Prevalence of Self-Neglect and Associated Factors Among Disability Elderly in China

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Research Article

Keywords: self-neglect, disability elderly, depressive symptoms, perceived social support, monthly income

Posted Date: December 22nd, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-1169768/v1>

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Abstract

Purpose: To assess the prevalence of self-neglect and associated factors among disability elderly (age ≥ 65 years) in China.

Patients and methods: Patients aged 65 years or above were enrolled from two communities in Shenyang, China. A convenience sample of 230 disability elderly responded to the questionnaire survey. The data were collected by a series of questionnaires consisting of socio-economic and demographic characteristics, Barthel Index (BI), Elder Self-Neglect Assessment (ESNA), Geriatric Depression Scale-Short Form (GDS-SF), Multidimensional Scale of Perceived Social Support (MSPSS), and Mini-Mental State Examination (MMSE). Kruskal-Wallis test or Mann-Whitney U test was used to examine the differences of self-neglect among different demographic characteristics as appropriate. Multiple linear regression model was performed to identify which factors were independent predictors of self-neglect.

Results: An overall self-neglect rate of 86.0% was registered. The study reveals that disability elderly's self-neglect correlates positively with the degree of disability and depressive symptoms. On the contrary, monthly income and perceived social support were negatively associated with self-neglect.

Conclusion: In this study, the prevalence of self-neglect is high among disability elderly. Lower monthly income, decreased physical functioning, depressive symptoms, and poor perceived social support were contributing factors for self-neglect among disability elderly.

Background

Elder self-neglect is a well-recognized public health issue[1]. The National Center on Elder Abuse (NCEA) defines elder self-neglect as "an older adult's refusal or failure to provide himself/herself with essential self-care tasks, including keep up personal hygiene, searching for medical assistance when necessary, and maintaining a socially accepted standard of health"[2]. Prevalence of elder self-neglect varies in response to the operational definition of the problem, the measurement instruments, and the study populations[1]. In Korea, the prevalence of self-neglect was 22.8% in elderly who live alone[3]. Ilhan et al. found that the prevalence of self-neglect was 16.8% among community-dwelling self-sufficient elderly in Istanbul[4]. A community study in the United States showed a 19.2% prevalence of self-neglect in individuals aged over 60 years[5].

Numerous efforts have been undertaken to identify factors associated with self-neglect risk. Recent studies shown that female, older age, lower education level, decreased physical function, lack of social support, and depression are associated with high risk of self-neglect[3–7]. Elder self-neglect have been shown to be associated with an accelerated decline in physical condition, poorer health-related quality of life, and an increased risk for hospitalization[8–10]. To develop effective preventive programs it is essential to increase the understanding of the factors influencing self-neglect. Moreover since self-neglect have significant negative impact on elder self-care, disability elderly may be at higher risk of self-neglect.

The world's population is speedily aging, and population aging have led to a rise in disability[11]. Statistics show that by 2020, the number of disability elderly in China had reached 42 million [12]. So, it raises the growing concern in the maintenance and development of quality of life in disability elderly. However, it has been recognized that the circumstance is unprecedented in many respects in which inevitable challenges are faced by disability elderly resulting from comorbidities, poor social support, and inadequate economic support, thereby reducing their quality of life[13]. These disadvantages may contribute to poorer quality of life as well as put disability elderly at risk for self-neglect[1]. The disability elderly is related to the decline of physical function. Prior studies have found that elderly with impaired physical function are at greater risk of self-neglect[4–5]. Despite their apparently greater risk of self-neglect, there are insufficient data regarding the prevalence of self-neglect among disability elderly.

Disability elderly face decreased physical function, negative emotion, and social maladjustment[14], which are associated with the risk of self-neglect. Researches on self-neglect are mostly concentrated on the self-sufficient elderly[3–5], but in the disability elderly, with a lack of adequate research in this area, documentation is limited. Therefore, this study aimed to investigate the prevalence and associated factors of self-neglect among disability elderly in China.

