A Study on the Correlation between Post-Traumatic Stress Disorder and Social Support for the General Public during the Covid-19 Epidemic in China

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Abstract

Objective: To investigate the occurrence and influencing factors of post-traumatic stress disorder syndrome in ordinary people during the outbreak of new coronary pneumonia, and to explore the relationship between general information, social support and PTSD.

Methods: From March to April 2020, 704 ordinary people were randomly selected and measured using the general data questionnaire, the posttraumatic stress disorder scale (PCL-C) and the social support assessment scale (SSRS).

Results: The incidence rate of PTSD -positive in 704 ordinary people is 10.51%, which was mainly affected by education level and the frequency of going out during the epidemic (P<0.05). The total PCL-C score was negatively correlated with the level of social support and its dimensions, and positively correlated with age and annual income (r =-0.03～-0.12, P<0.01 or P<0.05).

Conclusion: Relevant departments should pay attention to the PTSD of ordinary people. In particular, people with low education level, high frequency of going out during the epidemic, high annual income and high age should be given positive psychological intervention to increase social support.

Background

In December 2019, many new coronavirus pneumonias (new coronary pneumonia) were discovered in Wuhan City, Hubei Province, and the World Health Organization named it "COVID-19" as a public health emergency that caused international- attention [1]. Because of its high infectivity, wide -spread, and high fatality rate, it -poses a huge threat to the health and safety of Chinese citizens, and the people bear a strong psychological burden. Post-traumatic stress disorder (PTSD) refers to the adverse reactions and threats to the safety and health of an individual's life, resulting in continuation and persistence of negative emotions, which often occur with catastrophic and sudden Event related [2]. Studies have shown [2] that active coping strategies can reduce the incidence of PTSD. A survey [3] shows that social support can improve the negative emotions of hospitalized patients, and after traumatic events, social support is an effective factor for the prevention of PTSD [4,5]. Therefore, this study aims to investigate the PTSD situation and influencing factors of ordinary people during the new coronary pneumonia, and to explore the relationship between social support and PTSD, in order to clarify the health benefits of social support during the epidemic, and to formulate specific targets for future major public emergencies for reference.

Objects and Methods

Respondents

Using the convenience sampling method, 722 ordinary people were selected as survey subjects from March to April 2020. Inclusion criteria: (1)11-65 years old; (2) WeChat or QQ number; (3) Chinese citizens; (4) voluntarily participate. EThe exclusion criteria were the unfulfillment of the inclusion criteria.

Method

Investigation tools

General information questionnaire: A self-made general information questionnaire is used, which includes general demographic information such as gender, age, place of residence, marital status, education level, occupation, and annual income.

Post-traumatic stress checklist-civilian version (PCL-C): The -scale was developed by the American Institute of Post-Traumatic Stress Disorder, and after multiple verifications later, it can be applied to domestic PTSD screening tools. The PCL-C scale has a total of 17 items and is divided into three major symptom groups: re-experience symptom group (5 items), avoidance/numbness symptom group (7 items), highly alert symptom group (5 items), according to Likert 5 score: 1=not at all, 2=mild, 3=moderate, 4=severe, 5=very severe. Among them, the retest reliability of the scale is 0.96, and the internal consistency reliability is 0.94, which has good validity and reliability [6]. Accumulate the score of each item to get a total score (17-85), with a 38-point cut-off value as a symptom of PTSD, a higher score indicates a higher risk of PTSD.

Social support rating scale (SSRS): The scale was compiled by Xiao Shui yuan [7] according to the situation in China, and has a total of 10 items, including 3 dimensions: objective support (items 2,6,7), subjective support (items 1,3,4,5), and Utilization of social support (items 8,9,10). The stability coefficient of this scale is 0.92, and the internal consistency of each item is between 0.89 and 0.94, which is suitable for domestic research. Most questions are scored on level 4, and the sum of the scores of 10 items is the total score of the scale (12-66). The higher the score, the higher the level of social support.

