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ORIGINAL RESEARCH

Physiotherapeutic approach for urinary incontinence in older adults in primary health care

Abordagem fisioterapêutica da incontinência urinária em idosos na atenção primária em saúde

Enfoque fisioterapéutico de incontinencia urinaria en ancianos en la atención primaria de salud

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ABSTRACT | The aim of this study was to evaluate the benefits of the physiotherapeutic approach to urinary incontinence (UI) in the older population in a health center of Belém (PA). This is a proposal for strengthening pelvic floor muscles (PFM) in ten weekly meetings with progressive activities. Patients of both genders were included, and individuals with cognitive impairment, hemodynamic instability and immobility were excluded, as well as those with less than 50% participation in the meetings. Sociodemographic and clinical data were evaluated and quality of life (QoL) was analyzed through the King's Health Questionnaire (KHQ), which was reapplied at the end of the meetings. The initial sample consisted of ten older adults, aged 70.3±5.01 years, 80% female; 80% of the sample reported previous pelvic surgeries, three reported prolapses, of which two were in the bladder. The KHQ domains with higher scores and consequent worse QoL were the impact of UI (54.1±24.8), health perception (43.7±11.5), and severity measures (31.2±23.8). There was statistical significance in several domains of QoL of the patients undergoing the physiotherapeutic approach, demonstrating that even in a lower level of health care it is possible to have relevant effects on the UI and QoL of this public.

Keywords | Older population; Urinary incontinence; Physical Therapy; Primary Health Care; Quality of life.

RESUMO | O objetivo deste estudo foi avaliar os benefícios da abordagem fisioterapêutica da IU em idosos em uma unidade básica de saúde (UBS) de Belém (PA). Trata-se de uma proposta para treinamento dos músculos do assoalho pélvico (MAP) em 10 encontros semanais com atividades progressivas. Foram incluídos idosos de ambos os sexos, e excluídos os indivíduos com prejuízo cognitivo, instabilidade hemodinâmica e mobilidade impossibilitada, além dos idosos com participação inferior a 50% dos encontros. Foi realizada avaliação por meio de dados sociodemográficos e clínicos, e da QV, por meio do King's Health Questionaire (KHQ), que foi reaplicado ao final dos encontros. A amostra inicial contou com 10 idosos, com idade de 70,3±5,01 anos, sendo 80% do sexo feminino, 80% dos idosos relataram cirurgias pélvicas prévias, prolapsos em 3 idosos, destes, 2 eram de bexiga. Os domínios do KHQ com escores mais altos, e consequente pior QV, foram impacto da IU (54,1±24,8), percepção de saúde (43,7±11,5) e medidas de gravidade (31,2±23,8). Houve significância estatística em vários domínios da QV dos idosos submetidos a abordagem fisioterapêutica, demonstrando que, mesmo em um nível mais baixo de atenção à saúde é possível ter efeitos relevantes sobre a IU e a QV desse público.

Descritores | Idoso; Incontinência Urinária; Fisioterapia; Atenção Primária à Saúde; Qualidade de Vida.

RESUMEN | El objetivo de este estudio fue evaluar los beneficios del enfoque fisioterapéutico de la incontinencia urinaria (IU) en ancianos de una Unidad Básica de Salud (UBS) en Belém (PA, Brasil). Este enfoque consiste en una propuesta de entrenamiento de los músculos del suelo pélvico (MSP)

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durante 10 sesiones semanales con actividades progresivas. Se incluyeron a ancianos de ambos sexos, y se excluyeron a personas con deterioro cognitivo, inestabilidad hemodinámica y movilidad reducida, además de los ancianos con menos del 50% en asistencia a las reuniones. La evaluación se llevó a cabo con datos sociodemográficos y clínicos y de calidad de vida (CV) utilizando King's Health Questionnaire (KHQ), que lo volvieron a aplicar al final de las reuniones. La muestra inicial estuvo formada por 10 ancianos de 70,3±5,01 años; el 80% de ellos eran del sexo femenino y el 80% informaron haber realizado cirugías pélvicas previas, con prolapsos en 3 ancianos; de estos, 2 eran de vejiga. Los dominios KHQ con las puntuaciones más altas y, en consecuencia, la peor calidad de vida fueron el impacto de la IU (54,1±24,8), de la percepción de la salud (43,7±11,5) y de medidas de gravedad (31,2±23,8). Hubo una significación estadística en varios dominios de CV de los ancianos que se sometieron al enfoque fisioterapéutico, lo que demuestra que incluso en un nivel más bajo de asistencia sanitaria es posible generar efectos relevantes sobre la IU y la CV de esta población.
Palabras clave | Anciano; Incontinencia Urinaria; Fisioterapia; Atención Primaria de Salud; Calidad de Vida.