Methods

Design and setting

A cross-sectional descriptive correlational design was adopted. The study was conducted in two communities of a district of Shenyang, China from October 2020 to April 2021. Participant enrolled in this survey through convenience sampling. The inclusion criteria were older adults who were: (1) meeting the disability criteria of the Barthel Index (score ≤ 95), (2) aged 65 years and above, and (3) able to communicate in Chinese mandarin. The exclusion criteria were older adults who were: (1) impaired bilateral hearing or vision, (2) diagnosis of dementia confirmed by physicians.

Research instruments

Sociodemographic characteristics questionnaire

Participants were asked to complete a number of sociodemographic items related to their gender, age, educational level, monthly income, marital status, smoking, drinking, place of residence, and number of chronic diseases.

Barthel Index(BI)

BI was used to assess participants functional status. The scale includes ten items including feeding, grooming, bathing, dressing, bowel control, bladder control, toilet use, chair/bed transfers, ambulation and stair climbing. Total scores range from 0 to 100, with higher scores indicating better functional status. Patients were grouped into three categories according to their scores: mild disability(65-95), moderate disability(45-60), severe disability(<40). The Chinese version of the BI has been widely used in older populations [15].

Scale of the Elderly Self-Neglect (SESN)

Self-neglect was measured using a 14-item instrument and classified into 5 phenotypes: medical health and care, environmental sanitation and personal hygiene, mental health, safety, social communication. Each question has four options: not occurring or no effect, mild effect, moderate effect, and severe effect. The total score is 42, a higher score indicates a higher levels of self-neglect. The Chinese version has good reliability and validity with a Cronbach's alpha value of 0.92[9].

Geriatric Depression Scale-Short Form (GDS-SF)

The GDS-SF was used to measure the depressive symptoms of the participants. The GDS-SF consists of 15 items using a dichotomous response of "yes" or "no" (0=no, 1=yes). The total score ranges from 0 to 15, participants with a GDS-SF score of ≥ 5 were classified as having depressive symptoms. The Chinese version has good reliability and validity with a Cronbach's alpha value of 0.826[16].

Mini-Mental State Examination (MMSE)

The MMSE scale was used to assess the cognitive function of the participants. The scores of MMSE range from 0 to 30, and higher scores indicate better cognitive function. Cognitive impairment was defined as a score ≤ 17 for illiterates, ≤ 20 for participants with primary school education, and ≤ 24 for those with junior high school degree or above. The validity and reliability of the Chinese version of the MMSE have been verified [17].

Multidimensional Scale of Perceived Social Support (MSPSS)

Participants' perceptions of social support is measured using the MSPSS. The MSPSS includes factors of family support, friend support, and support from significant others[18]. Each item is rated on a 7-point likert scale. The total score ranges from 12 to 84, with a higher score indicating a higher levels of support perceived by the participants. Patients were grouped into three categories according to their scores : low support (12-36), intermediate support(37-60), high support(61-84). The scale has been translated into Chinese and validated among a Chinese population. The Chinese version of MSPSS has good reliability with a Cronbach's alpha value of 0.936[19].

Data collection procedure

All procedures performed in this study involving human participants were in accordance with the basic principles of the Declaration of Helsinki and had been approved by the Ethics Committee of China Medical University (Approved in 2020, No 392). All participants gave written informed consent. All the participants underwent a comprehensive assessment conducted by two trained researchers.

Data Quality Assurance

To assure quality of the data, properly designed data collection tools were prepared and the questionnaire was pretested on 5% of the sample size to check for understandability of the instrument. The data were collected through face-to-face interviews with participants. Besides, the collected data were reviewed and checked for their completeness by the researcher at the end of each day.

Statistical analysis

All statistical analyses were performed using IBM SPSS® (version 22.0). Kolmogorov-Smirnov test was used to determine the normality of distributions. Descriptive statistics, such as frequencies, prevalence, and median (interquartile range) according to the nature of data were presented. As the data of self-neglect was a non-normal distribution, Kruskal-Wallis test or Mann-Whitney U test was used to examine the differences of self-neglect among different demographic characteristics as appropriate. Multiple linear regression model was performed to identify which factors were independent predictors of self-neglect. Variance Inflation Factor (VIF) value was used to evaluate multicollinearity. The results were considered significant when $p < 0.05$.

