



Quality of Life in Fitness Centers Goers

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Abstract

The purpose of this study was to verify the association between physical activity frequency and quality of life among fitness centers goers. Participants were 299 individuals of both genders, who attended eight fitness centers. For the collect of sociodemographic data, weekly frequency, duration and time of practice of physical activity, a biosociodemographic questionnaire was used. The quality of life was measured using the WHOQOL-100 questionnaire. Numerical variables were described as mean \pm standard deviation or median (25 percentile—75 percentile) and categorical variables as absolute or relative frequency. The associations between quality of life and weekly frequency of physical activity were evaluated using the Spearman correlation coefficient. Comparisons between quality of life and gender, age group, duration of training, schooling and socioeconomic level were tested through analysis of variance and the Tukey post hoc test. A probability value of $P \leq 0.05$ was considered statistically significant. Of the total number of respondents, 62.2% were women; 54.9% practiced physical activity four or more times a week and 69.6% had practice lasting up to 90 minutes. There were statistically significant differences between the duration of physical activity in terms of physical, psychological, independence and facet 25, which evaluates the general quality of life. Subjects with prolonged frequency (0.3%) obtained the best scores in relation to the domains, physical and psychological. Men had a higher score than women in the psychological domain and level of independence. There were no statistically significant differences in quality of life among the different age groups. It's concluded that the more active people are, the better their quality of life is.

Subject Areas

Kinesiology, Public Health

Keywords

Physical Activity, Quality of Life, Fitness Centers

1. Introduction

Only 10.5% of Brazilian people who are 14 years old or older accomplish the recommendations for leisure physical activity, and this behavior is more frequent in individuals with higher schooling [1]. The Ministry of Health has obtained a rate of 14.9% of practice by studying the frequency of adults in free time physical activity in 27 Brazilian cities. This fact warns the importance of disclosing the deleterious health effects produced by the long time of sedentary behavior [2], which can cause many diseases related to lifestyle and, consequently, making the quality of life worse, even influencing to mental health [3].

Unlike physical inactivity, physical activity programs, along with healthy eating habits and behaviors, can contribute to a person's quality of life. In this study, we evaluated the effects of stress on physical and mental health, improving the physical and mental health, life satisfaction [4] [5] [6] reducing depressive and anxiety symptoms [6] [7] [8] and increasing self-esteem [9]. In addition, to this, the practice of activities moderate intensity acts in the reduction of mortality rates and the risk of developing degenerative diseases such as cardiovascular diseases, hypertension, osteoporosis, diabetes, respiratory diseases, among others. Physical activity has a positive effect also in the aging process, in the increase of longevity, in the control of obesity and in some types of cancer [8] [10] [11].

It's important to emphasize that, among the spaces destined to the practice physical activities, there are fitness centers with different programs in order to attend those who are interested.

Several studies have used the WHOQOL-100 to evaluate the quality of life of individuals with some disease or specific groups with the practice of physical activity [3] [12]. However, few studies have been done with fitness centers goers.

The present study aimed to verify if there is an association between the frequency of physical activity and quality of life among fitness centers goers.

2. Methodology

This study was characterized as descriptive and transversal. We investigated 299 individuals of both genders from eight fitness centers in the central zone of the city of Passo Fundo, state of Rio Grande do Sul, Brazil. The subjects were recruited randomly, characterizing a probabilistic sample. The eight fitness centers were chosen for their central position and for having a greater number of goers, which favored has to reach the objective of the present study.

The applied methodology was approved by the Human Research Ethics Committee of Passo Fundo University, Rio Grande do Sul, Brazil, under Opinion no. 261-2/2009 and the data were collected after the subjects had signed the Free and Informed Consent Term, authorizing their participation in the methodology and agreeing with the disclosure of the results, keeping the personal identities.

The owners of the fitness centers also agreed and signed the term which au-

thorized the research in their accommodations.

