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ORIGINAL ARTICLE

Is there a relationship between the motivation of female fitness practitioners and tobacco and alcohol consumption? Perspectives for improving lifestyle for health

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ABSTRACT

The practice of Physical Exercise has been associated with the adoption of healthy lifestyles and, consequently, an improvement in health. The objective of the study was to investigate whether there is a relationship between tobacco and alcohol consumption and the type of modality practiced; and if the reasons presented for the practice are somehow related to these habits. The sample consisted of 177 adult women, who practice Fitness, divided into 3 groups: 68 practitioners of high intensity modalities, 54 of Zen modalities, and 55 of modalities of both types (mixed group). The Exercise Motivation Inventory 2 was used to assess the reasons for the practice of Physical Exercise. Relating smoking and alcoholism habits with the reasons for the practice, significant positive correlations were found between: smoking habits/affiliation (p = .037); alcohol consumption/keeping healthy (p = .035). Significant inverse relationships between: number of cigarettes smoked per day/weight management (p = .000); number of cigarettes smoked per day/health (p = .048). Class 3 of women who quit smoking had statistically significant higher scores on disease (p = .012) and staying healthy (p = .001). Affiliation is a common reason for smoking and exercising; those who smoked for a longer period of time seem to resort to the practice for reasons relating to the onset of illness or to maintain their health. Women who don't drink seem to be more concerned about their health than women who do drink. Clarifying these relationships is essential for creating more effective intervention programs to eliminate/reduce tobacco and alcohol consumption and their harmful effects on health.

Keywords: Physical activity psychology, Physical exercise, Exercise psychology, Woman's health, Lifestyle, Tobacco consumption, Alcohol consumption.

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INTRODUCTION

The concept of lifestyle has gained considerable importance in recent decades (Shephard, 1996; Pieron, 2004). According to the World Health Organization (WHO) (WHO, 2004; Portes, 2014) lifestyle consists of a "*set of habits and customs that are influenced, modified, encouraged or inhibited by the prolonged process of socialization*". These habits and customs include the use of substances such as alcohol, tobacco, tea or coffee, dietary and exercise habits. These have important health implications and are often the subject of epidemiological investigations (Pieron, 2004).

It is unanimous in the literature that lifestyle is the main risk factor for chronic non-communicable diseases, such as diseases of the circulatory system, cancers, respiratory diseases and diabetes mellitus (WHO, 2011; WHO, 2014; Araújo et al. , 2017; Kaczynski et al., 2008; Macedo et al., 2003; Ferrari et al., 2017), being also responsible for a large part of deaths from cardiovascular diseases in the world, so its measurement and monitoring can contribute to the definition of strategies and actions to combat the adoption of risk behaviours, disease prevention and health promotion (Ferrari et al., 2017).

Tobacco and alcohol consumption are two very worrying risk behaviours that compromise health. WHO data on global tobacco trends indicate that in 2021 there are 1.3 billion tobacco users worldwide and alcohol consumption is associated with more than 740,000 cases of pharyngeal, laryngeal or liver cancer (Pan American Health Organization, 2021; UN, 2021). In Portugal, data from the National Statistics Institute (INE) indicate that in 2019, 17% of the population over 15 years old were smokers (14.2% smoked daily and the remaining 2.8% smoked occasionally) and 21, 4% ex-smoker (SNS, 2020). The data also indicate that the percentage of women who say they have never smoked, 75.3%, is much higher than that of men in the same condition, 44.8%. Regarding the consumption of alcoholic beverages, the survey reveals that 29.6% of the population over 15 years of age consumed alcoholic beverages daily, 31.4% consumed regularly, but not daily, and 17% only occasionally. The percentage of men who report consuming alcoholic beverages daily, 40.3%, is also much higher than that of women, where more than half indicate that they do so occasionally.

