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A Study on the Impact of Filial Piety Values of Caregivers of Patients with Chronic Heart Failure on Their Caregiving Burden

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Abstract: *Objective:* To analyze the burden of caregivers of CHF patients in the current environment, to explore the related burden and influencing factors of caring for patients with chronic heart failure, and to explore the impact of filial piety values on the burden of caring for patients. *Methods:* 192 caregivers of CHF patients in the hospital were selected as the main objects of this study. The main method was convenient sampling. Through a questionnaire survey of 192 CHF patients' caregivers, a unified investigation was conducted from the aspects of patient''s general condition, objective burden, anxiety and depression degree and relationship quality, etc. The structural equation model was constructed and adjusted by analyzing data entry and variable correlation. Finally, path analysis was used to conduct inferential research on the direct and indirect influencing factors of control burden. *Results:* More than half of the patients' caregivers had a caregiving burden, and the practical caregiving dimension had the highest score. The total effect values of patient-related factors, including anxiety degree, number of concomitant diseases and half-year readmission rate, were 0.36, 0.31 and 0.20, respectively ($P < 0.05$). The total effect values of filial piety, anxiety degree, average care time and understanding degree of disease directly derived from the caregivers themselves were -0.38, 0.29, 0.29 and -0.23, respectively ($P < 0.05$). In addition, the influence of filial piety values on the caregiver burden was more obvious, and the direct effect value of the value was -0.41 ($P < 0.001$). *Conclusion:* Most caregivers of CHF patients have a certain objective burden of care, and there are many factors that affect it, among which the degree of filial piety value is the most important. This finding provides a clear goal for caregivers to develop measures to improve the caregiver burden.

Keywords: Chronic heart failure; Values of filial piety; Caring burden; Influencing factors

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1. Introduction

Some elderly people and people with coronary heart disease and heart problems are vulnerable to disease intrusion, and a group of clinical syndrom caused by organic or functional heart diseases affecting ventricular

filling and ejection ability is heart failure. The symptoms of this disease are also the final form of most cardiovascular diseases, which pose a strong threat to the life and health of the affected people. Once the occurrence of heart failure will fall into the irreversible disease response, which is also the main cause of death of patients [1]. Therefore, the care process for patients with chronic heart failure (CHF) is very important. Generally speaking, patients need to be given long-term and continuous care, which is easy to increase the burden of psychological and socioeconomic aspects of the caregiver. On the contrary, a caregiver who is in a state of stress and anxiety for a long time will have a much higher mortality rate than a caregiver who does not have the burden of care, and the quality of all aspects of their life will be significantly reduced [2]. In addition, with the development and influence of the value of filial piety in recent years, the influence of this concept on caregivers of patients with chronic heart failure has become increasingly strong. On the one hand, the value of filial piety has made requirements for children and has made more and more detailed provisions in the aspect of supporting parents and regulating the attitude of children. On the other hand, the value of filial piety can also play a regulating role [3]. It can influence the burden of caregivers directly or indirectly, to positively regulate the willingness of caregivers, which has a good guiding role in reducing the psychological burden of caregivers and ensuring the follow-up maintenance status of patients.

2. General information selection

2.1. General data selection

In this study, 192 caregivers of CHF patients admitted to hospitals were selected as the main objects of this study by convenient sampling method. Among the 192 CHF patients, nearly 73% of the caregivers lived with the patients, and the average caring time was 11 hours per day, and the proportion of men and women was the same. The spouse relationship of the main caregivers accounted for 41.1%, and the child relationship accounted for 52.6%. Meanwhile, 46.9% of the caregivers were optimistic about the patient's disease. Only 2.6% of the caregivers were not familiar with the patient's disease.

2.2. Inclusion criteria and exclusion criteria

Inclusion criteria: (1) All patients' clinical manifestation records and medical records must be complete, which is convenient for later analysis and accurate report data; (2) Informed consent must be signed by the patient and the caregiver in person, agreeing to participate in the study and accept related examinations and treatments; (3) Caregivers of confirmed patients whose clinical symptoms meet the diagnostic criteria for heart failure; (4) The average weekly care time was more than 8 hours per week. Exclusion criteria: (1) patients with serious complications; (2) patients with missing clinical data; (3) patients with vital organ lesions.

3. Methods

3.1. Research indicators and tools

The general situation questionnaire, Chinese version of Filial Values Index (FVI) scale and objective burden scale for caregivers of chronic heart failure patients were adopted by this research group.

3.2. Data analysis

(1) Descriptive statistics was used to analyze the demographic data, filial piety scores and caregiver burden of

CHF patients and their caregivers. The measurement data were represented by mean ± standard deviation (SD), the number of cases and percentage of measurement data, and the median M (interquartile interval P25, P75) for non-normal distribution. Descriptive statistics were carried out.

