

# Occupational performance of elderly practitioners of water aerobics

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**Abstract:** Introduction: The practice of water aerobics has acknowledged positive effects on health, contributing to an active aging. However, considering the alterations brought about by the aging process, the elderly may present difficulties to perform daily activities, indicating problems in occupational performance. Objective: To identify the problem-activities in occupational performance of the elderly who practice water aerobics and correlate their performance and satisfaction with their occupational performance. Method: Cross-sectional, correlational and descriptive study conducted with 45 elderly enrolled in an outreach project of water aerobics classes. A questionnaire was applied for sociodemographic characterization and an occupational performance evaluation was performed through the Canadian Measure of Occupational Performance. Results: Leisure was the area in which the highest number of elderly people has occupational performance problems. This area also involves activities considered more important by the elderly, mainly the practice of other physical exercises. Among the main occupational performance problems, seven activities are related to leisure, eight to productivity and nine to self-care – mainly due to the difficulty in functional mobility. There was a significant correlation between performance and satisfaction of the elderly ( $r = 0.770$  and  $p \geq 0.001$ ). Conclusion: Elderly practitioners of water aerobics have problems in occupational performance. Thus, the development of projects with proposals of other physical exercises is considered fundamental. Such activities are important for the elderly, as they contribute to an active aging and to the quality of life in old age, reflecting the positive performance of self-care activities and productivity.

**Keywords:** Elderly, Occupational Performance, Physical Activity.

## Desempenho ocupacional de idosos praticantes de hidroginástica

**Resumo:** Introdução: Sabe-se que a prática de hidroginástica tem efeitos positivos na saúde, contribuindo para um envelhecimento ativo. Entretanto, considerando as alterações decorrentes do processo de envelhecimento, o idoso pode apresentar dificuldade na realização de atividades cotidianas, indicando problemas no desempenho ocupacional. Objetivo: Identificar as atividades-problema no desempenho ocupacional, além de correlacionar o desempenho e a satisfação de idosos praticantes de hidroginástica com o seu desempenho ocupacional. Método: Estudo transversal, do tipo descritivo correlacional, realizado com 45 idosos participantes de um projeto de extensão de aulas de hidroginástica. Foi aplicado um questionário para caracterização sociodemográfica e foi realizada avaliação do desempenho através da Medida Canadense de Desempenho Ocupacional. Resultados: A área com maior número de idosos com problemas no desempenho ocupacional e também por envolver as atividades consideradas mais importantes, principalmente a prática de outro exercício físico, foi o lazer. Entre os principais problemas de desempenho ocupacional, sete atividades estão relacionadas ao lazer, oito à produtividade e nove ao autocuidado – principalmente pela dificuldade na mobilidade funcional. Houve uma correlação significativa entre

o desempenho e a satisfação dos idosos ( $r = 0,770$  e  $p \geq 0,001$ ). Conclusão: Idosos praticantes de hidroginástica têm problemas no desempenho ocupacional. Assim, considera-se importante a execução de projetos com propostas de outros exercícios físicos, uma vez que são consideradas atividades importantes para os idosos, contribuindo para um envelhecimento ativo e com qualidade de vida na velhice, refletindo no desempenho positivo de atividades de autocuidado e de produtividade.

**Palavras-chave:** *Idoso, Desempenho Ocupacional, Atividade Física.*

## 1 Introduction

In the normal process of aging, also known as senescence, organic changes are common, and can cause loss of functional and physiological health, besides the possibility to be connected also with the presence of chronic diseases, named pathological senility or aging (FECHINE; TROMPIERI, 2012). Before the aging process, normal or not, there are situations that will interfere directly in the daily life of elderly people, which may entail some limitation in daily life activities, with an increased risk of becoming dependent (LANGELAND et al., 2015).

Occupational performance, focus of occupational therapy intervention, is the result of interactions between the person, the environment and the occupation (PEDRETTI; EARLY, 2004). Occupational performance it is integrated and balanced participation of the individual in carrying out their everyday activities in three key areas: self-care, productivity and leisure, being determined by the individual based on their experiences, because it makes it possible to determine their skills, as well as the satisfaction to perform their everyday occupations (LAW et al., 2009).

