

Research on the Mental State Measurement and Influencing Factors of the Staff at the COVID- 19 Health Observation Point

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Abstract: Objective: To measure the anxiety and depression of the staff at the COVID-19 health observation point (observation point for short), so as to provide a theoretical basis for the orderly progress of the work at the observation point and the fine psychological intervention to the staff. Methods: A survey was conducted for the staff of a health observation point in Shanghai, and 87 samples were collected to complete a demographic information survey; a cognitive survey of new coronary pneumonia; Chinese Perceived Stress Scale (CPSS); measuring mental states: Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7). Results:(1) The detection rate of anxiety was 50.5%, and the detection rate of depression was 64.3%; (2) Logistic regression analysis showed that educational background, job position, and perceived stress level were the influencing factors of depression ($P < 0.05$); gender and perceived stress level It is an influencing factor of anxiety. Conclusion: The incidence of anxiety and depression among the staff at the observation point is higher than that of the normal group, which requires active attention and effective measures to intervene.

Keywords: Observation Point; Stress; Anxiety; Depression

Introduction

COVID-19 is a major public health emergency with the fastest spread, the widest infection range, and the most difficult prevention and control since the founding of the People of China ^[1] Under the scientific deployment and fine control of the government, the domestic epidemic situation has been blocked. , but the epidemic is spreading globally. Therefore, "foreign defense against the import, internal defense against rebound" has become the focus of the current epidemic prevention and control, and all inbound personnel is required to undergo a 14-day centralized health observation in an isolated hotel ^[2]. The staff of the isolation point not only needs to receive inbound personnel at any time within 24 hours, but also observe the temperature and health status of nearly 300 guests every day, conduct nucleic acid testing, transfer, daily life, and information entry, and more importantly, they must Always ensure strict self-protection and environmental disinfection work ^[3]. The purpose of this study is to understand the psychological state of the observation site staff and its related influencing factors, to better understand and evaluate the psychological needs of the observation site staff.

1. Objects and Methods

1.1 Research Objects

The staff of a segregated hotel in Shanghai was investigated using the convenience sampling method on the principle of anonymity and voluntariness. The respondents were distributed into: medical group, nursing group, information group, hotel work group, and management group. The test time was from June 1, 2021, to June 7, 2021, and a total of 87 valid questionnaires were recovered.

1.2 Investigation method

1. About the author: Fang Qimin, female, nurse, second-level psychological counselor.

Questionnaires were distributed to the respondents in the form of a questionnaire network. The content of the questionnaire was divided into 4 parts and a total of 49 questions. The first two parts are self-designed questionnaires, and the latter is general scales. The questionnaire indicated the purpose and content of the survey and made a confidentiality statement. To avoid duplicate answer sheets, each IP of the questionnaire can only be answered once.

1.2.1 General Information

It was designed by the researcher after referring to the literature, with a total of 9 questions, including gender, age, education, marital status, reproductive status, job position at the isolation point, working hours per week, whether it is necessary to wear protective clothing at work, and whether there is an underlying disease...

1.2.2 Investigation of the cognitive for COVID-19

The knowledge of prevention and control of COVID-19 considers variable multiple-choice questions as the survey method. There are 10 questions in total, and one point per question, a total of 10 points. The questionnaire consists of 4 parts: (1) Symptoms of COVID-19: early symptoms of infection with COVID-19. (2) Transmission route of COVID-19: transmission route of COVID-19; incorrect options on droplet transmission; source of infection of COVID-19. (3) Preventive measures: selection of masks for COVID-19; correct use of masks; methods to prevent and control COVID-19; hand hygiene; indications for immediate mask replacement. (4) Susceptible groups: who are susceptible to COVID-19.

1.2.3 Pressure Measurement of Working

To scientifically evaluate the psychological pressure of observation point staff, the CPSS [4] translated and revised by Professor Yang Tingzhong based on the cultural background of our country is adopted, and the Perceived Stress Scale(PSS)by Cohen (1983) [5] and others has been generally accepted and used internationally. A total of 14 items are scored on a 0-4 scale, of which the 4th, 5th, 6th, 7th, 9th, 10th, and 13th items are reverse scoring. The total score is 70, with 14-28 indicating low perceived stress, 29-42 indicating moderate perceived stress, 43-56 high perceived stress, and 57-70 extremely high perceived stress [7].

1.2.4 Measurement of Mental State

(1)Patient Health Questionnaire (PHQ-9): Because of its simplicity, sensitivity and reliability, it has become one of the depression detection scales recommended by the World Health Organization [6]. It is widely used in the evaluation and diagnosis of depression [7-8]. The questionnaire consists of 9 items and is used to understand the psychological state of the respondents over the past two weeks. Item score: 0- never; 1- a small amount of time; 2- more than half of the time; 3- almost every day. The total score is 27 points, with a total score greater than or equal to 5 as positive, and less than 5 as negative [7].The sensitivity and specificity were respectively 0.88 (95% CI: 0.85- 0.91) and 0.89 (95%CI: 0.82- 0.94) [9].

