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# Analysis of the Current Status of Debilitation in Geriatric Internal Medicine Inpatients and the Factors Affecting it

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**Abstract:** To investigate the frailty status of inpatients in geriatric internal medicine and analyze its influencing factors, to provide reference for making intervention plan. By convenient sampling method, 310 patients from geriatrics department and hematology department of a third-class hospital in Wuhu City were investigated by general data questionnaire, Tilburg frailty scale, social frailty scale and fall alertness scale. The incidence of frailty in geriatric internal medicine inpatients was 40.6%. Logistic regression analysis showed that economic source, occupation, fall history in recent one year and main caregiver were the main influencing factors of frailty in geriatric internal medicine inpatients ($P<0.05$). The incidence of frailties in geriatric internal medicine patients is high, so nurses should pay attention to strengthen the early assessment of frailties in geriatric internal medicine patients, and formulate effective intervention plans according to the main influencing factors, aiming at reducing the risk of frailties in geriatric internal medicine patients.

**Keywords:** Elderly Hospitalized Patients; Frailty; Influencing Factors.

## 1. Introduction

It has been reported that the global elderly population is expected to reach 2 billion in 2025, with approximately 18.7 of those aged 60 years or older [1-2]. Frailty (Frailty) is a state in which there is a severe decline in a person's physical, physiological and social functioning, and a decline in activity, resulting in a decrease in the organism's ability to combat various stresses [3]. According to the literature, the prevalence of debility in maintenance hemodialysis patients, and in the elderly, population is 37.4% and 43.4% [4-5]. Frailty not only causes physical harm to elderly patients, but also leads to the development of several adverse clinical outcomes. A longitudinal study showed that frail older adults had a 58% higher risk of falls, disability, and death than non-frail older adults [6]. The coexistence of multiple chronic conditions in many elderly hospitalized patients, coupled with poorer health status, makes the issue of frailty in older adults a matter that should receive extra attention from healthcare professionals. This study focuses on the current status of frailty in geriatric inpatients and analyzes its influencing factors to provide a reference for early assessment of frailty risk and development of frailty interventions.

## 2. Information and Methods

### 2.1. Objects of Study

Convenience sampling method was used to investigate 310 patients in the Department of Geriatric Medicine and Department of Hematology of a tertiary hospital in Wuhu City. Inclusion criteria: 1) age ≥ 60 years; 2) hospitalization time ≥ 48 hours; 3) no verbal communication disorder; 4) informed consent and voluntary participation. Exclusion criteria: 1) with serious cognitive impairment; 2) loss of self-care ability due to disease.

### 2.2. Research Instruments

#### 2.2.1. General Information Questionnaire

This includes age, gender, marital status, place of residence, presence of sleep disorders, education level, history of falls in the past year, financial resources, smoking, alcohol use, and history of previous chronic diseases.

#### 2.2.2. Tilburg Debilitation Scale

The scale is a self-report questionnaire, developed by Dutch scholars [7], containing three dimensions of physical, psychological and social debility, with a total of 15 entries, the number of entries is simple and easy to understand, consumes little time, can realize rapid assessment, and the scoring is convenient, with a total score of 0-15 points, and the larger the value indicates that the degree of debilitation is more serious. It has been widely used, and the Cronbach's coefficient was tested to be 0.846 in elderly patients with chronic diseases [8-10].

#### 2.2.3. Social Debility Scale

The scale was compiled by Chinese scholars [11], and contains five topics, all of which are rated on a two-level scale, which is composed of the initial letters of five words: help, participation, loneliness, economy, and talk about, with a total of five entries, and a total score of 0-5 points. HALFT scale is a commonly used scale in China at present, and it has been tested by scholars in China, and the Cronbach's α coefficient is 0.602, with good reliability and validity [12].

#### 2.2.4. Falls Alertness Scale

The scale was compiled by foreign scholars in 2018 [13], with four dimensions, 21 entries, and a total score of 21-105, in which physical function alertness is scored inversely and the remaining three are scored positively. The scale has been

sinicized and has been widely used in elderly aged patients, with a Cronbach's coefficient of 0.923 and good reliability and validity [14-15].

## 2.3. Data Collection Methods

Before the distribution of questionnaires, after soliciting the consent of geriatrics and hematology inpatients, the unified training of nursing staff on-site using one-on-one question and answer method to conduct the survey, after filling out the completion of the completion of the content of the fill in the spot to check whether the completion of the contents of the complete, timely supplementation of the present study was issued a total of 315 questionnaires, of which 5 information is incomplete, recovered 310 valid questionnaires, the effective questionnaire recovery rate of 98.4%.

