moderate and high intensity in sedentary smokers can reduce the desire to smoke. Programs treatment for smoking cessation, including the practice of controlled physical activity, promote superior improvements in exercise performance when compared to programs without physical activity. It was observed that women who stopped smoking and underwent physical training showed increased oxygen consumption and exercise time, since smokers tend to do less exercise (have less endurance, higher systolic blood pressure and increased heart rate) and that nicotine stimulates the sympathetic nervous system, increasing heart rate and blood pressure.

Therefore, exercise may be an important contributing factor in smoking cessation programs through beneficial effects on weight control (since ex-smokers tend to gain weight), reduced sleep disturbances, stress reduction, stress reduction and improved self-esteem. Apparently, there is an association between active lifestyle, discontinuation of smoking and minimizing the chances of relapse.

Regular physical activity can be considered the best strategy for public health in view of the direct savings that can be achieved by reducing the morbidity of inactivity. To achieve those associated with physical activity benefits, there must be regularity and maintenance of physical activity levels.

Regular physical activity, primary prevention and smoking cessation are effective measures to reduce costs and expand health care. The risk of death associated with tobacco use in the long term increases the occurrence of cancer deaths, respiratory and cardiovascular diseases. The reduction of smoking reduces the incidence of cancer and cardiopulmonary events.

the high rates of cardiovascular disease risk factors, particularly in young, alert to the need to adopt health promotion and prevention programs in the workplace. Counseling for physical activity in health units is slightly used, primarily to encourage healthy habits, which highlights the need to implement strategic goals in public health.

To reduce morbidity and mortality implementation of measures to combat cardiovascular risk factors at the national level, because their high levels is needed.

**CONCLUSION**

The present study found that the risk factors sedentarism and smoking can occur associatively and are related to cardiovascular, respiratory, orthopedic diseases, which emphasizes the need for therapeutic and preventive approach.

**SUPPORTING AGENCIES**

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