Especially among people over 60 years old, exercising is considered one of the main factors on health-disease relationship and the quality of life improvement (ZAGO, 2010). Exercising in a liquid or aquatic environment, such as water aerobics, is a positive option for the elderly population (SILVA; RIBEIRO, 2010), in view of the general weight loss, strength and muscular endurance, overall fitness, flexibility, balance and motor coordination improvement (MAZO; LOPES; BENEDETTI, 2004).

On the benefits of water aerobics in the health of elderly people, we can mention that it also has positive effects on components of occupational performance. Thus, in the sensory-motor component, involving sensory, musculoskeletal and motor function; the component of cognitive aspects, mainly the higher brain functions; and also, the component of psychosocial factors, including social and emotional processing integration (PEDRETTI; EARLY, 2004).

Consequently, there is the possibility of positive effects of water aerobics to contribute in the areas of occupational performance, and the elderly people present less difficulty in performing personal care activities, leisure and production and work activities.

Active aging is the process of optimizing opportunities for health, in safe social participation, being the practice of physical activities one of its determinants behavioral factors (ORGANIZAÇÃO..., 2005). We see, then, that the practice of physical exercises, such as water aerobics, it is also related to aging, because the active lifestyle can promote the maintenance of the occupational performance of the elderly for a longer period, since the purpose of the active ageing is to increase healthy life expectancy and quality of life (ORGANIZAÇÃO..., 2005). Even the elderly being active, it becomes important to understand the impact of aging on occupational performance carrying out the desired and expected activities with satisfaction in different occupational areas, because a satisfactory occupational performance will allow the elderly to have an active life with quality.

So, we chose to study this subject because we understand that human activities are in three areas of life: self-care, productive and leisure, changes taking into account that changes that arise from aging process can be responsible for transitional and permanent changes in occupational performance. However, from the knowledge that the regular practice of physical exercises enables active ageing, the objective of this study was to describe the main problems in occupational performance in the areas of occupation, in addition to correlate the performance and satisfaction of elderly who practices water aerobics.

## 2 Method

The study is characterized as quantitative, transversal of descriptive correlational type (THOMAS; NELSON; SILVERMAN, 2012). From the inclusion and exclusion criteria, and the interest in participating in the research, there was the selection of 45 elderly participants in the "extension

project senior physical activities – water aerobics” in the center of physical education and sports at the Federal University of Santa Maria, during the period from August to December 2015.

For the triage and selection of the research participants, a process of the people enrolled in the project identification, monitoring and control of the frequency in water aerobics classes followed. At the end of the water aerobics classes on the second half of 2015, the participants included in the research were evaluated regarding the cognitive condition and responded to an initial interview prepared for the research. After the selection of the participants, there was an individual schedule for the evaluation of occupational performance, in the months of January and February 2016. It should be noted that all procedures of the research, since classification, participants selection and evaluation have been carried out by the author, an occupational therapist, since this study was part of a master’s thesis to the graduate program in Gerontology at the Federal University of Santa Maria.

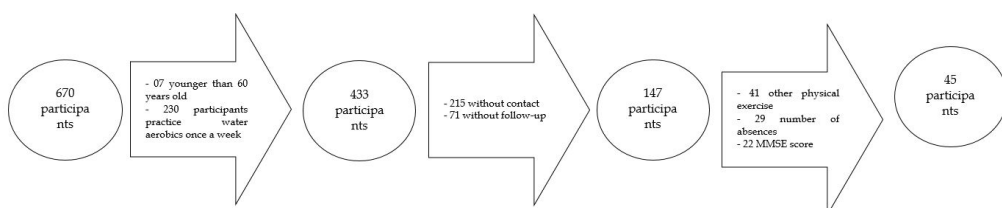
The population of the study was composed of both sexes elderly, with 60 years old or more, effective participants of the extension project for at least a semester, doing physical exercises only in liquid environment (water aerobics) at least twice a week with a frequency equal or greater than 75% of the classes. In the study, older people with cognitive impairment were excluded, through the Mental Status Mini Test (MSMT), according to the educational level (BRUCKI et al., 2003), as well as presenting difficulty in communication, both expression and understanding, which make it impossible to answer the questions. It is worth noting that the identification of the clinical conditions of the participants, through the initial interview was performed. However, senior citizens with chronic illness but independent and autonomous were not excluded from the study.

