Analysis of Psychological Characteristics and Influencing Factors of COVID-19 Patients

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Abstract: Objective — To explore psychological characteristics and influencing factors of COVID-19 patients. Method — Choose 23 cases of COVID-19 patients treated by our hospital from January 24, 2020 to February 28, 2020 as the research object; use Self-rating Anxiety Scale (SAS) and Self-rating Depression Scale (SDS), Symptom Check List-90 (SCL-90) and fear scale to investigate patients' psychological conditions and to analyze the relationship between their gender, age, educational level, marital status, type of disease, whether there is family clustering infection, whether there is a psychological chronic disease and the patients' anxiety, depression and fear. Results and conclusions — Fear, anxiety, depression and other bad psychological emotions are common in COVID-19 patients. The depression and fear emotions of middle-aged and elderly patients are more serious than that of young people (P<0.05, which is statistically significant); the ratio of bad emotions of married patients are more serious than that of unmarried patients (P<0.05, which is statistically significant); patients with family clustering infection have more severe bad mood than patients without family clustering infection (P<0.05, which is statistically significant); patients with chronic diseases have more serious anxiety than patients without chronic diseases (P<0.05, which is statistically significant).
***Keywords*:** COVID-19, psychological characteristics, influencing factors

The COVID-19 outbreak occurred in Wuhan, Hubei, in December 2019. With the rapid spread of the virus, the epidemic quickly spread to other parts of China and beyond its borders. COVID-19 pneumonia is a new infectious disease. At present, humans are still further deepening their understanding of the pathogenesis of the disease, the full picture of the disease course, the outcome of the disease course and the characteristics of different stages of the disease. Due to the lack of human understanding of the disease, the disease spreads rapidly, spreads widely, and the number of infected people is large, which seriously threatens human health and social stability.[1] Patients not only endure physical pain, but also have unhealthy psychological emotions such as tension, pessimism, anxiety, depression, fear, and a sudden decrease in self-worth [2-5]. Timely and correctly assessing the patient's psychological state and analyzing the influencing factors of bad psychological mood can effectively guide medical staff to carry out targeted and effective nursing interventions, so that patients can maintain a good psychological state and promote disease outcome.

1. Research objects and methods

1.1 Objects

23 patients with COVID-19 admitted to our hospital from January 24, 2020 to February 28, 2020 were selected as study objects. They met the diagnostic criteria of THE Diagnosis and Treatment Protocol for COVID-19 (trial first to sixth edition). They were aged ≧ 16 years, had clear consciousness, and had normal communication ability, and volunteered to participate in this study. Exclusion criteria: age < 16 years old, critically ill patients, unconscious, unable to take care of themselves, do not cooperate.

1.2 Methods

1.2.1 Evaluation Methods

Self-rating Anxiety Scale (SAS) was used. [6], Self-rating Depression Scale (SDS)[7], Symptom Check List-90 (SCL-90) [8] and fear scale were used to evaluate the anxiety, depression and fear at admission. SAS judgment criteria are as follows: 50 points or less is no anxiety, 50-59 points are mild anxiety, 60-69 points are moderate anxiety, and 69 points or more are severe anxiety. SDS judgment criteria are as follows: 53 points or less is no depression, 53-62 is mild depression, 63-72 is moderate depression, and 72 points or more is severe depression. SCL-90 fear factor criterion: the higher the score, the more fear; less than 14 points indicates fearful symptoms are not obvious; more than 21 points indicates fearful symptoms are obvious.

1.2.2 Statistical methods

Excel was used for input and database establishment. SPSS19.0 was used for data processing and statistical analysis. Measurement data were expressed as mean ± standard deviation; T-test was used for normal distribution data; Mann-Whitney test was used for non-normal distribution data.

2. The results

2.1 Demographic and sociological characteristics of COVID-19 patients

There were 23 respondents in this study. 69 questionnaires were issued; 69 valid questionnaires were recovered; the pass rate was 100%. Among the 23 patients, 14 were males, accounting for 60.87%, and 9 were females, accounting for 39.13%. There were 10 people (43.48%) in technical secondary school and below, 5 people (21.74%) in senior high school and technical secondary school, and 8 people (34.78%) in junior college and above. There were 14 cases of family clustering infection, accounting for 60.87%, and 9 cases of no family clustering infection, accounting for 39.13%. There were 21 cases of light and normal type, accounting for 91.30%, and 2 cases of heavy type.

Among them, 7 had chronic diseases and 16 had no chronic diseases. See Table 1 for details.