(2) Univariate analysis: Pearson/Spearman correlation coefficient was used to analyze the correlation between variables, filial piety values, relationship quality, anxiety and depression scores and DOBI scores in patients and caregivers.

(3) AMOS 22.0 was used to build and debug the structural equation model. Based on the literature review and Pearson/Spearman correlation coefficient analysis results, the initial path analysis model was built and debuted with the univariate observation variables correlated with the burden of care ($P < 0.05$).

(4) Inferential statistical analysis was performed on the direct and indirect influencing factors of caregiver burden. The results include a standardized path model graph and effect value, the number between the foreign and foreign dependent variables in the path model graph is the product difference correlation coefficient between the two variables, and the number on the single arrow symbol is the path coefficient of the external variable and the internal dependent variable (standardized regression coefficient), the path coefficient is positive, indicating that the influence of the internal variable is positive, and the reverse is negative. If the absolute value of the correlation coefficient is greater than 1, it indicates that the model has unreasonable parameters. The single arrow path coefficient is also a direct effect value, the standardized direct effect value is the size of the influence of external variables directly on internal variables, the standardized indirect effect value is equal to the multiplication of path coefficients, the standardized total effect value is equal to the sum of the standardized direct effect value and the standardized indirect effect value, the greater the absolute value of the standardized effect value, the greater the influence of external variables on internal variables.

(5) The fitting indicators of path analysis model include [4] : absolute fitting statistic Chi-square degree of freedom ratio (CMIN/DF), asymptotic residual Mean Square Error of Approximation (RMSEA); Incremental Fit statistical gauge Normed Fit Index (NFI), Incremental Fit Index (IFI), Tacker-Lewis Index, TLI) and Comparative Fit Index (CFI); The reduced fit statistic Akaike Information Criteria (AIC), the Expected Cross-Validation Index (EVCI) and the minimum difference value function (FMIN). Test level: bilateral $\alpha < 0.05$, with statistical significance.

4. Observation index

4.1.1 Statistical analysis

In this study, SPSS 18.0 software was used to establish a database and carry out statistical analysis.

4.2. Results

4.2.1. Status quo of caregivers' caregiving burden

The total caregiver burden score of this study was (10.97 ± 13.78), and the detailed types of burdens are shown in **Table 1**.

Table 1. Scores of each dimension of the caregiver burden

Item	Mean ± SD	M (P25,P75)
Total burden	10.97 ± 13.78	4 (0, 18.75)
Personal care dimension	3.19 ± 4.27	1 (0,6)
Practical care dimension	3.30 ± 4.13	1 (0,6)
Incentive support dimension	2.73 ± 3.83	0 (0,6)
Affective support dimension	1.84 ± 2.49	0 (0,4)

4.2.2. Influencing factors of caregiving burden

(1) The influence of CHF patients on caring burden

The standardized path coefficients all reached significant levels ($P < 0.05$), as shown in **Figure 1**. The level of cardiac function, depression and anxiety had indirect effects on the burden of care, and the indirect effect values were 0.14, 0.20 and 0.36, respectively, as shown in **Table 2**. The structural equation model showed good fit indicators. The values of preset models such as AIC/BCC/EVCI are smaller than those of independent models, and the specific evaluation indicators are shown in **Table 5**.