It was included individuals aged from 16 to 50 years old who, in terms of frequency, could be characterized as having frequent physical activity (they practiced physical activity four times or more per week or more than 90 minutes per session, for six months without interruption) or regular physical activity attendees (they practiced gym one to three times a week or more than 90 minutes per session, for six months without interruption).

Patients with special needs—physical or neurological—were excluded from the study, the illiterate and pregnant. This exclusion is justified because pregnant women and people with special needs are more prone to distortions according their body image, while illiterates would have difficulty reading the questionnaire and the reading by the applicators could embarrass them, since some questions were personal mark

To the collect of data on gender, age, weekly frequency of physical activity, duration of training, time of practice of physical activity, educational level and socioeconomic level, a biosociodemographic questionnaire was used. The variable age was categorized into five groups: 16 to 20 years old; 21 to 30 years old; 31 to 40 years old; 41 to 50 years old; more than 50 years old. The categories of variable grade of education were: complete elementary education; complete high school; incomplete higher education; higher education; Post-graduation *Lato Sensu* and Post-graduation *Stricto Sensu*. The socioeconomic level expressed income in five categories: A (highest); B; C; D and E (lowest).

The quality of life was measured using the WHOQOL-100 questionnaire, in which participants should mark the most appropriate option for each of the questions, considering the feelings of the last two weeks.

The WHOQOL-100 contains 100 closed questions which assess the six domains defined by the World Health Organization [13] for quality of life, which are: psychological, social, dependency level, environment, religious/spiritual, and physical. This instrument uses a scale of Likert responses, composed by five elements, ranging from 1 to 5. These extremes represent 0% and 100%, respectively. There are four different types of response scales which are relational to intensity, assessment, ability, and frequency.

Numerical variables were described as mean \pm standard deviation or median (25 percentile—75 percentile), as presented parametric or non-parametric distribution. It was observed by visual evaluation of the histograms and by the Kolmogorov-Smirnov test that the domains of the WHOQOL, with the exception of the environment, and the facet 25 had a non-normal distribution. The facet 25 evaluates the General Quality of Life (GQL).

Categorical variables were expressed as absolute or relative frequency. And the associations between quality of life and weekly frequency of physical activity were evaluated using Spearman's correlation coefficient. Comparisons between quality of life and gender, age range, duration of training, schooling and socioeconomic level were tested through analysis of variance. For multiple comparisons, we used Tukey's post hoc test.

A probability value less than or equal to 0.05 ($P \leq 0.05$) was considered statistically significant. The calculation for the alpha values was statistically accepted as being reliable values > 0.70 .

3. Results

Of the 299 subjects included in the study, 62.2% were female; the majority were aged between 16 and 30 years old (63.2%); in the most prevalent category, were those with incomplete or complete higher education (46.8%); and 85.3% belonged to classes A and B (**Table 1**).

Concerning the frequency and duration of physical activity among of the study participants, the majority of subjects (54.9%) practiced physical activity four or more times per week and 69.6% with duration until 90 minutes, as it can be found from **Table 2**.

Table 3 shows the domains and facets of the WHOQOL-100, used to assess the participants' quality of life, according to the feelings of the last two weeks.

The associations between quality of life and weekly frequency of physical activity can be visualized in **Figure 1**.

Table 1. Sociodemographic characteristics of the sample (n = 299).

Variables	n (%)
Gender	
Female	186 (62.2%)
Male	113 (37.8%)
Age group	
16 - 20	55 (18.4%)
21 - 30	134 (44.8%)
31 - 40	68 (22.7%)
31 - 40	40 (13.4%)
41 - 50	1 (0.3%)
Schooling	
Complete primary education	22 (7.4%)
Complete high School	39 (13.0%)
Incomplete higher education	75 (25.1%)
Complete higher Education	65 (21.7%)
Postgraduate Lato Sensu	64 (21.4%)
Postgraduate Stricto Sensu	31 (10.4%)
Socioeconomic level	
D	1 (0.3%)
C	24 (8%)
B	93 (31.1%)
A	162 (54.1%)

Values express absolute and relative frequency.