INTRODUCTION

The increase in life expectancy of the older population is an ongoing event in Brazil. Along with this process, there is also a greater occurrence of chronic diseases and the so-called "geriatric syndromes." One of such conditions is urinary incontinence (UI), associated with many causes, which can affect the independence, mobility and quality of life of the older population[1-3].

Defined as the inability to store and retain urine – leading to accidental and involuntary loss –, UI is commonly mistaken for a natural part of aging due to its high occurrence in this population, and is frequently underreported by both patients and health team[1,4].

In 2014, the Portuguese Association of Urology[5] pointed out that 33% of women and 16% of men over the age of 40 have symptoms of this disease. The most common types of UI are urge urinary incontinence (UUI), commonly anticipated by a sudden urge to urinate that is difficult to inhibit; stress urinary incontinence (SUI) caused by sneezing, coughing, or other physical effort situations; and mixed urinary incontinence (MUI), the combination of the two previous forms. There is also functional incontinence (FUI), secondary to factors not related to the urinary tract, such as musculoskeletal, psychological and environmental factors[2].

Although not a potentially lethal condition, UI offers great risks to the quality of life of the older population, leading to social isolation, anxiety and depression, increased risk of falls and fractures (UUI), as well as hospitalizations and admissions in institutions of long stay[2]. Preventive approach and early treatment for UI are thus essential, both possible in primary health care (PHC)[6]. At this level, actions can be developed in relation to UI symptoms, in order to minimize complications and damages to health and functionality[7].

Conservative interventions are the most recommended therapeutic options since they often have cheaper financial cost and low risk of side effects. Strengthening pelvic floor muscles (PFM), assisted by a physiotherapist, is considered one of the best of such treatments[8]. Despite this, in Brazil, this treatment is not usually performed in PHC. There is also lack of data in the scientific literature on the theme[9]. It is therefore necessary to offer educational measures and muscle strengthening to the elderly in the context of PHC. Thus, this study aimed to evaluate the benefits of the physiotherapeutic approach to UI to the aged in a health center in Belém (PA).

METHODOLOGY

This is a prospective longitudinal study with intervention and quantitative approach, conducted in a health center in Belém, which had an approach to UI based on the strengthening of the PFM or perineum in ten weekly meetings of one hour each. Older adults of both sexes who used the health center services were included in the study, and those with cognitive impairment, hemodynamic instability or with lack of mobility were excluded. Participants with less than 50% frequency in the proposed meetings were also excluded from the results.

First, an educational action was carried out on the topic, in which 25 candidates participated; of these, ten expressed willingness to participate in the group. At the first meeting, educational approach and individual assessment were carried out, through a structured interview containing sociodemographic,

clinical and other risk or protective factors for UI, and the King's Health Questionnaire (KHQ), an instrument developed to evaluate the quality of life (QoL) of older adults with UI validated for Brazilian women by Fonseca et al.[10].

From the second to the eighth meetings, static exercises were proposed to strengthen the PFM, covering proprioceptive and respiratory training, initially in the supine position, then going to sedestation (sitting position) and bipedestation (standing position), in order to bring them closer to their daily postures. The participants received a primer with such exercises in order to improve their learning.

At the ninth meeting, dynamic exercises were proposed, simulating daily activities associated with the PFM strengthening (walking with the contraction of the pelvic floor with and without load, climbing and descending stairs, sitting and lifting from a chair) and the contraction in a simulated cough situation. The last meeting was aimed at reassessing the participants with the same instruments used in the first meeting.

After the end of the meetings, the data were tabulated and statistically analyzed using the Biostat software version 5.3. Initially, the data was compared by the Shapiro-Wilk normality test; for the parametric data, the paired Student's t-test was applied. For the categorical data, the G-test was applied, adopting $p \leq 0.05$ as the level of significance. Categorical data were represented by relative frequency (%); parametric data in mean, standard deviation, median, maximum and minimum.

This study followed the ethical principles according to the *Declaration of Helsinki* and resolutions no. 196/96 and no. 510/2016 of the National Health Council; all of the participants signed the informed consent form, and the study was approved by the Ethics Committee for research in human beings under Opinion no. 3,165,816/2019.

