CHAPTER
25

Quality of life and factors associated with the practice of physical exercise in master's students of a public university in the central region of the country

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Welistânia Vieira Bispo Barbosa
Graduating in Statistics at the Federal University of Mato Grosso - UFMT.
E-mail: welistania@gmail.com

Gilmar Jorge de Oliveira Junior
Professor of Statistics at the Federal University of Mato Grosso - UFMT, Dr. in Public Health.
E-mail: gjoliveirajr@gmail.com

Neuber José Segri
Professor of the Statistics course at the Federal University of Mato Grosso - UFMT, Dr. in Sciences.
E-mail: professor.neuber@gmail.com

ABSTRACT
Introduction: Physical exercise has been consolidating itself as a fundamentally important element for improving health and quality of life. Objectives: To evaluate the quality of life and factors associated with performing physical exercises in master's students at a public university in the central region of Brazil. Methodology: This is an observational, cross-sectional study, self-completed survey type, with data collection being carried out online, in a sample of 375 master's students who answered the Epworth Sleepiness Scale, SRQ-20 instruments, and WHOQOL-brief, in addition to questions related to sociodemographic characteristics and lifestyle. Multiple Poisson regression model with robust variance was used to verify associations. Results: Of the 375 participants, 57.34% claimed to perform physical exercise, which was associated with the variable's alcohol consumption, dissatisfaction with their health status, and the possibility of having a common mental disorder. Regarding the domains of quality of life, master's students who performed physical exercises obtained significantly better values. Conclusion: Performing physical exercises proved to be a great option to circumvent the sedentary routine experienced by master's students, bringing benefits to their health and quality of life.

Keywords: Physical exercise, Student health, Mental disorders.

1 INTRODUCTION

It is not difficult to realize that people's daily lives have become increasingly dynamic and intense, often contributing to a partial or total decrease in the time dedicated to performing physical exercises, as it is not a priority. However, according to the World Health Organization (WHO), regular physical exercise has been a protective factor for the prevention and management of non-communicable diseases, such as cardiovascular diseases, type 2 diabetes, among others. In addition, physical exercise has also been shown to be efficient and beneficial for mental health (WHO, 2020).

For some time now, the WHO has recommended that adults perform at least 150 minutes per week of moderate physical exercise or 75 minutes of vigorous physical exercise per week, if this is not possible, at least 30 minutes of physical exercise should be practiced per day (2018). The performance of physical exercises regularly is of fundamental importance for human development at all stages of life, the more ced or becomes a habit, the greater the benefits for health and quality of life (BRAZIL, 2021).

Although they seem synonymous and have the same purpose, to improve physical conditioning, maintain proper weight, and bring numerous benefits to physical and mental health, there is a difference between physical activity and physical exercise. The first is understood as any movement produced voluntarily above the levels of rest, with some energy expenditure, such as domestic activities, commuting to work/school, and outdoor activities among other NAHAS (2017), since physical exercise is a programmed, planned and repetitive activity, with a specific objective, in this sense, it can be said that all physical exercise is a physical activity, but not all physical activity is a physical exercise (SANDRESCHI, 2020).

Considering that graduate students spend much of the day sitting to carry out their research and studies, causing an increase in sedentary time and physical inactivity THIVEL et al. (2018) it is understood as being relevant to know the behavior of graduate students about the practice of physical exercises. In this study, preference was given to analyzing the master's students, because of the lack or little knowledge about the graduate environment, combined with the relationship between the time available for the completion of the course (24 months) and the pride that has been required of the research work by the supervisors and scientific journals, expose them to a different reality of the doctoral students. In other words, it is a population exposed to a competitive routine, of demands, tensions, and demands, however, having a short period to present satisfactory results (COSTA and NEBEL, 2018).

Thus, the objective of this study was to evaluate the quality of life and factors associated with the performance of physical exercises in master's students of a public university in the central region of the country.

2 MISALLS

This is a cross-sectional observational study, with components of descriptive and analytical analysis, of the self-administered survey type, conducted with master's students of a federal public university in the Brazilian Midwest, through the electronic platform (*SurveyMonkey*). With a population of 1,740 students enrolled in 2018, 1,521 in academic master's courses and 219 in professional master's degrees, according to the university's secretariat.