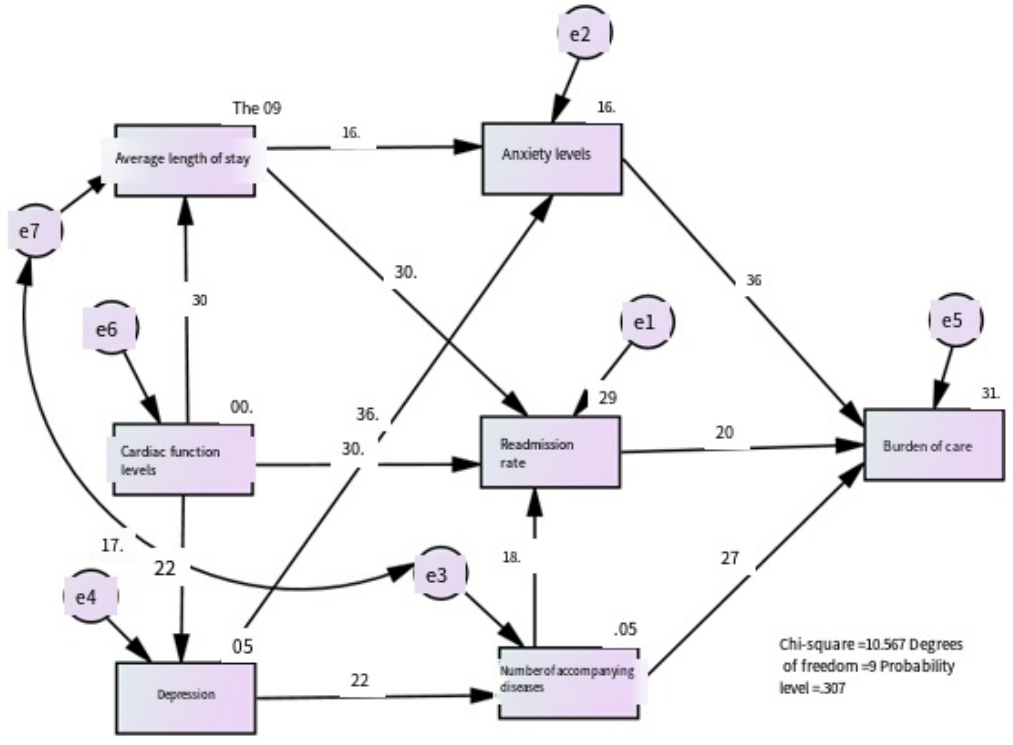

Figure 1. Structural equation model of CHF patient side influencing factors on caregiving burden.

Table 2. Influence of patient-side variables on caregiving burden

Observed variable	Caring burden		
	Direct effect	Indirect effect	Total effect
Cardiac function level	0	0.14	0.14
Depressed	0	0.20	0.20
Mean length of stay	0	0.12	0.12
Number of accompanying diseases	0.27	0.04	0.31
Half-year readmission rate	0.2	0	0.20
Anxiety level	0.36	0	0.36

(2) The influence of caregivers on the burden of care

The final model and path coefficient were obtained through continuous modification of the revised index, parameter test and other models, and the relevant standardized path coefficient ($P < 0.05$) is shown in **Figure 2**. The value of filial piety had the greatest impact on the caregiver burden of CHF patients and was correlated with other influencing factors (**Table 3**).

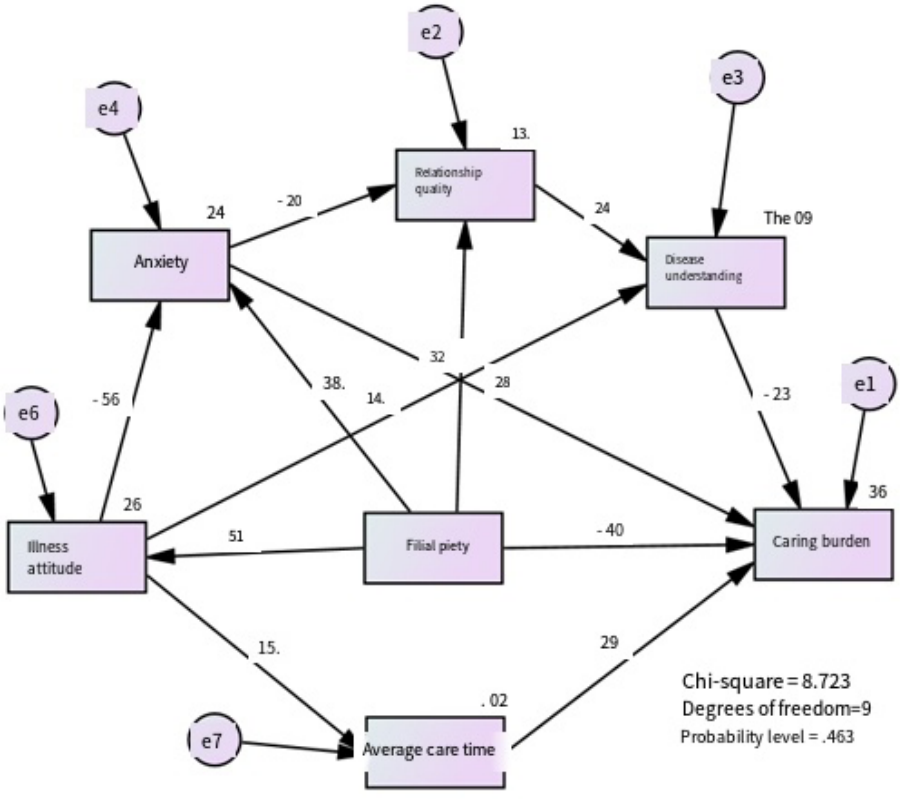

Figure 2. Structural equation model of influencing factors on caregiver burden from a caregiver perspective.