RESULTS AND DISCUSSION

The initial sample consisted of ten adults, aged 70.3±5.01 years, 80% female, 40% married, and all retired. Only one participant had *diabetes mellitus* (DM) while six had systemic arterial hypertension (SAH). A total of 30% of the sample used diuretic drugs and consumed alcohol in social occasions, while excessive consumption of coffee was a factor for 40%. Water intake of 2 liters/day was registered for 50% of the participants. All of them practiced physical exercise.

Previous pelvic surgeries were indicated by 80% of the sample; one participant had undergone prostatectomy, and among women tubal ligation, hysterectomy, myomectomy and perineoplasty were also reported. Only two had no previous pregnancies, while the remaining had multiple; mean time of menopause was 22.12±10.09 years. Three participants had prolapses; of these, two were in the bladder.

Pincelia and Moccellinb[11] collected the main factors that may predispose to UI: diabetes, obesity, smoking, menopause, central nervous system diseases, medication use, mobility restriction, multiple vaginal births, fecal impaction, psychological disorders, decreased perineal tone and alcohol use, some of which are reported in this study. In the case of men, Abrams et al.[12] associate prostatectomy with the occurrence of UI, usually functional incontinence, similar to what occurred in one of the subjects of this study.

Among the ten adults, nine presented urinary complaints related to UUI (4), SUI (3), MUI (1) and FUI (1). Two participants were excluded from the results, one due to the absence of urinary complaints and the other due to a low frequency in the meetings.

Silva et al.[13] found a predominance of SUI among women, most of them with multiple previous pregnancies with normal delivery and half of them had undergone episiotomy and hysterectomy. SUI was also predominant in the findings of Henkes et al.[14], who indicated a coexistence of 36 (±34.33) months with UI symptoms before having their medical diagnosis established in the specialized service. This analysis did not include the time of complaint and only one of the participants had performed specific diagnostic examination, which also reflects the UI underdiagnosis.

Among the validated questionnaires, the KHQ showed to be the most used[15], justifying thus our choice. However, this proposal focused also on older men, which may have influenced the results; however, no validated questionnaires were found for men with UI. Although the prevalence of urinary complaints is lower in men compared to women, Carneiro et al.[16] highlight a high prevalence in both sexes and the need for effective assistance in each case.

Regarding the KHQ domains, the highest scores in the initial evaluation, and consequent worse QoL, were UI impact (54.1±24.8), health perception (43.7±11.5) and severity measures (31.2±23.8), which were the

highest scores in the final evaluation, but with lower values: 29.1±11.7, 25±13.3, and 14.5±17, respectively.

Alternatively, Oliveira et al.[17] identified higher scores in the domain of general health perception, with an average of 40 points, followed by sleep/disposition with 37.47 points, impact of incontinence with 36.63 points and physical limitations with 27.48 points.

The initial perception of health ranged from 25 to 50 points (good to regular perception, respectively) (Figure 1). In the final evaluation, only one participant maintained a regular perception and there was also a report of very good perception, with significant repercussions of the proposed approach (p=0.001). The absence of bad health perceptions can be a result of an active lifestyle in old age. However, in a similar study[17], 40% of the participants perceived their health as poor and 60% as regular, even if the older women in the study were part of a coexisting group.

Regarding the impact of UI, initially half of the sample scored above 60 points in this domain, with one of these scoring 100, which means a great impact of UI on the life of this population. The practical approach on the pelvic floor enabled a significant improvement in this domain (p=0.02), so that in the final evaluation, most of the participants reported less UI interference.

A systematic review by Cestári et al.[15] indicates a difference in this interference according to the type of UI, occurring in most women with complaints of MUI and UUI. On the other hand, Fernandes et al.[18] point to SUI as having a greater impact on women's lives and found that QoL is influenced, among other factors, by the years of urine loss, SUI and UUI. This allows us to consider that UI in general causes changes in the various dimensions of a woman's life, which is similar to the findings of this research.

Silva et al.[13] registered that nine out of a sample of 11 women reported that UI hinders their daily activities. In our study, there were reports of UI interference in activities of daily living (ADL) ranging from 0 to 33.3 at the initial evaluation and from 0 to 16.6 at the end, showing significant benefits from the physiotherapeutic proposal (p=0.04) (Table 1).