Figure 1 represents the participants of the study selection flowchart, and in the pre-selection 237 people were initially excluded since they were less than 60 years old and practice water aerobics only once

a week. Along the research, 41 participants were excluded because they practice another exercise, such as bodybuilding, aerobics, Pilates and walking; 29 because the number of absences and 22 for having a MSMT score below of the indicated by schooling. So, a total of 45 participants were selected for the study.

To investigate occupational performance, the Canadian Occupational Performance Measure (COPM) was used, which is based on individual-centered practice, through a semi-structured interview (LAW et al., 1990). During COPM application, the participant needs to mention the activities that are most important in their daily life and have some difficulty to perform by assigning a score between 1 and 10 points, increasingly. Thus, each participant was asked to think of an ordinary day and identify performance problems in the following areas: self-care (personal care, functional mobility and independence away from home), productivity (work, housework) and leisure (quiet recreation, active recreation, socialization) (MCCOLL et al., 2005).

After mentioning all the activities, the top five (highest score) with problems of occupational performance were scored. Then the participant made a self-evaluation on performance and satisfaction. Thus, COPM presents performance score between 1 and 10 points, being score 1 understood as “incapable” and score 10 as “able to do it extremely well”. The same parameter is followed to the satisfaction score: score 1 “not at all satisfied” and 10 “extremely satisfied” (CUP et al., 2003). It is noteworthy that COPM involves individual perception on the problems of occupational performance, so for the study, each participant’s occupation was categorized in the areas of occupational performance according to their interest and their need (CARSWELL et al., 2004). The application of COPM took approximately 20 minutes to 30 minutes for each participant. It should be noted that the research had not a character of intervention, being the scores used only for purposes of description of the main activities-problem and the perception correlation between performance and satisfaction.



**Figure 1.** Participants of the study selection flowchart. Source: Prepared by the authors.

This study was approved by the ethics and Research Committee of the Federal University of Santa Maria, under the CAEE paragraph 45429015.4.0000.5346, and complies with the ethical principles as requirements of the Ministry of Health, in accordance with resolution n° 466/2012 (BRASIL, 2012), being assured by the researchers and participants of research confidentiality of information and data collected, as well as five-year period safeguards, by informed consent.

Data analysis was performed, primarily, through the description of the data with average and standard deviation. After checking the normal distribution of the variables, *Pearson* correlation was performed to verify the correlation between variables: self-care and productivity, self-care and leisure and self-care, productivity and leisure, and performance and satisfaction. The *software* used was the *Statistical Package for the Social Sciences* (SPSS), with a significance level of 5%.

### 3 Results

For information of sociodemographic characteristics of participants (Table 1), a structured questionnaire to the following data was applied: age, sex, educational level, marital status, religion and current occupation.

After analysis of the Canadian Occupational Performance Measure (COPM), five seniors didn't mention any problems in carrying out their everyday activities. So, for this study, the results of the other 40 seniors with at least one problem of occupational performance were considered.

From the identification of the daily activities that are difficult to perform, in a satisfactory manner, in accordance with the occupational performance areas (Table 2), the area with the highest number of elderly people with problems in occupational performance is leisure (80%).

There was also a description of activities-problem (Table 3), separated by areas of self-care (personal care, functional mobility and independence away from home), productivity (work, housework, play/school) and recreation (recreation, active recreation and quiet recreation).

Considering the activities mentioned as problems, the practice of other exercise was the activity considered with greatest difficulty, mainly by medical restriction because of other conditions limiting health by most elderly people. Then, the activities of mobility outside the home were mentioned, because of the difficulty of walking either by motor issues or for architectural barriers, that interfere on accessibility. It is observed

that house cleaning is also an activity referred to as problem, primarily by the energy needed to perform the activity. It is noticed that, among the main occupational performance problems mentioned by the participants, nine activities are related to self-care, eight to productivity and seven to leisure.

Table 4 presents a descriptive analysis through the average and standard deviation of the occupational performance areas, as well as the performance and satisfaction of the main activities-problem of the participants.

