

PHYSICAL FRAILTY AND CLINICAL CHARACTERISTICS OF ELDERLY PEOPLE SUBMITTED TO PHYSICAL AND MENTAL FITNESS EXAMINATION FOR DRIVING LICENSING

FRAGILIDADE FÍSICA E CARACTERÍSTICAS CLÍNICAS DE IDOSOS SUBMETIDOS AOS EXAMES DE APTIDÃO FÍSICA E MENTAL PARA HABILITAÇÃO VEICULAR

FRAGILIDAD FÍSICA Y CARACTERÍSTICAS CLÍNICAS DE ADULTOS MAYORES OBLIGADOS A REALIZAR LAS PRUEBAS DE APTITUD FÍSICA Y MENTAL PARA OBTENER EL CARNET DE CONDUCIR

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ABSTRACT

Objective: this is a cross-sectional study whose objective was to analyze the association between the condition of physical frailty and clinical characteristics of elderly people undergoing physical and mental fitness examination for driving licensing of motor vehicles. **Method:** the study was carried out in 11 clinics specialized in traffic, from August 2015 to March 2017. The sample consisted of 347 elderly (≥ 60 years old). Of these, 1.5% elderly were considered frail, 46.8% pre-frail, and 51.7% non-frail. Regarding clinical characteristics, 67.4% had a disease, 66.6% used medication(s), 4.9% made use of five or more medicines, 21.6% drank alcohol, 9.8% used tobacco, 9.2% had suffered falls, and 9.8% had been hospitalized. **Results:** there was no significant association between the clinical characteristics and the condition of physical frailty in the elderly. Pre-frailty presented a high percentage, which reinforces the need to track physical frailty in elderly people in clinics specialized in traffic. **Conclusion:** the study is unprecedented in the area of Nursing and the results provide subsidies for further studies aimed at a safer traffic.

Keywords: Aged; Frail Elderly; Automobile Driving; Automobile Driver Examination; Chronic Disease; Population Characteristics.

RESUMO

Objetivo: trata-se de estudo transversal cujo objetivo foi analisar a associação entre a condição de fragilidade física e as características clínicas dos idosos submetidos aos exames de aptidão física e mental para conduzir veículos automotores. **Método:** o estudo foi realizado em 11 clínicas de trânsito no período de agosto de 2015 a março de 2017. A amostra foi constituída por 347 idosos (≥ 60 anos). Destes, 1,5% foi considerado frágil, 46,8% pré-frágeis e 51,7% não frágeis. Quanto às características clínicas 67,4% possuem alguma doença, 66,6% utilizam medicamento(s), 4,9% usam cinco ou mais medicamentos, 21,6% ingerem bebidas alcoólicas, 9,8% fazem uso de tabaco, 9,2% sofreram queda(s) e 9,8% foram hospitalizados. **Resultados:** não houve associação significativa entre as características clínicas e a condição de fragilidade física dos idosos. A condição de pré-fragilidade apresentou alto percentual, o que reforça a necessidade do rastreamento da fragilidade física em idosos nas clínicas de trânsito. **Conclusão:** o estudo é inédito na área da Enfermagem e os resultados fornecem subsídios para outros estudos que objetivam um trânsito mais seguro.

Palavras-chave: Idoso; Idoso Fragilizado; Condução de Veículo; Exame para Habilitação de Motoristas; Doença Crônica; Características da População.

RESUMEN

Objetivo: estudio transversal con el objetivo de analizar la asociación entre la condición de fragilidad física y las características clínicas de las personas mayores obligadas a realizar las pruebas de aptitud física y mental para conducir vehículos automotores. **Método:** el estudio fue realizado en 11 clínicas de tránsito entre agosto de 2015 y marzo de 2017. **Resultados y discusión:** la muestra estaba compuesta de 347 adultos mayores (≥ 60 años).

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El 1,5% era considerado frágil, 46,8% pre-frágil y un 51,7% no frágil. Sobre las características clínicas 67,4% tenía alguna enfermedad, 66,6% usaba alguna medicación, 4,9% usaba cinco o más medicamentos, 21,6% ingería bebidas alcohólicas, 9,8% fumaba, 9,2% había tenido alguna caída (s) y 9,8% había estado hospitalizado. No hubo asociación significativa entre las características clínicas y la condición de fragilidad física de las personas mayores. La condición de pre-fragilidad obtuvo un porcentaje alto, lo cual refuerza la necesidad de rastrear la fragilidad física de los adultos mayores en las clínicas de tránsito. **Conclusión:** el estudio es inédito en el campo de la enfermería y los resultados suministran datos para otros estudios que buscan un tránsito más seguro.

