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ARQUIVOS DO MUDI

ARTIGO ORIGINAL

Quality of life analysis in older adults practicing the Pilates Method: Is there an influence of sociodemographic and health-related factors?

Análise da qualidade de vida de idosos praticantes do Método Pilates: há influência de fatores sociodemográficos e de saúde?

Análisis de la calidad de vida de adultos mayores practicantes del Método Pilates: hay influencia de factores sociodemográficos y de salud?

Amanda Tami Kuroda Colevate[1]

Aliny de Lima Santos[2]

Renato Augusto Mariotto[1]

Cleidson Colares Batista[1]

Eduardo Quadros da Silva[1]

José Roberto Andrade do Nascimento Júnior[3]

Natália Quevedo dos Santos[1]

Daniel Vicentini de Oliveira[2]

[1]Universidade Cesumar
Maringá, PR, Brasil

[2]Universidade Estadual de Maringá,
Maringá, PR, Brasil

[3]Universidade da Força Aérea, Rio de Janeiro, RJ, Brasil

Autor correspondente:
Daniel Vicentini de Oliveira
d.vicentini@hotmail.com

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ABSTRACT. Objective: to analyze the quality of life (QoL) of older adults practicing Pilates and identify associated sociodemographic and health factors. **Methods**: a cross-sectional study was conducted with 71 older adults using the WHOQOL-bref and WHOQOL-Old instruments. **Results:** significant differences were observed in the autonomy ($p = 0.039$) and intimacy ($p = 0.001$) facets by marital status; in all domains, as well as autonomy ($p = 0.040$) and past, present, and future activities ($p = 0.020$) facets, by self-perceived health; in the physical ($p = 0.007$) and self-evaluation ($p = 0.014$) domains by medication use; and in the past, present, and future activities facet ($p = 0.014$) by practice duration. **Conclusion:** marital status, self-perceived health, medication use, and practice duration influence the QoL of older adults practicing Pilates, highlighting the importance of individualized approaches.
Descriptors: Aging; Quality of Life; Exercise Therapy.

RESUMO. Objetivo: analisar a qualidade de vida (QV) de idosos praticantes de Pilates e identificar os fatores sociodemográficos e de saúde associados. **Métodos:** estudo transversal com 71 idosos. Os dados foram analisados por meio de estatísticas descritivas e inferenciais (teste t e ANOVA; $p < 0,05$). **Resultados:** foram observadas diferenças significativas nas facetas autonomia ($p = 0,039$) e intimidade ($p = 0,001$) de acordo com o estado civil; em todos os domínios, bem como nas facetas autonomia ($p = 0,040$) e atividades passadas, presentes e futuras ($p = 0,020$), segundo a autopercepção de saúde; nos domínios físico ($p = 0,007$) e autoavaliação ($p = 0,014$) de acordo com o uso de medicamentos; e na faceta atividades passadas, presentes e futuras ($p = 0,014$) conforme o tempo de prática. **Conclusão:** o estado civil, a autopercepção de saúde, o uso de medicamentos e o tempo de prática influenciam a qualidade de vida de idosos praticantes de Pilates, destacando a importância de abordagens individualizadas.
Descritores: Envelhecimento; Qualidade de vida; Terapia por exercício.

RESUMEN. Objetivo: analizar la calidad de vida (CV) de las personas mayores que practican Pilates e identificar los factores sociodemográficos y de salud asociados. **Métodos:** estudio transversal con 71 personas mayores, utilizando los instrumentos WHOQOL-bref y WHOQOL-Old. **Resultados:** se observaron diferencias significativas en las facetas de autonomía ($p = 0,039$) e intimidad ($p = 0,001$) según el estado civil; en todos los dominios, así como en las facetas de autonomía ($p = 0,040$) y actividades pasadas, presentes y futuras ($p = 0,020$) según la autopercepción de salud; en los dominios físico ($p = 0,007$) y autoevaluación ($p = 0,014$) de acuerdo con el uso de medicamentos; y en la faceta de actividades pasadas, presentes y futuras ($p = 0,014$) según la duración de la práctica. **Conclusión:** El estado civil, la autopercepción de salud, el uso de medicamentos y la duración de la práctica influyen en la calidad de vida de las personas mayores que practican Pilates, lo que resalta la importancia de enfoques individualizados.
Descriptores: Envejecimiento; Calidad de vida; Terapia por Ejercicio.