Table 1. Demographic and sociological characteristics of COVID-19 patients

Projects		The number of cases (n)	Percentage (%)
Gender	Male	14	60.87
	Female	9	39.13
Age (age)	Youth (18-40)	10	43.48
	Middle age (41-65)	10	43.48
	Old age (≥65)	3	13.04
Marital status	Married	21	91.30
	Unmarried	2	8.70
Educational level	Junior high school and below	10	43.48
	High school, technical secondary school	5	21.74
	Junior college and above	8	34.78
With or without family clustering infection	With	14	60.87
	Without	9	39.13
Severty of illness	Mild, ordinary	21	91.30
	Severe	2	8.70
With or without chronic diseases	With	7	30.43
	Without	16	69.57

2.2 Anxiety, depression and fear of COVID-19 patients

Among the 23 patients in this study, 22 had anxiety, and the anxiety score (gross score) was significantly higher than the national norm[9]; depression score (gross score) was significantly higher than the national norm in 21 cases[9]; 22 cases had fear, and the fear score was significantly higher than the national norm[10]. See Table 2 for details.

Table 2. Anxiety, depression and fear of COVID-19 patients

Projects	The number of cases (n)		`X±S	
	With	Without	COVID-19 patients	The national norm
Anxiety (SAS)	22	1	58.34±8.58	43.00±10.00
Depression (SDS)	20	3	59.30±9.54	42.00±11.00
Fear (SCL-90)	22	1	2.80±0.75	1.23±0.41

2.3 Analysis of influencing factors of anxiety, depression and fear in COVID-19 patients

In this study, there was no difference in the influence of gender, condition and education level on anxiety, depression and fear in COVID-19 patients. Depression and fear in middle-aged and elderly patients were more serious than that in young patients ($P < 0.05$), which was statistically significant. The adverse mood of the married patients was more serious

than that of the unmarried patients ($P < 0.05$), which was statistically significant. Patients with family cluster were more serious in bad mood than those without family cluster, $P < 0.05$ was statistically significant. The anxiety of patients with chronic diseases was more serious than that of patients without chronic diseases, $P < 0.05$, which was statistically significant. See Table 3.

Table 3. Anxiety, depression and fear of COVID-19 patients with different characteristics

Projects		The number of cases	SAS (`X±S)	SDS (`X±S)	SCL (`X±S)	*t*	*P*
Gender	Male	14	58.59+9.40	56.69+8.14	2.57+0.73	*t*1=0.172 *t*2=-1.786 *t*3=-1.880	*P*1=0.87 *P*2=0.09 *P*3=0.07
	Female	9	57.94+7.65	63.53+10.47	3.14+0.68		
Age (age)	Youth (18-40)	10	55.43+6.26	54.35+6.25	2.40+0.70	*t*1=-1.465 *t*2=-2.413 *t*3=-2.441	*P*1=0.16 *P*2=0.03 *P*3=0.02
	Middle and old age (≥41)	13	60.58+9.64	63.12+10.06	3.10+0.66		
Marital status	Married	21	59.18+8.51	60.52+9.05	2.91+0.69	*t*1=5.035 *t*2=2.143 *t*3=2.540	P1=0.00 P2=0.04 P3=0.02
	Unmarried	2	49.50+0.71	46.50+2.12	1.64+0.99		
Educational level	Junior high school and below	10	61.58+10.10	63.23+11.41	3.07+0.76	*t*1=-1.649 *t*2=-1.817 *t*3=-1.589	P1=0.11 P2=0.08 P3=0.13
	High school and above	13	55.85+6.55	56.29+6.81	2.58+0.70		
With or without family clustering infection	With	14	60.98+8.26	62.50+10.20	3.08+0.63	*t*1=1.96 *t*2=2.17 *t*3=2.544	*P*1=0.06 *P*2=0.04 *P*3=0.02
	Without	9	54.22+7.76	54.33+5.97	2.35+0.74		
Severty of illness	Mild, ordinary	21	57.70+8.64	59.18+9.83	2.78+0.78	*t*1=-1.159 *t*2=-0.200 *t*3=-0.395	*P*1=0.26 *P*2=0.84 *P*3=0.70
	Severe	2	65.00+5.30	60.63+7.96	3.00+0.20		
With or without chronic diseases	With	7	64.82+9.06	64.46+10.75	3.08+0.80	*t*1=2.726 *t*2=1.802 *t*3=1.227	*P*1=0.01 *P*2=0.09 *P*3=0.23
	Without	16	55.50+6.85	57.05+8.33	2.67+0.72		

Note: *t*1, *t*2 and *t*3 represent t values of SAS, SDS and SCL respectively; *P*1, *P*2 and *P*3 represent the *P* value of SAS, SDS and SCL respectively.

3. Discussion

3.1 COVID-19 patients are in poor mental health, generally with anxiety, depression and fear

The scores of anxiety, depression and fear of COVID-19 patients were significantly higher than those of domestic patients.