**Table 1.** Univariate analysis of general information and debilitation in geriatric internal medicine inpatients.

| Item | Classification | No debility (n=184) | Debility (n=126) | $\chi^2$ | P |
|---|---|---|---|---|---|
| Gender | Male | 104(56.5) | 53(42.1) | 6.254 | 0.012 |
| | Female | 80(43.5) | 73(57.9) | | |
| Age | 60~70 | 80(43.5) | 47(37.3) | 1.180 | 0.277 |
| | 71~80 | 104(56.5) | 79(62.7) | | |
| Marital status | Married | 164(89.1) | 105(83.3) | 2.196 | 0.334 |
| | Widowed | 16(8.7) | 17(13.5) | | |
| | Divorced or other | 4(2.2) | 4(3.2) | | |
| Place of residence | Urban | 34(18.5) | 26(20.6) | 1.092 | 0.579 |
| | towns | 36(19.5) | 19(15.1) | | |
| | Rural | 114(62.0) | 81(64.3) | | |
| With or without sleep disorder | Without | 93(50.5) | 52(41.3) | 2.583 | 0.108 |
| | With | 91(49.5) | 74(58.7) | | |
| Literacy level | Primary school and below | 121(65.8) | 93(73.8) | 3.791 | 0.285 |
| | Junior high school | 41(22.3) | 24(19.0) | | |
| | High school | 12(6.5) | 3(2.4) | | |
| | College and above | 10(5.4) | 6(4.8) | | |
| History of fall in the last year | no | 158(85.9) | 94(74.6) | 6.242 | 0.012 |
| | yes | 26(14.1) | 32(25.4) | | |
| Financial resources | Pension | 66(35.9) | 25(19.8) | 10.141 | 0.017 |
| | Wages | 13(7.1) | 8(6.4) | | |
| | Relatives | 50(27.1) | 41(32.5) | | |
| | Other | 55(29.9) | 52(41.3) | | |
| Smoking | no | 130(70.7) | 98(77.8) | 1.952 | 0.162 |
| | yes | 54(29.3) | 28(22.2) | | |
| Drinking alcohol | no | 116(63.0) | 92(73.0) | 3.369 | 0.066 |
| | yes | 68(37.0) | 34(27.0) | | |
| Family caregiver | Spouse | 88(47.8) | 38(30.1) | 9.997 | 0.019 |
| | Children | 73(39.7) | 67(53.2) | | |
| | Nanny/carer | 6(3.3) | 4(3.2) | | |
| | other | 17(9.2) | 17(13.5) | | |
| Payment method | Medical cooperative | 60(32.6) | 44(34.9) | 3.272 | 0.195 |
| | Rural cooperative medical care | 113(61.4) | 68(54.0) | | |
| | Self-payment | 11(6.0) | 14(11.1) | | |
| Monthly income | <1000 | 77(41.8) | 63(50.0) | 8.798 | 0.032 |
| | 1000~2000 | 32(17.4) | 30(23.8) | | |
| | 3000~4000 | 52(28.3) | 27(21.4) | | |
| | >5000 | 23(12.5) | 6(4.8) | | |
| Occupation | Physical work | 54(29.3) | 22(17.5) | 12.111 | 0.007 |
| | Mental work | 9(4.9) | 12(9.5) | | |
| | Both mental and physical | 43(23.4) | 20(15.9) | | |
| | Housework | 78(42.4) | 72(57.1) | | |
| History of previous chronic diseases | no | 62(33.7) | 43(34.1) | 0.683 | 0.711 |
| | A history of disease | 63(34.2) | 38(30.2) | | |
| | ≥2 history of disease | 59(32.1) | 45(35.7) | | |
| Previous exercise | no | 69(37.5) | 59(46.8) | 2.909 | 0.234 |
| | ≤3 times | 82(44.6) | 50(37.9) | | |
| | >3 times | 33(17.9) | 17(13.5) | | |
| Socially debilitated | no | 141(76.6) | 79(62.7) | 7.046 | 0.008 |
| | yes | 43(23.4) | 47(37.3) | | |
| Fall alertness | Low | 40(21.7) | 32(25.4) | 0.561 | 0.454 |
| | high | 144(78.3) | 94(74.6) | | |

## 2.4. Statistical Methods

SPSS25.0 was used to analyze the data, and the measurements were expressed as " $\bar{x} \pm s$" and the counts were expressed as n (%), and the 2-test was used for the one-way analysis, and logistic regression was used to analyze the risk factors for the occurrence of debilitation in geriatric internal medicine inpatients with a test level of = 0.05, and a difference of $P < 0.05$ was considered to be of statistical Significance. 1000=1, 1000-2000=2, 3000-4000=3, >5000=4); occupation (manual occupation=1, mental occupation=2, both manual and mental=3, housework=4); previous exercise (none=0, ≤3 times per week=1, >3 times per week=2); social debility (none=0, yes=1).

