

Comparison of self-image aspects and quality of life domains in older adults practitioners and non-practitioners of pilates in Curitiba, Paraná

Comparação dos aspectos da autoimagem e domínios da qualidade de vida em idosos praticantes e não praticantes de pilates em Curitiba, Paraná

Comparación de aspectos de autoimagen y dominios de calidad de vida entre ancianos practicantes y no practicantes de pilates en Curitiba (Brasil)

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ABSTRACT | This quantitative and descriptive cross-sectional study compares the self-image aspects and quality of life domains in older adults practitioners and non-practitioners of pilates in the city of Curitiba, Paraná. After sample calculation with effect size f (0.43), an intentional sampling was conducted, resulting in a study population of 93 older adults divided into three groups: pilates group, water aerobics group, and non-practicing group. Data was collected using a sociodemographic, economic, and self-image questionnaire, and the instruments WHOQOL-BREF and OLD. Statistical comparative analysis was performed using Anova, Chi-square test, and Bonferroni *post hoc*. Although the number of participants with low self-image was high, the comparison of this variable between groups showed no significant difference ($X^2= 3.72$, $p=0.15$). Regarding the quality of life domains, the pilates and water aerobics groups had higher average values, in general. The WHOQOL-OLD instruments identified significant differences in the Autonomy domain ($F_{(2,90)} = 7.46$, $p=0.001$) between the pilates and water aerobics groups when compared to the non-practicing group. As for the Death and Dying domain ($F_{(2,90)} = 4.46$, $p=0.01$), the non-practicing group showed the highest values in relation to the pilates group. Results suggest that physical exercise can benefit older adults regarding quality of life, but not in isolation.

Keywords | Aging. Self Concept; Quality of Life; Exercise Movement Techniques.

RESUMO | O objetivo deste estudo foi comparar os aspectos da autoimagem e domínios da qualidade de vida em idosos praticantes e não praticantes de pilates na cidade de Curitiba, Paraná, Brasil. O estudo foi quantitativo, descritivo, comparativo e com delineamento transversal. A população da pesquisa foi formada por 93 idosos, após cálculo amostral com tamanho de efeito f (0,43). A amostra foi intencional e os participantes foram divididos em três grupos: grupo pilates, grupo hidroginástica e grupo não praticante. A pesquisa foi realizada por aplicação de questionário sociodemográfico, econômico, autoimagem, WHOQOL-BREF e OLD. A análise estatística foi feita por meio de avaliação comparativa com Anova, teste qui-quadrado e *post hoc* de Bonferroni. A comparação da autoimagem entre os grupos não mostrou nenhuma diferença significativa ($X^2=3,72$, $p=0,15$), apesar de o número de participantes com baixa autoimagem ter sido alto. Nos domínios da qualidade de vida, os grupos pilates e hidroginástica apresentaram maiores valores de média, em geral. No WHOQOL-OLD, foram identificadas diferenças significativas no domínio autonomia ($F_{(2,90)} = 7,46$, $p=0,001$) entre os grupos pilates e hidroginástica,

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quando comparados ao grupo não praticantes. No domínio morte e morrer ($F_{(2,90)}=4,46$, $p=0,01$), os maiores valores foram no grupo não praticantes em relação ao grupo pilates. Os resultados sugerem que a prática de atividade física pode beneficiar os idosos na questão da qualidade de vida, porém não isoladamente.

Descritores | Envelhecimento; Autoimagem; Qualidade de Vida; Idoso; Técnicas de Exercício e de Movimento.