**Table 1.** Sociodemographic characteristics.

Characteristics	F Frequency (%)
Sex	
Female	34 (75.5%)
Male	11 (24.4%)
Age (years old)	
60 -70	16 (35.5%)
70 -80	23 (51.1%)
80 -90	06 (13.3%)
Educational level	
Illiterate	--
1 to 4 years of schooling	19 (42.2%)
5 to 8 years of schooling	13 (28.8%)
9 to 11 years of schooling	06 (13.3%)
More than 11 years of schooling	07 (15.5%)
Marital Status	
Single	02 (4.4%)
Married	21 (46.6%)
Separated/Divorced	04 (8.8%)
Widow	17 (37.7%)
Other	01 (2.2%)
Religion	
Catholic	35 (77.7%)
Evangelical	05 (11.1%)
Spiritualist	04 (8.8%)
Other	01 (2.2%)
Current occupation	
Retired	39 (86.6%)
Pensioner	03 (6.6%)
Active retired	02 (2.2%)
Active pensioner	01 (2.2%)

Source: Prepared by the authors.

**Table 2.** Amount of problems relating to areas of occupational performance.

Areas of Occupational Performance	Problems in Occupational Performance (%)
SELF-CARE	75
PRODUCTIVITY	62.5
LEISURE	80

**Table 3.** List of activities referred to as important, but with problems or constraints in their realization.

Areas of Occupational Performance	Problems in the Occupational Performance	Number of Participants	%
<b>SELF-CARE</b>			
Personal Care	Dressing	11	27.5
	Bathing	2	5
Functional Mobility	Mobility out from home	13	32.5
	Transfer	12	30
	Up/Down Stairs	5	12.5
Independence outside home	Shopping	5	12.5
	Finance	5	12.5
	Driving	2	5
	Public Transport	1	2.5
<b>PRODUCTIVITY</b>			
Working	Voluntary Activity	5	12.5
	Looking for paid work	5	12.5
	Keep a paid work	3	7.5
	Keep an unpaid work	1	2.5
Household Chores	House cleaning	13	32.5
	Washing clothes	5	12.5
	Meals preparation	1	2.5
	Washing the dishes	1	2.5
Playing/School	–	–	–
<b>LEISURE</b>			
Quiet Recreation	Manual Activity	10	25
	Reading	2	5
	Hobbies	2	5
Active Recreation	Playing a Musical instrument	1	2.5
	Practice another Exercise	23	57.5
Socialization	Traveling	9	22.5
	Parties	2	5

Source: Prepared by the authors.

**Table 4.** Descriptive data of the averages and standard deviation of the variables relating to areas of occupational performance, performance and satisfaction.

Variables	Descriptive Statistics	
	Average*	Standard Deviation
Self-care	5.40	3.70
Productivity	5.00	4.19
Leisure	8.84	1.44
Performance	5.38	1.92
Satisfaction	6.19	2.60

Legend: \* in points, considering 1 to 10 scale points in ascending order. Source: Prepared by the authors.

According to the results, the leisure activities presented the highest average so they were considered more important by seniors who practice water aerobics, mostly by the fact that exercising is in the leisure area of occupational performance as a form of active recreation. However, even though it

is considered an important activity, it is mentioned as a problem, since most of the elderly reported the will to practice also other modalities of physical exercise besides the water aerobics. The productivity area features performance limitations, flagged by a lowest score, mainly because of the difficulty in working activities and also because of the difficulty in performing household chores.

For performance and satisfaction on the main activities-problem, we can note that the perception of the elderly in front of the performance is medium. Even with problems in carrying out daily activities, the satisfaction with the way they carry out their activities is greater than the performance itself. In the search for associations between variables self-care and productivity, self-care and leisure, productivity and leisure and performance and satisfaction, only the significant correlation between satisfaction and performance ( $r = 0.770$  and  $p \geq 0.001$ ) was obtained.

## 4 Discussion

The present study describes the main problems in occupational performance, since it is known that the use of COPM descriptive studies offers a better knowledge and understanding of the depth and breadth of daily occupations (MCCOLL et al., 2005), i.e. all kinds of daily activities are important for the individual (PERSSON et al., 2014).

COPM enabled to investigate the main everyday activities with occupational performance problems, as well as address on the perception of the individual on his own performance, and the satisfaction in carrying out the activities mentioned as problems. So, in addition to the description of the activities, there was the presentation of the average scores of COPM because it shows better results than the reproducibility of the scores of each of the prioritized problems (EYSEN et al., 2005).