The literature has advanced that smokers are more likely than non-smokers to engage in other risky behaviours (Kaczynski et al., 2008). There is consensus that the lack of PE associated with smoking increases the likelihood of people developing cardiovascular, cerebrovascular, chronic respiratory diseases and cancer (Rodrigues et al., 2008). On the other hand, regular physical activity has been linked to reduced smoking levels (Kaczynski et al., 2008; Billerbeck et al., 2019; Daniel et al., 2007), probably because the two behaviours provide similar rewards, such as a temporary decrease in stress and an improvement in mood (Kaczynski, 2008). In fact, in 60% of the studies included in the systematic review by Kaczynski et al. (2008), composed of 50 articles related to the topic, an inverse relationship between smoking and PE was reported (Lima and Macedo, 2012). Exercise intensity and its effect on the desire to smoke and abstinence have also been the subject of research interest, and the results are more visible for more intense exercises (Lima and Macedo, 2012; Taylor and Katomeri, 2007; Smits et al., 2016). Therefore, when combined, the variables type of training and intensity may potentiate the elimination of this risk behaviour (Daniel et al., 2007; Smits et al., 2016; Trevisan, 2019).

Abusive alcohol consumption becomes a concern, not only because of the damage it causes to metabolism, neural function, cardiovascular system and thermoregulation (NIAAA, 2010; Vella and Cameron-Smith, 2010; Giacomelli et al., 2019), but also because it is consumed earlier and in different environments, such as sports (Giacomelli et al., 2019; Haugvad et al., 2014; Oliveira et al., 2014). This habit in the sports environment has been justified by commemorative reasons, socialization, tension relief, stress relief, functioning as an

anxiolytic (Martens et al., 2005; Nery, 2015). PE practitioners in the gym have also shown inappropriate behaviour regarding the use of alcoholic beverages (Oliveira et al., 2014). For example, in a study carried out by Oliveira, Liberali and Coutinho (2012), of the 40 women practitioners of Fitness that made up the sample (ranging the practice time between 6 months and 3 years), 50% consumed between one and three drinks per week. Later Oliveira et al. (2014) added that although PE practitioners in the gym showed risk behaviour for alcohol consumption, there was no association between training intensity and that behaviour. What is known is that individuals who report moderate or frequent consumption, but not dependent, may have more abdominal and peripheral fat than non-consumers (Oliveira et al., 2014; Toffolo et al., 2012). In addition, the consumption of alcoholic beverages can interfere with the absorption of nutrients important for increasing muscle mass, cause dehydration because it is a diuretic (Oliveira et al., 2014; Suter, 2005) and compromise muscle strength, power and endurance (Oliveira et al., 2014; ACSM, 1997).

However, while women in Portugal tend to consume less alcohol and tobacco, they also tend to adopt less exercise behaviours, as, according to data published by the SNS (2020), 69% of women say they do not practice physical exercise. (EF) and 13.8% of those who practice do it only twice a week (SNS, 2020). In order to enhance the involvement and adherence of women to the practice of Exercise, it is essential that they practice activities that meet their motivations (Box et al., 2019). In fact, women have shown more participatory reasons for aesthetic issues, social interaction, revitalization, fun, challenge, stress regulation, pleasure, agility, positive health and improvement of physical condition (Box et al., 2019; Valim and Volp, 1998; Liz et al., 2013; Klain et al., 2013; Serrano, 2005). The reasons have varied, for example, depending on the sport practiced (Box et al., 2019; Heinrich et al., 2014; Fisher et al., 2017) and the age of the practitioners (Constantino, 1998; Moutão, 2005).

Creating intervention programs through the promotion of PE, reduction or elimination of tobacco and alcohol consumption is essential to promote healthier lifestyles.

Therefore, this study aims to: i) characterize the smoking and alcohol habits of women who practice Fitness; ii) verify if smoking and alcohol habits differ according to the type of exercise practiced in a Fitness context; iii) verify if smoking and alcohol habits are related to the reasons presented for the practice of PE in a Fitness context.

METHODOLOGY

Sample

The sample consisted of 177 female practitioners of gym activities, aged between 18 and 70 years (42.3 ± 12.9) and mean practice time of 8.5 years (± 8.0). Most of the elements in the sample practice between once or twice a week (n = 113, 63.8%), reside in the city of Viseu (n = 120, 90.2%), are licensed (n = 59, 62.9%) and are teachers (n = 34, 25.8%).