INTRODUCTION

Population aging is a global phenomenon with significant social, economic, and public health repercussions. As life expectancy increases, it becomes imperative to understand the factors that influence the quality of life (QoL) of older adults and to develop effective strategies for its promotion[1]. Among the various non-pharmacological approaches employed, the Pilates Method (PM) stands out as a form of physical exercise that combines principles of motor control, breathing, and strengthening using body weight, accessories, and specialized equipment. Evidence suggests that PM can promote improvements in muscle strength, balance, body composition, functionality, and subjective perception of QoL[2,3].

QoL, in turn, is a multidimensional construct encompassing physical, emotional, social, and functional components. Investigating the factors that influence QoL in older adults who practice PM may contribute to identifying vulnerable subgroups and directing personalized interventions4. In this context, sociodemographic factors such as age, sex, educational level, marital status, and income, as well as health conditions including chronic diseases, mental health, physical activity level, and sleep quality have a significant influence on QoL perception in aging populations[5,8].

Despite the growing interest in the relationship between PM and QoL in older adults[9], studies that simultaneously consider both sociodemographic and health-related variables in this context remain scarce. The literature suggests that adherence to physical activity programs, such as PM, can be influenced by factors like educational level and self-perceived health, highlighting the need for studies that integrate these dimensions[10].

Given this scenario, the present study aims to analyze the QoL of older adults who practice the Pilates Method and to investigate whether sociodemographic and health-related factors influence this variable. Through a cross-sectional design, the study seeks to contribute to a deeper understanding of the determinants of QoL among older adults who adopt PM as part of their active lifestyle.

METHODS

This is an observational and cross-sectional study, approved by the Ethics Committee on Research with Human Beings of the Universidade Cesumar (Unicesumar) through opinion number 2.305.312, and adheres to the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

The sample, intentionally and conveniently selected, consisted of 71 older adults of both sexes, practitioners of Pilates Method exercises, from seven clinics, gyms, and studios in Maringá,

Paraná. Older adults using walking aids (such as canes and walkers) and wheelchair users were excluded from the research. Additionally, older adults with visual, auditory, and cognitive impairments that prevented them from taking the test and completing the questionnaires were also excluded.

For the characterization of older adults, a sociodemographic questionnaire was used, with questions regarding age, sex, race, education, smoking, retirement, self-perception of health, occupational status, income in the minimum wage, marital status, number of medications used, presence of diseases, history of falls in the last six months, time of practice, and weekly frequency of Pilates Method exercise practice.

The World Health Organization Quality of Life Bref (WHOQOL-bref) and the World Health Organization Quality of Life Old (WHOQOL-Old) assessed QoL. The WHOQOL-BREF is an abbreviated version of the World Health Organization's Quality of Life Assessment questionnaire. It consists of 26 questions, two of which refer to individual perceptions of QoL and health, and the rest are subdivided into physical, psychological, social relationships, and environmental domains. Each domain scores from four to 20 points, with higher scores indicating better QoL in the evaluated domain[11].

The WHOQOL-Old is an additional questionnaire used alongside the WHOQOL-bref to investigate the QoL in older adults, including relevant aspects not covered by instruments designed initially for non-older populations. It comprises 24 facets, attributed to six domains: sensory functioning, autonomy, past, present, and future activities, social participation, death and dying, and intimacy. Each item presents four questions. Each facet scores four to 20 points, with higher scores indicating a better QoL in the evaluated facet[12,13].