(2)Generalized Anxiety Disorder(GAD-7): It was compiled by Spitzer et al. in 2006 according to the diagnostic criteria of GAD, and has high reliability and validity [10]. There are 7 items, and the item score setting is the same as PHQ-9.total score 21 points, a total score of 5 or more is considered positive, and a total score of less than 5 is considered negative. The sensitivity and specificity are 66.70%, 85.80% [11].

1.3 Statistical methods SPSS software was used for statistical analysis.

The measurement data is expressed by ($X\pm s$), and the comparison between groups is by t-test; the enumeration data is expressed by [n(%)], using χ^2 ; $p<0.05$ means the difference is statistically significant. Results Binary Logistic regression analysis was used to screen related factors affecting mental health. $P<0.05$ was considered to be statistically significant.

2. Result

2.1 Characteristics of Demographic

The effective sample size of the study is 87 people, and the basic information is shown in Table 1. More than 60% of the respondents are women; the main age group is 26-55 years old; more than 60% of the respondents have college and undergraduate degrees; the percentage of married people 67.82%; more than 60% of the respondents have children; the proportion of respondents who work more than 50 hours per week 28.74%; more than half of the staff need to wear protective clothing; nearly 20% of the staff have underlying diseases.

2.2 Detection rate and univariate analysis

The survey results showed that the detection rate of anxiety was 50.5%, and the detection rate of depression was 64.3%. Among the respondents, gender and perceived stress level affect the detection rate of anxiety; education, job position, and perceived stress level affect the detection rate of depression, and the difference is statistically significant ($p < 0.05$, Table 1, Table 2).

Table 1 Demographic characteristics and detection rate of psychological problems of survey respondents (n;%)

Indicator	Total	Anxiety (GAD- 7>4)		Depression (PHQ- 9>4)	
		Number of cases (%)	P	Number of cases (%)	P
Gender			0.036*		0.065
Male	31(35.63)	11 (35.48)		16 (51.56)	
Female	56(64.37)	33 (58.93)		40 (71.43)	
age			0.686		0.248
Under 25 years old	5(5.75)	2 (40.00)		3 (60.00)	
26-35 years old	31(35.63)	18 (58.06)		24 (77.42)	
36-45 years old	28(32.18)	15 (53.57)		18 (64.29)	
46-55 years old	20(22.99)	8 (40.00)		10 (50.00)	
Age 56 and over	3(3.45)	1 (33.33)		1 (33.33)	
Education			0.266		0.033*
Junior high school or below	14(16.09)	7 (50.00)		6 (42.86)	
High school or technical secondary school, vocational school	13(14.94)	4 (30.77)		5 (38.46)	
College	18(20.69)	7 (38.89)		13 (72.22)	
Undergraduate	39(44.83)	24 (61.54)		29 (74.36)	
Graduate and above	3(3.45)	2 (66.67)		3 (100.00)	
marital status			0.825		0.826
unmarried	23(26.44)	11(47.83)		16(69.57)	
Married	59(67.82)	31(52.54)		37(62.71)	
divorced	5(5.75)	2 (40.00)		3 (60.00)	
Fertility status			0.79		0.409
not fertile	27(31.03)	14(51.85)		20(74.07)	
Raised, one child	47(54.02)	23 (48.94)		28 (59.57)	
Raised, two children	12(13.79)	6 (50.00)		6 (50.00)	
Parent, two or more children	1(1.15)	0 (0)		1(100.00)	
jobs in quarantine			0.223		0.001*
doctor	18(20.69)	13(72.22)		18(100.00)	

Nurse	12(13.79)	7(58.33)	10(83.33)
information group	9(10.34)	3(33.33)	4(44.44)
Hotel Working Group	33(37.93)	14(42.42)	16(48.48)
management group	15(17.24)	7(46.67)	8(53.33)
May I ask your average working hours per week?		0.686	0.672
30 hours and less	6(6.90)	4(66.67)	5(83.33)
31- 40 hours	22(25.29)	11(50.00)	14(63.64)
41- 50 hours	34(39.08)	15(44.12)	20(58.82)
50+ hours	25(28.74)	14(56.00)	17(68.00)
Do you need to wear protective clothing at work?		0.108	0.065
Yes	48 (55.17)	28(58.33)	35(72.92)
no	39(44.83)	16(41.02)	21(53.85)
do you have underlying medical conditions		0.265	0.819
none	69(79.31)	37 (53.62)	44(63.77)
hypertension	10(11.49)	3(30.00)	6(60.00)
Cardiovascular disease	4(4.49)	2(50.00)	4(100.00)
Hyperlipidemia	1(1.15)	1(100.00)	1(100.00)
chronic bronchitis	1(1.15)	0(0)	0(0)
chronic liver disease	1(1.15)	0(0)	0(0)
cancer	1(1.15)	1(100.00)	1(100.00)

Note: *p<0.05

2.2 Cognitive and Stress Levels

As shown in Table 2, Pearson correlation analysis was performed on cognitive level scores and anxiety and depression. The results showed that cognitive level was negatively correlated with the occurrence of anxiety and depression, and the results were not significant. The level of perceived stress was positively correlated with the incidence of anxiety and depression, $p<0.01$, and the result was significant.