Table 2. Frequency and duration of physical activity (n = 299).

Variable	Statistic
Weekly frequency n (%)	
Once a week	13 (4.3)
Twice a week	38 (12.7)
Three times a week	84 (28.1)
Four times a week	67 (22.4)
Five times a week	96 (32.1)
Six times a week	1 (0.3)
Duration of physical activity	
≤90 min	208 (69.6)
>90 min. ≤120 min	57 (19.1)
>120 min	31 (10.4)

Table 3. Domains and facets of the WHOQOL-100 (n = 299).

Domain	Median (P25 - P75)
I—Physical	14.0 (12.7 - 15.3)
Pain and discomfort	11.0 (10.0 - 13.0)
Energy and fatigue	14.0 (13.0 - 16.0)
Sleep and rest	15.0 (13.0 - 18.0)
II—Psychological	15.0 (13.8 - 16.2)
Positive feelings	16.0 (15.0 - 17.0)
Think and learn	15.0 (13.0 - 16.0)
Self esteem	16.0 (14.7 - 17.0)
Body image and appearance	15.0 (12.0 - 17.0)
Negative feelings	10.0 (8.0 - 12.0)
III—Independence	16.8 (14.3 - 18.0)
Mobility	16.0 (13.0 - 19.0)
Daily life activity	16.0 (14.0 - 17.0)
Medical dependency or treatments	5.0 (4.0 - 8.0)
Work capacity	17.0 (16.0 - 19.0)
IV—Social relations	16.0 (14.3 - 17.0)
Personal relationships	16.0 (15.0 - 18.0)
Social support	15.0 (14.0 - 17.0)
Sexual activity	16.0 (14.0 - 18.0)
V—Environment	14.5 (13.3 - 15.5)
Physical security and protection	13.0 (11.0 - 14.0)
Home environment	15.0 (15.0 - 18.0)

Continued

Financial resources	13.0 (12.0 - 15.0)
Health and social care	14.0 (13.0 - 16.0)
Option to acquire information	16.0 (14.0 - 17.0)
Recreation	14.0 (13.0 - 16.0)
Pollution	14.0 (12.0 - 15.0)
Transport	16.0 (14.0 - 18.0)
VI—Spiritual Aspects	16.0 (13.0 - 17.0)
Spirituality/religion/beliefs	16.0 (13.0 - 17.0)
Facet 25	16.0 (15.0 - 17.0)

Values express median (percentile25 percentile75).

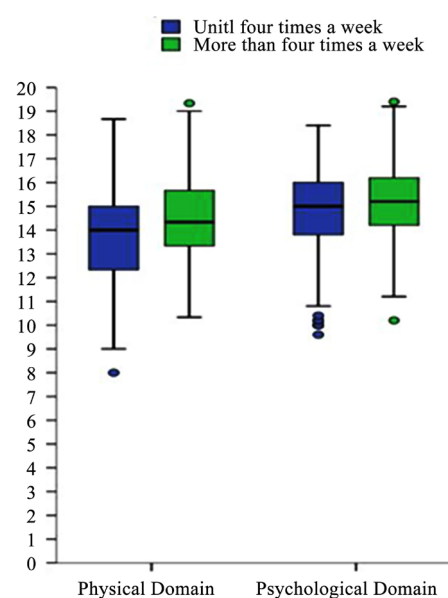


Figure 1. Frequency of physical activity and affected areas.

A statistically significant difference was observed between the physical and non-physical groups (14.5 ± 1.9 vs 13.8 ± 2.1 , $F = 9.76$, $P = 0.002$) and psychological (15.3 ± 1.8 vs 14.7 ± 1.9 , $F = 6.35$, $P = 0.012$) (**Figure 1**).

Statistically significant correlation was observed between the weekly frequency of physical activity and the physical domain ($r_s = 0.20$, $P = 0.001$), psychological domain ($r_s = 0.16$, $P = 0.006$), level of independence domain ($r_s = 0.20$, $P = 0.001$), social relation domain ($r_s = 0.16$, $P = 0.007$) and spiritual aspect domain ($r_s = 0.15$, $P = 0.009$). However, it wasn't observed any statistically significant association between the weekly frequency of physical activity and the environmental domain ($r_s = 0.06$, $P = 0.283$).