The following inclusion criteria were selected in the sample: only female fitness practitioners, aged over 18 years and a minimum practice time of 6 months.

Participants were grouped into high-intensity (HI) modalities practitioners (n = 68, 38.4%), Zen practitioners (ZG) (n = 54, 30.5%), and mixed practitioners (MG) (n = 55, 31.1%). High-intensity modalities included high-impact modalities, such as Cardiofitness, Bodybuilding, Functional Training, Jump, GAP, Dance Classes, Body Pump, Localized, Body Combat, Body Attack, Cycling, TRX, Cross Training and Body Step. In Zen, low-impact modalities with a more meditative component were included, such as Yoga, Pilates, Body

Balance, Stretching and Tai Chi. The third group, that of mixed training practitioners, was created by the fact that there are women who practice modalities from both groups mentioned above. The modalities were grouped in this way according to the methods of estimating intensity of cardiorespiratory and resistance exercise suggested by the ACSM (2018). That is, in the first group, HI, are included modalities whose intensity can vary between 60 and 89% of the Heart Rate Reserve (HRR), 64 to 90% of VO_{2max}, perceived exertion from 14 to 17 points (rating on 6-20 RPE scale), therefore, vigorous intensity; the second group, ZG, the intensity of the modalities can vary between 30 to 39% of the HRR, 37 to 45% of VO_{2max}, perceived exertion from 9 to 11 points, therefore, light intensity. The third group, MG, as it encompasses practitioners of both types of modalities, the intensity can range from light to vigorous.

Procedures and Instruments

After explaining the purpose of the study, what their participation consisted of, as well as guaranteeing the confidentiality of their responses and that they could withdraw at any time, the volunteers were asked to sign an informed consent statement. Before the practice of their activity, each study participant was invited to fill, individually, 2 questionnaires: (1) questionnaire (own source) for the characterization of the sample that included questions such as: age; the profession; literary qualifications; practice time; the number of weekly workouts; the modalities practiced and the smoking and alcoholic habits. Regarding smoking, it was asked if the practitioners at the time of answering were smokers and if so, how many cigarettes they consumed per day; if not, if they had ever smoked; for how long; how many cigarettes they smoked per day and how long ago they stopped smoking. They were also asked if they consumed alcoholic beverages and, if so, a scale was used for the amount: Less than 7 drinks per week; between 7 and 14 drinks per week and more than 14 drinks per week. (2) Exercise Motivation Inventory 2 (EMI-2) (Markland and Ingledew, 1997), Portuguese version consisting of 51 questions (Alves and Lourenço, 2003), which allows assessing the reasons for the practice of Physical Exercise. This questionnaire is organized into 5 dimensions: Psychological Motives; Interpersonal Motives; Health reasons; Body-related and Physical Condition Reasons. Each of these dimensions encompasses 3 or 4 specific reasons, and in total 14 reasons are presented, and they are: Pleasure; Challenge; Social Recognition; Affiliation; Competition; Health; Illness; To stay healthy; Weight; Appearance; Strength/Endurance; Agility; Stress; revitalization. Each reason consists of 3 or 4 items, rated on a 6-point Likert scale (0- not at all true for me; 5- completely true for me). In the answers to this questionnaire, Cronbach's Alpha was applied, and the results were greater than 0.6, guaranteeing the reliability of the answers.

Statistical analysis

Statistical procedures were performed using the SPSS program, version 25, through descriptive statistics of the questionnaire scores. Descriptive statistics provided simple summaries of the sample by calculating measures of central tendency, such as mean and standard deviation. The normality of the sample was verified through measures of Asymmetry and Kurtosis in the continuous variables, having verified that only the variable "*number of cigarettes per day*" did not present normal distribution, we opted for non-parametric statistics. ANOVA was used for the variables with normal distribution, for the others the Kruskal-Wallis test was used. To verify which groups there were differences in, Pairwise comparisons were used. Spearman's correlation was used to assess the relationship between the variables "*number of cigarettes per day*" and participatory motives. To assess the relationship between parametric variables and participatory motives, Pearson's correlation was used.