This is consistent with a large number of related research results: patients with infectious diseases, especially patients with new infectious diseases generally have bad emotions such as anxiety, depression, fear and so on [11-12]. The main reasons are as follows. (1) COVID-19 is a new and acute infectious disease [13-14]. It is the most contagious, fastest and most widespread infectious disease in China since the reform and opening up. Human beings lack of understanding of the disease, the source of the virus, pathogenic mechanism and the outcome of the disease are not clear, the lack of effective antiviral drugs and treatment programs, it is easy to cause domestic and global pandemics in a short period of time. On January 9, 2020, the virus was identified as a new type of coronavirus. On January 20, the National Health Commission of China announced that the disease will be included in the *Law of the People's Republic of China on Prevention and Control of Infectious Diseases* as a Class B infectious disease and managed as a Class A infectious disease.[15] On January 30, the World Health Organization (WHO) designated the new coronavirus infection as Public Health Emergency of International Concern (PHEIC) [16], which caused great social panic and economic losses. (2) During the epidemic, websites, large and small, official and unofficial platforms were overwhelmingly full of reports on COVID-19. The epidemic spread from Wuhan to all parts of the country and even the world. The rapid increase in confirmed and suspected cases, especially the excessive number of negative reports on the Internet, has caused a great psychological burden on patients. (3) Once the patients are diagnosed, they need to be treated in isolation, and they will be sent to the isolation ward with restricted range of activities and freedom. Without family support, they cannot get the warmth of the family, and they often feel abandoned and lonely. The medical staff in the isolation ward are protected by level two and level three, and are wrapped in layers

of protective materials from head to toe. Strict disinfection and isolation measures must be implemented in the ward. The patient will inevitably have fear and anxiety when confronted by a normal natural person suddenly. (4) Many patients are worried that the treatment effect is not good and the prognosis is not good when they are diagnosed with COVID-19. Even if they are cured, they will leave sequelae like SARS and seriously affect the quality of life. (5) COVID-19 is highly infectious. Of the 23 confirmed patients in this study, 14 had family or cluster disease. The patients were generally worried about the safety of their families. In addition, I worry about work, study, leaders, friends, colleagues and neighbors who will isolate themselves and stay away from themselves because they are afraid that they have had COVID-19.

3.2 The main factors of fear, anxiety and depression in COVID-19 patients include age, marital status and family clustering infection

The scores of middle-aged and elderly patients (> 40 years old) were higher than those of young patients (18-40 years old), the scores of married patients were higher than those of unmarried patients, and the scores of patients with family cluster disease were higher than those of patients with single disease. Statistical analysis results of these three factors showed that $P < 0.05$ was statistically significant. Possible reasons are as follows. COVID-19 is highly contagious and spreads quickly, and it is prone to family clustering transmission. 14 of the 23 confirmed patients in this study had family or clustering infection. Middle-aged patients are the source of income for the family, and the backbone of the family is not only worried about their own life safety, but also worried about their family members being infected by themselves and affecting the quality of life of the entire family. Elderly patients are more worried about the safety of their children and grandchildren. Married patients are more responsible because they have a family. They worry not only about themselves, but also about the health of family members.

3.3 Analysis of influencing factors of gender, educational level, illness and whether there are chronic diseases

In this study, anxiety, depression and fear scores of male and female patients were higher than national norms, and depression and fear scores of female patients were higher than that of male patients. The scores of anxiety, depression and fear in patients with junior high school education or below were higher than those with high school education. The scores of anxiety, depression and fear in severe patients were higher than those in mild and ordinary patients. Patients with chronic diseases had higher scores and more severe negative emotions, which was consistent with the results of relevant studies and basically consistent with the conclusions of Schane *et al*[17-18]. The main reasons are as follows. (1) women are more sensitive and sensitive than men, and their tolerance is not as good as men's. (2) most of the patients above junior high school level have the ability to accurately understand the disease, and easy to master the effective ways and methods to deal with the disease. They have a certain psychological tolerance for the progress of the disease, so their bad emotions are relatively mild. Secondly, when depression occurs, patients with junior high school education or above have the ability to acquire psychological knowledge and corresponding psychological adjustment skills, so as to conduct psychological adjustment in a timely and effective manner. (3) For seriously ill patients, the disease is more dangerous and difficult to treat, the pain caused by the disease is more severe, and the subjective bad feelings are more severe. Therefore, the bad mood of seriously ill patients is more serious. (4) Patients with chronic diseases are not only worried about the harm of COVID-19 to the body, but also worried about the aggravation of existing diseases and the aggravation of existing diseases.

Through the analysis of the main factors that cause the bad mood of COVID-19 patients, it is possible to grasp the main reasons that cause the bad mood of the patient, so as to guide the medical staff to take effective targeted intervention measures to restore the patient to a healthy mental state as soon as possible to deal with the disease get well soon.

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