Results

Characteristics of participants

A total of 230 disability elderly were investigated in this study. The mean age of the study sample was 69.25 ± 7.27 years old. In terms of monthly income, 50% (n=115) of the participants had a monthly income of less than 3000 yuan (approximately 464 USD), only 7.8% (n=18) for those had a monthly income of more than 5000 yuan (approximately 773 USD). Regarding the degree of disability, 57.4% (n=132) participants were classified as mild disability, 22.6% (n=52) participants were classified as moderate disability, and 20% (n=46) participants were classified as severe disability. Table 1 presents detailed information on the demographic characteristics of the elderly. At the time of the survey, The prevalence of self-neglect among disability elderly was found to be 86%.

Table 1
Sociodemographic characteristics of the
participants (n=230)

Variables	number (percentage)
Age	
65-74	151(65.6)
75-84	54(23.5)
≥85	25(10.9)
Gender	
Male	147(63.9)
Female	83(36.1)
Educational level	
Primary school or below	69(30.0)
Middle school	81(35.2)
High school or above	80(34.8)
Marital status	
Married	184(80.0)
Divorced	12(5.2)
Separated	31(13.5)
Unmarried	3(1.3)
Monthly income (RMB)	
≤3000	115(50.0)
3000-5000	97(42.2)
≥5000	18(7.8)
Number of chronic diseases	
1	106(46.1)
2	101(43.9)
≥3	23(10.0)
Place of residence	
City	181(78.7)
Rural	49(21.3)
Smoking	
Yes	193(83.9)
No	37(16.1)
Drinking	
Yes	199(86.5)
No	31(13.5)
The degree of disability	
Mild disability	132(57.4)
Moderate disability	52(22.6)
Severe disability	46(20.0)

Differences of self-neglect among various demographic characteristics

The different demographic characteristics of participants with self-neglect are displayed in Table 2. Disability elderly with higher levels of education and monthly income were significantly associated with lower levels of self-neglect ($p=0.048$ and $p<0.001$, respectively). There was a significant relationship between the self-neglect and marital status ($P=0.009$). The median score of self-neglect in the severe disability was much higher than that in the mild and moderate disability($p<0.001$). Lower levels of perceived social support was significantly associated with higher levels of self-neglect ($p<0.001$).Cognitive impairment and depressive symptoms were significantly associated with higher levels of self-neglect ($p=0.037$ and $p<0.001$, respectively). There were no significant differences of the self-neglect and other sociodemographic characteristics.

Table 2
Self-neglect comparisons among different demographic characteristics

Variables	Self-neglect	χ^2/z	P-value
Age		5.48	0.139
65-74	7(4-12)		
75-84	8(5-14)		
≥85	10(5-15)		
Gender		-0.21	0.826
Male	8(4-12)		
Female	8(4-14)		
Educational level		5.80	0.048
Primary school or below	10(5-14.5)		
Middle school	8(5-13.5)		
High school or above	6(3-10)		
Marital status		11.51	0.009
Married	7(4-12)		
Divorced	4.5(3-8.25)		
Separated	11(4-16)		
Unmarried	9(3.75-11.25)		
Monthly income (RMB)		17.91	0.001
≤3000	10(5-14)		
3000-5000	6(4-12)		
≥5000	4.5(2.75-7.25)		
Number of chronic diseases		3.01	0.221
1	10(5.75-12.5)		
2	6(4-12)		
≥3	8(4-12.25)		
Place of residence		0.94	0.331
City	7(4-12)		
Rural	9(4-15)		
Smoking		-1.67	0.094
Yes	6(3-11.5)		
No	8(4-12.5)		
Drinking		-0.95	0.338
Yes	6(3.25-12)		
No	8(4-12)		
The degree of disability		92.43	0.001
Mild disability	5(4-9)		
Moderate disability	8(5-11)		
Severe disability	16(12-20)		

Variables	Self-neglect	χ^2/z	P-value
Depressive symptoms		-6.10	0.001
Yes	12(10-16)		
No	6(4-10)		
Cognitive impairment		-2.09	0.037
Yes	9.5(5-16)		
No	7(4-12)		
Perceived social support		20.53	0.001
Low support	16(9-21)		
Intermediate support	8(5-12)		
High support	4(3-6)		