It should also be noted that for the analysis of participatory motives, the age difference was controlled, since some discrepancy was observed between the average ages of the sample groups.

RESULTS

The characteristics and smoking and alcohol habits of the participants according to the modality practiced are presented in Table 1.

Table 1. Descriptive characteristics of the participants.

	High Intensity (a)	*Zen* (b)	Mixed (c)	Total	*p*
Age (years)[1]	38.2 ± 10.9	49.1 ± 13.1	45.0 ± 13.5	42.3 ± 12.9	.000*
Practice time (years)[1]	8.9 ± 5.8	5.8 ± 5.5	12.3 ± 10.1	8.5 ± 8.0	.000*
Weekly Frequency (freq, %)[2]					
1 to 2 times a week	35, 51.5%	54, 100.0%	24, 43.6%	113, 63.8%	.000*
3 to 4 times to week	20, 29.4%	0, 0.0%	21, 38.2%	41, 23.2%	
5 or more times a week	13, 19.1%	0, 0.0%	10, 18.2%	23, 13.0%	
Smoking Habits (freq, %)[2]					
Smokers	8, 11.9%	0, 0.0%	8, 14.3%	16, 11.3%	.246
Stopped smoking	14, 31.1%	5, 33.3%	16, 43.2%	35, 36.1%	.508
Alcohol consumption (freq, %)[2]					
Consumers	22, 33.3%	5, 27.8%	22, 40.0%	49, 35.3%	.580
Less than 7 drinks per week	20, 100.0%	5, 100.0%	20, 95.2%	45, 97.8%	.544
More than 14 drinks per week	0, 0.0%	0, 0.0%	1, 4.8%	1, 2.2%	.544

*Note. [1]ANOVA [2]Chi-Square. Age – a < b; a < c; b > c. Practice time – a > b; a < c; b < c. *p ≤ .05.*

As previously mentioned, the age of the sample varies between 18 and 70 years, with the ZG having a higher average age than the other groups and the group with younger elements being the HI group. The practitioners of the MG are those who have been practicing for the longest time and those in the ZG have been practicing for the least. Regarding the weekly frequency, most of the sample practices once or twice a week (n = 113, 63.8%), in fact, the entire ZG presents this weekly frequency. With regard to smoking habits, 88.7% of the sample are non-smokers and 36.1% have stopped smoking, with the MG having the highest percentage of smokers and ex-smokers. Alcohol consumption is also mostly found in MG practitioners and in greater amounts. It is also important to mention that the consumption of alcohol by these practitioners is not considered abusive, as 97.8% consume less than 7 drinks per week.

It appears that there are no statistically significant differences between the fact of being smokers or ex-smokers and the type of exercise practiced. The same is true of alcohol consumption, regardless of the amount.

Figure 1 shows the distribution of the number of cigarettes consumed per day as a function of the type of sport practiced.

In this variable, the distribution is not normal, the daily consumption of cigarettes varies between 1 and 40, although the mean and standard deviation is 10.9 ± 9.71. There are 2 individuals who practice HI modalities who are out of the standard indicating that they consume 40 cigarettes a day. Even so, it is the practitioners of the MG who consume more cigarettes per day.

Table 2 shows the distribution of the number of years of smoking and the number of years that stopped smoking according to the type of modality practiced.

