ORIGINAL ARTICLE

Level of physical activity and quality of life associated with health in Paraguay adults

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Abstract

Studies have shown that the performance of scheduled physical activity is positively related to a higher quality of life related to health. The objective of this study was to evaluate the level of physical activity according to the quality of life in the adult population of Paraguay in the period from November to December 2020. A descriptive, analytical cross-sectional design study, which included 211 adults of both sexes. Sociodemographic data such as age, sex and origin were collected, as well as data on physical activity (IPAQ/METS questionnaire) and quality of life (EuroQol-5D questionnaire). The predominant sex was female (89%), 53.5% resided in Gran Asunción and the average age was 34.6±10.6. The level of physical activity was mostly moderate (36.5%). The quality of life index was 0.67±0.15 and the perception of health was 79.12±18.35. Within the dimensions of quality of life, it was observed that 23% had moderate pain or discomfort and that 33% had moderate depression or anxiety. Significant differences were found between the level of physical activity and the quality of life index and the perception of health. The level of physical activity is a determinant of health-related quality of life, the greater the intensity of physical activity, the better the quality and perception of health indices in adults.

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Introduction

Physical activity (PA) is undoubtedly very important, as it has multiple beneficial effects on health and physical, mental and spiritual well-being. Physical exercise includes any muscle movement or activity that results in a loss of calories (World Health Organization, 2017). Lack of PA is the cause of 6% of deaths worldwide, while one study suggested that the correct percentage is 9% (Hallal, et al., 2012).

Today the central role of physical activity in the prevention of many diseases and in achieving physical, psychological and social benefits is accepted, making it a key element of a healthy lifestyle. Lack of physical exercise increases the risk of noncommunicable diseases and a substantial part of the total disability rate (Pedersen & Bente, 2019).

On the other hand, the quality of life refers to the satisfaction or individual well-being in the face of the health condition, disease or treatment. This concept supports that of the World Health Organization which says: that health is "a complete physical, mental and social state and not merely the absence of disease or illness" (Panzini et al., 2017).

An important determinant of quality of life is physical activity. Several studies carried out in schoolchildren, adolescents and older adults have shown that the performance of programmed physical activity of moderate to vigorous intensity

is positively related to a higher quality of life compared to physically inactive individuals (Puciato et al., 2017; Vagetti et al., 2017; Wu et al., 2017).

Pucci et al. (2012) aimed in their study to summarize and analyze evidences of the association between physical activity and quality of life. They found that higher level of physical activity was associated with better perception of quality of life in the elderly, apparently healthy adults and individuals with different clinical conditions and there is a positive association between physical activity and quality of life that varies according to the domain analyzed.

Furthermore, Saridi et al. (2019) investigated healthcare workers' physical exercise levels linked to their quality of life. They found that a major factor that could boost healthcare professionals' physical activity, is to increase knowledge and raise awareness about the benefits linked to physical activity.

Krzepota et al. (2018) analyzed analyze the relationships between physical activity and quality of life among pregnant women. They found that there was a significant correlation in the group of women in the second trimester of pregnancy between quality of life in the physical health domain and the intensity and type of physical activity.

Jönsson et al. (2018) evaluated the outcome of education and supervised exercise on the level of physical activity in individuals with knee or hip OA. Also, they evaluated the effect on pain, quality of life and self-efficacy. They found that there was a significant difference in the intervention with physical activity group with regard to pain, self-efficacy/other symptoms and self-efficacy/pain. Improvements in pain and quality of life in the intervention group persisted at the 12-month follow-up.

Physical activity may have positive effects on decreasing anxiety, stress and depression, maintaining mental health and ensuring psychological vitality. Lok et al., 2017, determined how a "Physical Activity Program" for elderly people in nursing homes affected their depressive symptoms and quality of life. They found that the intervention group presented with a significant decrease in the Beck Depression Scale after the "Physical Activity Program". Likewise, eight-subscales and two sub-dimensions of the SF 36 Quality of Life Questionnaire significantly improved.