Firstly, a detailed search was conducted to identify establishments offering MP apparatus exercises, including studios, clinics, and gyms. Seven locations were selected. Researchers contacted these establishments to explain the study's objectives and methodology. All seven locations agreed, and visits were scheduled for the days and times when older adults would be present. During these visits, researchers informed older adults about the procedures and details of the research. Those who agreed to participate signed the Informed Consent Form. Data collection lasted an average of 20 minutes per person between July and October 2023.

Data analysis was performed using SPSS software version 25.0, employing both descriptive and inferential statistical approaches. Frequencies and percentages were used as descriptive measures for categorical variables. For numerical variables, data normality was assessed using the Kolmogorov-Smirnov test as well as skewness and kurtosis coefficients. Bootstrapping procedures (1,000 resamplings; 95% BCa CI) were also conducted to increase the reliability of the results, correct

for potential deviations from normality in the sample distribution and differences in group sizes, and to present a 95% confidence interval for the means14. Mean and standard deviation were used as measures of central tendency and dispersion. To compare the QoL domains and facets according to sociodemographic, health-related, and MP practice variables, independent Student's t-test (for two groups) and One-Way ANOVA (for more than two groups), followed by Tukey's Post-Hoc test, were used. A significance level of $p < 0.05$ was adopted.

RESULTS

A total of 71 older adults practicing PM participated in the study, including women (n = 57) and men (n = 14), aged between 60 and 93 years (M = 71.52; SD = 7.68). Most participants were under 80 years old (81.7%), had a partner (54.9%), were retired (84.5%), did not work (60.6%), and had a monthly income exceeding three minimum wages (62.0%).

The majority of the older adults reported perceiving their health as good (67.6%), using between one and three medications regularly (95.9%), having some non-communicable chronic disease (53.5%), practicing PM for over one year (73.2%), with a weekly frequency of two or more sessions (95.8%), and not practicing any other exercise (59.2%).

Table 1 presents the means and standard deviations of the QoL domains and facets, as well as the level of self-esteem of the participants. Regarding the QoL domains, the highest score was observed in the self-evaluation domain (M = 16.34; SD = 2.51), followed by the psychological (M = 15.83; SD = 2.25), physical (M = 15.76; SD = 2.56), social relationships (M = 15.72; SD = 2.11), and psychological (M = 15.38; SD = 2.48) domains. Finally, the highest means among the QoL facets were found in sensory functioning (M = 74.73, SD = 19.60), past, present, and future activities (M = 71.92, SD = 13.48), and intimacy (M = 71.65, SD = 20.37).

Table 1. Descriptive analysis of the quality of life domains and facets among older adults practicing Pilates.

VARIABLES	Mean	SD
Quality of Life Domains		
Physical	15.76	2.56
Psychological	15.83	2.25
Social relationships	15.38	2.48
Environment	15.72	2.11
Self-evaluation	16.34	2.51

Quality of Life Facets		
Sensory functioning	74.73	19.60
Autonomy	67.08	16.97
Past, present, and future activities	71.92	13.48
Social participation	69.81	15.49
Death and dying	69.28	23.40
Intimacy	71.65	20.37

SD: standard deviation.

Table 2 presents the comparison of QoL domains and facets among older adults practicing PM according to marital status. A significant difference was found between the groups only in the autonomy (p = 0.039) and intimacy (p = 0.001) facets. It is noteworthy that older adults with a partner showed higher mean scores in both QoL facets compared to those without a partner.

Table 2. Comparison of Quality of Life Domains and Facets Among Older Adults Practicing Pilates According to Marital Status.