RESUMEN | El objetivo de este estudio fue comparar los aspectos de autoimagen y los dominios de calidad de vida entre ancianos practicantes y no practicantes de pilates en la ciudad de Curitiba, Paraná, Brasil. Este es un estudio cuantitativo, descriptivo, comparativo y con diseño transversal. La población de investigación estuvo constituida por 93 ancianos después del cálculo de la muestra con tamaño del efecto f (0,43). La muestra fue intencional, y se dividieron a los participantes en tres grupos: grupo de pilates, grupo de hidrogimnasia y grupo de no practicantes. Se les aplicó un cuestionario sociodemográfico,

económico, de autoimagen, WHOQOL-BREF y WHOQOL-OLD. El análisis estadístico se realizó mediante evaluación comparativa utilizando Anova, prueba de chi-cuadrado y prueba de *post hoc* de Bonferroni. La comparación de la autoimagen entre los grupos no mostró ninguna diferencia significativa ($X^2=3,72$, $p=0,15$), aunque el número de participantes con baja autoimagen fue alto. En los dominios de la calidad de vida, los grupos de pilates y de hidrogimnasia presentaron, por lo general, una media de valores más alta. En WHOQOL-OLD, hubo diferencias significativas en el dominio de autonomía ($F_{(2,90)}=7,46$, $p=0,001$) entre los grupos de pilates y de hidrogimnasia en comparación con el grupo de no practicantes. En el dominio muerte y morir ($F_{(2,90)}=4,46$, $p=0,01$), los valores más altos se encontraron en el grupo de no practicantes en comparación con el grupo de pilates. Los resultados evidencian que la práctica de actividad física puede beneficiar a las personas mayores en términos de calidad de vida, pero no de forma aislada.

Palabras clave | Envejecimiento; Autoimagen; Calidad de Vida; Anciano; Técnicas de Ejercicio con Movimientos.

INTRODUCTION

Longevity can be considered a success story for humanity. Once the privilege of developed countries, achieving old age is today a reality even in developing countries. Currently, older adults account for 12% of the world's population, and could double by 2050 and triple by 2100¹. According to the IBGE², 25.5% of the Brazilian population is expected to be over 65 years old by 2060. The greatest achievement of the 20th century became thus a great challenge: the growing aging of the population requires incorporating quality and health programs in the prolongation of life³.

Aging is a physiological, biological, and psychological process that affects the individual's functional capacity, starting at birth and continuing until death, and includes changes to the self-image^{4,5}. Defined as the mental picture each individual makes of themselves, how one feels one's potentialities, feelings, attitudes and ideas⁶, the self-image consists of four components that operate throughout the action: movement, sensation, feeling, and thought. Each person speaks, moves, thinks and feels in different ways⁷.

Body image begins to form from birth, with limb control being the first impression one has of one's body⁸. The body is driven by physiological reactions; when any of them are impaired, self-image can be affected, interfering with the individual's quality of life⁴.

Quality of life crosses different areas of knowledge and has multiple dimensions – such as the physical, psychological, and social –, each of them comprising several aspects⁹. Conceptualizing quality of life require us to observe numerous elements of people's everyday life, from subjective perceptions and expectations concerning life to more deterministic issues, such as clinical action in the face of diseases, illnesses and the mind-body problematic^{10,11}.

In the early 20th century, Joseph Pilates developed a fitness method he called Contrology. For him, body and mind should function as a single and concentrated part rather than be pitted against each other, limiting them. Pilates sought complete coordination between body and mind¹².

For Pilates, physical exercise without full attention leads to a decline in body awareness in adulthood and old age, and only through a good body education can one correct bad habits. Body awareness education must therefore be taught from an early age, to achieve a uniform body development, vitality and increased quality of life in aging¹³.

An integrative literature review on body image and self-esteem among older adults found 14 articles, of which only three used the Steglich self-image and self-esteem questionnaire for the older population. This may explain why there are few studies on the topic of self-image and older adults in the literature¹⁴.

Pilates practitioners learn to feel their movements, to have body self-perception when performing them and explore variations when moving. When compared to other exercise modalities, pilates is shown to benefit its practitioners by providing greater body awareness and improving mindfulness. This highlights the hypothesis that the self-image and quality of life of older pilates practitioners would be higher when compared to adepts of other physical exercise modalities and non-practitioners^{15,16}. Thus, this research sought to compare the influence of the pilates method on self-image and quality of life of older adults.