The sampling method used was based on CARLOMAGNO lists (2018) and the sample sizing for estimates of means with relative error and finite population ARANGO (2016). Thus, the approximate sample size for the research was 315 master's students, considering one the mean (= 60) and one$\bar{x}$ standard deviation (s = 15) obtained in a pilot study with *lato sensu* graduate students in statistics, an estimation error of 2.5% (e = 0.025), a confidence level of 95% ($Z_{\alpha/2}$ = 1.96) and the population size (N = 1,740). To avoid the problem of lack of response, a minimum rate equal to 85%

ESPINOSA et al. was established. (2019), that is, dividing 315 by 0.85 obtained the need for at least 371 master's students in the sample. Finally, 5% was added for possible losses other than the absence of answers, thus totaling several 390 master's students for the sample.

For data collection, an invitation was sent by the university secretariat to the 1,740 master's students, containing all the information considered necessary, along with the informed consent form (ICF) and the link to access the questionnaire via e-mail, thus giving equal opportunity to all to participate in the study. To validate the questionnaire, the master's students were asked to inform the initial and final three digits of their enrollment, allowing better control of the sampling process.

The period that performed the data collection was from August to November 2018 and there were 482 attempts of answers to obtain a total of 390 valid questionnaires. Of this total, 15 master's students were excluded, 7 of whom declared themselves physically disabled, because according to COUTINHO et al. (2017), they are not exposed to the same factors as their colleagues who do not have disabilities, and 8 who filled out their questionnaire insufficiently, making it impossible to calculate the value of two or more domains of the *WHOQOL-bref*. Thus, the final sample was composed of 375 master's students.

The questionnaire was divided into two parts: the first part contained questions about sociodemographic variables (gender; age; race/color; religion; having or not having a partner and/or children; profession; family income in reais) and health (physical exercise; alcoholic beverage; smoking, physical disability; self-rated health status; daytime sleepiness and common mental disorders). The daytime sleepiness was determined by the *Epworth* Sleepiness Scale, which has a global score ranging from 0 to 24, and the master's students who obtained scores above the value 10 were classified with excessive daytime sleepiness BERTOLAZI et al. (2009) and mental disorders by the *Self-Report Questionnaire* (SRQ-20), composed of 20 questions, where each affirmative answer (yes) is equivalent to one point and those who presented a score of seven or higher were considered individuals with a high probability of developing or having common mental disorders (CMD) (Santos et al., 2009).

And the second part referred to the quality of life, because when defining it according to the World Health Organization (WHO), as "the perception of the individual of his insertion in life in the *context of the culture and value systems in which he lives and about his objectives, expectations, standards and concerns"* (THE WHOQOL GROUP, 1995, p.1405) and using the WHOQOL-brief instrument, it is possible to reflect the subjectivity of the construct quality of life in the cultural, social and environmental conjunctures FLECK et al. (2000), thus becoming a good indicator of the realities experienced by master's students.

The WHOQOL-brief was translated and validated for use in Brazil by FLECK et al. (2000), consisting of 26 questions formulated in a Likert-type response scale of 1 and 5 points, the first two of which refer to self-assessment referring to the quality of life and satisfaction with health, and the remaining 24 correspond to the 24 facets that make up the original instrument (*WHOQOL-100*), which properly grouped form four domains: physical, psychological, social relationship and environment. The final scores of each domain are calculated by a syntax, which results in a scale from 0 to 100, indicating the individual's perception of their satisfaction in each aspect related to their quality of life, basically, the higher the score the better this perception (SILVA et al., 2014).

After extracting the data from the electronic platform, they were validated to ensure total reliability. The characterization of the students was done using a frequency table, together with the chi-square test to verify the association between the dependent variable performance of physical exercise with the sociodemographic and health variables. Subsequently, the adjusted prevalence ratios were calculated using the multiple Poisson model with robust variance, where the variables that presented in the chi-square test p-value ≤ 0.20 were initially included in the model, and only those that had a p-value < 0.05 remained in it after the analysis.