It was also observed that individuals with prolonged frequency were a minority in the general population of that context. However, these scores scored the best scores regarding quality of life in terms of domains, physical and psycho-

logical in WHOQOL-100.

The psychological score was significantly higher among men (15.3 ± 19), when compared with women (14.7 ± 1.8) ($P = 0.004$). Similar results were observed in the level of independence, where the mean score of men (16.9 ± 2.0) was higher than that of women (16.4 ± 1.9) ($P = 0.046$).

Statistically significant differences were observed between the groups that performed physical activity ≤ 90 minutes, from 90 to 120 minutes and >120 minutes for the physical, psychological, independence and facet 25 domains, as shown in **Table 4**.

There were no statistically significant differences in quality of life among the different age groups.

4. Discussion

In this study, the majority (63.2%) of the participants was between 16 and 30 years old and 62.2% were of the female gender, whereas in the study by Fermino, Pezzini & Reis [14], the proportion of men and women attending fitness centers were identical (50%) and most (56.7%) were between 21 and 30 years old.

Of all respondents, 54.9% practiced physical activity four or more times a week. This can be justified by the fact that 46.8% of the individuals had a full course of study, and second part of the literature [15] [16] [17] [18] the schooling factor influences adherence to the practice of physical activity, and the lower the educational level, the lower is the participation in this activity. The findings of Fermino, Pezzini & Reis [14] also showed a high educational level, since 45.6% of the individuals were enrolled or had incomplete upper level and 28.9% had completed higher education.

Table 4. Comparison of quality of life between different durations of physical activity ($n = 299$).

	Duration of physical activity			F	P
	≤ 90 minutes	90 to 120 minutes ($n = 57$)	>120 minutes ($n = 31$)		
Physical domain	13.8 ± 2.0	14.3 ± 1.9	15.2 ± 2.4	7.62	0.001
Psychological domain	14.8 ± 1.8	15.0 ± 1.7	16.0 ± 1.9	5.58	0.004
Domain level of independence	16.4 ± 2.0	17.0 ± 1.7	17.3 ± 1.6	4.41	0.013
Domain social relations	15.7 ± 2.0	15.6 ± 1.8	16.5 ± 2.0	2.40	0.092
Domain environment	14.4 ± 1.6	14.6 ± 1.6	14.8 ± 1.9	0.69	0.502
Domain spiritual aspects	15.3 ± 3.3	15.0 ± 2.6	16.2 ± 3.0	1.40	0.248
Facet 25 (General Quality of Life)	15.6 ± 2.4	16.2 ± 1.6	16.9 ± 2.3	3.61	0.028

Values express mean \pm standard deviation $P \leq 0.05$.

Regarding the duration of physical activity, 69.6% of participants practiced until 90 minutes. There were statistically significant differences among the duration of physical activity in terms of physical, psychological, independence and facet 25, responsible for evaluating the General Quality of Life, and the higher the physical activity time is, the higher the score in the domains is, which benefited the group that performs physical activity for a longer time.

The practice of moderate intensity physical activity, for at least 60 min/day, is able to produce significant physical and psychological effects [4] [19]. For Pereira *et al.* [20], among the four domains of the WHOQOL, what most explained the overall quality of life was the physical. While Pucci *et al.* [21] through analysis of 38 studies that dealt with the association between physical activity practice and perception of quality of life in adults, recognized that the domains “physical function”, “vitality” and “mental health” presented greater agreement among the studies, a result that is supported by surveys of Rejeski & Mihalko [22], Bize, Johnson & Plotnikoff [23] and Toscano & Oliveira [24]. In Martins, Baptista & Araújo’s work [11], patients who practiced regular physical activities had higher scores in the areas of general health, pain, vitality, mental health and also social functioning.

