

## Risk of violence, self-reported diseases and frailty in hospitalized older adults

Risco de violência, doenças autorreferidas e fragilidade em pessoas idosas hospitalizadas  
 Riesgo de violencia, enfermedades autodeclaradas y fragilidad en adultos mayores hospitalizados

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## Abstract

**Objective:** To analyze the relationship between the risk of violence and self-reported illnesses and the frailty syndrome in older adults treated at hospitals.

**Methods:** This is a cross-sectional, multicenter study, carried out with 323 older adults in two university hospitals in Paraíba. The Hwalek-Sengstock Elder Abuse Screening Test instruments, a self-reported illness questionnaire and the Edmonton Frail Scale were used. Data were analyzed using descriptive and inferential statistics, using the chi-square test and Multiple Logistic Regression.

**Results:** The risk of violence was associated in older adults with depression ( $p=0.001$ ), arthritis or rheumatism ( $p<0.001$ ), osteoporosis ( $p<0.001$ ), frailty syndrome ( $p<0.001$ ). Furthermore, those with arthritis and frailty syndrome had, respectively, 2.37 [CI= 1.43-3.91] and 3.07 [CI=1.88-4.92] greater probability of being at risk of violence.

**Conclusion:** Older adults with chronic diseases and frailty syndrome are more susceptible to the risk of violence. Thus, the discussion on the subject during the training of future nurses becomes essential with regard to gerontological nursing care in the face of this phenomenon.

## Resumo

**Objetivo:** Analisar a relação do risco de violência com doenças autorreferidas e síndrome da fragilidade em pessoas idosas atendidas em instituições hospitalares.

**Métodos:** Estudo transversal, multicêntrico, realizado com 323 pessoas idosas em dois hospitais universitários da Paraíba. Foram utilizados os instrumentos *Hwalek-Sengstock Elder Abuse Screening Test*, um questionário de doença autorreferida e o *Edmonton Frail Scale*. Os dados foram analisados mediante estatística descritiva e inferencial, utilizando o teste Qui-quadrado e Regressão Logística Múltipla.

**Resultados:** O risco de violência foi associado em pessoas idosas com depressão ( $p=0,001$ ), artrite ou reumatismo ( $p<0,001$ ), osteoporose ( $p<0,001$ ), síndrome da fragilidade ( $p<0,001$ ). Ademais, aqueles com artrite e síndrome da fragilidade apresentaram, respectivamente, 2,37 [IC= 1,43-3,91] e 3,07 [IC=1,88-4,92] maior probabilidade de sofrerem risco de violência.

**Conclusão:** Pessoas idosas com doenças crônicas e síndrome da fragilidade estão mais susceptíveis ao risco de violência. Assim, a discussão sobre a temática durante a formação de futuros enfermeiros se faz essencial no que tange os cuidados de enfermagem gerontológicos frente a esse fenômeno.

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Conflicts of interest: nothing to declare.

## Resumen

**Objetivo:** Analizar la relación entre el riesgo de violencia con enfermedades autodeclaradas y el síndrome de fragilidad en adultos mayores atendidos en instituciones hospitalarias.

**Métodos:** Estudio transversal, multicéntrico, realizado con 323 adultos mayores en dos hospitales universitarios del estado de Paraíba. Se utilizaron los instrumentos *Hwalek-Sengstock Elder Abuse Screening Test*, un cuestionario sobre enfermedades autodeclaradas, y el *Edmonton Frail Scale*. Los datos se analizaron a través de estadística descriptiva e inferencial, utilizando la prueba  $\chi^2$  de Pearson y Regresión Logística Múltiple.

**Resultados:** El riesgo de violencia en adultos mayores estuvo asociado con depresión ( $p=0,001$ ), artritis o reumatismo ( $p<0,001$ ), osteoporosis ( $p<0,001$ ), síndrome de fragilidad ( $p<0,001$ ). Además, los que tienen artritis y síndrome de fragilidad presentaron, respectivamente, 2,37 [IC= 1,43-3,91] y 3,07 [IC=1,88-4,92] más probabilidades de sufrir riesgo de violencia.

**Conclusión:** Adultos mayores con enfermedades crónicas y síndrome de fragilidad están más susceptibles a riesgo de violencia. De esa forma, la discusión sobre la temática durante la formación de futuros enfermeros es esencial en lo que se refiere a los cuidados de enfermería gerontológicos ante ese fenómeno.