Palabras clave: Anciano; Anciano Frágil; Conducción de Automóvil; Examen de Aptitud para la Conducción de Vehículos; Enfermedad Crónica; Características de la Población.

INTRODUCTION

There has been an increase in the number of elderly drivers in Brazil that is directly proportional to the growth of this segment of the population. In the year 2016, there were more than 5 million drivers qualified in the state of Paraná, of which 65.4% were men and 34.6% were women. Of these, 1,326,018 were aged ≥ 55 years; this corresponds to 24.1% of the total drivers of vehicles in the state. This percentage of active elderly drivers is expected to show an increasing trend in the coming years.¹

The act of driving a motor vehicle can be considered a complex action that depends on the proper functioning of some factors, such as vision, cognition and mobility. The gradual impairment of these functions brought by the aging process can lead to a lower performance in driving.² The human body is exposed to morphological, functional, biochemical and psychological changes. The ability to adapt to these changes decreases over the years and this favors the appearance of pathological conditions that affect the functional performance of the individual. Consequently, elderly people become more exposed and vulnerable to internal and external factors that predispose to the risk of morbidity and mortality.³

Elderly candidates to the Driving License (CNH) in Brazil who undergo physical and mental fitness examination have to do the same evaluation tests of other age groups. The only difference is the renewal time, which is every three years for elderly people aged ≥ 65 years. The absence of specificities in the evaluation for the elderly can have disastrous consequences when it leads to unsafe driving and exposure to risk of traffic accidents.

Geriatrics and Gerontology researchers have dedicated efforts to propose, develop and implement preventive interventions against conditions that determine/lead the elderly to incapacitating situations.⁴ In this context, physical frailty has been recognized as one of these conditions, because of its interference in the deregulation of various body systems and increase of vulnerability to adverse events.⁵

Physical frailty is a reversible medical syndrome with multiple causes, resulting in impaired strength, resistance, and physiological functions, increasing the risk of dependence and/or death.^{6,7} Frailty interacts with clinical characteristics and chronic conditions, increasing the risk of incapacities for activities of daily living, such as driving.⁴

The ability of driving has implications on the independence of the elderly. Gerontological Nursing should intervene so as to promote the maintenance of the ability of safe driving in the elderly. This is a new field of action aimed at favoring the application of more an appropriate screening to elderly candidates. The insertion of Nursing of traffic facilitates the implementation and/or referral to programs of management of physical frailty directed to frail and pre-frail elderly.

A significant gap in studies about physical frailty of elderly people and driving can be observed in the national scientific literature, which reinforces the novelty of this theme in the area of Gerontological Nursing. Therefore, results showing scientific evidence to support specific recommendations for elderly people in the context of driving are expected in this study.

The objective of the present study was to identify the association between the condition of physical frailty and the clinical characteristics of elderly people who undergo fitness tests for driving motor vehicles.

METHODOLOGY

This is a quantitative cross-sectional study conducted in 11 clinics specialized in traffic, located in different neighborhoods in the city of Curitiba. These clinics are accredited by the traffic agency of the state of Paraná to perform the physical and mental fitness tests for driving.

The target population of the study was elderly individuals aged ≥ 60 years who were scheduled to consultations in the clinics for physical and mental fitness tests, candidates for first and/or renewal of the driving license.

The following inclusion criteria were established in the study: being ≥ 60 years old; being scheduled for consultation for driving fitness tests in one of the clinics accredited by the *Departamento de Trânsito do Paraná* (Detran-PR). As for the exclusion criteria, the following were established: presenting low cognitive level evaluated through the *Mini Exame do Estado Mental* (MEEM); presenting momentary physical limitations that would prevent the performance of the tests.⁸

The distribution and scheduling of the elderly to perform the evaluation in the accredited clinics are made by the *Departamento de Trânsito do Paraná* (Detran-PR), with an impartial distribution of physical and mental fitness tests and psychological evaluation, based on a mandatory and impersonal equitable division that follows criteria regarding geographical dis-

tribution, according to the limits of the circumscribed area to which the clinic is accredited.