## 2.5. Results

### 2.5.1. Current Status of Debilitation in Geriatric Medical Inpatients

Of the 310 patients, a total of 126 patients experienced debilitation and 184 did not, resulting in an incidence of 40.6% of debilitation, with 79 (62.7%) of the debilitated patients aged between 71 and 80.

### 2.5.2. Univariate Analysis of Debility in Geriatric Medical Inpatients

The results showed that different gender, economic sources, history of falls in the last year, family caregivers, monthly income, occupation, and social debility were the factors influencing the debility of geriatric internal medicine inpatients, and the difference was statistically significant ($P < 0.05$). Table 1.

### 2.5.3. Logistic Regression Analysis of Factors Influencing Debilitating Debilitation in Geriatric Medical Inpatients

Logistic regression analysis was performed by considering the debilitating status of geriatric internal medicine inpatients as a dichotomous variable (no debilitation, debilitation), and those variables that were statistically significant in Table 1 were used as independent variables. The results showed that economic source, occupation, history of falls in the last year, and primary caregiver were risk factors for frailty in geriatric internal medicine inpatients. Table 2.

**Table 2.** Logistic Regression Analysis of Factors Influencing Frailty in Geriatric Internal Medicine Inpatients

| variant | B | SE | Wald$\chi$2 | P | OR (95%CI) |
|---|---|---|---|---|---|
| Constant | -0.379 | 0.116 | 10.723 | <0.001 | 0.685(—) |
| Economic source | 0.305 | 0.099 | 9.590 | 0.002 | 1.357(1.119—1.647) |
| History of falls in the last year | 0.789 | 0.302 | 6.841 | 0.009 | 2.201(1.219—3.976) |
| Occupation | 0.217 | 0.098 | 4.946 | 0.026 | 1.242(1.026—1.504) |
| Family caregiver | 0.259 | 0.131 | 3.872 | 0.049 | 1.295(1.001—1.675) |

# 3. Discussions

## 3.1. Current Status of Debilitation in Geriatric Medical Inpatients

This study showed that the incidence of frailty in geriatric internal medicine inpatients was 40.6%, with a predominance of frail patients between the ages of 70 and 80 years and 81 from rural areas. In a cross-sectional study, the incidence of frailty was 67.34% in elderly patients on maintenance hemodialysis in Shanghai [17], which was higher than the results of this study. The reasons for this may be analyzed and may be related to the regional limitations of the study population, environmental factors, and disease types. The research subjects selected for this study were from geriatric internal medicine inpatients, and most of them were from rural areas, and most of them were educated at elementary school level or below, and the resultant study might have a certain bias. Frailty not only causes a decline in the self-care ability of the elderly, but also affects their physiological functions. Some studies have shown that debility can lead to the decline of musculoskeletal muscles and the loss of function of the endocrine system [18]. With the growth of age, external environment and other aspects of influence, the elderly are more likely to suffer from chronic diseases, such as endocrine system diseases, circulatory system diseases, etc. In this study, among the debilitated patients, 83 cases (65.9%) suffered from chronic diseases, and these underlying diseases will lead to deterioration of the physical condition of the elderly patients, which will affect their daily life and daily activity ability. Therefore, the debilitating condition of geriatric internal medicine inpatients is the result of a multifactorial effect, and healthcare professionals should identify and assess the debilitating condition of elderly patients at an early stage, and then formulate appropriate interventions to improve the quality of life of elderly hospitalization .

## 3.2. Factors Influencing Debilitation in Geriatric Medical Inpatients

### 3.2.1. Economic Sources

The results of this study show that economic sources are an influential factor in the debilitation of geriatric internal medicine inpatients ($P < 0.05$). Patients with financial sources such as pensions and salaries are more capable of bearing financial expenses, have higher motivation to seek medical treatment, and are more likely to have access to high-quality healthcare resources that are conducive to disease recovery, and therefore have a relatively higher ability to self-manage their illnesses than patients without financial sources, which is consistent with the findings of the researchers of Tang Yuan et al [19]. A cross-sectional study showed that diabetic patients without financial resources were at a higher risk of developing debility compared to diabetic patients with financial resources [20]. For older hospitalized patients who are in poorer financial conditions or who need to pay out-of-pocket, they must face the pressure of medical expenses, and the decline in quality of life, and this financial uncertainty and pressure is often accompanied by negative emotions such as anxiety and depression, which affects older people's sense of well-being and life satisfaction. It is possible that some older adults may experience a narrowing of their social circle as a result of financial problems, which can increase their sense of isolation and lead to the development of debility.