## Introduction

The Brazilian population's rapid aging process has led to several relevant, reflective and adaptive implications for older adults and society related to demographic transition and its challenges. Aging should not be considered a problem, but a point of attention for discussions related to the management of this phenomenon.<sup>(1)</sup>

According to data made available from a projection by the Brazilian Institute of Geography and Statistics (IBGE - *Instituto Brasileiro de Geografia e Estatística*), older Brazilian adults make up around 10.49% of the country's total population in 2022, and could reach 25% of this by 2060. Life expectancy has been increasing over the years, which provides inversion in the Brazilian age pyramid. In 2022, total life expectancy between genders is 76.74 years, and could reach 81.04 years by 2060.<sup>(2)</sup>

With aging gradually growing in society, there is a large increase in the risk of older adults becoming victims or suffering violence itself, topic that needs to be increasingly addressed and discussed for the well-being of this population segment. Therefore, elder abuse is defined, according to the World Health Organization (WHO), as "a single, or repeated act, or lack of appropriate action, occurring within any relationship where there is an expectation of trust which causes harm or distress to an older person".<sup>(3)</sup> Still according to the WHO, violence can happen in different ways, whether physical, psychological/emotional, sexual, financial or negligence, whether intentional or unintentional.

With the decrease in physical and cognitive functionalities that may be present in the lives of

older adults, as well as interrelational conflicts and the increase in social illnesses due to aging, a greater risk of violence can be provided, with negligence and abandonment being the main forms, characterized by failure, intentional or not, by the bearer designated in the responsibilities regarding older adults' physical and mental health needs.<sup>(4)</sup>

Furthermore, when the presence of chronic pathologies is associated with this phenomenon, the greater the degree of frailty syndrome and the incidence of other morbidities, with a tendency to hospitalizations and omission of care in the care and guarantee of older adults' basic needs.<sup>(4)</sup>

In this context, chronic noncommunicable diseases (NCDs) are among the main causes of hospitalization. According to a study carried out in a hospital in Ceará, the main reasons for hospitalization in older adults are related to stroke, kidney failure, pneumonia and cancer.<sup>(5)</sup> In a hospital in Piauí, hospitalizations related to the surgical center and hemodynamic sectors were found as the main ones, with cardio/brain/vascular pathologies (including acute myocardial infarction, stroke, systemic arterial hypertension, aneurysms, among others), diabetes mellitus, chronic obstructive pulmonary disease (COPD) and cancer being the most recurrent.<sup>(6)</sup>

Concomitant or inherent to the presence of chronic diseases, there is the frailty syndrome, a clinical condition that increases with age and results in the decline of individuals' physiological reserves, which leads to a reduction in the efficiency of homeostasis and difficulty in performing activities of living daily life, making older adults more debilitated and vulnerable. It mostly affects people over 85 years of age, with aggravations of existing pathologies and

outcomes such as increased length of hospital stay and complications in this environment, readmissions and a high risk of mortality for this public.<sup>(7)</sup>

In the United States, there are approximately 450,000 new cases of violence against people aged 65 and over each year. These numbers are worrying considering that, for every case counted, five are not reported. In Latin America, Brazil ranks second among the countries that report the most violence, with around 102,000 cases per year, of which approximately 37% are in older adults.<sup>(4)</sup>

The above reinforces the need for trained and informed health professionals to take the necessary measures and provide higher quality care for older adults.<sup>(8)</sup> As nursing is the science that provides health care to this population, it is essential that there be responsibility, focus and attention in providing completeness to older adults through health care, carrying out prevention and appropriate interventions in each situation.<sup>(9)</sup>

In this context, forensic nursing stands out as one of the sciences that takes a stand against the prevention of different types of elder abuse, as well as in professionals' education regarding the detection of signs of violence and the promotion of a better quality of life for this part of the population, since caring for older adults is an incomparable responsibility of nurses at all levels of complexity.<sup>(9)</sup>

Considering the specific needs that older adults request in relation to changes in health and care paradigms in assisting older adults, as well as in risk and violence conditions, data and parameters are needed to identify the main obstacles to this process, as well as directing professionals towards quality care, based on evidence and equitable, favoring interaction, identification and problem-solving.