At the time of designing the project, there were 54 clinics specialized in traffic registered and accredited by the *Departamento de Trânsito do Paraná* (Detran-PR). A simple random draw was made to select the clinics. All the clinics had the same chances of being selected. After the draw, the clinics were classified with letters and increasing numbers, from C1 to C54. Based on this sequence, the clinics were evaluated using the inclusion and exclusion criteria. The following inclusion criteria were used to select the clinics: to be accredited to perform physical and mental fitness tests and/or psychological evaluation. The exclusion criterion was absence of adequate physical space to carry out the tests.

The scheduling of the elderly to perform the physical and mental fitness tests in the clinics was made by the system of the *Departamento de Trânsito do Paraná*. The system makes a fair, random, and unbiased distribution of the elderly in the clinics. Based on this distribution, the number of 35 elderly people per clinic was established in order to guarantee the homogeneity of the data and to reduce bias of the study. When 35 elderly people had accepted to participate in the study, data collection in the next clinic selected would be started, until the sample period stipulated for the study was completed (August 2015 to March 2016).

Of the 419 elderly people invited to share in the study, 43 did not agree to participate and 29 were excluded because they presented low cognitive performance assessed by the MEEM⁹. Thus, the final sample was composed of 347 elderly participants.

Cognitive screening was made through the version of the MEEM proposed by a study based on the Brazilian population and the cutoff points took into consideration the level of education.⁹

The psychometric values of the MEEM found for elderly people attended in a general outpatient clinic identified the sensitivity value of 80.8%, specificity of 65.3%, positive and negative predictive values of 44.7% and 90.7%, and area under the ROC curve of 0.807 (cut-off point 23/24). The best cut-off point for illiterate individuals was 18/19 (sensitivity = 73.5%, specificity = 73.9%), and for literate was 24/25 (sensitivity = 75%, specificity = 69.7%).¹⁰

A clinical questionnaire was prepared with semi-structured questions addressing the following variables of interest: diseases; episode(s) of falls in the last year; episode(s) of dizziness, fainting or vertigo in the last year; consumption of alcoholic beverage; use of tobacco; use of medicines; use of assistive technologies; and hospitalization in the last 12 months.

The phenotype proposed by Fried *et al.*,⁷ was used to evaluate physical frailty, which establishes five markers: hand grip strength, gait speed, unintentional weight loss, fatigue/exhaustion, and physical activity. Hand grip strength was measured with a Jamar[®] hydraulic dynamometer. After adjusting for gen-

der and body mass index, frail elderly participants for this component were considered those who were in the lowest quintile.⁷

To evaluate the gait speed component, the participant traveled a 4.6-meter straight course with usual steps. Time was measured in seconds. After adjusting for sex and height, those whose values were in the lower quintile were considered frail for this component.⁷

Unintentional weight loss was assessed through two questions: Have you lost weight in the last 12 months? If so, how many kilograms? To be considered frail for this component, the elderly should have unintentionally lost weight ≥ 4.5 kg in the past 12 months.⁷

The frequency of the fatigue/exhaustion component was identified through the items 7 and 20 of the Center for Epidemiological Studies - Depression (CES-D) Scale. Responses were categorized from zero to three, according to frequency. Responses two and three to these questions categorized the participants as frail for this component.⁷

The investigation of the level of physical activity was performed by applying the Minnesota Leisure Activity Questionnaire. The questionnaire was translated and transculturally adapted into Brazilian Portuguese and involved people aged 60 or older living in the community.¹¹

After adjusting for sex, the participants with values in the lowest quintile were considered frail for this component.⁷

Based on these five markers, elderly people with three or more of these components were considered frail; those who presented one or two criteria were classified as pre-frail; and those who did not have any of the components were considered non-frail.⁷

The data were organized in the Excel[®] 2007 software and analyzed in the Statistical Package for the Social Sciences (SPSS) software version 21.0. Data were inserted by double typing and then verified by a third person. Descriptive statistics and non-parametric test of association between variables (chi-square) were performed, considering values of $p \leq 0.05$ as statistically significant.

This research is part of the thematic project "Frailty in the elderly and driving licensing", which was evaluated by the *Comitê de Ética em Pesquisa* (CEP) under registration CAAE 34689914.8.0000.0102 and received favorable Opinion n^o 833460. Ethical principles of voluntary and consensual participation of each study participant were respected, with signing of the *Termo de Consentimento Livre e Esclarecido* (TCLE), according to recommendations in the Resolution 466 of the *Conselho Nacional de Saúde* (CNS), December 12, 2012.¹²

RESULTS

Of the 347 participants, four (1.5%) were considered frail, 163 (46.8%) pre-frail and 180 (51.7%) non-frail. There was a predominance of people of the male sex (71.5%, $n = 248$), aged 60-

64 years (41.2%, n = 143), white skinned (84.4%, n = 293), married (70%, n = 243), living with spouses (39.5%, n = 137), who have completed higher education (32.6%, n = 113), with income between 1.1 and three minimum wages (31.4%, n = 109), retirees (72%, n = 250), and employed (54.8%, n = 190).