Predictors of self-neglect

Multiple linear regression analyses were used to determine the predictors that may contribute to the self-neglect of disability elderly. Total self-neglect score was the dependent variable, and educational level, monthly income, marital status, the degree of disability, depressive symptoms, cognitive function, and perceived social support were the independent variables. The overall multiple regression model was statistically significant (adjusted $R^2=0.52$, $F=31.95$, $p<0.001$), accounting for 52% of the variance in self-neglect scores. Monthly income ($\beta=-0.17$, $p=0.002$), the degree of disability ($\beta = 0.52$, $p<0.001$), depressive symptoms ($\beta = 0.18$, $p<0.001$) and perceived social support ($\beta=-0.15$, $p=0.001$) were identified as significant predictors of self-neglect. The perceived social support and monthly income were negatively correlated with the self-neglect scores, while the degree of disability and depressive symptoms were positively correlated with the self-neglect scores (Table 3). Results of the VIF (all less than 1.5), and collinearity tolerance (all greater than 0.7) suggest the estimated β 's are well supported.

Table 3
Predictive factors of self-neglect according to the multiple linear regression

Variables	B	β	T	p-value	95% CI
Educational level	0.27	0.04	0.74	0.460	-0.45, 1.01
Monthly income	-1.41	-0.17	-3.15	0.002	-2.30, -0.53
The degree of disability	3.69	0.52	10.07	0.000	2.97, 4.42
Depressive symptoms	2.51	0.18	3.74	0.000	1.19, 3.83
Cognitive function	0.67	0.04	0.95	0.340	-0.71, 2.07
Perceived social support	-2.07	-0.15	-3.26	0.001	-3.33, -0.82
Marital status ^{1a}	-0.85	-0.04	-0.95	0.343	-2.61, 0.91
Marital status ^{2b}	0.10	0.01	0.15	0.874	-1.18, 1.38
Marital status ^{3c}	0.87	0.02	0.42	0.669	-3.13, 4.87

Discussion

In this study, we found that self-neglect was not uncommon among disability elderly. Physical function impairment is the most significant and essential feature that distinguishes disability elderly from other groups. It is well-established that declines in physical function lead to declines in individual mobility and the ability of self-care. A number of prior studies have found elders whose physical function decline was associated with increased risk of self-neglect [3–5]. Therefore, disability elderly are a vulnerable population prone to self-neglect.

We examined the prevalence of self-neglect among disability elderly in China. The prevalence of self-neglect in this study was 86%, which was higher than studies done in Korea (22.8%), Istanbul (16.8%) and American (19.2%) [3–5]. It might be due to a difference in our study population; that is all of the participants were elderly with disability because decline in physical function was prone to self-neglect in all of the findings. Besides, another reason might be due to self-neglect measurement tool variation, as in Istanbul, the study used Istanbul Medical School Elder Self-Neglect questionnaire (IMSelf-neglect) to screen self-neglect. The IMSelf-Neglect scale, which mainly investigates whether older adults neglect their personal hygiene, health habits, and social functioning, is different from the measurement tool used in our study.

As for sociodemographic characteristics, we found that marital status, or education level, was not associated with self-neglect, while monthly income had a strong negative association with self-neglect. The result of our study are similar to a cross-sectional study reported by Yu et al, which showed that elderly with lower monthly income predicting higher levels of self-neglect [7]. It might be due to elderly with high levels of monthly income have greater opportunities to get healthcare service and take part in more social activities, which may reduce the risk of self-neglect [7]. On the contrary, this outcome was in contrast with the findings of Dong et al, which reported that monthly income have no significant association with self-neglect [20]. Our study did not show differences in the risk of self-neglect based on the participant's gender or age. In contrast, in a North American study, Abrams et al. [21] observed that male gender and older age reported suffering self-neglect more frequently. Further studies are needed to better examine the associations between sociodemographic variables and self-neglect.

The higher degree of disability was associated with higher levels of self-neglect. Among the different degree of disability, the self-neglect scores observed among severe disability elderly was higher compared to disability elderly in degree of mild and moderate. A previous study reported that decline in physical function was associated with increased risk of greater self-neglect severity [5]. Our participants who needed assistance in daily living were at a higher risk than others, similar to that reported in another study, indicating that poor physical health appeared to be an independent predictor of self-neglect [8]. Additionally, the physical function impairment was one of the common elements that contribute to elder self-neglect, as illustrated in the model of self-neglect developed by Dyer [22]. According to Dyer et al, impairment with essential activities of daily living represent the central event associated with worsening vulnerability in the syndrome of elder self-neglect [22].