For the domains and general quality of life of the *WHOQOL brief*, it was decided to calculate the point and interval estimates with 95% confidence for the mean scores, and the similarities and differences between them were analyzed by the overlapping (common values) of the confidence intervals. In addition, median scores and standard deviations were also obtained. Statistical analyses were performed with the aid of the statistical program *Stata* version 13 and in all tests, a significance level equal to 5% was used.

This research was approved by the Research Ethics Committee of the Federal University of Mato Grosso - UFMT (CEP SAÚDE UFMT), with protocol No. 2,658,582, thus meeting all the ethical prerogatives of Resolution No. 466/2012 of the National Health Council.

3 RESULT AND DISCUSSION

Of the 375 master's students participating in this study, 306 (81.6%) were enrolled in the academic master's degree and had a mean age of 30 years with a standard deviation of 6.8 years, while the other 69 (18.4%) were enrolled in the professional master's degree, with a mean age of 35 years and standard deviation of 8.1 years. However, as OLIVEIRA JUNIOR (2020) did not identify a significant difference in the general quality of life between academic and professional master's students, therefore, it was decided not to separate students according to the type of master's degree.

It should be noted that the present sample, even not considering in the sample calculation the areas of knowledge, obtained master's students belonging to all of them, having a greater participation

in the areas of health sciences (23.7%) and human sciences (21.9%) and a lower participation in the areas of engineering (2.1%) and linguistics, letters, and arts (2.9%), as can be seen in Table 1.

Table 1: Absolute and relative frequencies of physical exercise performance by master's students, according to the area of knowledge of their course, Mato Grosso, Brazil, 2018.

Areas of knowledge	Exercise				Total	
	Performs		Does not perform			
Agricultural Sciences	24	54,49%	20	45,51%	**44**	**100,00%**
Biological Sciences	10	55,63%	8	44,37%	**18**	**100,00%**
Health Sciences	55	61,80%	34	38,20%	**89**	**100,00%**
Exact and Earth Sciences	34	64,09%	19	35,91%	**53**	**100,00%**
Humanities	37	45,09%	45	54,91%	**82**	**100,00%**
Applied Social Sciences	23	71,87%	9	28,13%	**32**	**100,00%**
Engineering	1	12,57%	7	87,43%	**8**	**100,00%**
Linguistics, Letters, and Arts	6	54,60%	5	45,40%	**11**	**100,00%**
Multidisciplinary	25	65,75%	13	34,25%	**38**	**100,00%**
Grand Total	**215**	**57,34%**	**160**	**42,66%**	**375**	**100,00%**

Source: Own trousers

Several authors diverge a little from the reality of the world population where 17% are considered physically inactive and 60% do not correspond to the minimum of physical exercise advisable DIAS et al. (2017), it can be seen in Table 1 that more than half of the sample (57.34%) reported performing physical exercise, highlighting the master's students belonging to the courses of Applied Social Sciences with 71.87%, Exact and Earth Sciences with 64.09% and Health Sciences with 61.80%.

Table 2 shows some sociodemographic characteristics of the master's students similar to the studies by TEIXEIRA et al. (2017) and MENDES-RODRIGUES, RANAL, and CARVALHO (2019), with the highest frequencies of the female gender, do not consider themselves white, do not have religion, do not have a partner, do not have children, have income equal to or greater than R $ 4. 000.00. Regarding the variables related to health, the low percentage of master's students who reported being smokers (14.0%) and the high percentages of those who reported consuming alcoholic beverages (63.5%) and those who had the possibility of CMD (63.4%) is noteworthy. However, only the variables religion, drink, health status, sleepiness, and CMD were statistically significant (p-value < 0.005).

In the literature, in his systematic review on physical exercise practice associated with religiosity, and physical and mental health status, MOREIRA, et al. (2020), reports that few studies in Brazil present such information, however in findings disclosed in his work with information from individuals from other countries, mainly from the United States of America, Physical exercise was associated with spirituality and quality of life, highlighting that these results show the importance of the triad (spirituality, religiosity, and physical exercise) for good physical and mental health.