In the meantime, this article aims to analyze the relationship between the risk of violence and self-reported diseases and the frailty syndrome in older adults treated at hospitals.

## Methods

This is a multicenter study, with a quantitative approach and cross-sectional, developed in two uni-

versity hospitals in the state of Paraíba: *Hospital Universitário Lauro Wanderley* (HULW/UFPB) and *Hospital Universitário Alcides Carneiro* (HUAC/UFCG), from June 2019 to February 2020.

At HULW/UFPB, the collection sectors were medical clinic, surgical clinic, contagious and parasitic infectious disease unit and geriatric and psychogeriatrics outpatient clinics. At the HUAC/UFCG, the collection was conducted in wards A surgical, B pulmonology and C and D of the female and male medical clinic. These sectors were chosen because they usually have a higher prevalence of older adults in care compared to other sectors of the hospital.

This research included individuals aged 60 years or older who were receiving hospital care in the aforementioned sectors, excluding those who were in the terminal stage, with severe communication difficulties, clinical conditions that prevented participation or severe cognitive impairment. Cognitive impairment was assessed through information provided by professionals in the sector and observation by the researcher, according to the knowledge acquired in the training for data collection.

The sample was calculated according to the number of older adults admitted to each sector in July, August and September 2018 at HULW/UFPB (774 older adults) and October, November and December of the same year at HUAC/UFCG (385 older adults), totaling 1,259 older adults. These months were established, as they would be the months of collection in the respective services in the following year.

To determine the sample size, the sample calculation equation for study of proportion in a finite population was used, with an error of 5%, a confidence level of 95% and frequency of the phenomenon of 60% (since it is not a phenomenon defined, we overestimated the prevalence), so the sample was 285. Adding to this, the 10% of possible losses, 323 older adults made up the final sample, 209 from HULW and 114 from HUAC. Thus, non-probabilistic sampling was used, by quota, with the number of participants proportionally distributed among the sectors included.

During data collection, study participants were informed about the purpose of the research, as well

as about maintaining confidentiality, anonymity of their person and their right to participate or not. After consent and signing of the Informed Consent Form (ICF), participants were approached in a reserved place in the sector chosen to proceed with the interview. In the case of those bedridden, the companion was asked to leave momentarily so that there was privacy and that the older adults felt at ease with the collector.

Data collection consisted of an instrument with sociodemographic information, such as gender, age, education, marital status, income and work activity, the Hwalek-Sengstock Elder Abuse Screening Test (H-S/EAST),<sup>(10)</sup> the SRD questionnaire,<sup>(11)</sup> and the Edmonton Frail Scale (EFS).<sup>(11)</sup> It is noteworthy that such instruments were previously validated in Brazil.

The HS-EAST investigates the risk of violence among older adults within the family environment. Thus, for each affirmative answer, a point is assigned. However, it is emphasized that, in items one, six, twelve and fourteen, an exception is applied, and, in each point of these items, they are interpreted as negative answers. The score is established by means of a score above three, which defines the increased risk of elder abuse.<sup>(10)</sup>

The SRD questionnaire consists of nine questions, which include information about chronic diseases that were diagnosed by a physician in the last year, such as heart diseases such as angina/heart attack, stroke, cancer, arthritis or rheumatism, pneumonia or bronchitis, depression and osteoporosis.<sup>(11)</sup>

The EFS consists of nine domains and classifies the frailty syndrome as frail, pre-frail and non-frail according to the pre-established score. Thus, from zero to four, corresponds to non-frail; five and six, pre-frail; and seven or more, frail.<sup>(12)</sup> However, for the present study, there was a dichotomization of variable into frail and non-frail, according to the instrument itself in order to identify the occurrence or not of the event.

Data were tabulated in double entry and analyzed in SPSS, version 26.0, using descriptive statistics (absolute and relative frequency) and inferential statistics (Pearson's chi-square test, Spearman's correlation test and Multiple Logistic Regression). A

significance level of 5% ( $p$ -value $<0.05$ ) was established for all analyses. Spearman's correlation is justified by the trend towards non-normality of variables, evidenced by the Kolmogorov-Smirnov test.