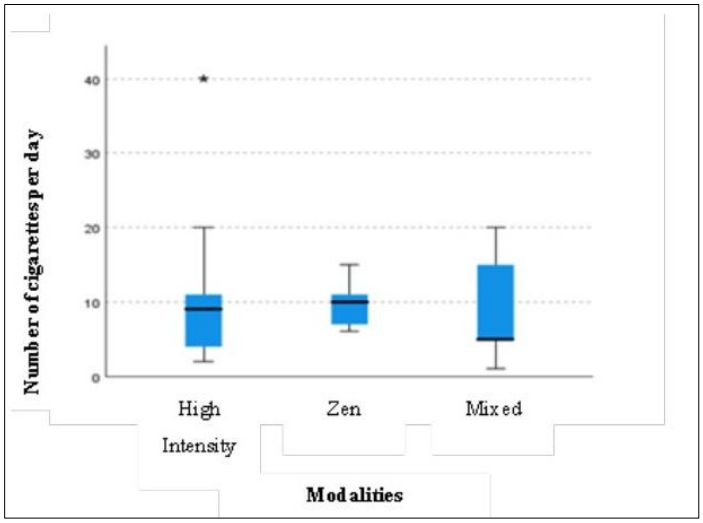

Figure 1. Number of cigarettes consumed per day according to the type of sport practiced.

Table 2. Differences in time spent as a smoker and in time that quit smoking as a function of the type of modality practiced (mean ± standard deviation).

	High Intensity (a)	Zen (b)	Mixed (c)	Total	*p*	n^2_p
Number of years smoked	5.75 ± 5.30	6.80 ± 7.60	9.44 ± 6.71	7.29 ± 6.26	.432	0.072
Number of years quit smoking	11.39 ± 9.39	13.00 ± 9.09	20.90 ± 11.10	15.02 ± 10.63	.085	0.179

*Note. *p ≤ .05.*

Table 3. Characterization of the reasons for the practice (mean ± standard deviation).

Dimensions/Motives	Mean ± Standard Deviation	Asymmetry	Kurtosis
Psychological reasons	3.68 ± 0.72	-0.44	-0.31
Stress	3.59 ± 0.90	-0.28	-0.83
Revitalization	4.24 ± 0.76	-1.06	0.57
Pleasure	3.99 ± 0.95	-0.97	0.51
Challenge	2.88 ± 1.12	-0.22	-0.76
Interpersonal motives	1.72 ± 1.05	0.37	-0.78
Social Recognition	1.06 ± 1.15	0.89	-0.33
Affiliation	2.38 ± 1.33	-0.09	-0.94
Competition	1.73 ± 1.32	0.33	-0.93
Health reasons	3.46 ± 0.69	-0.10	-0.44
Health	1.98 ± 1.39	0.22	-0.89
Illness	3.92 ± 0.91	-0.70	-0.05
To stay healthy	4.49 ± 0.60	-1.44	2.10
Related reasons with the body	3.16 ± 1.08	-0.45	-0.29
Weight	3.32 ± 1.23	-0.61	-0.38
Appearance	2.99 ± 1.14	-0.53	-0.12
Physical condition reasons	4.07 ± 0.71	-0.62	0.07
Strength/Endurance	4.04 ± 0.81	-0.79	0.19
Agility	4.11 ± 0.79	-1.19	2.20

Analysing the differences in the number of years in which they were smokers depending on the type of modality practiced, no significant differences were found between the practitioners of the 3 groups. The same happened with the number of years in which they stopped smoking.

Table 3 presents the reasons given by the participants of the sample for the practice of PE.

It appears that the practitioners in the sample indicate more Psychological Reasons (stress, revitalization and pleasure), Health Reasons (illness and keeping healthy), Body-related reasons (weight) and Physical Condition Reasons (Strength/Endurance and Agility) for the practice of PE. The least mentioned reasons were Challenge, Health, Appearance and Interpersonal Motives (Social Recognition, Affiliation, Competition).

The correlations between the reasons for the practice of PE and the smoking and alcohol habits of the practitioners of this sample were analysed. The results are shown in Table 4.

Table 4. Relationship between reasons for the practice and consumption of tobacco and alcohol (r-values).