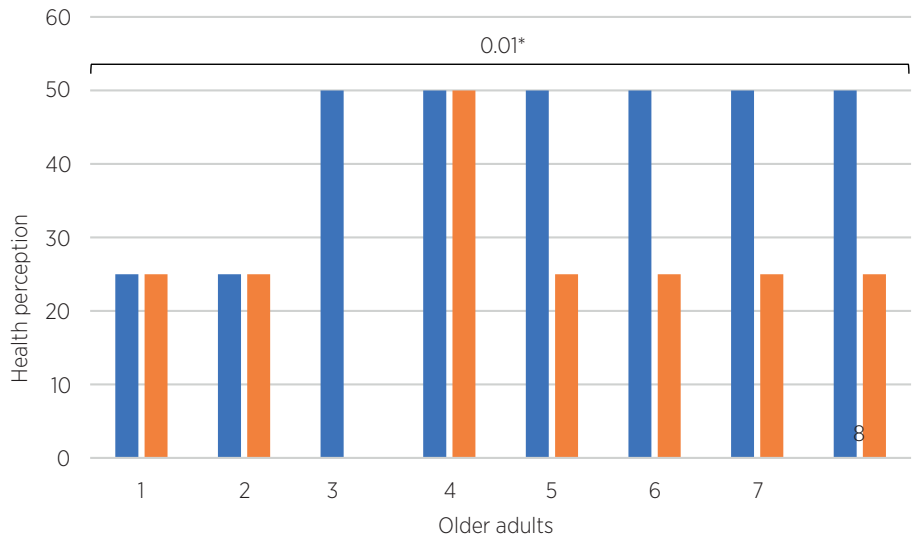

Figure 1. Health perception of the older adults before (blue) and after (orange) participation in a group for physiotherapeutic approach of UI in a Basic Health Unit in Belém (PA), 2018

Table 1. Initial (I) and final (F) scores in the KHQ domains presented by the participants in a group with a physiotherapeutic approach to UI in a health center in Belém (PA), 2018

	OLDER ADULTS																
Variables	1		2		3		4		5		6		7		8		P-value
	I	F	I	F	I	F	I	F	I	F	I	F	I	F	I	F	
FLADL	33.3	16.6	0	0	16.6	16.6	0	0	33.3	16.6	0	0	33.3	0	16.6	0	0.04*
PL	16.6	0	0	0	33.3	0	50	0	0	0	0	0	0	0	16.6	0	0.06
SL	11.1	0	11.1	0	0	0	0	0	22.2	0	0	0	0	0	11.1	0	0.04*
PR	0	0	MV	MV	MV	MV	MV	MV	0	0	MV	MV	MV	MV	0	MV	1.0

(continues)

Table 1. Continuation

Variables	OLDER ADULTS																P-value
	1		2		3		4		5		6		7		8		
	I	F	I	F	I	F	I	F	I	F	I	F	I	F	I	F	
EA	22.2	11.1	33.3	11.1	0	0	0	0	11.1	11.1	0	0	0	0	33.3	0	0.10
SD	0	0	50	16.6	0	0	0	0	33.3	0	33.3	16.6	0	0	66.6	33.3	0.04*
SM	8.33	0	33.3	16.6	8.3	0	50	0	66.6	33.3	0	0	50	41.6	33.3	25	0.02*

MV: missing value; FLADL: Functional limitation in activities of daily living; PL: physical limitation; SL: social limitation; PR: personal relationships; EA: emotional aspects; SD: sleep and disposition; SM: severity measures.

Regarding physical limitations, many of the participants reported no limitation from the beginning of the study, which resulted in no statistical significance (p=0.06); this may have been influenced by the already stablished practice of physical exercise. Despite this, those who reported low or moderate limitation had a zero score in the final evaluation, which allows us to understand that the strengthening of the pelvic floor acted as complement to the physical well-being of participants (Table 1). Several studies with older adults[19-21] indicated an inverse relationship between the practice of physical activities and UI, demonstrating the relationship of the complaint with risk to functionality.

Only half of the sample reported social limitations, going from low in the initial assessment to zero in the final, with a statistically significant difference (p=0.04) (Table 1). This demonstrates the positive interference of the group proposal, which is something ratified by other authors[17] who note moderate influence of UI on QoL and argue about the importance of group activities for socialization.

In personal relationships, the evaluation indicated a score of 0 or "missing value" (MV), that is, a value to be disregarded in the process: no damage in the QoL related to this domain until the end of the meetings, and as such there was no significant difference (p=1.0), corroborating the findings of Oliveira and Garcia[22].

