

COMPARISON OF MOTIVATION, SELF-ESTEEM AND BODY IMAGE OF ELDERLY FEMALES PRACTICING WATER AEROBICS

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ABSTRACT: This study aimed to compare self-esteem, self-image and motivation to practice water aerobics according to the health conditions of 70 elderly women from Maringá are compared. Current cross-sectional study used a sociodemographic and health questionnaire, the Rosenberg self-esteem scale, the Nine-silhouette scale and the Exercise Motivation Inventory-2. Data analysis was conducted by Kolmogorov-Smirnov and Mann-Whitney "U" tests ($p < 0.05$). Older women with good health perception had higher self-esteem than those with average health perception ($p = 0.019$). Elderly females who intake up to two drugs had a higher self-esteem score than elderly ones who intake more than two drugs ($p = 0.042$). Elderly females with a history of falls had a higher score on all motivating factors, lower self-esteem score and higher body dissatisfaction than others without a history of falls ($p < 0.05$). Elderly women who practice water aerobics less often per week are more motivated by disease prevention ($p = 0.004$) and recreation ($p = 0.003$). Results show that the perception of health, the use of medicines, a history of falls and the frequency of water aerobics practice affect the motives that lead elderly females to practice water aerobics.

KEY WORDS: Aging; Motor activity; Exercise; Sports psychology.

COMPARAÇÃO DA MOTIVAÇÃO, AUTOESTIMA E IMAGEM CORPORAL DE IDOSAS PRATICANTES DE HIDROGINÁSTICA

RESUMO: Este estudo comparou a autoestima, a autoimagem e a motivação para a prática de hidroginástica de acordo com as condições de saúde de 70 idosas de Maringá (PR). Tratou-se de um estudo transversal que utilizou um questionário sociodemográfico e de saúde, a escala de autoestima de Rosenberg, a escala de nove silhuetas e o Inventário de Motivação para o Exercício-2. A análise dos dados foi conduzida por meio dos testes de *Kolmogorov-Smirnov* e "U" de *Mann-Whitney* ($p < 0,05$). Os resultados indicaram que idosas com percepção de saúde boa obtiveram maior autoestima do que aquelas com percepção regular ($p = 0,019$). As idosas que utilizam até dois medicamentos apresentaram maior escore de autoestima do que as que fazem uso de mais de dois medicamentos ($p = 0,042$). As idosas com histórico de quedas alcançaram escore superior em todos os fatores de motivação, menor escore de autoestima e maior insatisfação corporal do que aqueles sem histórico de quedas ($p < 0,05$). As participantes do estudo que praticam a hidroginástica menos vezes por semana são mais motivadas para prevenção de doenças ($p = 0,004$) e de diversão ($p = 0,003$). Concluiu-se que a percepção de saúde, a utilização de medicamentos, o histórico de quedas e a frequência da prática de hidroginástica afetam os motivos que levam as idosas a praticarem a hidroginástica.

PALAVRAS-CHAVE: Atividade motora; Envelhecimento; Exercício; Psicologia do esporte.

INTRODUCTION

Aging is an intrinsic, active and progressive process followed by physiological and psychological alterations that may jeopardize the elderly's capacity in the milieu they live in¹. When elderly people arrive at this phase of life with motivation, optimism, self-control and high self-esteem, they have greater autonomy and independence¹. Consequently, different lifestyles adopted by the elderly are in the limelight, with frequent debates on the importance of physical exercises for health promotion².

An active lifestyle may improve the elderly's mental, social and physical functions³. The regular practice of physical exercises is not only efficacious in maintaining the functional capacity and nutritional state, but also benefits cognitive functions and decrease of depression symptoms^{3,4}. However, is it highly relevant to understand the motives elderly people have to remain in a determined activity or physical exercise so that specific interventions could be better planned for this section of the population^{5,6}.

Motivation triggers or impairs people to accomplish activities for pleasure and satisfaction⁵. The main motives for the practice of physical exercises by elderly people are "physician's orientation"⁵, "life quality and health maintenance"^{6,7}, "improvement of body position and a sensation of pleasure"⁷. On the other hand, the main factors that impair such adhesion are lack of company, health problems, financial problems, lack of time and absence of information on the benefits of physical activities⁵.