It is known that the efficiency in the performance of daily life activities depends on a satisfactory level of physical conditioning (PASSOS et al., 2008). Even though the elderly knows about the benefits of physical exercises regular practice, such as water aerobics, it is observed that even active seniors have difficulties in performing everyday activities. Thus, through the use of COPM, it was possible to identify problems in occupational performance, through the appointment of important activities for the elderly, in addition to assessing the performance and satisfaction in relation to problem areas (EDWARDS et al., 2007).

From the description of the activities, in the present study there were 139 identified problems in occupational performance, and the area of self-care presents the greatest number of problems facing the occupational performance, totaling 56 problems. In a study with 50 elderly people with hip fracture, using COPM, there were 166 occupational performance issues identified, with 119 issues in the area of self-care (EDWARDS et al., 2007). Within the area of self-care, the category mentioned with greatest difficulty was functional mobility highlighting the activity outside home and, subsequently, transfer. In a study of 61 elderly between 70 and 79 years old, participants described 297 activity limitations, of which 228 were prioritized, and the activity mentioned more often as a problem was the mobility, especially walking indoors with or without a walker (TUNTLAND et al., 2015).

The realization of self-care activities, has an important social role and points out that the individual who is capable of taking care of himself, is ready

to be successful in the execution of other tasks, such as productive and leisure areas (GARROS; GAGLIARDI; GUZZO, 2010). Considering self-care activities as the main problems in occupational performance, from the needs expressed by the individual, investment of resources in the area of self-care are needed (EDWARDS et al., 2007), since the individual tends to choose tasks related to their survival when asked about their needs in order to become less dependent on other people (GARROS; GAGLIARDI; GUZZO, 2010).

As for the other activities mentioned as a problem, dressing up as a personal care activity in the area of self-care and cleaning the house as a domestic task in the productivity area are also considered important for the elderly. That is checked in another study with elderly people, that also refers difficulties in household chores, highlighting house cleaning, and personal care, especially dressing up (TUNTLAND et al., 2015). Other studies (BECKER; MONTILHA, 2015; CUP et al., 2003; GARROS; GAGLIARDI; GUZZO, 2010), using COPM, also identified problems in occupational performance, mainly in self-care area activities.

In the present study, performance problems in area leisure activities were identified, with emphasis on the practice of other exercise activity, being an active recreation, as the activity the elderly have greater difficulty in carrying out. Considering the importance averages, it is observed that leisure activities are more important, even with difficulties to do them. In addition to the practice of other exercise activity, manual activities were also considered an important quiet recreation, despite the difficulties to achieve them. A study using COPM with 326 elderlies identified that the age over 70 years, cognitive disability and chronic diseases such as asthma, hypertension and diabetes are risk factors for the loss of functional capacity of the elderly, but to doing paid work, leisure activities such as watching television and performing manual activities, and social support as the monthly relationship with friends, can be considered elderly protection factors (D'ORSI; XAVIER; RAMOS, 2011). So, about the importance of leisure activities, such as the activities of socialization, as well as quiet and active recreation for the elderly population, emphasizing the practice of water aerobics also allows integration with other participants of the group, minimizing the problem of social isolation. One of the main forms of participation in group and social visualization of the elderly are cultural and leisure activities, such as: living groups, clubs for "senior citizens" and programs or courses for the "third age" (MOTTA,

1999, p. 219). Besides, as an active lifestyle promotes the maintenance of the functional capacity of the elderly for a longer period and, therefore, maintains the quality of life, is essential “[...] ways of living healthier in all stages of life, promoting the practice of physical activities in daily life and leisure [...]” (ORGANIZAÇÃO..., 2005, p. 3).

Studies with different populations (EDWARDS et al., 2007; GARROS; GAGLIARDI; GUZZO, 2010; NICKEL et al., 2012) also identified problems in productivity and leisure. In the area of productivity, activities like finding or maintaining a paid work, or even voluntary activity, were considered important for the elderly, but it is also an activity-problem, what can be justified by the change in social roles, primarily for retirement. It is known that paid work has a protective effect against the functional incapacity, through social support mechanisms because the interaction with other people (D’ORSI; XAVIER; RAMOS, 2011). Even activities related to leisure are not often mentioned as problems in occupational performance, the leisure area is extremely important because the individual, especially the ones that present some disability, can be inserted in position under the level of other individuals in social competition, requiring a stimulus to rescue or start leisure activities (GARROS; GAGLIARDI; GUZZO, 2010).