As we observed, the physical activity is closely related to the quality of life. It becomes important to carry out studies that have PA as protagonists and its impact on people's quality of life, in order to determine if it is necessary to increase PA taking into account the possibilities and time of the same, in addition, with the results could be pointed to public policies and programs that promote and encourage the performance of PA and its health benefits not only in the treatment but also in the prevention of numerous diseases.

For all the aforementioned, the purpose of this study is to evaluate the level of physical activity and its relationship with the quality of life in the adult population of Paraguay, given that there are few studies of this nature in this age group and we hypothesize that physical activity has an impact on the quality of life and the perception of health.

Method

Study design

Cross-sectional analytical observational study conducted in Paraguayan adults of both sexes. Sociodemographic data such as sex, age and origin, variables on quality of life were collected through the EuroQol-5D questionnaire, perception of health through a visual analog scale from 1 to 10 and level of physical activity through the international IPAQ questionnaire in its short version.

Data processing and analysis

The data was digitized, processed and analyzed in a Microsoft Excel 2010 spreadsheet. After checking the consistency of the database and identifying the distribution of the quantitative variables, the data was analyzed, expressing them: average, median, minimum value and maximum and standard deviations as appropriate. In the case of qualitative variables, they were expressed in frequency (n) and percentage (%). To determine if there is a relationship between the level of physical activity and quality of life, the one-way analysis of variance (ANOVA) was used. The statistical study was completed with post hoc analysis (SIDAK correction) to detect significant differences between the different groups established according to the level of physical activity. Statistical significance was $p < 0.05$. The SPSS15.0 package for Microsoft Windows (SPSS) was used for all statistical tests.

Data collecting

The data was collected through Google forms virtually. All participants accessed a study fact sheet

and gave their informed consent. The confidentiality of the data was protected at all times and the decision to participate or not in the study of the subjects was above the interests of the research. The study was approved by the Ethics Committee of the University of Asunción.

Results

A total of 211 individuals were evaluated. As we can see in Table 1 regarding the sociodemographic variables of the population, 89% were female, 53.5% were from the Greater Asunción area, and 73.5% were in the age range of 18 to 39 years. The mean age was 34.6±10.6 years.

Table 1. Sociodemographic data

Variable		n (%)
Gender	Male	23 (11)
	Female	188 (89)
TOTAL		211 (100)
Origin	Asunción	51 (24.3)
	Greater Asunción	113 (53.5)
	Inside the country	47 (22.2)
TOTAL		211 (100)
Age	18 - 39	155 (73.5)
	40 - 60	56 (26.5)
TOTAL		211 (100)
Mean		34.6
SD		10.6

Regarding the level of physical activity, it was observed that 36.5% had a moderate, 34% has low and 29,5% has vigorous level of physical activity. See Table 2.

Table 2. Level of physical activity

Level of physical activity	n (%)
Low	71 (34)
Moderate	77 (36.5)
Vigorous	63 (29.5)
TOTAL	211 (100)

When evaluating the quality of life associated with health, a global index of 0.67±0.15 was observed and the health perception evaluated by the visual analogue scale had an average of 79.12±18.35. See Table 3.

Table 3. Quality of life

Variable	Mean±SD
Global quality of life index	0.67±0.15
Health perception	79.12±18.35

In the Table 4 It is described the quality of life according to the EuroQol-5D questionnaire according to its 5 dimensions confirmed that in terms of mobility and personal care, almost the majority had no problems (94.3% and 99.5% respectively. Daily activities, 6.2% of individuals with some problems were observed, 23% of individuals with moderate pain or discomfort in this dimension and 33% of the population reported having moderate anxiety and depression.