Table 2: Absolute and relative frequencies of sociodemographic and health characteristics of master's students in Mato Grosso, in 2018, according to the performance of the physical exercise.

	Exercise				
	Performs		**Does not perform**		
Variables	**n = 215**	**Percentage**	**n = 160**	**Percentage**	**P-value**
Sex					
Female	133	61,86%	112	70,00%	
Male	82	38,14%	48	30,00%	0,1264
Age group*					
30 or +	92	42,79%	71	44,38%	
Less than 30	116	53,95%	82	51,25%	0,7617
Race					
White	100	46,51%	69	43,13%	
Non-White	115	53,49%	91	56,88%	0,5844
Religion					
Com Religion	168 Ads	78.14%	106	66.25%	
No religion	47	21.86%	54	33.75%	0,1011
Companion					
No	128	59,53%	93	58,13%	
Yes	87	40,47%	67	41,88%	0,8633
Offspring					
No	190	88,37%	139	86,88%	
Yes	25	11,63%	21	13,13%	0,7810
Lies					
Alone	46	21,40%	25	15,63%	
Accompanied	169	78,60%	135	84,38%	0,2014
Availability					
Partial Dedication	94	43,72%	75	46,88%	
Exclusive Dedication	121	56,28%	85	53,13%	0,6155
Income**					
R$ 4.000,00 or +	133	61,86%	83	51,55%	
Less than R$ 4.000,00	81	37,67%	77	47,83%	0,0595
Profession					
Teacher/others	122	56,74%	93	58,13%	
Student	93	43,26%	67	41,88%	0,8714
Alcoholic beverage***					
No	69	32,09%	69	42,86%	
Yes	142	66,05%	80	49,69%	0,0120
Smoke					
No	189	87,91%	134	83,75%	
Yes	26	12,09%	26	16,25%	0,3168
Health Status					
Satisfied	143	66,51%	56	35,00%	
Unsatisfied	72	33,49%	104	65,00%	<0.001
Sleepiness					
Abnormal	83	38,60%	80	50,00%	
Normal	132	61,40%	80	50,00%	0,036
Common Mental Disorders					
No	100	46,51%	37	23,13%	
Possible	115	53,49%	123	76,88%	<0.001

Source: Own authors. *7 people did not answer about age. ** 1 person did not answer about income. *** 15 master's students did not answer about the consumption of alcoholic beverages.

However, the variable religion did not remain in the multiple Poisson regression analysis, because the final model was composed of the variables alcoholic beverage, health status, and CMD, as can be seen in Table 3. In addition, the results of the adjusted prevalence ratios show the factor

consumption of alcoholic beverages associated with the performance of physical exercises, while the factors of dissatisfaction with their health status and the possibility of common mental disorder (CMD) associated with the non-performance of physical exercises by the master's students.

Table 3: Association between the performance of physical exercise and the characteristics and lifestyle of the variables with their respective Crude and Adjusted Prevalence Ratios for master's students from Mato Grosso, 2018.

	Exercise			
	Crude Prevalence Ratio		**Adjusted Prevalence Ratio**	
Variables	**CI (95%)**	**p-value**	**CI (95%)**	**p-value**
Sex				
Female	0,86 [0,72; 1,03]	0,093	-	-
Male	1,00			
Age group				
30 or +	0,96 [0,81; 1,15]	0,683	-	-
Less than 30	1,00			
Religion				
No religion	0,76 [0,60; 0,95]	0,019	-	-
With religion	1,00			
Income				
Less than R$ 4.000,00	0,83 [0,69; 1,00]	0,052	-	-
R$ 4.000,00 or more	1,00			
Alcoholic beverage				
Consumes	1,28 [1,05; 1,55]	0,013	1,21 [1,01; 1,46]	0,043
Does not consume	1,00		1,00	
Health Status				
Unsatisfied	0,57 [0,47; 0,69]	< 0.001	0,65 [0,53; 0,81]	< 0.001
Satisfied	1,00		1,00	
Sleepiness				
Abnormal	0,81 [0,68; 0,98]	0,032	-	-
Normal	1,00			
TMC				
Possible	0,66 [0,56; 0,78]	< 0.001	0,80 [0,68; 0,95]	0,012
No	1,00		1,00	