The characterization of the sample according to the clinical variables chosen for the study is presented in Table 1.

Table 1 – Characterization of elderly participants who composed the sample according to clinical variables, Curitiba – PR, 2017

Clinical variables	Categories	n	%
Diseases	Yes	234	67.4
	No	113	32.6
Use of medicines	Yes	231	66.6
	No	116	33.4
Polypharmacy	Yes	17	4.9
	No	330	95.1
Falls*	Yes	32	9.2
	No	315	90.8
Dizziness, fainting and/or vertigo *	Yes	10	2.9
	No	337	97.1
Consumption of alcoholic beverage	Yes	75	21.6
	No	272	78.4
Use of tobacco	Yes	34	9.8
	No	313	90.2
Use of assistive technologies	Yes	3	0.9
	No	344	99.1
Hospitalization*	Yes	34	9.8
	No	313	90.2

Note: *episode within the last 12 months.

More than half of the elderly had at least one chronic illness and used medication. The use of polypharmacy (five or more drugs), episode of falls, and hospitalization in the last 12 months were not associated with the condition of physical frailty. Most participants did not consume alcohol and tobacco. There was a low prevalence of use of assisted technologies.

Table 2 shows the association between clinical characteristics and the condition of physical frailty of elderly people submitted to the tests for driving licensing of automotive vehicles.

The clinical characteristics of the elderly did not show significant statistical associations with physical frailty (Table 2).

DISCUSSION

There was a predominance of the non-frail condition among the 347 elderly participants, followed by the pre-frail and frail condition. The percentages of the three conditions di-

verged from that found in other studies.¹³⁻¹⁴ This difference is explained, in part, by the scenario in which the studies were developed, most of which was carried out in the primary health care context, showing a predominance of pre-frail and frail elderly. Such a profile does not correspond to the conditions of elderly people in clinics specialized in traffic, who are active and active in the job market.

Table 2 - Association between clinical characteristics and the condition of physical frailty in the elderly, Curitiba – PR, 2017

Clinic variables	Categories	Frailty conditions		Total n (%)	p-value**
		Frail (*)	Non-frail		
Diseases	Yes	116 (33.4)	118 (34)	234 (67.4)	0.438
	No	51 (14.7)	62 (17.9)	113 (32.6)	
Use of medicines	Yes	112 (32.3)	119 (34.3)	231 (66.6)	0.851
	No	55 (15.8)	61 (17.6)	116 (33.4)	
Polypharmacy	Yes	10 (2.9)	7 (2)	17 (4.9)	0.376
	No	102 (29.4)	112 (32.3)	214 (61.7)	
Falls	Yes	17 (4.9)	15 (4.3)	32 (9.2)	0.553
	No	150 (43.2)	165 (47.5)	315 (90.8)	
Dizziness, fainting and/or vertigo	Yes	7 (2)	3 (0.9)	10 (2.9)	0.160
	No	160 (46.1)	177 (51)	337 (97.1)	
Consumption of alcoholic beverage	Yes	34 (9.8)	41 (11.8)	75 (21.6)	0.584
	No	133 (38.3)	139 (40)	272 (78.4)	
Use of tobacco	Yes	19 (5.5)	15 (4.3)	34 (9.8)	0.341
	No	148 (42.6)	165 (47.6)	313 (90.2)	
Use of assistive technologies	Yes	2 (0.6)	1 (0.3)	3 (0.9)	0.519
	No	165 (47.5)	179 (51.6)	344 (99.1)	
Hospitalization	Yes	13 (3.7)	21 (6.1)	34 (9.8)	0.224
	No	154 (44.4)	159 (45.8)	313 (90.2)	

(*) included frail and pre-frail elderly; (**) Chi-square test, significant for $p \leq 0.05$.

