

Study on Sleep Quality and Influencing Factors in Patients with Coronary Heart Disease

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Abstract: **Objective:** To understand the status of sleep quality and family care in patients with coronary heart disease (CHD), and to analyze the factors affecting sleep quality. **Methods:** Convenience sampling method was used to select 164 patients with CHD who met the inclusion criteria in a tertiary hospital in a city. The general information questionnaire, the family care index and the Pittsburgh sleep quality scale were used to conduct a questionnaire survey on the patients. **Results:** The average score of sleep quality in patients with CHD was (8.96 ± 4.409) , and 60.4% of patients had sleep quality problems; the average score of family care was (6.29 ± 2.383) , and 50% of patients with poor family function; Logistic regression results showed that sleep quality The influencing factors are: gender, marital status, weekly visits by children's relatives and friends, and weekly physical activity. **Conclusion:** Patients with CHD have poor sleep quality and more patients with family dysfunction. Sleep can be improved by improving the patient's family care level and regular exercise.

Keywords: Coronary Heart Disease (CHD); Sleep Quality; Family Care

Introduction

According to the "China Cardiovascular Health and Disease Report 2020", the number of people suffering from cardiovascular disease in my country will reach 330 million in 2020, of which 11.39 million suffer from coronary heart disease (CHD). CHD has become one of the diseases that threaten human health^[1]. Most CHD patients suffer from sleep disturbance, which not only affects the quality of life, but also leads to a poor prognosis of the disease. Thirteen cohort studies concluded that sleep disturbance increases the risk of cardiovascular disease or death. Therefore, improving sleep quality could serve as a new target for improving CHD prognosis. As an important indicator to evaluate family function and measure the quality of life of patients, family care has an important impact on the prognosis of patients. Relevant studies have shown that improving the patient's family care can help improve the patient's sleep quality^[2]. This paper aims to understand the current situation of sleep quality and family care in patients with coronary heart disease, and analyze the influencing factors of sleep quality from the aspects of population, economy and family.

1. Objects and Methods

1.1 Survey Objects

A questionnaire survey was conducted by 170 CHD patients from a third-class hospital in a city. Inclusion criteria: (1) clinical diagnosis of CHD; (2) age ≥ 18 years; (3) communication barrier-free; (4) voluntary participation; Exclusion criteria: (1) have a mental illness; (2) there are serious organic diseases. In this study, 170 questionnaires were distributed and 164 questionnaires were effectively recovered, with an effective rate of 96.5%.

1.2 Research Method

1.2.1 Investigation Tools

(1) General information questionnaire.

(2) Pittsburgh sleep quality index ^[3]: A total of 18 self-assessment entries, divided into 7 dimensions. The total score of PSQI is the sum of the points for 7 dimensions, and the higher the score, the worse the sleep quality. A score of ≤ 7 points indicates no sleep quality problems, and > 7 points indicates sleep quality problems. This scale Cronbach's α coefficient is 0.842.

(3) Family Care Index^[4]: This scale is composed of family adaptability, cooperation, growth, emotion and intimacy. Each entry is scored on a three-point scale: "rarely" is scored on 0 points, "sometimes this way" is counted as 1 point, "often this way" is scored on 2 points, and the higher the score, the better the family function. A score of 0 to 3 indicates severe dysfunction in the family, a score of 4 to 6 indicates a moderate dysfunction, and a score of 7 to 10 indicates that the family function is good. This scale Cronbach's α coefficient is 0.813.

1.3 Statistical methods

SPSS 25.0 software was used to analyze the data. Descriptive analysis, X^2 test and Logistic regression analysis were used to study sleep quality and influencing factors in patients with coronary heart disease.

2. Results

2.1 Status of sleep quality of CHD patients (see Table 1 for details)

There were 65 CHD patients with $PSQI \leq 7$ points, accounting for 39.6%, and 99 patients with $PSQI > 7$ points, accounting for 60.4%.

Table 1 Total sleep quality scores and scores of CHD patients in various dimensions

Item	Entry	Score Range	Median	Quartile (P25, P75)
Total sleep quality score	19	1~18	9	(6,12)
Subjective sleep quality	1	0~3	2	(1,2)
Time required to fall asleep	2	0~3	2	(1,2)
Sleep time	1	0~3	1	(0,1)
Sleep efficiency	3	0~3	1	(0,1.75)
Sleep disorders	9	0~3	2	(1,2)
Hypnotherapy drugs	1	0~3	0	(0,2)
Daytime dysfunction	2	0~3	2	(1,2)

2.2 Status of family caring degree of CHD patients (see Table 2 for details)

The average score of family care in 164 CHD patients was (6.29 ± 2.383) , 82 (50%) had good family function, 58 (35.4%) had moderate disability, and 24 (14.6%) had severe disability.

Table 2 Total scores of family care for patients with CHD and scores in various dimensions

Item	Minimum	Maximum	Median	Quartile (P25, P75)
Total Family Care score	0	10	6.5	(4,8)
Adaptability	0	2	1	(1,2)
Degree of cooperation	0	2	1	(1,2)
Growth	0	2	1	(1,2)
Emotionality	0	2	1	(1,2)
Intimacy	0	2	1	(1,2)

2.3 Influencing factors of sleep quality of CHD patients

2.3.1 Univariate analysis of sleep quality

Taking sleep quality as the dependent variable and general data as the independent variable, it was transformed into a categorical variable according to no sleep quality problems ($PSQI \leq 7$) and sleep quality problems ($PSQI > 7$). The results of univariate analysis showed that under the grouping of gender, age, number of children, number of children's visits, marital status, living style, education level, occupational status, personal monthly income, smoking, drinking, the number of weekly exercise and the time of each exercise, The difference between sleep quality was statistically significant ($P < 0.05$). See Table 3.