VARIABLES	**Marital Status**		***p***
	With partner (n=39)	**Without Partner (n=32)**	
	M (SD)	**M (SD)**	
Quality of Life Domains			
Physical	16.04 (2.66)	15.43 (2.42)	0.317
Psychological	16.02 (2.57)	15.60 (1.78)	0.445
Social relationships	15.62 (2.77)	15.08 (2.07)	0.364
Environment	15.93 (2.29)	15.47 (1.86)	0.357
Self-evaluation	16.67 (2.65)	15.94 (2.30)	0.225
Quality of Life Facets			
Sensory functioning	76.44 (19.31)	72.66 (20.06)	0.422
Autonomy	70.83 (17.87)	62.50 (14.81)	**0.039***
Past, present, and future activitie	73.56 (14.44)	69.92 (12.13)	0.261
Social participation	71.95 (15.30)	67.19 (15.55)	0.199
Death and dying	72.43 (22.93)	65.43 (23.76)	0.212

Intimacy	79.01 (17.59)	62.69 (20.17)	**0.001***

* Significant difference: $p < 0.05$ — Independent Student's t-test.
SD: standard deviation.

Table 3 presents the comparison of QoL domains and facets among older adults practicing PM according to their perceived health status. A significant difference was found between the groups in all QoL domains ($p < 0.05$), as well as in the autonomy ($p = 0.040$) and past, present, and future activities ($p = 0.020$) facets. It is noteworthy that older adults who perceived their health as good showed higher scores in all QoL domains and facets.

Table 3. Comparison of Quality of Life Domains and Facets Among Older Adults Practicing Pilates According to Perceived Health Status.

VARIABLES	**Perceived Health Status**		***p***
	Good (n=48)	**Regular (n=23)**	
	M (SD)	**M (SD)**	
Quality of Life Domains			
Physical	16.71 (1.93)	13.79 (2.61)	**<0.001***
Psychological	16.47 (1.98)	14.49 (2.22)	**<0.001***
Social relationships	15.80 (2.52)	14.49 (2.18)	**0.036***
Environment	16.12 (2.16)	14.89 (1.75)	**0.020***
Self-evaluation	17.25 (1.96)	14.43 (2.48)	**<0.001***
Quality of Life Facets			
Sensory functioning	77.08 (17.36)	69.84 (23.28)	0.146
Autonomy	69.92 (16.99)	61.14 (15.65)	**0.040***
Past, present, and future activitie	74.48 (12.42)	66.58 (14.30)	**0.020***
Social participation	72.13 (14.41)	64.94 (16.83)	0.067
Death and dying	72.26 (21.61)	63.04 (26.17)	0.121
Intimacy	73.57 (18.29)	67.66 (24.11)	0.256

* Significant difference: $p < 0.05$ — Independent Student's t-test.
SD: standard deviation.

When comparing the QoL domains and facets of older adults practicing PM according to medication use (Table 4), a significant difference was found between the groups in the physical domain ($p = 0.007$) and the self-evaluation domain ($p = 0.014$). It is noteworthy that older adults who

reported not using medications regularly showed higher scores in the physical domain compared to those who reported using more than three medications regularly. Additionally, older adults who reported using more than three medications had periodically lower scores in the self-evaluation domain compared to those in the other groups (none and 1 to 3 medications).

Table 4. Comparison of quality of life domains and facets among older adults practicing Pilates, according to medication use.

VARIABLES	Medication Use			p-value
	None (n=7)	1 to 3 (n=39)	> 3 (n=25)	
	M (SD)	M (SD)	M (SD)	
Quality of Life Domains				
Physical	16.57 (1.92)[a]	16.44 (2.23)	14.49 (2.78)	**0.007***
Psychological	16.57 (2.01)	16.14 (2.46)	15.15 (1.82)	0.150
Social relationships	16.38 (1.99)	15.73 (2.39)	14.56 (2.60)	0.097
Environment	16.50 (2.74)	15.97 (1.97)	15.12 (2.07)	0.171
Self-evaluation	17.43 (2.22)	16.87 (2.24)	15.20 (2.64)[b]	**0.014***
Quality of Life Facets				
Sensory functioning	75.00 (20.41)	76.44 (19.47)	72.00 (20.10)	0.682
Autonomy	70.53 (21.56)	68.91 (16.57)	63.25 (16.27)	0.370
Past, present, and future activities	72.32 (15.25)	73.88 (12.49)	68.75 (14.43)	0.336
Social participation	66.07 (18.35)	71.31 (14.10)	68.50 (17.07)	0.627
Death and dying	72.32 (21.91)	69.39 (24.37)	68.25 (23.10)	0.922
Intimacy	69.64 (24.59)	74.52 (17.99)	67.75 (22.73)	0.421