Source: Own authors

Corroborating the results, LIMA et al. (2017) in their work using data from Vigitel (2014) on the practice of physical exercise of adults and its possible associated factors, concluded that the number of physically active people who consume alcoholic beverages in Brazil has been expressive, and this consumption is positively associated and may be related to the social and cultural conviviality of Brazilians. SILVA, et al. (2019), surveyed 689 elementary school teachers in the city of Minas Gerais and determined that the relationship between the performance of physical exercise was significant for the perception of good health status. And using specific instruments to assess the level of physical activity (*International Physical Activity Questionnaire* - IPAQ), stress level (Stress Symptoms Inventory for Adults - ISSL), and the possibility of common mental disorders (SRQ-20), AZEVEDO et al. (2018) found an inverse relationship, where the more active the person, the lower the percentages of stress and CMD.

The practice of physical exercise helps to restore health from the harmful effects that the routine of the work/study brings, resulting in an improvement not only in health, but also in the quality of life SILVA et al. (2010). Observing the values obtained for the scores of the *Whoqol-Bref* domains in Table 4, all showed significant differences between the master's students who perform physical exercise and not. Highlighting the physical domain, obtaining the best result, since its lower limit of the confidence interval (95%) was higher than the upper values of the other limits.

Table 4: Median values, mean with 95% confidence interval and standard deviation of the domain scores and the *WHOQOL-brief* QWL regarding the performance of physical exercise of the master's students of the Federal University of Mato Grosso, 2018.

	Exercise							
	Yes n (215)				**No n (160)**			
Domains	**Median**	**Average**	**s**	**95%CI**	**Median**	**Average**	**s**	**95%CI**
Physical	64,30	65,00	15,30	[62,97; 67,08]	57,10	56,10	15,40	[53,74; 58,54]
Psychological	58,30	58,70	18,60	[56,23; 61,25]	50,00	51,00	16,90	[48,32; 53,59]
Relations	58,30	59,10	21,00	[56,25; 61,88]	50,00	50,40	19,80	[47,27; 53,46]
M. Environment	56,20	57,90	14,60	[55,94; 59,87]	53,10	50,90	14,30	[48,63; 53,10]
QV. General	59,60	60,40	13,60	[58,55; 62,21]	52,90	52,00	12,40	[50,09; 53,96]

Source: Own authors

In addition, OLIVEIRA JÚNIOR (2020) verified a significant association between the non-positive perception of health status and scores lower than the median in the physical domain, that is, by not considering as positive the facets that constitute the domain end up influencing not to perceive their health status as positive.

To compare the mean scores of the domains of the Brazilian population with more than 12 years of study (CRUZ, et al., 2011) and that of the master's students who performed physical exercises, only in the physical domain did the master's students achieved a higher mean value, in the other three domains analyzed both master's students were below. A similar result was found by MENDES-RODRIGUES, RANAL, and CARVALHO (2019) who considered that their sample presented values below the median of the Brazilian population in the psychological, social, and environmental domains.

What cannot fail to be alerted is the fact that this research was carried out in a single university and may hinder the generalization of the results, due to the particular characteristics of the place. As well, the sampling process, even being the one that comes closest to the consistency of traditional research, its applicability is compromised by the bias of self-selection CARLOMAGNO (2018), since people connected in some way to the theme of the research are more easily willing to respond than those who are indifferent to the theme.

However, as the sample contained master's students from all areas of knowledge, it was possible to have a general notion of the sociodemographic, health, and quality of life characteristics of

students belonging to different graduate programs, not being restricted only to a few courses or a specific area of knowledge.

4 CONCLUSION

This study evidenced information on the main sociodemographic, health, and quality of life characteristics of the master's students, highlighting the importance of performing physical exercises. The most active people consider their health status better, decrease the possibility of common mental disorders, and still obtained significantly better values in all domains of quality of life. That is, the performance of physical exercises proved to be a great option to circumvent the sedentary lifestyle routine experienced by master's students, bringing benefits to their health and quality of life.

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