Another important contribution for the practice of physical exercises by the elderly is the improvement of their perception of the body image⁸. Although old age is normally associated with physical and mental deterioration, these distortions are erased as the elderly regularly practice physical activities⁹. The above is caused by an increase of strength and muscular resistance, flexibility, cardio-respiratory capacity and decrease of body composition^{9,10}.

Recent research^{11,12} has highlighted that, among the different types of physical exercise, water aerobics is a pleasure-giving, convivial and social activity, which provides recreation and happiness to those practicing it and, consequently, contributes towards the physical and psychological well-being and a healthy lifestyle. It

is an activity greatly sought after by elderly people, with high adhesion indexes, featuring a decrease in heart beat frequency, increase in muscular mass, articular amplitude and cognitive function^{10,11}. Elderly people who practice water aerobics have positive changes in their moods, self-esteem and self-efficiency^{13,14}.

Bortoluzzi Barros, Brand, Soares, Roth¹⁵ detected improvements in physical capacities, life quality, physical conditioning, health self-assessment – including self-esteem and self-image – decrease in anthropometric measures, less visits to the doctor, infrequent hospitalizations of elderly people who practice water aerobics. Several factors may impair satisfaction in the elderly people's life, such as health degradation, depression, urinary incontinence, chronic pain and other adverse conditions caused by aging¹⁶.

Since the negative aspects in the aging process and the true benefits of regular practice of physical exercises and great interest in aerobics by elderly people are a fact, it seems relevant to investigate whether there is a co-relationship between this sporting modality and intrinsic factors associated with aging. Current study compares self-esteem, self-image and motivation for the practice of water aerobics by elderly people according to their health conditions.

METHODOLOGY

Current quantitative and transversal study was approved by the Committee for Ethics in Research of the Centro Universitário de Maringá, protocol 1.745.616/2016.

PARTICIPANTS

The non-probabilistic samples, chosen intentionally and by convenience, comprised seventy elderly people (60 years old or above), who practiced water aerobics for at least three months in nine out of 10 gymnasiums that provide water aerobics in the municipality of Maringá PR Brazil. Elderly people with hearing difficulties were excluded from data collection. The minimum mental state examination (MMSE) was employed to exclude elderly people with possible cognitive deficits¹⁷. Exclusion scores by MMSE were: 17 for illiterate people;

22 for elderly people with 1 – 4-year schoolings; 24 for 5 – 8-year schooling and 26 for elderly with 9 years or more of schooling¹⁸.

INSTRUMENTS

A questionnaire was prepared by the authors to evaluate the socio-demographic profile, health and practice of water aerobics. The questionnaire (not validated since it has only personal data) comprises age, age group (60 - 69 years old; 70 - 79 years old; 80 - 89 years old; 90 years old or over), marital status (with or without partner), schooling (did not study; incomplete basic schooling; complete basic schooling; complete high school; higher education), monthly earnings in minimum wages (MW) (1 - 2 MW; 2.1 - 3 MW; more than 3 MW), retirement (yes; no), health perception (good; average; bad), current health perception compared to that of another elderly person of the same age (worse; equal; better), use of medicine (up to 2; more than 2), history of falls or quasi-falls during the last six months (yes; no), frequency of water aerobics (2x; 3x; 4x or more), duration of aerobics (3 months - 1 year; 1.1 - 3 years; more than 3 years). Report on falls or quasi-falls was evaluated by the question: “Did you have a fall or quasi-fall during the last six months?”

Rosenberg’s self-esteem scale¹⁹, evaluating elderly people’s self-esteem, is a 10-question tool, with marks from 1 to 4, or rather, 1 means ‘strongly disagree’ and 4 means ‘strongly agree’. The higher the score, the greater is the person’s self-esteem level. Further, 15 – 25 points demonstrate healthy self-esteem, within the parameters of what may be called ‘balanced’. Adaption to the Brazilian context was undertaken by Dini, Quaresma and Ferreira²⁰. Variable was employed numerically for data analysis.