	Smoking Habits	**Alcoholic Habits**
Psychological reasons	0.055	0.075
Stress	-0.003	-0.039
Revitalization	0.050	0.105
Pleasure	-0.001	0.093
Challenge	0.088	0.093
Interpersonal motives	0.040	0.025
Social Recognition	-0.085	-0.013
Affiliation	0.176*	0.092
Competition	-0.005	-0.027
Health reasons	0.052	0.075
Health	0.070	0.037
Illness	0.046	0.040
To stay healthy	-0.012	0.179*
Related reasons with the body	-0.052	0.030
Weight	-0.051	0.008
Appearance	-0.036	0.050
Physical condition reasons	-0.018	0.108
Strength/Endurance	-0.015	0.122
Agility	-0.018	0.065

*Note. * Significant correlation at the .05 level. **Significant correlation at the .01 level.*

Significant correlations ($p \leq .05$) were observed between Smoking Habits and Affiliation ($p = .037$), indicating that women who reported smoking were also the ones who were most likely to indicate Affiliation as the reason for the practice of PE; and between the consumption of alcoholic beverages and the reason to Keep Healthy ($p = .035$), in which women who said they did not drink more often indicated "*Keep healthy*" as the motivation to practice PE, when compared to those who said they did not drink. We also analysed the relationship between the quantities, whether the number of cigarettes consumed per day or the number of alcoholic beverages consumed per week, with the reasons for practicing PE, and significant, inverse relationships were identified between the number of cigarettes consumed per day and the reason "*Health*" ($r = -0.376^*$, $p = .048$), indicating that women who consume more cigarettes per day are the ones who least indicate "*Health*" as the reason for the practice of PE; and between the number of cigarettes smoked per day

and the reason "*Weight Management*" (rô = -0.797**, *p* = .000), with those who consume the most cigarettes least likely to pick "*Weight Management*" as a reason to practice.

Regarding the analysis of women who reported having stopped smoking, it was found that for the variable "*How long did they smoke*" three classes were constructed, corresponding to the number of years that the participants in the sample had been smokers. The first class included a duration of less than or equal to 5 years; the second class, between 6 and 9 years old; and the third class greater than or equal to 10 years. Analysing the reasons for the practice of PE, it was found that there were statistically significant differences in "*Disease*" (*p* = .012), in "*Keep healthy*" (*p* = .001), between the classes described above. The variables "*Psychological Reasons*" and "*Health Reasons*" are on the threshold of significance (*p* = .057 and .087 respectively), that is, there is no statistical evidence that the variables take different values for the different duration classes. Analysing the reason "*Illness*" by the classes of the variable "*duration*", it was verified that the existing differences are between the first and the third class, and those who smoked for less years presented lower values for this reason, therefore, those who smoked for a longer period more often selected "*Illness*" as the reasons for the practice of PE. Regarding the reason "*Keep healthy*", statistically significant differences were also found between the same groups, with the reason "*Keep healthy*" being more indicated by women in class 3, that is, those who smoked for longer were most likely to choose "*Stay healthy*" as the reason for the practice of PE.

DISCUSSION

Since physical inactivity, tobacco and alcohol consumption are modifiable factors (Ferrari et al., 2017), it is important to study effective ways to change these risk behaviours. Analysing the reasons given by women for the practice of Fitness modalities and involving them in this practice can be a good strategy to combat sedentary lifestyle. The women in the present study feel more motivated to practice PE for revitalisation; stress management; for pleasure; to stay healthy or through illness; to improve their Physical Condition, strength/endurance and agility. These results are in line with what has been advanced by several authors (Liz et al., 2013; Klain et al, 2013; Serrano, 2005) who report that women tend to exercise more to improve their Physical Condition; for health-related issues; stress management; revitalisation and for aesthetic reasons, mainly related to weight loss. The women in the present study also indicate reasons related to the body, mainly weight management, as important for the practice of PE, however, these do not seem to be the main reasons.