Investigation method: Use WeChat, QQ and other online social platforms, use unified guidance, and use the "questionnaire star"

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point-to-point method to distribute and collect the questionnaire. The questionnaire set that each mobile phone number/ computer user can only fill in one questionnaire, respect the principle of the volunteer's voluntary investigation, adopt anonymous survey methods, and protect the privacy of the respondent. After the questionnaires were collected, the two persons checked and extracted the data. The number of questionnaires recovered was 704, and the effective recovery rate was 97.51%.

Statistical methods: Export the data on the questionnaire star website, and the data analysis will be performed by two people using SPSS 20.0 software. Counting data such as general data of the surveyed object are described by descriptive statistics, and are expressed by frequency and percentage; measurement data are analyzed by analysis of variance, t-test for statistical analysis, and expressed by x ± s; single -factor analysis of variance and multiple stepwise Regression analysis of influencing factors of PTSD; Pearson correlation coefficient analysis method was used to analyze the relationship between different variables and PCL-C. P<0.05 means the difference is statistically significant.

Results

PCL-C scale score and PTSD detection

In this survey, 74 patients with PCL-C total score ≥ 38 points had a PTSD -positive rate of 10.5%. The total score of PCL-C is (24.89 ± 9.17), and the average scores of re-experience symptom group, avoidance / numbness symptom group, and high alertness symptom group are (1.46 ± 0.62), (1.45 ± 0.57), (1.49 ± 0.69). The dimension with the highest average score is the highly alert symptom group. See Table 1 for details.

Social support level score

The total score of SSRS (41.45 ± 8.73), objective support, subjective support, and utilization of social support in this survey were respectively (3.25 ± 1.30), (3.01 ± 0.65), (2.54 ± 0.64), the dimension with the highest average score is objective support. See Table 2 for details.

PTSD single -factor analysis

The PCL-C total score and the scores of each symptom group were used as dependent variables, and the variables of general data were used as independent variables for one-way analysis of variance and t -test. Differences in the scores of PCL-C total scores for different genders, ages, educational levels, occupations, diagnosis of relatives and friends during outbreaks, and statistically significant differences (P <0.05); ages, educational levels, occupations, and outbreak frequencies during outbreaks The difference in the scores of the experienced symptom groups was statistically significant (P<0.05); the difference in the scores

of the avoidance / numbness symptom groups during gender, age, marital status, education, occupation, and frequency of outbreaks was statistically significant (P<0.05) ; The difference in scores of age and education level in highly alert symptom groups is statistically significant (P<0.05), and the others are not statistically significant (P>0.05). See Table 3 for details.

Multiple regression analysis of influencing factors of PTSD

According to the results of single-factor analysis of variance and related analysis, statistically significant influencing factors were subjected to stepwise multiple regression analysis, with the PCL-C total-score as the dependent variable, and the statistically significant factors and SSRS total score in the single-factor analysis Independent variable. The assignment of independent variables is shown in Table 4. The results showed that two variables entered the regression equation in the end, namely education level and the frequency of going out during the epidemic. See Table 5 for details.

Correlation analysis of different variables and PCL-C

Using the Pearson correlation coefficient analysis method to analyze the relationship between different variables and PCL-C showed that the total score of PCL-C was positively correlated with age, and negatively correlated with education level, frequency of going out during the epidemic, total score of SSRS and all dimensions (P<0.05) ; Re-experience symptom groups are positively correlated with age and education level, and negatively correlated with the frequency of going out during the epidemic (P <0.05); avoidance / numbness symptom groups are positively correlated with age, educational level, and annual income, and with the frequency of going out SSRS total score, objective support, and social support utilization were negatively correlated (P<0.05); highly alert symptom cluster was negatively correlated with SSRS total score and subjective support (P<0.05). See Table 6 for details.