### 3.2.2. History of Falls in the Last Year

The results of this study showed that a history of falls in the last year was an influential factor for geriatric internal medicine inpatients ($P < 0.05$), and that geriatric internal medicine inpatients with a history of falls had a 2.201-fold increased risk of developing debilitation, relative to those who had not experienced a fall. This is consistent with the findings of researchers such as He Xiaoyu et al [21]. Due to weakened muscle strength, slowed gait speed, and reduced body balance in frail older adults, they are prone to falls. In addition, elderly patients who have had a fall during hospitalization may develop a fear of falling again and may be afraid to be overly active, leading to a decrease in physical activity and further aggravating the degree of frailty in elderly patients. The results of a cross-sectional study showed [22] that among elderly post-coronary artery disease patients, those with a history of falls within one year had a 0.174-fold higher risk of debilitation than those without a history of falls, which is also consistent with the results of this study. A longitudinal study abroad showed that fear of falling can cause fear-related activity restriction, which gradually leads to the deterioration of physical function, the decline of self-care ability, the increase of the risk of debilitation in the elderly, and ultimately the reduction of the quality of life [23]. Therefore, healthcare professionals should strengthen fall prevention in geriatric internal medicine inpatients, conduct early assessment of key populations, and develop relevant preventive measures to reduce the number of falls.

### 3.2.3. Occupation

The results of this study showed that occupation was an influential factor in debilitation in elderly medical inpatients ($P < 0.05$). This is consistent with the findings of a foreign cohort study [24], which showed that late-career unemployment significantly increased the risk of frailty in later life among older adults. Relative to older adults who do housework, those who are engaged in manual labor for a long period of time may experience joint pain and muscle weakness due to excessive wear and tear of the musculoskeletal system. Relevant studies have shown [25] that after the aging of the human body, the nutrients in the muscles are gradually lost, the muscle strength decreases, and the muscle content decreases, which leads to the occurrence of myasthenia gravis, which is a manifestation of malnutrition, and the elderly are weakened by a variety of factors, such as malnutrition, long-term medication, and coexisting with multiple diseases. As for those who are engaged in mental labor, their work requires their brains to maintain a high degree of creativity and imagination, and at the same time, the mental pressure they face will also increase. Therefore, the Government and society should provide better living conditions and financial security for the elderly population, so that these elderly people can enjoy high-quality medical services and living environments that promote physical and mental health.

### 3.2.4. Family Caregivers

The results of this study indicate that family caregivers are an influential factor in the debilitation of geriatric medical inpatients ($P < 0.05$), and that family caregivers play a crucial role in geriatric medical inpatients, not only as daily living assistants for the elderly, but also as an important source of emotional support. It has been documented that family caregivers play a key role in disease management and disease care for elderly patients [26]. For patients without family caregivers, geriatric internal medicine inpatients with family caregivers are able to slow down the onset of debilitation, reduce the degree of debilitation, and thus improve the quality of life of geriatric patients [27-28]. Some studies have shown that older adults who live alone are more likely to be at increased risk for debilitation [29]. The reason for this may be that elderly people living alone lack supervision and encouragement from others and have poorer self-management ability, coupled with the decrease in their physical activity and the decline in their ability to take care of themselves, which in turn causes a decrease in nutrients in the muscles and a decrease in muscle strength, leading to a decrease in the individual's response to external stress and an increase in the susceptibility to infirmity, which is in line with the findings of Jiao Ruijuan [30] et al. Therefore, for hospitalized patients in geriatric internal medicine should pay more attention to the mental health of the elderly, and nursing staff should give them humanistic care to increase the sense of well-being of the elderly, reduce the patient's inner loneliness, which is conducive to physical and mental health, and ultimately promotes the treatment of the disease and recovery.

## 4. Summary

In summary, nursing staff should pay attention to the assessment of the debilitating conditions and influencing factors of geriatric internal medicine hospitalized patients, and develop effective interventions for their influencing factors to delay the progression of debilitation and improve the living conditions of elderly patients. Since this study was conducted from only one hospital and the study subjects were only from patients in the Department of Geriatric Medicine and Hematology, the results of this study may not be typical, and the conclusions of this study can be further validated by including study subjects with different disease types in the future.

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