PE has been considered a strong ally in the fight against smoking (Rodrigues et al., 2008; Billerbeck et al., 2019), as it is believed that those who exercise regularly tend to reduce or stop using tobacco (Billerbeck et al., 2019). In fact, of the 177 women that make up the sample of the present study, 16 are smokers and 35 have stopped smoking. Given that the average practice time is 8.5 years, it is possible that PE has helped to stop this habit. However, although no statistically significant differences were found between smoking and alcohol habits and the type of exercise practiced by these women, in a study developed by Taylor and Katomeri (2007) it was found that just 15 minutes of walking not only reduced the smoking cravings, as well as withdrawal symptoms and time between cigarettes smoked. On the other hand, high-intensity aerobic exercise has been more effective in reducing withdrawal symptoms and the desire to smoke in the process of eliminating tobacco consumption, when compared with light and moderate exercise (Trevisan, 2019; Ussher et al., 2009; Roberts et al., 2015). In a study developed by Lima and Macedo (2012), an inverse relationship was observed between high-intensity PE and mild tobacco dependence. Alcohol abuse does not seem to be influenced by training intensity (Oliveira et al., 2014; Nery, 2015) leading to the belief that this

behaviour does not differ depending on the type of modality practiced, as happened in the present study and in the study developed by Oliveira et al. (2014).

Through the analysis of the correlations between smoking and alcohol habits and reasons for the practice of PE, statistically significant relationships were found between tobacco consumption and Affiliation, suggesting the reason is common for the adoption of both behaviours. According to Bonilha et al. (2013) adults tend to smoke more for several reasons, including affiliative attachment, unlike younger adults who have higher scores for social smoking. These data are in agreement with the results of the present study since the average age of the participants is 42.3 years.

The consumption of alcoholic beverages showed a significant relationship with the reason "*Keep healthy*", that is, women who claim not to consume alcohol indicated that reason more than those who admit to drinking. As a primary effect of alcohol intake, there is a reduction in the activity of the central nervous system (Giacomelli et al., 2019). Physiologically, it is known that alcohol consumption causes damage to metabolism, neural function, cardiovascular and thermoregulatory systems (Vella and Cameron-Smith, 2010; Giacomelli et al., 2019). However, according to Martens et al., (2005) the consumption of alcoholic beverages may be related to the relief of tension, of stress, that is, it may work as an anxiolytic. Santos and Tinucci (2004) add that, despite the literature pointing to numerous harmful effects of alcohol consumption on sports performance, when consumption is light or moderate it does not seem to interfere with practice. In a study carried out with 12 individuals, being 6 moderate consumers of alcoholic beverages and the other 6 non-consumers, it was found that the intake of small and moderate doses of alcoholic beverages did not cause a significant change in heart rate, blood pressure, ventilation, consumption of oxygen, exercise perception, lactate concentration or work capacity (Nery, 2015). However, despite the frequent evidence of exaggerated consumption of alcoholic beverages by gym goers (Oliveira et al., 2014; Nery, 2015; Souza and Folador, 2020), the consumption presented by the participants of the present study is not considered abusive, since most consume less than 7 drinks per week, so in this sample it should not be considered a risky behaviour. Abusive consumption is considered when a woman consumes 4 or more doses of any alcoholic beverage in a single moment, or more than 7 doses per week (Souza and Folador, 2020). Apparently, quantity and regularity may be responsible for the harmful effects of consuming alcoholic beverages on health.

There were also statistically significant, but inverse, correlations between the number of cigarettes smoked per day and the reasons "*Health*" and "*Weight management*", which suggests that women who smoke more are less concerned with health and with the weight management. In fact, if women who smoke less seem to be more concerned about their health than those who smoke more, this effect may also be associated with the practice of PE as a determining factor in the set of health behaviours. A vast literature has shown that there is an inverse relationship between the practice of PE and tobacco dependence (Billerbeck et al., 2019; Lima and Macedo, 2012; Vella and Cameron-Smtih, 2010) so it is believed that the practice of PE decreases tobacco use, helping to prevent its harm (Billerbeck et al., 2019). For example, in a study carried out in London with pregnant women and smokers, when subjected to a 20-minute light to moderate intensity training program, a significant reduction in smoking cravings was found, as well as a decrease in some symptoms such as irritability, depression, tension, restlessness, and difficulty concentrating (Pomerleau et al., 2000). Another study, developed by Bess et al. (1999) demonstrated that a supervised intense exercise program was associated with long-term maintenance of women's tobacco cessation (Daniel et al., 2007). From the above, it appears that the tendency for those who practice PE is to reduce or eliminate tobacco consumption and, although there is no reference on the number of cigarettes smoked before practicing PE, the reality is that 36.1% of the members of the sample are ex-smokers and 11.3% are smokers. As for "*Weight management*", as mentioned, this reason is also more indicated by women who smoke less, although, of

course, they know that PE is a strong ally in weight regulation and weight loss (Lima and Macedo, 2012). On the other hand, if your goal is to reduce or eliminate tobacco consumption, the literature suggests that PE is a way to mitigate the weight gain associated with this phase (Daniel et al., 2007).