METHODOLOGY

This is a quantitative, descriptive, comparative and cross-sectional study^{17,18} conducted with 93 older adults, aged 60 years or older, selected by intentional sampling and divided into three groups: pilates group, water aerobics group and non-practicing group. Data collection took place in three pilates studios, a fitness center and a religious community, all located in Curitiba, Paraná, Brazil. We chose the religious community for it had a conviviality group for older adults that met weekly, for purposes other than exercising.

Inclusion criteria consisted of older adults aged 60 years or older, female and male, literate and who agreed to participate in the research. Exclusion criteria comprised people under 60 years old and who did not sign the informed consent form. The project and data collection procedures followed all the requirements of Resolution No. 466/2012 of the National Health Council (CNS), being performed after approval by the Ethics Committee, under opinion number 3.073.628 and CAAE 02549018.5.0000.0094.

Data collection

Data collection was performed using a closed-question sociodemographic^{19,20} and economic questionnaire²¹, Steglich's self-image and self-esteem questionnaire²², WHOQOL-BREF²³ and WHOQOL-OLD²⁴.

Steglich questionnaire²² comprises 78 questions evaluating self-esteem and self-image according to four fundamental aspects: organic, social, intellectual and emotional. Given the scope of this research, we chose to use only the questions concerning self-image.

The WHOQOL-BREF questionnaire has 26 questions divided into four domains: physical, psychological, social relations and environment²³. WHOQOL-OLD, in turn, is a specific instrument used to assess the quality of life

of older adults and comprises six facets: autonomy, sensory abilities, past, present and future activities, social participation, intimacy and death and dying²⁴.

Data analysis

Before data collection, we performed a sample calculation using GPower 3.1.9.4 to find a size effect f (0.43), adopting the values of 0.05 for alpha and 0.80 for beta. Total sample was estimated at 57 participants, approximately 20 people per group. Assuming possible dropouts or errors when answering the questionnaires, we chose to collect 30 participants per group.

Description of the participants was performed using measures of central tendency and dispersion for continuous variables, and absolute and relative frequency distribution for categorical variables. Normality and homogeneity were assessed by the Shapiro Wilk and Bartlett's test.

Comparative analyses were performed using Anova for one factor. Multiple comparisons were performed using Bonferroni's *post hoc*, adopting statistical significance of $p < 0.05$ for all analyses. Comparisons for categorical variables were made using the chi-square test. All analyses were performed on Stata MP statistical software 14.1.

RESULTS AND DISCUSSION

Our sample had mean age of 72.10 ± 7.93 years (minimum: 60 years old; maximum: 91 years old), with the 60 to 65 age group having the highest participation. Participants had been practicing pilates for approximately 38 months, and water aerobics for 74 months. Table 1 presents the data on the participants' sociodemographic characteristics.

The sample consisted mostly of female participants (75.27%), corroborating the feminization of old age^{25,26}, white (86.02%), and married (64.52%). A study conducted in Campinas, São Paulo, showed that most older men in the sample were married, while most women were widows²⁷, explaining the greater number of women in the sample.

Most participants were retired (73.12%) and belonged to economic class A (34.41%). Regarding schooling level, most participants had complete tertiary education (27.96%), finding that may be associated with the sample's high socioeconomic level, as this contributes to the pursuit and improvement of formal education.

Table 1. Sociodemographic characteristics of participants (n=93)

Characteristic	n	%		
Gender				
Female	70	75.27		
Male	23	24.73		
Color/Race				
White	80	86.02		
Black	1	1.08		
Asian	4	4.30		
Mixed race	8	8.60		
Age group				
from 60 to 65 years old	25	26.88		
from 66 to 72 years old	24	25.81		
from 73 to 78 years old	21	22.58		
from 79 to 85 years old	18	19.35		
from 86 to 91 years old	5	5.38		
Marital status				
Single	2	2.15		
Married	60	64.52		
Separated/Divorced	5	5.38		
Widowed	26	27.96		
Schooling level				
Incomplete primary education	8	8.60		
Complete primary/Incomplete lower secondary education	10	10.75		
Complete lower secondary/Incomplete upper secondary education	7	7.53		
Complete upper secondary/Incomplete tertiary education	15	16.13		
Complete tertiary education	26	27.96		
Complete technical education	4	4.30		
Graduate studies	23	24.73		
Economic classification				
A	32	34.41		
B1	16	17.20		
B2	26	27.96		
C1	8	8.60		
C2	9	9.68		
D-E	2	2.15		
Current occupation				
Retired	68	73.12		
Pensioner	8	8.60		
Homemaker	7	7.53		
Other	10	10.75		
Variables	Min	Max	Mean	SD
Months practicing pilates	1	144	38.13	41.53
Months practicing water aerobics	1	300	74.25	99.63