Table 2 The cognition and perceived stress level of the survey respondents to the disease and the detection rate of psychological problems

Indicator	Average Score (points)	Anxiety(GAD-7>4)		Depression(PHQ-9>4)	
		happens	P	happens	P
Cognitive level	5.41±0.53		0.628		0.798
Perceived stress level	38.91±1.94		0.000**		0.000**
14-28 points (lower)	9 (10.34)	2 (22.22)		0 (0)	
29-42 points(middle)	51 (58.62)	28 (54.90)		22 (43.14)	
43-56 points(higher)	26 (29.89)	25 (96.15)		21 (80.77)	
57-70 points (very high)	1 (1.15)	1(100.00)		1 (100)	

Note: **p<0.01

2.3 Binary Logistic Regression Analysis

The level of perceived stress was significantly correlated with the detection of depression ($p<0.01$), with an OR value of 1.21. For each level of education, the detection rate of depression was 1.674 times that of the previous level. Workplaces also

have an impact on the detection rate of depression impact. ($p < 0.05$) As shown in Table 3.

	B	S.E.	Wals	Sig.	Exp (B)	EXP(B) 的 95% C.I.	
						Lower limit	Upper limit
stress level	0.191	0.05	14.476	0.000	1.21	1.097	1.335
Education	0.515	0.258	3.993	0.046	1.674	1.01	2.774
jobs	-0.623	0.296	4.416	0.036	0.537	0.3	0.959

Gender is the relevant influencing factor of anxiety detection, and the anxiety detection rate of female respondents is 2.609 times that of male respondents. The level of perceived stress was a significant factor for anxiety ($p < 0.01$), As shown in the Table 4.

	B	S.E.	Wals	Sig.	Exp (B)	EXP(B) 的 95% C.I.	
						lower limit	Upper limit
gender	0.959	0.463	4.282	0.039	2.609	1.052	6.469
stress level	0.163	0.039	17.184	0.000	1.177	1.090	1.271

3. Discussion

Under the high-intensity and relatively high-risk working environment of the observation point, not only the sense of mission of the personnel involved in the work is tested, but also the dual test of physical strength and spirit. The irregularity of the work at the observation point and the heavy workload make the staff in a state of tension for a long time, which easily affects their mental health.

In this study, the incidence of anxiety in women was higher than that in men, which was much higher than the prevalence in the normal population (2.5% - 12.1%)^[11]. Considering that women are more involved in family life than men, and their social roles are more complex more events can affect emotions than men^[17]. It is suggested that the management department provide solid logistical support, and arrange a working time and personnel allocation more reasonably. If there are special circumstances in family life, flexible scheduling or psychological support can be considered appropriate.

Education has a significant effect on the incidence of depression. Considering that it may be because the staff with higher education is the backbone in the daily non-observation point work, undertakes more work and responsibilities, and has relatively higher self-demand, which leads to greater psychological pressure, the incidence of depression is higher than that of other staff. higher. It is recommended that the leaders of the hospital give full understanding and support, and reasonably allocate the work of the isolation point and daily work.

The incidence of depression among doctors and nurses was significantly higher than in the other three groups. Compared with the information group and management group with the same working hours: wearing protective clothing for a long time is a major test of physical strength; due to the high probability of facing unknown infected persons or close contact, the risk of possible infection is high. Compared with the hotel work group: the unfamiliar working environment, the uncertainty of working hours, and the change in work lead to greater psychological pressure. The above factors may affect the psychological state of doctors and nurses at the observation point^[18]. Paying close attention to the psychological state of the staff, actively do a psychological intervention, relax training, and provide psychological support.

In the process of research, 31.03% of the staff at the isolation point had a higher perceived stress score than normal (>42 points). For some studies, CPSS and SCL-90 were used to evaluate the level of stress perception and mental health, respectively. The level of health plays a direct role, This study showed that both the occurrence of depression and anxiety were positively correlated with the perceived stress score. This is consistent with the results of previous studies^[13-14]. Set up a

psychological consultation room in the observation point to provide help for staff with poor psychological status and relieve negative emotions.

To sum up, the probability of anxiety and depression in isolation point workers is relatively high^[7]. Action can be taken help them adjust their mental state and provide a quiet place to rest. Actively do a psychological intervention, group counseling, etc, to prevent more staff from having psychological problems^[15], and provide effective psychological crisis intervention^[16]. Online psychological counseling can also be used to ensure that staff who are unwilling to reveal their privacy can also receive appropriate psychological support when they feel negative emotions.

This study has the following shortcomings: the sample size is insufficient, which may affect the extrapolation of the survey results; the scales used in this survey are symptom screening tools and cannot be used for disease diagnosis.

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