Discussion

Analysis of PTSD and SSRS status of ordinary people during the new coronary pneumonia

Analysis of PTSD status of ordinary people during the new coronary pneumonia: The positive rate of PTSD surveyed in this study -was 10.51% (74/704), which was consistent with the positive rate of PTSD (1% ∼ -14%) for ordinary people screened abroad [8], which shows that the PTSD of ordinary people during the epidemic The incidence is high, and it is a high-risk group with PTSD. This study also found that the general population had the highest incidence of positive relapse symptom clusters, and the lower incidence of positive avoidance / numbness symptom clusters and highly alert symptom clusters, which

Project	Score (x ± s, points)	Evenly divided (x ± s, points)	Number of positive cases [n (%)]
Re-experience symptom cluster	7.29 ± 3.08	1.46 ± 0.62	161 (22.9）
Avoidance / numbness symptom cluster	10.17 ± 4.00	1.45 ± 0.57	75 (10.7）
Highly alert symptom cluster	7.43 ± 3.23	1.49 ± 0.69	90 (12.8）
Total score	24.89 ± 9.17	1.46 ± 0.54	74 (10.5）

Table 1: Survey of PCL-C scores (n=704).

Project	Score (x ± s, points)	Average points (x ± s, points)
Objective support	9.74 ± 3.90	3.25 ± 1.30
Subjective support	1.32 ± 2.56	3.01 ± 0.65
Utilization of social support	7.63 ± 1.91	2.54 ± 0.64
Total score	41.45 ± 8.73	2.96 ± 0.92

Table 2: The scores of the surveyed SSRS (n=704).

Item PCL-C	Cases	Item Cases PCL-C	E-xperience again Symptom cluster	avoidance / numbness Symptom cluster	Highly alert symptom cluster
Gender					
Male	235	25.29 ± 9.87	7.40 ± 3.36	10.53 ± 4.37	7.36 ± 3.25
Female	469	24.69 ± 8.81	7.23 ± 2.93	10.00 ± 3.79	7.46 ± 3.23
T		0.79	0.67	1.60	-0.42
P		0.03	0.09	0.00	0.52
Age					
<35	434	24.13 ± 8.42	7.06 ± 2.75	9.79 ± 3.60	7.27 ± 3.09
≥35	270	26.12 ± 10.16	7.66 ± 3.52	10.79 ± 4.50	7.67 ± 3.44
T		-2.70	-2.34	-3.06	-1.55
P		0.00	0.01	0.00	0.04
Marital status					
Unmarried	325	24.25 ± 8.55	7.02 ± 2.78	9.78 ± 3.60	7.43 ± 3.22
Married	379	25.46 ± 9.66	7.52 ± 3.30	10.51 ± 4.30	7.43 ± 3.25
T		-1.75	-2.16	-2.35	0.04
P		0.15	0.10	0.02	0.97
Education level					
Junior high school and below	68	29.79 ± 12.53	8.78 ± 4.42	12.49 ± 5.48	8.45 ± 3.73
High school (secondary school)	96	24.52 ± 9.51	7.16 ± 3.15	10.28 ± 4.39	7.08 ± 2.95
University (College)	493	24.25 ± 8.29	7.08 ± 2.76	9.81 ± 3.53	7.36 ± 3.18
Master or above	47	25.45 ± 9.79	7.64 ± 3.18	10.45 ± 4.24	7.36 ± 3.45
F		7.50	6.51	9.36	2.68
P		0.00	0.00	0.00	0.04
Occupation					
Medicine related	332	24.26 ± 8.16	7.07 ± 2.56	9.82 ± 3.55	7.37 ± 3.10
Non-medicine related	372	25.46 ± 9.97	7.48 ± 3.46	10.49 ± 4.34	7.48 ± 3.35
T		-1.77	-1.80	-2.28	-0.43
P		0.00	0.00	0.00	0.06
Annual income, Ten thousand yuan. ¥					
≤10	486	25.07 ± 9.36	7.26 ± 3.07	10.25 ± 4.01	7.56 ± 3.38
11～20	137	24.64 ± 8.85	7.40 ± 3.03	10.00 ± 3.89	7.23 ± 3.06
≥20	81	24.26 ± 8,59	7.27 ± 3.21	10.02 ± 4.12	6.96 ± 2.70
F		0.33	0.11	0.77	1.48
P		0.72	0.89	0.26	0.23
Diagnosed by relatives and friends					
Have	41	26.71± 11.04	7.85 ± 3.48	10.68 ± 4.89	8.17 ± 3.69
No	660	24.77 ± 9.05	7.25 ± 3.05	10.14 ± 3.95	7.38 ± 3.20
T		1.10	1.21	-0.46	1.52
P		0.03	0.29	0.39	1.41
Follow the new crown through the media					
Yes	698	24.88 ± 9.15	7.29 ± 3.07	10.16 ± 3.99	7.43 ± 3.23
No	6	26.00± 12.62	7.50 ± 3.89	11.50 ± 5.01	7.00 ± 4.00
T		-0.30	-0.17	-0.82	0.32
P		0.58	0.64	0.83	0.91
Hoarding anti-epidemic items					
Yes	160	26.30 ± 9.74	7.83 ± 3.47	10.71 ± 4.25	7.77 ± 3.31
no	544	24.48 ± 8.96	7.13 ± 2.94	10.02 ± 3.91	7.33 ± 3.21
t		2.21	2.51	1.92	1.52