Table 3 Univariate analysis of sleep quality of CHD patients

Items		n	PSQI≤7(n)	PSQI>7(n)	χ^2	P
Gender	Female	84	49	35	25.166	0.000**
	Male	80	16	64		
Age	<60	72	39	33	10.045	0.002**
	≥60	92	26	66		
Number of children	0	11	9	2	7.059	0.008**
	1-2	115	45	70		
	>2	38	11	27		
Number of visits from relatives and friends of children	< 1 time per week	53	12	41	23.879	0.000**
	1 time per week	54	16	38		
	> once a week	57	37	20		
Marital status	Unmarried	18	13	5	12.170	0.007**
	Married	124	47	77		
	Divorce	5	0	5		
	Widow	17	5	12		
Mode of living	Living alone	106	32	74	11.177	0.001**
	Live with children	58	33	25		
Educational attainment	not attending school	12	3	9	20.892	0.000**
	Elementary school	46	13	33		
	Junior	35	12	23		
	High school or secondary school	37	17	20		
	Junior College and above	34	23	11		
Occupational Status	< 1 time per week	56	13	43	11.977	0.003**
	1 time per week	69	37	32		
	> once a week	39	15	24		
Personal income	<2000 元	23	4	19	19.227	0.000**
	2000~5000 元	99	33	66		
	>5000 元	42	28	14		
Smok	No	131	57	74	4.091	0.043*
	Yes	33	8	25		
Drink alcohol	No	114	55	59	10.439	0.001**
	Yes	50	10	40		
Exercise times per week	<3 times/week	84	17	67	28.988	0.000**
	3~5 times/ week	70	40	30		
	> 5times/week	10	8	2		
Time per exercise	<30min	76	21	55	8.528	0.014*
	30~60min	82	41	41		
	>60min	6	3	3		

Note: * $P<0.05$ and ** $P<0.01$ are statistically significant

2.3.2 Multivariate analysis of sleep quality

Taking the presence or absence of sleep quality problems as the dependent variable (none = 0, yes = 1), and the variables with statistical significance in the univariate analysis as the independent variables, assign values to the independent variables, and according to a $\alpha = 0.05$, a $\beta = 0.10$ standard was included in the logistic regression model, the results showed that gender, marriage, the frequency of visits by children and relatives and friends and the number of weekly exercise were included in the regression equation. See Table 4 for details.

Table 4 Logistic regression analysis of the influencing factors of sleep quality of CHD patients

variable	reference group	B	SE	Wald	P	OR	95%CI
Gender							
Female	male	1.641	0.453	13.108	0.000	5.158	2.122-12.536
Frequency of visits from relatives and friends of children							
> 1 time/week	<1 time/week	-1.582	0.610	6.738	0.009	0.205	0.062-0.679
Number of exercises per week							
3~5 times a week	<3 times a week	-1.208	0.449	7.246	0.007	0.299	0.124-0.720
> 5 times a week		-2.868	0.998	8.249	0.004	0.057	0.008-0.402

3. Discussion

3.1 The sleep quality of CHD patients

Of the 164 CHD patients, 99 (60.4%) had problems with sleep quality, a result higher than that of other studies. 1 The total mean score of sleep quality of the patients in this survey was (8.96 ± 4.409), which was at a moderate level, which was basically consistent with the mean total score of sleep quality obtained by Douheqin (8.95 ± 3.62). The quality of sleep in patients with CHD is poor, and medical care and family members should pay attention.

3.2 The level of family care of CHD patients

This study showed that the overall mean of family care for CHD patients was (6.29 ± 2.38), which was relatively low. Among them, 82 (50%) had good family function, 58 (35.4%) had moderate impairment, and 24 had severe impairment. (14.6%), indicating that the level of family care for patients with coronary heart disease is not good, which is lower than that of other studies. The reason may be that most of the patients in this survey are around 60 years old, they are about to retire or have already retired, and their children are busy with themselves. their careers and families, less emphasis on humanistic care, and unaware that family care has a positive impact on patients' sleep and recovery.

3.3 Influencing factors of sleep quality of CHD patients

3.3.1 Gender

In this study, women with poor sleep quality accounted for 64.6% and men with poor sleep quality accounted for 35.4%. Due to changes in sex hormones in the body, female patients have an increased risk of sleep quality problems. Studies have shown that melatonin, which maintains sleep, decreases with women's menopause, resulting in a decline in women's sleep quality. In addition, women are more delicate and sensitive, and are more concerned about family and marriage trivial matters. With the changes in the family structure and environment in China, women shoulder the responsibility of taking care of their grandchildren and need to spend more time and energy. These factors will affect the quality of sleep. decline.

3.3.2 Exercise situation

The survey results show that there are differences in the sleep quality of coronary heart disease patients with different exercise situations. 67.7% of those who exercised less than 3 times a week had poor sleep quality. Studies by Gong Mingjun and others found that exercising more than 3 times a week has the most significant effect on improving sleep disorders. Maintaining a certain degree of exercise can promote perspiration, increase fatigue, and shorten the sleep latency of patients.

3.3.3 Frequency of visits from relatives and friends of children

Some studies have found that the support of social relationships is closely related to sleep quality. The more frequent the supportive connection is, the better the sleep quality. The results of this study are consistent with the above results. Patients with fewer visits from relatives and friends of their children are more likely to have sleep quality problems. Lack of family affection makes patients feel lonely and helpless, which affects their sleep.

The quality of sleep in patients with coronary heart disease is poor, and the sleep status can be improved by improving the patient's family care level and regular exercise.

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