Real and ideal perception of the body image was self-referred by a scale of nine silhouettes proposed by Stunkard, Sorensen & Schulsinger²¹ who classified types between thinness (silhouette 1) and severe obesity (silhouette 9). The difference between true body appearance and ideal body appearance was determined for the evaluation of body image perception. If variation is equal to 0, the elderly female is satisfied; if different from 0, she is dissatisfied. If the difference is positive, dissatisfaction

is due to weight excess. Variable was employed numerically for data analysis.

Information related to motives for the practice of physical exercise was obtained by the Exercise Motivations Inventory-2 (EMI-2), by Markland & Ingledew²² and validated for the Brazilian context by Alves & Lourenço²³. EMI-2 comprises 44 items grouped in 10 motivation factors: diversion/well-being, stress control, social acknowledgement, affiliation, competition, health rehabilitation, prevention of disease, control of body weight, physical appearance, physical conditions. Items are evaluated according to the 6-point Likert-type scale (0 = “nothing true” - 5 = “totally true”), with the head enunciation “Personally, I practice (or I may practice) physical exercises”. EMI-2 identifies sizes and ordinates factors of intrinsic and extrinsic motivations for the practice of physical exercises. Variable was employed numerically for data analysis.

PROCEDURES

Data were collected between May and August 2017 in nine out of the ten gymnasiums with water aerobics in Maringá, Brazil, during the period analyzed. The tenth gymnasium was under construction during the period. After first contact with the director of each gymnasium to have permission for doing current research, a schedule with days and timetable for water aerobics for the elderly was provided. Elderly people were contacted before or after lessons, and those who accepted to participate signed the Form of Free Consent. Prior to filling the questionnaires, brief instructions were given to the elderly females with information on the aims of current research, target-people and estimated time to fill the questionnaire (approximately 15 minutes). Questionnaires were undertaken by interviews in a special room. Order of questionnaires was randomized among the elderly.

DATA ANALYSIS

Analysis of data was performed with SPSS 22.0 through descriptive and inference statistics. Frequency and percentiles were employed as descriptive measures for the variables. In the case of numerical variables, normality

of data was verified by Kolmogorov-Smirnov test. Since data did not have normal distribution, medians (Md) and quartiles (Q1; Q3) were employed to characterize results. Motivation, self-esteem and body dissatisfaction were compared according to elderly's health by Mann-Whitney 'U' test, at $p < 0.05$ significance

RESULTS

Data collected from the 70 elderly people who participated in the research revealed the frequency of females without partners (58.6%), aged between 60 and 69 years old (54.3%), monthly income between one and two minimum wages (65.4%), white ethnicity (84.3%), retired (71.4%) and complete high school/ higher education (41.4%). Most elderly people had a perception of good health (54.3%), intakes more than two medicines regularly (57.1%), with no episodes of falls (78.6%) during the last six months. Further, 67.1% of elderly participants have practiced water aerobics for more than three years and 62.9% do so up to twice per week.

Table 1 show that the main motives that elderly people practice water aerobics are: prevention of disease (Md=5.0), affiliation (Md=5.0), stress control (Md=4.8) and recreation (Md=4.7). Elderly people had a satisfactory level of self-esteem (Md=34.0) and a slight body dissatisfaction due to thinness (Md=-1.0).

Table 1. Descriptive analysis of motivation, self-esteem and body dissatisfaction of elderly people who practice water aerobics in Maringá PR Brazil (n=70)

VARIABLES	Md (Q1; Q3)
Motivation factors	
Prevention of diseases	5.0 (4.5; 5.0)
Physical conditions	4.5 (3.9; 5.0)
Weight control	3.8 (2.8; 4.5)
Appearance	3.6 (2.2; 4.3)
Stress control	4.8 (3.3; 5.0)
Recreation	4.7 (4.0; 5.0)
Affiliation	5.0 (3.0; 5.0)
Health rehabilitation	3.8 (3.2; 4.70)
Competition	2.5 (1.2; 3.4)
Social acknowledgement	1.5 (0.8; 3.1)
Self-esteem	34.0 (32.0; 36.0)
Body dissatisfaction	-1.0 (-2.0; -1.0)

There was a significant difference in the score for self-esteem ($p=0.019$) of elderly people due to health perception (Table 2). In other words, elderly people with good health (Md=35.0) had a higher self-esteem score than that of elderly people with a perception of average good health (Md=33.0). There was no significant difference ($p>0.05$) in motivation for the practice of water aerobics and in elderly's body dissatisfaction (Table 3).