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P		0.10	0.14	0.24	0.16
Wear when going out					
Yes	695	24.86 ± 9.15	7.29 ± 3.08	10.16 ± 3.99	7.40 ± 3.22
No	9	27.44± 11.08	7.22 ± 3.19	11.11 ± 4.96	9.11 ± 4.04
T		-0.84	0.07	-0.71	-1.57
P		0.42	0.78	-0.46	0.17
Frequency of going out during an outbreak					
Go out every day	118	26.37 ± 9.81	7.89 ± 3.48	10.75 ± 4.12	7.74 ± 3.35
2～3day	184	26.35± 10.14	7.79 ± 3.60	10.83 ± 4.55	7.73 ± 3.33
4～6day	124	24.92 ± 9.74	7.44 ± 3.09	10.28 ± 4.37	7.24 ± 3.11
7 days or more	163	23.39 ± 7.68	6.72 ± 2.41	9.59 ± 3.27	7.08 ± 3.00
Not going out	115	23.15 ± 7.68	6.51 ± 2.19	9.33 ± 3.18	7.30 ± 3.42
F		4.13	5.78	4.05	1.30
P		0.00	0.00	0.00	0.27
Sterilize and wash your hands when you go home					
Yes	669	24.91 ± 9.18	7.30 ± 3.08	10.18 ± 4.01	7.43 ± 3.24
no	35	24.54 ± 9.07	7.14 ± 3.12	10.06 ± 3.72	7.34 ± 3.09
t		0.23	0.29	0.18	0.16
P		0.86	0.90	0.65	0.93
Change clothes when you go home					
Yes	534	25.00 ± 9.45	7.34 ± 3.18	10.23 ± 4.10	7.43 ± 3.30
no	170	24.53 ± 8.24	7.13 ± 2.78	9.99 ± 3.67	7.41 ± 3.04
t		0.64	0.78	0.70	0.20
P		0.07	0.22	0.20	0.07

Table 3: Univariate analysis of respondents' PTSD (point x ± s).

Independent variable	Assignment
gender	1=Male; 2=Female
age	1=(<35); 2=(≥ 35)
Education level	1=junior high school and below; 2=high school (secondary school);
Occupation	3=University (junior college); 4=Master or above
Diagnosed by relatives and friends	1=medicine related; 2=non-medicine related
Frequency of going out during an outbreak	1=Yes; 2=No

Table 4: Regression variable assignment.