*Significant difference — $p < 0.05$: One-way ANOVA followed by Tukey's post hoc test between: a) None and More than 3; b) More than 3 and None and 1 to 3.
SD: standard deviation.

In the comparison of QoL domains and facets among older adults according to PM practice duration (Table 5), a significant difference was found between the groups only in the facet of past, present, and future activities ($p = 0.014$). It is noteworthy that older adults who reported practicing PM for less than one year showed lower scores in this facet compared to those with longer practice durations (1 to 4 years and more than 4 years).

Table 5. Comparison of quality of life domains and facets among older adults, according to the duration of Pilates practice.

VARIABLES	Pilates Practice Duration			p-value
	<1 year (n=19)	1 to 4 years (n=28)	> 4 anos (n=24)	
	M (Sd)	M (SD)	M (SD)	
Quality of Life Domains				
Physical	15.58 (2.97)	15.65 (2.44)	16.05 (2.43)	0.805
Psychological	15.30 (2.88)	15.88 (1.65)	16.19 (2.30)	0.431
Social relationships	15.30 (2.60)	15.00 (2.20)	15.89 (2.69)	0.435
Environment	15.18 (2.06)	15.61 (2.03)	16.29 (2.18)	0.218
Self-evaluation	16.10 (2.45)	16.07 (2.40)	16.83 (2.70)	0.499
Quality of Life Facets				
Sensory functioning	77.63 (24.68)	72.77 (18.96)	74.74 (16.12)	0.712
Autonomy	69.41 (18.62)	65.62 (17.72)	66.93 (15.14)	0.759
Past, present, and future activities	64.47 (15.32)[a]	75.67 (12.31)	73.44 (11.25)	**0.014***
Social participation	64.47 (18.76)	70.53 (15.67)	73.18 (11.43)	0.179
Death and dying	66.12 (25.46)	70.53 (21.10)	70.31 (25.02)	0.794
Intimacy	69.41 (25.51)	70.09 (19.42)	75.26 (17.04)	0.570

*Significant difference — $p < 0.05$: One-way ANOVA followed by Tukey's post hoc test between: a) Less than 1 year, 1 to 4 years, and More than 4 years.
SD: standard deviation.

Finally, it is noteworthy that no significant differences ($p > 0.05$) were found in the comparison of QoL domains and facets among older adults practicing PM according to sex, age group, retirement status, occupational situation, monthly income, presence of chronic non-communicable diseases, weekly PM practice frequency, and practice of other exercises.

DISCUSSÃO

The main findings of this study indicate that older adults with a partner showed better QoL in the facets of autonomy and intimacy. Those who perceived their health as good had higher scores across all QoL domains, as well as in the aspects of autonomy and past, present, and future activities. On the other hand, older adults who reported regular use of more than three medications had lower

scores in the self-assessment domain. Additionally, PM practitioners with less than one year of experience showed lower QoL in the facets of past, present, and future activities. No significant differences in quality of life were observed based on sex, age group, retirement status, occupational status, monthly income, presence of non-communicable chronic diseases, weekly PM practice frequency, or concurrent practice of other exercise modalities.