Regarding emotional aspects, there was a reduction or maintenance of the scores between the evaluations, so that the practical approach did not significantly benefit the group, although some effect was acknowledged in the speech of the participants during the collection of the final feedback. In addition, similar to other studies[17], 50% of the participants reported no interference since the initial evaluation, which may also have contributed to statistical non-significance (p=0.1).

Half of the sample denied interference in sleep and disposition due to UI, while the rest reported mild to moderate impairment, among which there was partial or total improvement (p=0.04) (Table 1).

Only one participant refused the severity measures. Faria et al.[23] also reported the adoption of these measures in 90%, demonstrating how much UI affects the lifestyle. In our study, there was a significant reduction in all cases (p=0.02), which demonstrates the significant interference of muscle weakness in the adoption of these measures, as well as the short-term response to the physiotherapeutic approach (Table 1).

These benefits were also evident in the reduction of urinary frequency, SUI and associated complaints (difficulty in urinating) (Table 2), revealing that proprioceptive and strength training helped in the control of urination.

Table 2. Initial (I) and final (F) scores on symptom severity, Part 3 of the KHQ, presented by the participants of a group for the physiotherapeutic approach to UI in a health center in Belém (PA), 2018

Variables	OLDER ADULTS																P-value
	1		2		3		4		5		6		7		8		
	I	F	I	F	I	F	I	F	I	F	I	F	I	F	I	F	
Severity of symptoms																	
Frequency	2	2	1	1	1	0	1	0	3	1	2	1	1	0	1	0	0.006*
Nocturia	3	1	3	1	1	1	0	0	1	1	1	1	1	1	3	1	0.07
Urgency	2	1	0	1	3	1	0	0	3	0	1	0	1	0	0	1	0.17
UUI	1	1	0	0	1	0	0	0	2	0	0	0	1	0	0	0	0.10
SUI	0	0	0	0	0	0	1	0	3	0	1	0	1	0	3	0	0.03*
Nocturnal enuresis	0	0	1	1	0	0	0	0	3	0	0	0	0	0	0	0	0.35
UI during sexual intercourse	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.35

(continues)

Table 2. Continuation

Variables	OLDER ADULTS																P-value
	1		2		3		4		5		6		7		8		
	I	F	I	F	I	F	I	F	I	F	I	F	I	F	I	F	
Frequent urinary infections	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.35
Bladder pain	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0.17
Other complaints	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	0	0.01*

A systematic review carried out by Pereira, Escobar and Driusso[24] shows that, despite the fact that changes in aging leading to UI have structural characteristics, they can be partially circumvented through physiotherapeutic treatment, thus promoting the improvement of urination symptoms in older women. Other similar proposals were also made[8, 25].

There was statistical significance in the QoL domains evaluated by the KHQ of those submitted to the physiotherapeutic approach, demonstrating that even at a lower level of health care it is possible to have effects on UI and QoL related to this problem. Most of the domains in which there was no statistical relevance had low values in the beginning of the evaluation, which supports the argument that this proposal was offered to the participants in the early stages of UI, helping in the control and prevention of UI-related disorders.

Regarding the comparison between the effects of strengthening the pelvic floor applied individually or in groups, a randomized clinical study[26] concluded that the group-based approach is no less effective and presents a higher cost-benefit ratio to the services; in addition, Pereira, Escobar and Driusso[24] point out that it is necessary to continue the exercises, in order to maintain the benefits of strengthening the pelvic floor musculature.

For future research, in order to improve the results, we suggest approaches with a greater amount or frequency of group meetings, as well as an evaluation at a longer time after the approaches; this would be helpful in evaluating long-term effects. Studies that evaluate QoL both quantitatively and qualitatively are also necessary.

As for basic health care service, we recommend the integration of this proposal in the work routine, making health education available for both users and professionals. We further suggest the constant presence of a physiotherapist leading preventive practices such as this one, in order to minimize the occurrence of negligence and severe cases of UI while facing this relevant complaint of the older population.

FINAL CONSIDERATIONS

This study indicated the advantages of an educational and practical approach towards strengthening of the pelvic floor in older adults with urinary complaints related to UI, being the most evident the improvement in health perception and a reduction of the impact of UI in daily life, interference in sleep and disposition, severity complaints, urinary frequency and occurence of complaints associated with SUI. We concluded that different domains of QoL were improved, which highlights the efficiency of UI prevention and management in the initial stages of a disease that is so recurrent in the older population.

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