Project	Partial regression coefficient b	Standard Error SB	Standardregression coefficient B '	t	P
Constant term	32.28	4.06	---------	7.95	0.00
Education level	-1.31	0.51	-0.10	-2.54	0.01
Frequency of going out during an outbreak	-0.86	0.26	-0.13	-3.30	0.00

Table 5: Multiple regression analysis results of PTSD -influencing factors.

Project	Item Cases PCL-C	E-xperience again Symptom cluster	Avoidance/ numbness Symptom cluster	highly alert symptom cluster
Age	0.11**	0.10*	0.12**	0.06
Education level	-0.13**	0.08*	0.09*	0.00
Annual income	-0.03	0.08	0.09*	0.02
Frequency of going out during an outbreak	-0.15**	-0.17**	-1.44**	-0.07
SSRS total score	-0.11**	-0.07	-0.10*	-0.12**
Objective support	-0.08*	-0.07	-0.09*	-0.06
Subjective support	-0.09*	-0.04	-0.06	-0.13**
Utilization of social support	-0.08*	-0.06	-0.09*	-0.07
Note: **: $P < 0.01$, *: $P < 0.05$				

Table 6: Correlation analysis of different variables and PCL-C (r).

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is similar to the research results of Lin Zhizhi [9] and Xia Zheyuan [10]. This indicates that re-experience symptoms are more common during the outbreak of new coronary pneumonia, which verifies that re-experience symptoms are the most clinical manifestations of PTSD. At the same time, it shows that the occurrence of new coronary pneumonia is a negative stimulus and has a negative impact on the psychology of ordinary people. Some studies [11] found that depression is the most common disease of PTSD, which suggests that ordinary people with PTSD the danger of depression.

Analysis of the status of SSRS of ordinary people during the new coronary pneumonia: In this study, the general public's total social support score (41.45 ± 8.73) was higher than that during the SARS period [12,13]. This is due to the rapid and effective prevention and control measures taken by the party and the country during the new coronary pneumonia epidemic. A sense of security is guaranteed, and strong social support gives ordinary people enough confidence to meet and overcome the epidemic. Studies have shown that [14,15] a supportive social environment can encourage ordinary people to actively face traumatic events and maintain a good psychological state. Therefore, relevant departments should attach great importance to the occurrence of ordinary people's PTSD, seek positive and effective measures to mitigate the negative impact of the epidemic, and increase social support to reduce the psychological burden of traumatic events and promote the physical and mental health of ordinary-people.

Analysis of influencing factors of PTSD of ordinary people during the new coronary pneumonia

Education: The single -factor analysis of this study showed that the difference in education level in PCL-C scores was statistically significant (P<0.05), and entered the regression equation, indicating that education level is an independent influencing factor of PTSD. This result is similar to Yvon M[16]. Similarly, PCL-C scores are low for those with a high degree of education, which is mainly due to the high level of education, which is easy to accept and understand the new coronary pneumonia disease, and those with a low degree of education are prone to wrong cognitive concepts [17], especially in emergencies Negative cognition is more likely to occur when it occurs, resulting in an increased incidence of PTSD. This shows that the people with high education level can deal with the occurrence and development of emergencies rationally. They have high self-regulation ability and can self-adjust the psychological pressure caused by the new coronary pneumonia epidemic. This also suggests that when public health emergencies occur, society should give more psychological and social support to people with low education level.

Frequency of going out during an epidemic: The data of this study showed that the difference between the outgoing frequency during the outbreak and the PCL-C score was statistically significant (P<0.05). That is, the lower the outgoing frequency during the outbreak, the lower the PCL-C score. It is an independent influencing factor of PTSD. New coronary pneumonia is highly contagious, spreads and can even cause death, and the population is generally susceptible, coupled with -external environmental factors and online public opinion is easy to increase the psychological pressure of the people. Therefore, the National Health Organization recommends that citizens reduce their outings and avoid gatherings to reduce the infection of the new coronavirus. Studies have reported that[18,19] the time of exposure to trauma events is positively correlated with the detection rate of PTSD, that is, the longer people are exposed to trauma events, the higher the PTSD detection rate. Therefore, the low frequency of people going out can reduce the time of exposure to traumatic events and reduce the risk of PTSD.