As for regression analysis, it obtained  $p<0.2$  as an entry criterion, resulting from association analysis. Considering that the final model was elaborated using the forward method, variables were gradually removed until reaching  $p<0.05$  for statistical significance, obeying a confidence interval of 95%. It should be noted that sociodemographic variables were not included in this analysis because it is not the objective of this study.

This study is part of an umbrella project entitled "*Instrumentalização da Enfermagem Forense diante do cuidado ao idoso hospitalizado*", approved by the Research Ethics Committee of the HULW/UFPB, under Opinion 3,709,600, and of the HUAC/UFCG, under Opinion 3,594,339 (CAAE (*Certificado de Apresentação para Apreciação Ética* - Certificate of Presentation for Ethical Consideration) 10179719.9.3001.5182). It is noteworthy that the ethical aspects related to research with human beings were observed, according to Resolution 466 of December 12, 2012 of the Brazilian National Health Council.

## Results

Of the 323 older adults in the study, 60.7% ( $n=196$ ) were female, 52.6% ( $n=170$ ) aged between 60 and 69 years, 67.8% ( $n=219$ ) could read and write, 45.2% ( $n=146$ ) had four to 11 years of study, 51.7% ( $n=167$ ) were married, 78.3% ( $n=253$ ) had no work activity, and 80.2% ( $n=259$ ) received between one and two minimum wages. With regard to self-reported illnesses, it was seen that older adults who had not been diagnosed with cancer (63.4%;  $n=182$ ), but who had already been diagnosed with heart disease (69.1%;  $n=47$ ), stroke (71.7%;  $n=24$ ), lung diseases (71.0%;  $n=44$ ), depression (79.7%;  $n=59$ ), arthritis or rheumatism (75.2%;  $n=100$ ), osteoporosis (78.8%;  $n=67$ ) and frailty syndrome (73.5%;  $n=144$ ) were predominant for the risk of violence.

Of these variables, there was statistical significance for depression ( $p=0.001$ ), arthritis or rheumatism ( $p<0.001$ ), osteoporosis ( $p<0.001$ ) and frailty syndrome ( $p<0.001$ ) (Table 1).

**Table 1.** Risk of violence, self-reported diseases, frailty syndrome and associated factors (n=323)

Variables	Risk of violence		p-value	Valid/ missing sample
	With risk n(%)	Without risk n(%)		
Heart disease (e.g., angina, heart attack)				
Yes	47(69.1)	21(30.9)	0.212*	321/2
No	154(60.9)	99(39.1)		
Stroke				
Yes	24(72.7)	9(27.3)	0.205*	321/2
No	177(61.5)	111(38.5)		
Cancer				
Yes	17(54.8)	14(45.2)	0.349*	318/5
No	182(63.4)	105(36.6)		
Lung diseases (e.g., bronchitis, pulmonary emphysema)				
Yes	44(71.0)	18(29.0)	0.125*	320/3
No	156(60.5)	102(39.5)		
Depression				
Yes	59(79.7)	15(20.3)	0.001*	321/2
No	142(57.5)	105(42.5)		
Arthritis or rheumatism				
Yes	100(75.2)	33(24.8)	<0.001*	322/1
No	102(54.0)	87(46.0)		
Osteoporosis				
Yes	67(78.8)	18(21.2)	<0.001*	320/1
No	133(56.6)	102(43.4)		
Frailty syndrome				
With frailty	144(73.5)	52(26.5)	<0.001*	322/1
Without frailty	58(46.0)	68(54.0)		

\* Pearson's chi-square test

For multiple logistic regression analysis, all Pearson's chi-square analysis variables with  $p<0.2$  were included, as shown in the previous table. However, for the final model, only the variables with a significance of  $p<0.05$  remained. Thus, older adults with arthritis/rheumatism and frailty syndrome were, respectively, 2.37 [CI= 1.43-3.91] and 3.07 [CI=1.88-4.92] more likely to suffer risk of violence (Table 2).

Table 3 expresses the results of correlation analysis, showing that there was a weak positive correlation between the risk of violence scores, the SRD questionnaire and the frailty syndrome. Thus, it is reflected that the greater the number of self-reported diseases and frailty syndrome in older adults, the greater the risk of violence.