Table 2. Comparison of motivation, self-esteem and body dissatisfaction factors in elderly people practicing water aerobics in Maringá PR Brazil with regard to health perception (n=70)

VARIABLES	Good (n=38)	Average (n=32)	P
	Md (Q1-Q3)	Md (Q1-Q3)	
Motivation factors			
Prevention of diseases	5.0 (4.5; 5.0)	5.0 (4.4; 5.0)	0.316
Physical conditions	4.4 (3.5; 5.0)	4.5 (4.0; 5.0)	0.986
Weight control	3.8 (2.9; 4.6)	3.8 (2.4; 4.3)	0.549
Appearance	3.8 (1.9; 4.4)	3.5 (2.3; 4.2)	0.781
Stress control	4.8 (3.4; 5.0)	4.8 (3.3; 5.0)	0.614
Recreation	4.7 (4.2; 5.0)	4.7 (3.8; 5.0)	0.506
Affiliation	5.0 (3.2; 5.0)	4.6 (3.0; 5.0)	0.572
Health rehabilitation	3.8 (2.3; 4.8)	3.8 (3.3; 4.3)	0.976
Competition	2.4 (1.0; 3.2)	2.7 (1.5; 3.8)	0.198
Social acknowledgement	1.5 (0.3; 2.8)	2.0 (1.0; 3.3)	0.329
Self-esteem	35.0 (33.0; 36.0)	33.0 (30.3; 35.0)	0.019*
Body dissatisfaction	-1.0 (-2.3; -1.0)	-1.0 (-2.0; -1.0)	0.732

* significant difference ($p<0.05$) – Mann-Whitney's U test.

There was significant difference in self-esteem score ($p = 0.042$) of elderly people with regard to the amount of medicines taken (Table 3). Elderly people who took up to two medicines regularly ($Md = 34.5$) had a higher self-esteem score than those who took more than two medicines ($Md = 33.0$). There was no significant difference ($p > 0.05$) in motivation factors for the practice of water aerobics and body dissatisfaction by elderly people.

Table 3. Comparison of motivation, self-esteem and body dissatisfaction factors of elderly people who practiced water aerobics in Maringá PR Brazil with regard to use of medicines ($n = 70$)

VARIABLES	Up to 2 ($n = 30$)	More than 2 ($n = 40$)	P
	Md (Q1-Q3)	Md (Q1-Q3)	
Motivation factors			
Prevention of diseases	5.0 (4.5; 5.0)	5.0 (4.4; 5.0)	0.360
Physical conditions	4.8 (3.9; 5.0)	4.5 (3.6; 5.0)	0.371
Weight control	4.3 (2.3; 4.8)	3.8 (3.0; 4.3)	0.254
Appearance	4.0 (2.2; 4.6)	3.3 (1.9; 4.2)	0.245
Stress control	4.8 (3.3; 5.0)	4.8 (3.4; 5.0)	0.917
Recreation	4.8 (4.2; 5.0)	4.5 (3.9; 5.0)	0.112
Affiliation	5.0 (3.0; 5.0)	4.5 (3.3; 5.0)	0.447
Health rehabilitation	3.8 (2.9; 4.8)	3.8 (2.8; 4.3)	0.947
Competition	2.4 (1.0; 3.5)	2.6 (1.3; 3.2)	0.454
Social acknowledgement	1.4 (0.2; 3.1)	2.0 (1.0; 3.1)	0.328
Self-esteem	34.5 (33.0; 37.0)	33.0 (31.0; 35.0)	0.042*
Body dissatisfaction	-1.5 (-3.0; -1.0)	-1.0 (-2.0; -0.3)	0.281

* significant difference ($p < 0.05$) – Mann-Whitney's U test.