Table 4. Quality of life according to EuroQol-5D dimensions

	Dimension	n (%)
Mobility	I have no problem walking	199 (94.3)
	I have some trouble walking	10 (5)
	I have to be in bed	2 (0.7)
	TOTAL	211 (100)
Personal care	I have no problems with personal care	210 (99.5)
	I have some trouble washing or dressing	1 (0.5)
	I am unable to wash or dress	0 (0)
	TOTAL	211 (100)
Daily activities	I have no problems doing my daily activities	197 (93.3)
	I have some problems doing my daily activities	13 (6.2)
	I am unable to carry out my daily activities	1 (0.5)
	TOTAL	211 (100)

Table 4 (continued). Quality of life according to EuroQol-5D dimensions

	Dimension	n (%)
Pain/discomfort	I have no pain or discomfort	161 (76.3)
	I have moderate pain or discomfort	48 (23)
	I have a lot of pain or discomfort	2 (0.7)
	TOTAL	211 (100)
Anxiety/Depression	I am not anxious or depressed	138 (65.4)
	I am moderately anxious and depressed	69 (33)
	I am very anxious and depressed	4 (1.6)
	TOTAL	211 (100)

When analyzing whether there are differences between the levels of physical activity according to the global quality of life index, significant values were found between the groups (p=0.015). The higher the level of physical activity, the higher the global quality of life index. See Figure 1.

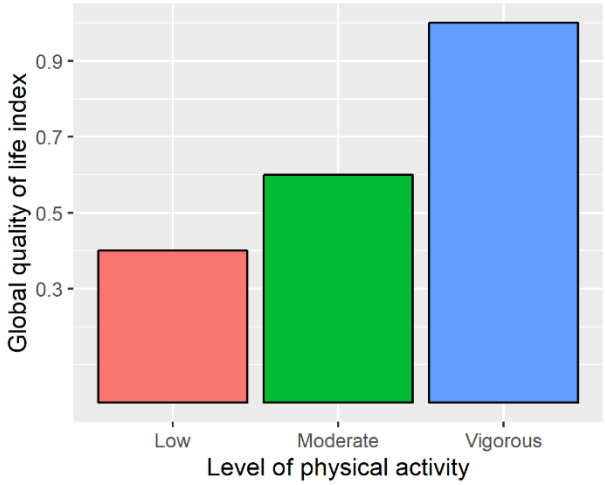

Figure 1. Quality of life according to level of physical activity

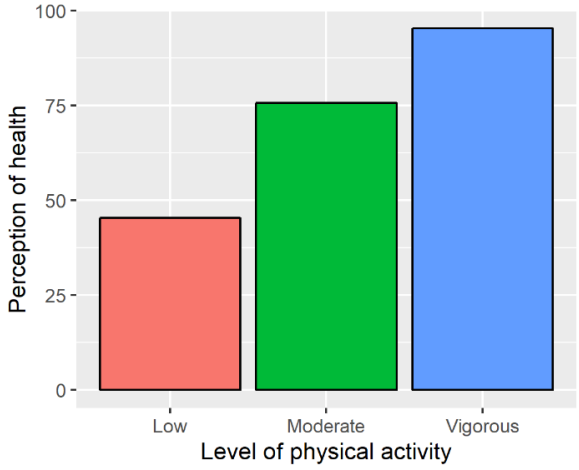

Figure 2. Health perception according to level of physical activity

When analyzing whether there are differences between the level of physical activity and the perception of health, significant values were found between the groups (p = 0.035). The higher the level of physical activity, the better the perception of health. See Figure 2.

Discussion

Carrying out scheduled physical activity is a determinant of quality of life, both in children, adolescents, adults and older adults. Today, it is recognized that moderate or vigorous physical activity has multiple benefits on all dimensions of health-related quality of life in any age group.

In the present study, it has been found that the predominant sex in the population was female in 89%. This amount differs from that found by Su et al., who in their study on physical activity and quality of life in adults found a total of 48.9% of women (Su et al., 2019). This result could be due to the fact that in the country the predominant sex is female and that it was women who were more predisposed to participate in the study.

According to origin, 53.5% said they reside in the Greater Asunción area and 24.3% in the country's capital. Together, these numbers represent a higher amount than those who stated that they resided in the interior of the country. These results may be due to the fact that, in general, those who have more access to its dissemination and information participate in the study through online platforms because it is a research work published on social networks in which most of the contacts reside in the Central Department.