**Table 2.** Variables associated with the risk of violence through Multiple Logistic Regression (n=323)

Variables	OR	CI	p-value*
Arthritis/rheumatism			
Yes	2.37	1.43-3.91	0.001
No	1.00	-	-
Frailty syndrome			
Yes	3.07	1.88-4.92	<0.001
No	1.00	-	-

R<sup>2</sup> - 0.146; OR - Odds Ratio; CI - Confidence Interval; \*Significance of the test.

**Table 3.** Correlation between violence risk scores, self-reported diseases and frailty syndrome (n=323)

Variables	Risk of violence	
	Correlation coefficient	p-value
SRD total score	0.259	<0.001*
Frailty syndrome total score	0.292	<0.001*

SRD - self-reported diseases; \* Spearman's correlation test

## Discussion

It can be observed that older adults, for the most part, have morbidities due to the aging process itself and neglected health care, which generally corroborate to make them more susceptible to various aggravating factors, one of which is the risk of violence.<sup>(13,14)</sup> In this study, the frailty syndrome and self-reported morbidities such as depression, arthritis or rheumatism, osteoporosis and the frailty syndrome were associated with the risk of elder abuse, thus contributing to its increase.

A study carried out in Santa Catarina with 1,140 older adults, showed that there was a significant association between violence in participants who had two or more morbidities, increasing the probability of occurrence by more than 100%. A cohort study carried out in Texas, United States of America, with 10,181 individuals of the same age group, showed that all had morbidities and had suffered some type of violence (physical, psychological, sexual, social, emotional, negligence or multiple). In Chandigarh, India, it was shown that 96.2% of older adults interviewed who were susceptible to violence had at least one morbidity.<sup>(14,15)</sup> Such findings converge with the findings of this study.

Heart diseases, such as angina, infarction and hypertension, are very common in older adults, and, despite not having a statistically significant association in this study, this is one of the groups of

morbidities that negatively influence quality of life, contributing to a decline in health and, consequently, an increase in susceptibility to the risk of elder abuse. This association can be reversed, as older adults suffer some type of violence, the stress generated favors the development of heart problems.<sup>(16)</sup>

Like heart disease, stroke and lung disease (e.g., pulmonary emphysema, bronchitis) did not have a statistically significant association with the risk of elder abuse in this study, but there is a considerable number of older adults affected by these morbidities and which, in most cases, are disabling, which increases the demand for assistance and dependence on family members and caregivers, making these older adults more vulnerable, in which low levels of physical performance lead to functional impairment and are associated with a greater risk of violence.<sup>(17-19)</sup>

With regard to depression, it appears that feelings of sadness, loneliness, rejection and not having anyone to count on are very present in the lives of older adults, because generally, due to advancing age, a situation of dependence on family members and caregivers is created, and these are often not so significantly present, either because they do not want the responsibility of caring for and giving attention to older adults or because they do not have time for it.<sup>(17,19)</sup>

Thus, depressed older adults tend to lose motivation and interest in carrying out activities of daily living, making them increasingly dependent on other people and reclusive at home, which corroborates the increase in vulnerability and, consequently, the risk of suffering some type of violence. Thus, it appears that there is an association between depression and the risk of elder abuse, which converges with previous results.<sup>(16,20)</sup>

Studies have shown that arthritis or rheumatism are frequently self-reported diseases by older adults.<sup>(20-22)</sup> One of these studies was carried out with 2,593 individuals, in which 1,136 reported having arthritis or rheumatism, and almost half of these were dependent to perform instrumental activities of daily living.<sup>(23)</sup> Another study with a sample of 2,411 older adults affected by arthritis showed a relationship between the disease and low social sup-

port from family members, depressive symptoms and the development of frailty syndrome.<sup>(24)</sup>

Based on this, older adults with arthritis or rheumatism tend to be more vulnerable, which directly reflects the loss of their autonomy, making them more dependent on other individuals for physical and/or emotional issues.<sup>(14,21)</sup> This characterizes and explains the association between this disease and the increased risk of elder abuse found in the present study.