Table 3. Influence of caregiver variables on caregiving burden

Observed variable	Caring burden		
	Direct effect	Indirect effect	Total effect
Filial piety	-0.40	0.02	-0.38
Attitude to illness	0	-0.15	-0.15
Anxiety	0.28	0.01	0.29
Relationship quality	0	-0.06	-0.06
Average care time	0.29	0	0.29
Disease understanding	-0.23	0	-0.23

4.3. Influence of filial values on the caregiving burden of children

Through testing and revising the index, the relevant data of child caregivers are improved, and the relevant model and path coefficient of corresponding influencing factors are obtained. The final results show that the structural equation model has a good fit index, and the corresponding standardized path coefficient ($P < 0.05$) is shown in **Figure 3**. However, the influence of filial piety on caregivers' caring burden is still the main one, as shown in **Table 4**.

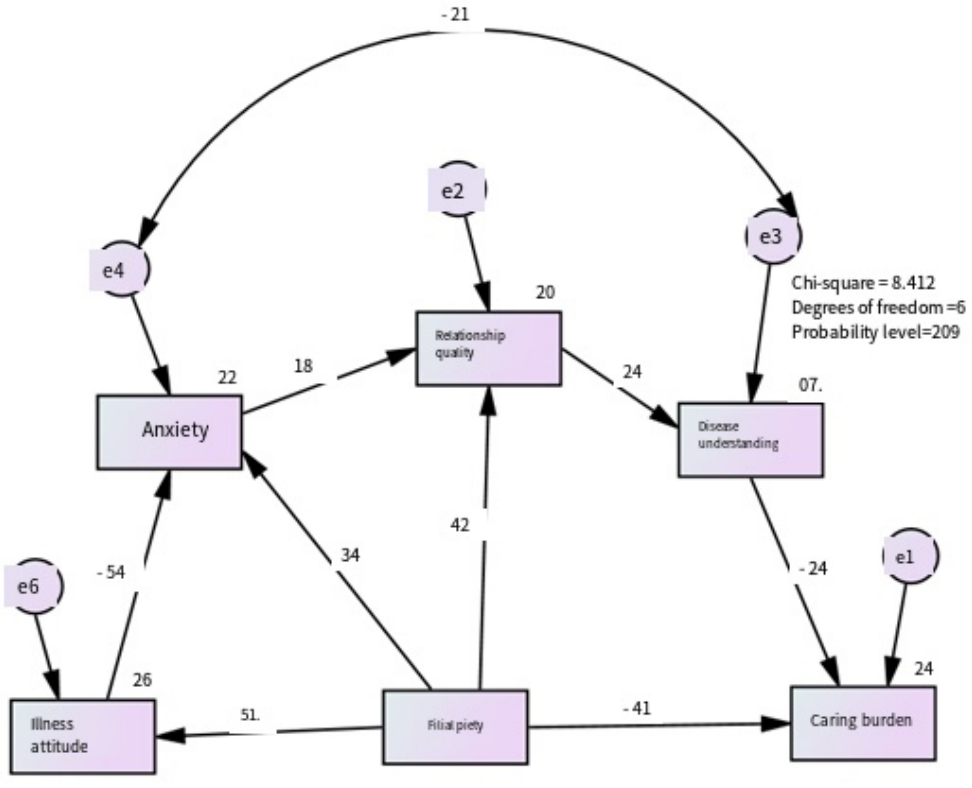

Figure 3. Structural equation model of the influence factors of filial piety values on caregivers' caring burden.

Table 4. Influence of filial piety values on caregiving burden

Observed variable	Caring burden		
	Direct effect	Indirect effect	Total effect
Total score of filial piety	-0.41	-0.02	-0.43
Attitude to illness	0	-0.01	-0.01
Anxiety	0	0.01	0.01
Relationship quality	0	-0.06	-0.06
Disease understanding	-0.24	0	-0.24

Table 5. Structural equation model fit indicators

Evaluation index	Patients	Caregiver	Child caregiver
CMIN/DF	1.174	0.969	1.402
TLI	0.974	1.005	0.945
CFI	0.992	1.000	0.978
FMIN	0.055	0.046	0.084
RMSEA	0.030	< 0.001	0.063