Source: Elaborated by the author. n: number; Min: minimum; Max: maximum; SD: standard deviation.

Table 2 presents the self-image (low or high) percentages compared between the groups, for which we found no significant difference ($X^2=3.72, p=0.15$).

Table 2. Comparison and frequency of self-image perception between pilates, water aerobics and non-practitioners groups (n=93)

Self-image classes	Pilates (n=31)	Water aerobics (n=30)	Non-practitioners (n=32)	X^2	p
	n (%)	n (%)	n (%)		
Low	20 (64.52)	20 (66.67)	27 (84.38)	3.72	0.15
High	11 (35.48)	10 (33.33)	5 (15.62)		
Self-image classes			n	%	
Low			67	72.04	
High			26	27.96	

Source: Elaborated by the author. X^2 : chi-square test; n: number.

We can observe a high number of participants with low self-image, 67 in total (72.04%), but when analyzing this variable by group, the non-practitioners show the highest number of older adults with low self-image. This may occur because the body schema emerges from the relationship of psychological, sociological, and physiological aspects, while self-image is construed from birth through motor control. Thus, self-image is linked to movement and action⁸.

Although this result was not significant in this research sample, understanding the self-image of older adults is imperative; knowing the relationship older people establish with their bodies and its implications is key to better understand this group and, thus, foster an aging process of better quality²⁸.

An integrative literature review found that studies assessing self-image use mainly three instruments: the Steglich questionnaire, the Stunkard silhouette scale and the body image scale (BIS). This finding reveals that few are the tools proposed to evaluate self-image, especially regarding older adults¹⁴.

Table 3 presents the results of the perception of quality of life assessed by the WHOQOL-BREF, compared between groups. Analysis of variance identified significant differences between groups for the environmental domain ($F_{(2,90)}=3.32, p=0.04$) that were refuted after Bonferroni *post hoc* ($p=0.08$), which showed only a trend of difference between groups. This *post hoc* test value may be explained by the limited sample size.

Nevertheless, all the mean scores for both the general quality of life and the WHOQOL-BREF domains found were lower in the non-practitioner group. It is interesting to note, however, that the non-practitioners group's highest mean was in the psychological domain, almost equaling the other groups. The psychological domain comprises aspects such as positive and negative feelings, thinking, learning, memory and concentration, self-esteem, body

image and appearance, spirituality, religion and personal beliefs²³. Since our sample of non-practitioners came from a religious community, the aspects of spirituality, religion and personal beliefs may have contributed to the high average of this domain.

Table 3. Comparison of the perception of quality of life assessed by the WHOQOL-BREF between the pilates, water aerobics and non-practitioners groups

	WHOQOL-BREF			F	p
	Pilates (n=31)	Water aerobics (n=30)	Non-practitioners (n=32)		
	Mean±SD	Mean±SD	Mean±SD		
OQoL	76.61±15.72	75.83±15.37	69.14±17.95	1.97	0.14
Physical	71.54±15.19	71.07±13.86	63.50±16.09	2.81	0.06
Psychological	71.91±12.45	72.50±11.40	72.13±12.22	0.02	0.98
Social	67.74±18.47	62.22±20.73	61.98±17.05	0.94	0.39
Environmental	74.70±13.60*	74.79±13.15*	67.38±12.50	3.32	0.04

Source: Elaborated by the author.

OQoL: overall quality of life; SD: standard deviation; *indicates trends of differences when compared to the group of non-practitioners (p=0.08).