Relationship between PTSD and general information and social support during the new coronary pneumonia epidemic

The results of this study showed that the total score of PCL-C was positively correlated with age, and negatively correlated with education level, frequency of going out during the epidemic, total score of SSRS and its various dimensions (P<0.05), that is, the higher the age, the post-traumatic stress The more severe the symptoms of the disorder, the higher the education level, the frequency of going out during the epidemic, social support, objective support, subjective support, and utilization of social support. The higher the score, the less severe the symptoms of post-traumatic stress disorder. This is similar to the results of the Xiaobo Z [20] study. When the exposed person faces a traumatic event, good social support as a protective factor can reduce the negative impact of the traumatic event, have a protective effect on mental health, and can be better accepted The impact of the epidemic, especially those with a high level of education, are easier to accept and understand the epidemic. The older the people, the easier it is to generate negative emotions for the epidemic. This is mainly due to the greater family and social responsibilities and the psychological burden of the elderly. In general, it shows that the ordinary people have high utilization of social support during the epidemic, including the help of the party and the state to ordinary people in work and life. Remind relevant departments to continue to increase investment in social support in multiple ways, aspects and angles, pay more attention to the elderly and those with low education level and give more active social support to reduce the risk of PTSD.

The survey found that the avoidance/numbness symptom group was positively correlated with age, education, and annual income, and negatively correlated with the frequency of going out during the epidemic, total SSRS score, objective support, and utilization of social support (P<0.05). Refers to the intention to avoid the traumatic event and choose to forget the details related to the traumatic event. The higher the people's annual income, the greater the avoidance/numbness symptoms. This is inconsistent with the findings of Wang Shuai [21]. This may be because the high-income people have low economic pressure, they choose to avoid the face of the epidemic and have a blind and confident attitude towards the epidemic. People with good economic conditions are more likely to have a sense of submission to the epidemic, intentionally evade details related to the epidemic, and passively face the epidemic to meet their psychological needs. This shows that during the epidemic, ordinary people feel the support and respect of the society and still have a hopeful and optimistic attitude towards life. However, the high-income people face the traumatic impact of the new coronary pneumonia epidemic and cannot choose to avoid it properly. Remind the relevant departments to pay more attention to ordinary people with better economic conditions during the epidemic to reduce the people's sense of submission and avoidance in the epidemic, so as to avoid or reduce the occurrence of PTSD-related symptoms.

Summary

In summary, the New Coronary Pneumonia epidemic is a major public health emergency. The incidence of PTSD among ordinary people is relatively high, mainly affected by the education level and the frequency of going out during the epidemic. Correlation analysis shows that social support and its various dimensions show the negative correlation is positively correlated with age and annual income, that is, increasing the level of social support is conducive to reducing the risk of PTSD. This suggests that relevant departments should attach great importance to the occurrence of PTSD among ordinary people,

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especially those with low education, high frequency of outings during the epidemic, high annual income, and high age, seeking active and effective measures to mitigate the negative impact of the epidemic and increase social Support the strength and do a good job of psychological pressure, which will help the epidemic to provide a reference for further optimizing the psychological intervention of ordinary people.

This study has certain limitations: the time period and sample size of the investigation are limited, and it is impossible to understand the occurrence and outcome of PTSD symptoms from multiple angles, especially the single-factor analysis of the impact of PTSD at different stages. More sample sizes can be included and longitudinal studies can be conducted to explore the impact of PTSD in order to provide a basis for the development of targeted strategies for major emergencies in the future.

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