The association between marital status and QoL has already been discussed in the literature, especially regarding the protective role of having a partner in aging processes[15,16]. In the present study, it was observed that older adults with a partner who practiced PM showed higher scores in the autonomy and intimacy facets. This association may be related to the emotional and social support offered within marital relationships, which facilitates not only coping with the challenges of aging[17,18], but also engagement in meaningful activities[19], such as the regular practice of PM exercises. Furthermore, experiencing intimacy and the feeling of security in daily decision-making can positively influence the perception of functional autonomy, a fundamental aspect for maintaining QoL[20].

Another relevant finding concerns self-perceived health. Older adults practicing PM who perceived their health as good showed higher scores in all QoL domains, as well as in the autonomy and past, present, and future activities facets. Positive health perception is a subjective indicator, but it is strongly related to functionality, self-esteem, and motivation for physical activity practice[21]. In this context, according to Metz et al.[22], practicing PM exercises may act as a mediator of this relationship, as they promote physical and psychological benefits that reinforce the sense of vitality and body control. Engagement in guided exercises focused on self-care and body awareness, as proposed by PM, can strengthen both health self-perception and involvement in meaningful life projects[23].

Regarding regular medication use, older adults practicing PM exercises who reported using more than three medications showed lower scores in the self-evaluation domain of QoL. This result aligns with evidence[24,25], that associates polypharmacy with a higher risk of adverse effects, functional limitation, and negative self-perception of health status. Even among regular practitioners of physical exercise, the impact of excessive medication use can compromise the experience of well-being, energy for performing daily activities, and self-confidence regarding functionality[26].

Regarding the duration of PM practice, it was found that older adults with less than one year of practice presented lower scores in the past, present, and future activities facet compared to those with longer practice times. This finding suggests that a longer-term engagement with PM may be related to building existential meaning and continuity in the context of active aging. According to Franco et al.[27], body practices that are maintained over time tend to become incorporated into the

lifestyle and form part of the functional and social identity of older adults. Thus, the time spent in practice may positively influence the perception of life trajectory and future, which are central elements of this QoL facet.

Finally, no significant differences were identified in the QoL of older adults practicing PM exercises according to variables such as sex, age group, retirement status, occupational situation, monthly income, presence of non-communicable chronic diseases, weekly practice frequency, and practice of other physical exercises. These results suggest that, among individuals already engaged in a systematic exercise routine, such factors have a lesser impact on QoL perception compared to more subjective aspects, such as social support, health perception, and accumulated experience in body practice. This reinforces the importance of considering qualitative and experiential factors when assessing active aging, even in physically active populations[27].

This study has some limitations that should be considered when interpreting the results. First, it is a cross-sectional study, which makes it impossible to establish causal relationships between sociodemographic and health factors and the QoL of older adults practicing the PM. Additionally, the sample was convenience-based and limited to a small number of practitioners, which may compromise the generalizability of the findings to other geographic and sociocultural contexts. Another limitation is the predominance of women in the sample, which may have influenced the results, particularly in domains related to social relationships and health perception. Finally, information on health status, medication use, and QoL perception was self-reported and therefore subject to recall bias and subjective interpretation.

It is recommended that future studies employ longitudinal or controlled group designs, expand sample diversity, and incorporate objective indicators of health and functionality to deepen the understanding of the relationship between PM and QoL in aging.

CONCLUSÃO

It is concluded that variables such as marital status, self-perceived health, regular use of medications, and duration of PM practice are associated with differences in QoL scores among older adults who engage in this modality. In particular, it was observed that older adults with a partner, who had a positive perception of their health, and those with longer practice time in PM reported higher scores in several domains and facets of QoL. On the other hand, the regular use of more than three medications was associated with lower scores, especially in the self-evaluation domain.

Although the cross-sectional design limits the ability to conclude causality, the findings offer valuable insights for professional practice. For physiotherapists and physical education professionals working with the PM in the context of aging, it becomes essential to consider these subjective and

contextual aspects when personalizing interventions. Encouraging continuous engagement, monitoring health perceptions, and being aware of participants' medication use may help enhance the positive effects of the practice on perceived QoL.

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