Depressive symptoms was found to be significantly correlated with self-neglect in disability elderly. Elderly with disabilities have a higher rate of depression than those without disabilities [23]. The results of the present study showed that the more depressive symptoms of disability elderly, the higher levels of self-neglect they have. Another study conducted with elderly living alone revealed a positive correlation between depressive symptoms and self-neglect [3]. Elderly with depressive symptoms tends to have lower life expectations, loss of interest or pleasure in activities and sense of hopelessness [24], all of which may increase their risk for self-neglect. Not surprisingly, higher levels of depression also significantly predict higher suicidal ideation among disability elderly [25]. In turn, suicidal ideation is associated with increased risk of self-neglect [26].

Another finding of the present study is that perceived social support was negatively correlated with self-neglect among the population with disability, higher levels of perceived social support was at significantly lower risk for self-neglect. Higher levels of social support lead to lower levels of psychological distress, social support could be used to maintain a stable psychological state [27]. On the other hand, social support perceived by the elderly significantly contributes to their experiences of life satisfaction and their self-esteem [28]. Our results suggest that higher perceived social support levels might play a protective role against self-neglect. Therefore, support from family, friends, and significant others helps to prevent self-neglect, which indicating the importance of promoting adequate social support of the disability elderly.

In our study, compared with normal cognition, cognitive impairment was associated with higher levels of self-neglect in the univariate analysis, though not statistically significant in the multiple linear regression model. In previous studies, some reported that cognitive impairment tended to be a risk factor for elder self-neglect [6], while Lee et al. [3] observed a negative association between cognitive impairment and elder self-neglect. The inconsistency suggests the complex relationship between cognitive impairment and elder self-neglect. These findings suggest further studies are needed to explore the association between cognitive impairment and elder self-neglect.

This study further found that majority of the respondents do not see their behaviors as self-neglecting. This may be due to inadequate sensitization regarding the problem. Therefore, adequate education by TV shows or newspaper articles is vital to elderly suffering from self-neglect, which can contribute to deepen understanding [9].

Our study may have several potential limitations should be noted. First, only correlations rather than causal relationships can be established, as our results were based on a cross-sectional study. Further longitudinal studies is necessary to clarify the relationships between these risk factors and self-neglect. Second, all the participants are from two communities of a district in Shenyang, China, so the findings may not be generalized to other regions of the country. Third, variables like alcohol drink, educational status, and cigarette smoking are a sensitive issues and might cause social desirability bias. Finally, the use of questionnaires to collect data may have recall bias.

Conclusion

In this study, the prevalence of self-neglect among disability elderly was high compared with previous studies. The findings of this study showed that depressive symptoms, higher degree of disability, lower levels of perceived social support and monthly income are significantly associated with high levels of self-neglect among disability elderly in China. Given the ongoing increase in elder self-neglect level around the world, these findings have important implications in terms of designing appropriate interventions for preventing and managing contributing factors to self-neglect among disability elderly.

Abbreviations

Declarations

Acknowledgements

We acknowledge Dr. Huanrui Zhang from The First Affiliated hospital of China Medical University for his kindly help in articulating the statistical analysis section.

Authors' contributions

Li Dong and Longfeng Sun conceived and designed the study, performed the data analysis, and wrote the manuscript. All authors have read and approved the final manuscript.

Funding

This work was supported by the Scientific Research Fund project of Education Department of Liaoning Province (ZF2019014).

Availability of data and materials

The datasets used and/or analyzed during the current study are not publicly available due to confidentiality issues but available from the corresponding author on reasonable request.

Ethics approval and consent to participate

Ethical approval was obtained from the Ethics Committee of China Medical University (Approved in 2020, No 392). Participants were informed about the objectives and expected outcomes of the study. Written informed consent would be obtained from all participants and their family members.

Consent for publication

Not applicable.

Competing interests

The author reports no conflicts of interest in this work.

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