In addition to the description of the activities with performance problems, as well as the perceived performance and satisfaction, the present study showed a significant correlation between performance and satisfaction. The significant correlation between the two variables can be justified considering that, as a result in carrying out since there is a result in everyday activities realization, there is also a personal satisfaction in this performance. Thus, it is suggested that the better performance in carrying out the daily activities, a better satisfaction of the elderly, since changes in performance and satisfaction with occupational performance are associated with changes in psychosocial functioning and psychological well-being (PERSSON et al., 2014). Another question concerning satisfaction is that the interview process and score of COPM can have a therapeutic effect, and may promote the awareness and motivation (LANGELAND et al., 2015), thereby improving the perception related to occupational performance satisfaction. On the other hand, the relationship of occupational performance with a low perception of satisfaction can be justified by the loss of motivation to stay active and independent on their own lives, lowering self-esteem (BECKER; MONTILHA, 2015).

Better performance and, consequently, a better satisfaction in performing everyday activities suggest that the effect of an exercise program, which focuses on the improvement of strength, endurance and balance, is significant for individuals and also has a relevant impact on the performance and satisfaction, as well as being related to the improvement of health and quality of life (ENG et al., 2003). It is worth noting the search for the practice of water aerobics also as preventive mode, since there is an indication that, through prevention activities, there is a higher probability of improving the occupational performance and satisfaction (PERSSON et al., 2014).

The performance and satisfaction score of the individual must be measured with the proposal to reevaluate and compare the areas to prove the effectiveness of the treatment (LAW et al., 2009), since a positive aspect of the use of COPM is the possibility to develop individualized programs from the identification of activities-problem and to detect changes in performance and satisfaction after a period of intervention (CARSWELL et al., 2004). However, as there was no reevaluation of performance and satisfaction, it was not possible to identify changes in the perception of the elderly on occupational performance, since COPM presents strong psychometric properties on test-retest, both for the performance and satisfaction score (CARSWELL et al., 2004; LAW et al., 2009). So, we can think the possibility of re-evaluation of performance and satisfaction, as a continuity of this study suggestion by inserting COPM in the evaluation of program interventions, as a result measure, even in water gymnastics practice, with the purpose of establishing goals and priorities for a group and provide information and treatment definitions (MCCOLL et al., 2005).

## 5 Conclusion

The use of COPM allowed to identify the main problems in occupational performance of elderly who practice water aerobics. Even showing a significant result in the correlation of performance with satisfaction, the study has two limitations. First, there was not a proposal to affirm the effectiveness of a method of intervention, but only describe the main performance problems of a senior population who practice water aerobics. Thus, there was a difficulty in finding studies to promote the discussion being possible to present only those with description of problems. Another limitation is the paucity of studies that use COPM with the active elderly population, as well as in clinical practice with the intervention

by means of physical exercise, being impossible to compare the descriptive data of the study with similar investigations because they are not found in the literature.

From the main activities-problem and the perception of the elderly on their performance and satisfaction on everyday activities, there is a possibility of developing individualized intervention programs, or even in groups, in an attempt to check changes in occupational performance with the practice of water aerobics and also with other modalities. The implementation of projects with other proposals for physical exercises are really important, since they are considered relevant activities for the elderly, according to their needs and health conditions. It is known that the practice of physical exercises contributes to active ageing and quality of life in old age, and may also reflect the positive performance of activities in the areas of self-care, as functional mobility and productivity, and household chores.

Thus, the continuity in the study is suggested, in an attempt to conduct a reassessment of the occupational performance and the satisfaction of elderly participants in the study, including consideration of other forms of physical exercise. There is also the need for new research to data comparison, since we did not been found other studies involving the use of COPM with elderly who practice water aerobics.

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### Author's Contributions

Kátine Marchezan Estivalet was responsible for the conception and writing of this study. Sara Teresinha Corazza guided the study. All the authors approved the final version of the text.