Table 4 presents the comparison between groups of the perception of quality of life assessed by the WHOQOL-OLD. We found verify significant differences between groups for the autonomy ($F_{(2,90)}=7.46, p=0.001$) and death and dying ($F_{(2,90)}=4.46, p=0.01$) domains.

Table 4. Comparison of the perception of quality of life assessed by the WHOQOL-OLD between the pilates, water aerobics and non-practitioners groups (n=93)

	WHOQOL-OLD			F	p
	Pilates (n=31)	Water aerobics (n=30)	Non-practitioners (n=32)		
	Mean±SD	Mean±SD	Mean±SD		
OQoL	68.95±13.75	68.26±12.19	65.79±13.11	0.51	0.60
SA	81.25±15.14	77.70±20.21	70.50±21.37	2.59	0.08
AUT	70.56±16.39 ^a	73.95±14.31 ^b	58.59±18.49 ^{ab}	7.46	0.001
PPF	72.78±13.45	72.29±12.78	65.23±15.48	2.88	0.06
SP	50.16±15.78	50.33±12.17	47.03±13.61	0.56	0.57
DD	60.28±25.28 ^a	63.54±24.40	77.34±22.54 ^a	4.46	0.01
INT	63.10±33.40	56.25±33.63	61.91±33.69	0.36	0.69

Source: Elaborated by the author.

OQoL: overall quality of life; SA: sensory abilities; AUT: autonomy; PPF: past, present and future activities; SP: social participation; DD: death and dying; INT: intimacy; SD: standard deviation; Equal characters denote significant difference between groups (p<0.05).

Regarding the autonomy domain, the pilates and water aerobics groups showed higher values of perception of quality of life when compared to the non-practitioners. The autonomy domain reflects one's freedom to make decisions, to feel in control of one's future, to feel that the people around respect one's freedom, and to be able

to do the activities one likes²⁴. Ferreti et al.²⁹ found that the group of physical activity practitioners had a better perception of quality of life when compared to non-practitioners, after evaluation by the WHOQOL-BREF and OLD.

The fitness provided by physical activities, especially in older adults, is a key factor for maintaining the individual's life and autonomy²⁹. Our findings suggest, thus, that the pilates and water aerobics groups presented significant difference in this domain because they are physically active and depend less on other people to maintain daily life.

In the death and dying domain, the non-practitioners group presented higher values of perception of quality of life compared to pilates practitioners. Death and dying consists of concern about how one will die, fear of being unable to control one's own death, fear of dying and feeling pain before dying²⁴. The theme of death is strongly linked to personal beliefs, spirituality, and religion, constructs that integrate the psychological domain of the WHOQOL-BREF, which also presented a higher mean in the non-practitioners group.

Since data collection of the non-practitioners group took place in a religious community, this may explain the significant difference in the death and dying domain when compared to the pilates group. Religion plays an important role for many people, influencing behaviors and identities, especially in old age, when the life trajectory begins to be rethought and analyzed, which can interfere in the individual's physical and mental health³⁰. This finding suggests that participating in a religious community and dedicating oneself to spiritual matters can lead one to have a better perception about one's own death.

This study presented some limitations, such as the limited sample size, the lack of adequate space for data collection, the diversity of the participating pilates studios, with different methodologies and instructors, which can alter the students' body perception, and the difficulty in finding a body self-image assessment instrument compatible with the study.

FINAL CONSIDERATIONS

The research revealed that the comparison of self-image between the groups showed no significant difference, although the number of participants with low self-image was high.

In the domains of quality of life, the pilates and water aerobics groups presented higher mean values, in general. The WHOQOL-OLD assessment found significant differences in the autonomy domain between the pilates and water aerobics groups when compared to the non-practitioners group. In the death and dying domain, the non-practitioners group showed higher values when compared to the pilates group.

Our results suggest that physical exercise may have benefited this older population, improving quality of life, but not in isolation, since the mean values of the scores were similar between the pilates and water aerobics groups compared to the non-practitioners group, and only a few domains showed statistically significant results.

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