Osteoporosis is one of the most frequent degenerative diseases in older adults, and is generally associated with aging due to the progressive decline in bone mineral density present in this population, which, in turn, leads to a decrease in their quality of life, contributing to so that older adults are more vulnerable and thus more likely to suffer violence.<sup>(12,25)</sup>

The frailty syndrome, on the other hand, has grown a lot in older adults and is mainly characterized by a decline in the willingness to carry out activities and in the ability to deal with stressful situations, becoming a relevant factor in the various forms of abuse, due to increased vulnerability, disability, cognitive decline and, therefore, greater demand for care from family members and caregivers. All these aspects linked to the frailty syndrome make older adults more susceptible to the risk of violence.<sup>(26,27)</sup>

In addition to the association of frailty syndrome with the risk of elder abuse, this study showed a directly proportional positive correlation between the frailty syndrome and self-reported diseases, i.e., the older adults are affected by morbidities, the more frail they are. This correlation is complex, since they share the same risk factors and there may be a coexistence of these, favoring the decline of older adults' health in its various aspects, whether physical, mental and/or emotional as well as the loss of autonomy and decrease in quality of life.<sup>(28-30)</sup>

In this regard, it can be seen that the older adults affected by the diseases presented in this study and by the various other existing ones, directly influence the lives of these individuals, not only for the risk of violence, but also for the emergence of a negative perception of aging, such as feelings of incapacity,

disrespect, loss of dignity, burden for family members, unhappiness, dependence, rejection, among others.<sup>(21)</sup>

It is known that although the hospital environment is a place for health recovery, it is extremely stressful and unpleasant for many people, and the fact that the older adults interviewed in this study are hospitalized may be related to morbidities and the risk of violence. Studies have shown that hospitalized older adults are more susceptible to suffering abuse of various types, given the state of vulnerability and greater dependence not only on the companions, who are usually a family member or caregiver, but also on the health staff as a whole, including the nursing staff, for dealing directly with patients.<sup>(4,27, 31)</sup>

In the meantime, it is believed that the nursing staff will create a bond with older adults and that it will be easier to detect various signs, including the risk of violence. However, studies show that there are limitations from nursing professionals' graduation, in which this issue is not properly addressed, which makes it difficult to provide comprehensive care, as well as to adequately care for older adults who are at risk, contributing to underreporting and, consequently, the occurrence of violence.<sup>(32,33)</sup>

These limitations last beyond nurses' academic training, passing through the assistance provided without being noticed. Therefore, it is necessary to carry out permanent education through training based on prevention and identification of both the risk of violence and the signs of elder abuse, be it physical, psychological, financial, sexual or neglect. Thus, with qualified professionals, an increase in complaints, prevention strategies is expected, in addition to the development of skills in welcoming and caring for older adults in situations of violence.<sup>(34,35)</sup>

In order to improve older adults' quality of life and a greater propensity for the process of senescence, rather than aging, it is necessary to invest, on the part of government authorities, in health education, not only for older adults, but for the population in any age group, in order to prevent the determinants of the health-disease process and

the risk factors for the emergence of morbidities as well as the aggravations of these when already installed. Therefore, it is believed that actions like these and others can increase the autonomy and independence of older adults, thus reducing the key problem presented in this study, which is the risk of violence.

Regarding the limitations, the few publications that dealt with the significant associations found in the present study are highlighted, in order to expand the evidence and identify possible divergences and convergences.

## Conclusion

It was identified that self-reported diseases such as depression, arthritis or rheumatism and osteoporosis were associated with the risk of violence. Moreover, the frailty syndrome also showed statistically significant results. Chronic diseases or morbidities are present in the aging process and are one of the main causes, whether directly or indirectly, of hospitalization. Therefore, it was possible to identify that older adults with chronic diseases and frailty syndrome are more susceptible to the risk of violence and that the greater the number of self-reported diseases and the presence of frailty syndrome, the greater their risk of violence. In this context, expanding the discussion of the topic during the training of future nurses is essential, since nurses' role in the work with the prevention of factors that may lead to the hospitalization process is notorious, such as health education and autonomy promotion for older adults, as well as for the family and the caregiver, improving the relationship with chronic diseases in everyday life. Just like the different look during the hospitalization process, playing a decisive role in improving the quality of life of this population.

## Collaborations

Santos AC, Brandão BMLS, Cunha HK, Reis IO, Castano AMH and Souto RQ contributed to the

study design, data analysis and interpretation, article writing, relevant critical review of the intellectual content and approval of the final version to be published.

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