In an investigation of the syndrome of physical frailty and sociodemographic and clinical characteristics of 203 elderly us-

ers of the primary health care in Curitiba (Brazil), the results showed 24.1% of non-frail elderly; 56.7% pre-frail elderly; and 19.2% frail elderly.¹³ A similar study was carried out to determine the prevalence and risk factors for frailty in elderly people in the states of Johor, Perak, Selangor and Kelantan (Malaysia). The sample consisted of 473 individuals (≥ 60 years), of which 29.4% were non-frail; 61.7% pre-frail; and 8.9% frail.¹⁴

Regarding health problems, most of the elderly reported having one or more diseases. However, there was no significant statistical association with physical frailty. Most of the studies¹⁵⁻¹⁶ found a relation mainly between frailty and multimorbidities. A cross-sectional study carried out in Singapore investigated the prevalence of frailty and its association with sociodemographic, clinical and social characteristics in 2,102 elderly people in the community. An association between the condition of frailty and hypertension was observed ($p = 0.001$), stroke ($p < 0.001$), diabetes mellitus ($p < 0.001$), arthritis ($p < 0.001$), and transient ischemic attack ($p = 0.006$).¹⁵

Another study investigated the prevalence of pre-frailty, frailty and multimorbidity in independent elderly in a representative sample of the national population in France. Samples of the *Enquête Santé et Protection Sociale* (ESPS, $n = 4,328$) and *Enquête Handicap Santé-Ménages* (HSM, $n = 12,295$) were included. The study found a percentage between 11.1% and 12.3% of frail elderly, and 14.9% and 16.8% elderly with multimorbidities. Of the individuals with multimorbidities, 75.9% to 80.6% were frail or pre-frail.¹⁶

The absence of association between diseases and frailty observed in the present study can be explained by the low percentage of frail elderly. On the other hand, the absence of the condition of frailty reduced the probability of the development of diseases, mainly the chronic ones, besides attenuating the repercussions of these diseases on functional condition and health. Moreover, the presence of diseases was a variable obtained through self-report, and suppression or omission of information was possible, influencing the results of the tests for driving licensing.

The majority of the elderly used medicines (66.6%). Of these, only 4.9% used polypharmacy - five or more drugs. A cross-sectional study conducted in the United States investigated the occurrence of traffic collisions associated with the use of long-term medication. A total of 611 elderly drivers (≥ 65 years) participated in the study; 54.4% ($n = 314$) of these patients had between one and three comorbidities and 13.4% ($n = 82$) used analgesics. The authors identified that use of long-term medication associated with the ingestion of a particular analgesic was the cause of most collisions involving elderly drivers (OR = 11.41).¹⁷

There was no association between the condition of physical frailty and the use of medications. This result can be at-

tributed to the low percentage of frail elderly identified in this study. A cohort study carried out in *Albacete* (Spain) to analyze the effects of polypharmacy associated with frailty in the elderly with 773 subjects aged ≥ 60 years found that 15.3% ($n = 118$) were frail and made use of polypharmacy; and only 3.4% ($n = 26$) were frail who made no use of polypharmacy in the initial evaluation. Frail elderly patients using polypharmacy presented high risk of mortality (OR 5.3, 95% CI 2.3-12.5) and hospitalization (OR 2.3, 95% CI 1.2-4.4) in comparison to non-frail elderly who made no use of polypharmacy.¹⁸

The occurrence of falls in the last year was reported by 9.2% of the interviewed elderly. This value is lower than that found in other studies, such as a study in *Jequié* (BA), Brazil, conducted with community elders which aimed to identify frailty and its associated factors in 139 individuals over 60 years old. Falls were reported by 27.5% of the participants, and 57.9% of the falls occurred in the elderly people categorized as pre-frail. Some frequent characteristics of the aging process are factors that contribute to the events of falls in the elderly, including loss of visual acuity, postural imbalance, mobility problems, and frailty syndrome that progresses to sarcopenia.¹⁹

Driving requires a set of cognitive abilities that have interface with the mechanisms of balance and gait. Impairments in cognitive domains such as executive functions and gait speed increase the risk of falls.²⁰ The low percentage of frail elderly people found in the present study may have influenced the low number of elderly people who had fallen in the last years.