The average age of the participants was 34.6 years. This amount is lower than that found by Machado Maciel et al, who in their study on sociodemographic

factors and quality of life found an average age of 47.3 years (82). When categorizing this variable by ranges, this study showed 73.5% of individuals aged 18 to 39 years, a result that exceeds that found by Szemik et al., Who in their study on quality of life in adults in an industrial area, observed 54.7% of individuals in this age range (Szemik et al., 2019).

Regarding the level of physical activity, it was found that 36.5% had a moderate level, however, the low and vigorous levels were found in a similar proportion (34 and 29.5% respectively. The study showed mostly a moderate level of physical activity, the other levels were similar in the same. This may be due to the heterogeneity of the population in terms of age and therefore it is expected that the three levels are in similar proportions.

Regarding the quality of life evaluated by the EuroQol-5D, an average index of 0.67 was evidenced. This figure is lower than that found by Huang et al., which was 0.95 in an adult population similar to that of this study, using the same questionnaire (Huang et al., 2017). The index observed in this study may be low since in some dimensions of the EuroQol-5D questionnaire there were notable proportions of some problems. For example, in the pain/discomfort dimension, 23% had a moderate problem and in the anxiety/depression dimension, 33% had a moderate problem. Therefore, this global quality of life index shows us that our population generally has a moderate to low quality of life.

The perception of health in the study population, evaluated by a visual analog scale from 0 to 100, showed an average of 79.12. This translates into an index that finally remains as 0.79 and this figure is similar to that evidenced by Attema and colleagues, who observed an average of 0.78. These authors classified this parameter into three categories, taking into account that the perception of health was evaluated based on the comparison of individuals with others of the same age. These categories are: better, equal or worse. The health perception index of this study is at the same or worse values; therefore, we can say that it has a tendency to be the same or bad in relation to the aforementioned study (Attema et al., 2018).

Regarding the five dimensions of the EuroQol-5D questionnaire, this study showed 23% of adults with moderate pain or discomfort and 33% with moderate depression or anxiety in pain/ discomfort. Taking into account that we are currently in the Covid-19 pandemic, this considerable percentage of people with depression or anxiety due to the recent confinement that the country had to go through is to be expected. The same applies for the pain/discomfort dimension.

Regarding the level of physical activity according to the global quality of life index, it was found that there are significant differences between the low, moderate and vigorous levels, observing that, the less physical activity, the lower the quality of life index. Cross-sectional evidence from review studies shows that higher levels of physical activity are associated with high scores for quality of life in adults, therefore physical activity is a determinant of quality of life, which shows that the latter can improve with physical exercise (Bize et al., 2007).

Finally, when evaluating the level of physical activity according to the perception of health, this study found that there are significant differences between the levels and that, the higher the level of physical activity, the higher the score reported by the participants regarding their own perception of health. Regarding these variables, it has been shown that people who do not engage in physical activity in their free time are more likely to have a self-perceived negative health, therefore physical activity is considered a protective factor against the fact that people feel they are not in good health (Silva et al., 2019).

As a limitation of this research work, it can be mentioned that, due to the data collection technique, variables such as nutritional status and eating habits and their relationship with physical activity and quality of life could not be evaluated, since to evaluate these variables must be measured in person and the method used was the online survey.

As a strength, it can be highlighted that at the country level there are no studies that evaluate the level of physical activity and quality of life in the adult population in general and that those found in the literature are also scarce, therefore, the relevance of this study is based on providing data on these variables and the relationship between them.

Conclusion

Based on the results obtained in this study, we can say that the quality of life can be as high as possible if moderate to vigorous physical activity is performed. The study revealed that the level of physical activity did have an impact on global quality of life index of the examined population. An original conclusion

from the study is the increased odds of high assessment of perceived quality of life together with higher levels of physical activity. Undertaking physical activity by adults has preventive and therapeutic effects, and it improves the quality of their life as compared with their physically less active counterparts. Since quality of life improvement is one of key objectives in the development strategy of many countries and regions, all related planned tasks should also focus on improvement of physical activity.

Conflict of interest

All authors declare that they have no conflicts of interest.

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Authors' contributions

All the authors contributed from the conception to the execution of the project and finally in the writing and approval of the manuscript for publication

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