When elderly people's motivation factors and fall reports are compared (Table 4), a significant difference has been verified among the groups with regard to factors weight control ($p = 0.040$), physical appearance ($p = 0.009$), stress control ($p = 0.005$), recreation ($p = 0.020$), affiliation ($p = 0.024$), competition ($p = 0.010$) and social acknowledgement ($p = 0.018$). It should be highlighted that elderly females with fall reports had higher scores in all motivation factors.

Table 4. Comparison of motivation, self-esteem and body dissatisfaction of elderly females who practice water aerobics in Maringá PR Brazil, with regard reports of falls ($n = 70$)

VARIABLES	Yes ($n = 15$)	No ($n = 55$)	P
	Md (Q1-Q3)	Md (Q1-Q3)	
Motivation factors			
Prevention of diseases	5.0 (4.8; 5.0)	5.0 (4.5; 5.0)	0.335
Physical conditions	5.0 (4.3; 5.0)	4.5 (3.5; 5.0)	0.057
Weight control	4.3 (3.5; 5.0)	3.8 (2.3; 4.3)	0.040*
Appearance	4.0 (3.5; 5.0)	3.3 (1.3; 4.3)	0.009*
Stress control	5.0 (4.8; 5.0)	4.5 (3.0; 5.0)	0.005*
Recreation	4.8 (4.8; 5.0)	4.5 (3.7; 5.0)	0.020*
Affiliation	5.0 (5.0; 5.0)	4.5 (2.8; 5.0)	0.024*
Health rehabilitation	4.3 (3.3; 5.0)	3.7 (2.7; 4.7)	0.336
Competition	3.4 (2.0; 4.2)	2.4 (1.0; 3.2)	0.010*
Social acknowledgement	2.3 (1.3; 4.3)	1.5 (0.8; 2.8)	0.018*
Self-esteem	33.0 (28.0; 34.0)	35 (32.0; 36.0)	0.008*
Body dissatisfaction	-2.0 (-3.0; -1.0)	-1.0 (-2.0; -1.0)	0.029*

* significant difference ($p < 0.05$) – Mann-Whitney's U test.

There was a significant difference for the self-esteem score ($p=0.008$) and body dissatisfaction score ($p = 0.029$). The above demonstrates that elderly people with fall reports had lower scores on self-esteem and greater dissatisfaction with their own body due to thinness than elderly people without fall events (Table 4).

When elderly people's motivation factors, self-esteem and body dissatisfaction with regard to weekly

practice of water aerobics are compared (Table 5), a significant difference is detected only in motivation factors related to disease prevention ($p = 0.004$) and recreation ($p = 0.003$). The above reveals that elderly people that practice the sports modality less times per week are more motivated for disease prevention and recreation.

Table 5. Comparison of motivation factors, self-esteem and body dissatisfaction by elderly people who practice water aerobics in Maringá PR Brazil according to frequency (n=70)

VARIABLES	Up to two times (n=44)	3 times or more (n=26)	P
	Md (Q1-Q3)	Md (Q1-Q3)	
Motivation factors			
Prevention of diseases	5.0 (4.7; 5.0)	4.6 (3.7; 5.0)	0.004*
Physical conditions	4.7 (4.1; 5.0)	4.0 (2.9; 5.0)	0.096
Weight control	3.8 (3.0; 4.5)	3.6 (1.8; 4.3)	0.246
Appearance	3.8 (3.0; 4.6)	3.4 (1.0; 4.0)	0.092
Stress control	4.8 (3.9; 5.0)	4.6 (2.8; 5.0)	0.483
Recreation	4.9 (4.3; 5.0)	4.2 (2.6; 4.7)	0.003*
Affiliation	5.0 (3.8; 5.0)	4.3 (2.4; 5.0)	0.226
Health rehabilitation	3.7 (2.4; 5.0)	4.0 (3.3; 4.4)	0.820
Competition	2.6 (1.7; 3.4)	2.0 (1.0; 3.6)	0.384
Social acknowledgement	1.6 (1.0; 2.9)	1.5 (0.6; 3.3)	0.845
Self-esteem	34.5 (32.0; 37.0)	33.5 (31.0; 35.0)	0.073
Body dissatisfaction	-1.0 (-2.0; -1.0)	-1.0 (-2.3; -1.0)	0.930

* significant difference ($p<0.05$) – Mann-Whitney's U test.