Among study participants, 21.6% reported using alcohol. Although the percentage of elderly people who drive after alcoholic beverages has not been evaluated, it is known that this relationship is risky. A study evaluating alcoholic beverage intake and driving in 631 elderly people (mean age 68 years) showed that 24% of the participants used to drive after consuming alcoholic beverages. The mixing of alcohol and driving is reckless at any age, but the use of medications and changes in the different body systems used to drive make this activity even more risky in the elderly.²¹

A total of 9.8% of the elderly in the present study said to be smokers. In England, a multicentre cohort study followed 2542 elderly people aged ≥ 60 years for four years to investigate the effect of smoking on the risk of developing frailty. A prevalence of 10.27% of smokers was observed, of which 57.5% were pre-frail and 42.5% were non-frail. In the univariate regression model, smoking increased the risk of developing frailty along the follow-up time by approximately 50% (OR: 1.56, 95% CI: 1.06-2.29, $p = 0.02$) when compared to non-smokers.²²

Although the mechanisms are still not well understood, smoking is known to predict frailty in the elderly. The negative effects of smoking on multiple systems may be possibly one of the factors responsible for the negative relationship between

smoking and frailty.²³ The low percentage of frail elderly in the present study was decisive for the outcome of no association between frailty and smoking.

The use of assistive technologies was observed in a low percentage of elderly participants (0.9%). This result differs from that observed in other studies with community elders. In England, a multicenter national study developed with 5,450 individuals aged 60 years and over aimed to examine the prevalence of frailty and disability in elderly community dwellers. The researchers identified the use of assistive technologies for walking in 63% of the frail and 20% of the non-frail elderly.²⁴

Assistive technologies are indicated to aid individuals to carry out functional tasks of daily living.²⁵ The low prevalence of the use of assistive devices among elderly people investigated here can be justified by the existing legislation that establishes that physically disabled individuals have to be forwarded to a special medical committee at the headquarters of the department of transportation.⁸

Hospitalization in the last year was reported by 9.8% of the participants. One of the most common negative outcomes of the frailty syndrome is hospitalization.²⁶ A study was conducted with a sample of 360 elderly (≥ 65 years old) living in the community of *Montes Claros (MG, Brasil)* to know the prevalence of frailty and the associated factors. The authors detected an association between the condition of frailty and hospitalization in the last 12 months ($p = 0.00$) and attributed this result to the accumulation of harmful effects caused by chronic diseases.²⁷

In the present study, there was no association between the condition of physical frailty and hospitalization. This is different from a research carried out in Turkey, which evaluated the characteristics, prevalence and factors related to the frailty among elderly people. A total of 1,126 community-dwelling elderly people aged 65 years participated in the study. Of these, 17.5% were categorized as non-frail, 43.3% as pre-frail, and 39.2% as frail. There was an association between the condition of physical frailty and the use of four or more medications, smoking, number of diseases, poor visual and auditory acuity, and hospitalization in the last year ($p < 0.05$). These results were probably motivated by the characteristics of the elderly investigated. The study analyzed sedentary individuals with a higher prevalence of comorbidities and polypharmacy in an outpatient hospital service.²⁸

It is important to evaluate the physical frailty of elderly people in clinics specialized in traffic. The insertion of Nursing in this new field of action may contribute to the implementation of intervention programs directed to pre-frail and frail elderly people. The Nursing care plan should be integrated with the multiprofessional team, based on aerobic and resistance physical exercises, caloric and protein support, use of vitamin D, and reduction of polypharmacy.⁶ Consider the management

of physical frailty as a relevant dimension to driving contributes to a safer traffic for all.

The self-report of information by the participants with respect to the items of the instruments for evaluation of fatigue and exhaustion markers, unintentional weight loss, and questions on the use of alcoholic beverages, diseases and medications, is indicated as a limitation of the study. As the intention is to receive the CNH, some elderly people omit information about these aspects, especially those that can influence the final result of the physical fitness examination.

CONCLUSION

There was no statistical association between the condition of physical frailty and the following variables: diseases, episodes of falls in the last year, episodes of dizziness, fainting or vertigo in the last year, alcohol consumption, use of tobacco, use of medicines, use of assistive technologies, and hospitalization in the last 12 months. This result may have been influenced by three main reasons: the low percentage of frail elderly in the sample, the use of self-report questions, and the possible omission of information on some aspects, especially those that may influence the final result of the physical and mental examination.

The high percentage of pre-frail elderly people is worrying, because the real impact of the evolution of this condition on fitness for driving a car is not known. The absence of the assessment of physical frailty in elderly drivers may lead to lack of safety in the traffic, and may expose the elderly and the community to greater risk of traffic accidents.

The evaluation of physical frailty of elderly people in the clinics specialized in traffic is recommended. It is hoped to contribute not only to a safer traffic, but also to the adequate referral of elderly people in the condition of pre-frailty for management of care and treatment, since the management of physical fragility assists in the reversion of such condition.

The present study is unprecedented in the area of Nursing and the results provide subsidies for other studies aimed at safer traffic.

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