5. Discussion

Through this study, it can be seen that the main group prone to chronic heart failure is the elderly with a long course of disease, and some groups with poor heart function are also prone to such diseases. Meanwhile, most of these patients will be admitted to the hospital for the second time after half a year's recovery period, sometimes accompanied by other diseases, which indicates that patients' self-care ability is weak. To some extent, caregivers must follow up with family nursing for a long time and accompany patients after admission, which is also the main source of objective care burden faced by caregivers [5]. The research results show that more than half of the caregivers have different degrees of care burden, and most of the caregivers' stress levels are concentrated in the medium and low levels. When analyzing the score of the objective burden dimension of caregivers, the score of the basic care burden dimension such as objective care and personal care is relatively high. Indicating that the caregiver can complete the behavior in taking care of the patient's daily life and housework activities, but the frequency of the fact may vary according to different personal circumstances [6]. In terms of compliance with doctor's orders and health promotion behaviors, caregivers showed a heavier burden, with the incentive support dimension accounting for one-third of the total burden. This situation may be related to patients' treatment cooperation, and their treatment compliance is closely related to compliance with doctor's orders and other aspects requiring patients' cooperation, which can easily lead to increased burden of caregivers. In addition, the high scores of the values of filial piety of the caregivers in this study indicate that they have a good understanding of filial piety and the implementation of the obligation to support their parents, which may be related to the traditional virtue of "filial piety first" in the country [7].

By screening the factors associated with the caregiving burden and combining the theory of literature review, this study generated an initial model of the relevant factors affecting caregivers and determined the final structural equation of the influencing factors of caregiving burden through index modification, parameter testing

and structural adjustment. The results showed that the value of filial piety was a direct factor influencing caregiver burden in CHF patients, and had the most obvious effect compared with other factors (direct effect -0.4). At the same time, the value of filial piety could also mediate the degree of caregiver anxiety, the attitude toward the disease and the quality of the relationship with the patient and indirectly regulate the caregiver burden, which was the most important factor influencing the caregiver burden [8]. The higher the filial piety score, the lower the caregiver burden. This result is the same as the results of many domestic and foreign studies, which further verifies the importance of filial piety values in the caregiver burden. Caregivers with a high filial piety score will have a higher sense of responsibility when carrying out nursing work, they will be more clear about their moral obligations, they will be willing to undertake the obligation of caring for patients in an all-round way, and they will be better able to cope with various challenges encountered in the care process [9]. In addition, the value of filial piety can further reduce the burden through indirect ways such as improving the caregiver's psychological state, adjusting the attitude toward the disease and improving the quality of the relationship with the patient. Those with high filial piety adopt positive psychological adjustment to reduce anxiety, enhance family cohesion, and form a supportive care environment [10]. Although most current studies focus on the direct effect, the indirect influence mechanism of different dimensions of filial piety, such as respect, obedience and support, is worthy of further exploration. Future studies should refine these dimensions to fully reveal the complex role of filial piety values on caregiver burden to provide a scientific basis for formulating targeted intervention measures to reduce caregiver burden [11].

In addition to the values of filial piety, the influencing factors of the caregiver burden of CHF patients also include the influencing factors of the patient and the caregiver. Among them are the patient's anxiety level, the number of accompanying diseases, and the readmissions in six months, etc. The patient's mood, complications, and readmission rate are easy to generate emotional and financial pressure for the caregivers, thus increasing the caregiver's burden [12]. In terms of caregivers, factors such as the degree of anxiety, the degree of understanding of the disease and the average time of care will also have a direct impact on the caregiver burden. Caregivers' anxiety will further aggravate their burden, and their understanding of patients' disease development is also related to their ability to provide more accurate and perfect care and support. Although the average caregiving time was not a direct factor affecting the caregiving burden in this study, longer caregiving time may harm the physical and psychological state of caregivers, thereby indirectly increasing their burden [13]. In these cases, medical staff should pay attention to the patient's condition, but also pay attention to the patient's mental state and the caregiver's mental state and disease management ability, and provide necessary support and help to reduce the caregiver's burden.

In the care of patients with chronic heart failure in the future, clinicians can promote the culture of filial piety through publicity and education, community activities, peer support and other ways to improve the social sense of identity and respect for the values of filial piety, so as to stimulate the sense of moral obligation and responsibility of care of caregivers [14]. At the same time, it can combine health education, nursing guidance courses, cognitive behavioral therapy, psychological counseling and other ways to improve patients' and caregivers' disease cognition, disease management ability, and strengthen the intervention of patients or caregivers' anxiety, so as to reduce the number of readmissions and the incidence of accompanying diseases, reduce the burden of caregivers [15]. At the same time, the health promotion activities of filial piety values can also promote the formation of multi-party cooperation mechanisms including medical institutions, communities and families, and encourage all parties in society to jointly provide a full range of support and services for CHF

patients and their caregivers, forming a joint force to reduce the burden faced by caregivers to the greatest extent, so as to lay the foundation for their follow-up health work [15].

Disclosure statement

The authors declare no conflict of interest.

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