No significant difference existed ($p>0.05$) in motivation factors, self-esteem and body dissatisfaction by elderly people who practice water aerobics according to duration of practice (one to three years and more than three years).

DISCUSSION

Current analysis compares levels of self-esteem, self-image and motivation of elderly people who practice water aerobics according to their health conditions. Results show that most participants had a good health perception and did not have any fall events during the last six months. These factors refer to the peculiar characteristic of the sample of elderly people (67.1%) who practiced water aerobics for more than three years.

Corroborating the above data, the literature^{25,26} underscores that an enduring practice of water aerobics promotes several physical improvements in the elderly, among which equilibrium, may be mentioned and, consequently, decrease in fall risks.

According to results, the main motives of elderly people's practice of water aerobics are prevention of diseases (Md=5.0), affiliation (Md=5.0), stress control (Md=4.8) and recreation (Md=4.7). Results actually corroborate those by other researchers^{5,27} who state that medical recommendation and health maintenance are the main motives that make elderly people practice physical exercises. They have also detected a direct relationship between pleasure and sociability among the elderly's motivations.

According to the self-determination theory (SDT)²⁸, human motivation varies within a continuum

ranging between total absence of motivation to extrinsic motivation to intrinsic motivation. In extrinsic motivation, in current study represented by the prevention of disease and stress control, the person's behavior is controlled by external factors such as punishments or rewards. Current research has shown that elderly people condition practice to medication recommendations, disease prevention and stress control.

On the other hand, autonomous motivation, represented by affiliation and recreation, comprises types of motivation in which people identify themselves with the value of the activity and accomplish it because of the intrinsic pleasure it gives. This would be the case of accomplishing the activity because of recreation or because of belong to a determined social group, satisfying the basic affiliation need. According to Markland & Ingledew²², such motivations bring more benefits to those practicing it with regard to well-being and performance in activities.

In the case of self-esteem, elderly people experienced a satisfaction level ($Md=34.0$) and a slight body dissatisfaction ($Md=-1.0$). Results on self-esteem corroborate others^{1,30}, in which the practice of physical exercise is directly associated with an improvement of self-esteem among the elderly. Current study reveals that elderly people with a good health perception ($Md=35.0$), improved by the regular practice of water aerobics had higher self-esteem indexes than elderly ones with average health perception ($Md=33.0$).

Self-esteem was also related to the number of medicines taken. Elderly people who took up to two medicines regularly ($Md=34.5$) had better self-esteem scores than those who took more than two medicines ($Md=33.0$). According to Copatti, Kuczmainski, Ferretti & Sá³⁰, result is due to health perception which, in conditions of sickness or health treatment, may be impaired and, consequently, affect one's self-esteem³⁰.

In current study, elderly females with fall events revealed high indexes in all dimensions of motivation than those who did not. Result may have been caused by previous falls or fear of falling^{31,32}; consequently, motivation and commitment in improving one's equilibrium and physical strengthening in practicing water aerobics is significantly greater.

CONCLUSION

Results show that the motives that elderly females have to practice water aerobics are various. They range between more extrinsic motives, exemplified by health concerns and disease prevention, and more intrinsic ones, such as recreation and affiliation. Elderly people's self-esteem is affected by health and amount of medicines taken. From the practical point of view, it is relevant to identify the motives by which elderly populations adhere to physical exercises and the manner these socio-environmental factors interfere in the psychological aspects of the population so that professionals may plan their interventions more effectively and provide greater well-being to elderly people.

Current study's strong item is the relationship between variables, especially in elderly people practicing water aerobics. In fact, to the best of our knowledge, no other study in gerontology literature is extant. Although important results have been provided, current study has its limitations: (1) the transversal design does not allow causality; (2) the small non-probabilistic sample, composed of elderly people of a single city, makes impossible the generalization of results. Another limitation may be the lack of evaluation of depression symptoms of elderly people since they are variables that may impact motivation, self-esteem and body image of the elderly. Further longitudinal studies are recommended with larger samples to decrease the impact of limitations in results mentioned above.

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