Finally, regarding the women who reported having stopped smoking, the correlations between the duration of the behaviour and the reasons given for the practice of PE were analysed. It was found that women who smoked longer (class 3) were more likely to select "*Illness*" and "*Staying healthy*" as reasons for the practice of PE than those who smoked for less time (class 1). It is possible that class 3 women, that is, those who smoked for 10 or more years, are now aware of the harmful effects of tobacco and, therefore, have stopped smoking and resort to PE to stay healthy, or, on the other hand, it is also possible that they have contracted, or worsened, an illness and use PE to improve their health and prevent illness. In fact, smokers and individuals who have stopped smoking, but whose health has already been affected by tobacco use, tend to decrease their average life expectancy by 10 years, when compared to those who never smoked (Trevisan, 2019). However, quitting smoking after the age of 35 helps to regain two to three months of healthy life expectancy for each smoke-free year; in addition to that, after 12 months of cessation, it reduces cardiac risks by 50%; the frequency of exacerbations in patients with chronic obstructive pulmonary disease and decreases stress levels and mood disorders (Trevisan, 2019). And, if on the other hand, the practice of PE helps, for example, in reducing blood pressure, insulin resistance, helps in bone mineralization, improves the cardiorespiratory system, prevents hypertension and significantly prevents cardiovascular diseases (Rodrigues et al., 2008; Billerbeck et al., 2019), it is justifiable that these women, who smoked for so long, find in PE a way to improve their health-related life habits, since the age factor also has an impact being associated with the adoption of healthier lifestyles, due to the emergence or worsening of diseases and greater concern for health (Ferrari et al., 2017; Constantino, 1998; Moutão, 2005). It is also important to add that PE tends to improve the quality of sleep in the general population. This is affected by tobacco consumption due to nicotine addiction. Purani et al., (2019) found that increased daily exercise in smokers is associated with improved sleep quality.

CONCLUSIONS

The present study was developed with the intention of contributing, essentially, to the adoption of healthier lifestyles. It was developed with practitioners of female gym modalities, which is thought to be an added value, especially because in our country women are largely more sedentary than men, and it is essential to create programs to promote PE that evolve them and range from meeting their motivations, contributing to the initiation and adherence to the practice. With adherence to exercise, there will be a greater tendency to reduce or stop other risk behaviours, such as tobacco and alcohol consumption. But, if, on the one hand, the type of sport practiced seems to be unrelated to these habits, Affiliation is a common reason for tobacco consumption and for the practice of PE. Health and weight management reasons also appear to be less prevalent when tobacco consumption is higher. On the other hand, the motivation to practice for reasons of illness and health maintenance seems to be higher in women who smoked for more years.

It is important to mention that the present study was developed with practitioners of fitness modalities in which the practice time factor can influence the results. The fact that a wide range of ages was used may be considered a limitation of the study to be taken into account in future studies. Another issue that seems to be interesting to clarify in future investigations is the reasons that lead fitness practitioners to maintain tobacco and alcohol consumption. Perhaps by reversing the line of thought, we can understand how these behaviours and intervention programs can be more effective.

In short, if the literature has shown that lifestyle interventions are as effective as evidence-based medical therapies in reducing mortality, it is essential to contribute to the design of these intervention programs.

AUTHOR CONTRIBUTIONS

Sousa P., participated in the manuscript design, data analysis and interpretation, and wrote the manuscript. Coelho E., participated in the analysis and interpretation of data. Mota M., participated in the critical revision of the content.

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