These findings are supported by authors such as O’Boyle [25], Okuma [26] and The WHOQOL Group [27], which emphasizes that the variability that can be found in concept subjectivity, according to the social environment and the interest of individuals. In this aspect, it is observed that the subjective nature of the term quality of life also represented a limitation for the present study.

Werneck [28] evaluated that physical activity sessions, regardless of the type and intensity, promoted significant changes in the variables, Tension, Stamina, Fatigue and Total Mood Disorder. These results show that acute physical activity sessions promote changes in post-effort mood, confirming results found by Berger & Moti [4].

However, it is important to recognize that excessive physical activity may have a negative influence on mood, in particular, and overall quality of life [8] [29]. Usually this can happen in training programs for high level competitions [7]. The chance of this happens in fitness centers is pretty remote. In this study, on the other hand, individuals (0.3%) who practiced physical activity with a considered frequency (six times a week) presented better scores in the physical and psychological domains.

Silva *et al.* [8], relating each WHOQOL-100 domain to the standard variable of physical activity, identified that very active individuals presented significantly higher quality of life scores than inactive ones, except for the social relations domain, but the variation in this domain in the present study was not significant.

Studies indicate that, in some cases, dependence on exercise arises as a psychic disorder of non-chemical dependence. In this way, the individual develops a dependence on the exercise, which can be of any modality, so that it shows a com-

pulsive behavior of exercising [30] [31]. Such dependence was not identified in this study which did not record a high rate of “excessive” physical activity. However, perhaps the percentage of individuals who attend fitness center six times a week or more is actually higher, however, it was difficult to identify individuals in the sample universe who attended a fitness center with a prolonged frequency, since these tend not to admit this type of behavior, which represented another limitation for the study.

Although it was not the intention of this survey to analyze the relation between the frequency of physical activity practice and quality of life by age, no statistically significant differences were observed in the quality of life among the different age groups.

Vancea *et al.* [32] sought to synthesize the association between the practice of physical activities and the perception of health in adolescents. As a result, 14 of the 16 studies analyzed demonstrated a direct association between physical activity and a more positive health perception. However, because of the cross-sectional design of the studies, it is not possible to establish a causal relation between these variables.

The physical activity in adolescence has a positive effect on self-image and on the reduction of symptoms of anxiety and depression [33]. Therefore, these combined effects provide a more positive perception of health [21].

Pucci *et al.* [21], analyzed 38 studies which dealt with the association between physical activity practice and perception of quality of life in adults, and found that most cross-sectional studies showed a positive association between physical activity and quality of life. However, because of the design, they also could not correlate cause and effect and, thus, the causal precedent in the relation.

Vallance *et al.* [34] emphasize that menopausal women who had moderate physical activity for at least 30 minutes, five times a week, or intense physical activity for a minimum of 20 minutes three times a week showed significant levels of improvement in quality of life. Carvalho *et al.* [35] found similar results in a recent study with Brazilian women over 60 years old.

As far as the economic level is concerned, since these are fitness centers in the city center, there was no statistically significant variation between the different social strata in relation to the practice of physical activity, the economic factor was not determinant for higher or lower frequency in the academy, even results obtained by Junior, Lamonato & Gobbi [36]. On the contrary, some studies have shown that the lower socioeconomic level has been associated with a lower participation in physical activity [15] [16] [17] [18].

It can be observed that the more active people are the better their quality of life. However, it should be noted that the sample of this study is not representative of the users of fitness centers in the city of Passo Fundo, and because only the city center academies were chosen, the high economic level of the subjects makes it difficult to generalize the results.

It is concluded that there is a significant correlation between physical activity

and quality of life. However, it is observed that this research has a cross-sectional design and, therefore, with a low capacity to establish cause and effect relations. However, it is believed that this design is satisfactory to address the objectives of the present subject. Thus, these results suggest that the practice of physical activities by the population should be encouraged, since it can promote health in several aspects, when properly performed.

Declaration of Conflict of Interest

The authors declare that there isn't conflict of interest.

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