Research on Social Support, Personality and Coping Style of the Public during the COVID-19 Pandemic

[1]Guifang Fu, [2]Qilin Chen, [3]Xinyao Li, [4]Xiaolin Wu

[1,2]Department of Applied Psychology, Guangdong University of Foreign Studies, Canton, P.R.China
[3]Mental Health and Education Center, Sun Yat-Sen University, Canton, P. R. China
[4]School of Finance, Guangdong University of Foreign Studies, Canton, P.R. China
Corresponding author: Xinyao Li

ABSTRACT

Background: The outbreak of the COVID-19 has not only threatened people's physical health, but also affected the mental health of the public to a certain extent. This article examines the relationship between social support, personality and coping styles of the public during Corona Virus Disease 2019, and provides scientific basis for studying the psychological state of people.

Method: This study used the Ten-item Personality Inventory- China (TIPI-C), Simplified Coping Style Questionnaires (SCSQ) and Social Support Rating Scale (SSRS) to conduct online surveys.

Results: Through a survey of 606 subjects, it was found that: (1) The public's level of social support during the COVID-19 pandemic was moderate, and the subjective support received was higher than the objective support and support utilization; the public was more inclined to adopt positive coping style during the pandemic. In the level of public social support, objective support score of the male was significantly higher than that of the female; the public under 18 years old was higher than other age groups in all factors and total scores, while members of the public aged 18-25 are lower than those of other ages in all factors and total numbers; urban residents' total social support score, objective support, and subjective support were markedly lower than those of township residents. Among the public coping styles, the negative coping style scores of men were obviously higher than that of women; the negative coping styles of the 18-25 year olds were significantly higher than those of other age groups. The objective support score showed a significant correlation with subjective support, utilization, neuroticism, and positive coping styles, among which there was a obvious negative correlation with neuroticism, and a noticeable positive correlation with subjective support, utilization, and positive coping styles; Subjective support scores were significantly positively correlated with objective support, utilization, extroversion, agreeableness, conscientiousness, and positive coping styles; Utilization has a significant positive correlation with objective support, subjective support, agreeableness, conscientiousness, and active coping style; total scores of personality, social support and coping style all have a significant positive correlation ($P < 0.05$).

Conclusion: Groups of different personality types will receive different degrees of social support and have different coping styles, and different societies support will also have different ways of coping.

KEYWORDS: COVID-19, coping Style, social Support, personality

I.   INTRODUCTION

At the end of 2019, Corona Virus Disease 2019 (hereinafter referred to as "COVID-19") pandemic spread across the world, having a huge impact on people's lives, work, and psychology, and having a serious impact on the economic development and globalization of various countries. Especially in the early stage of the pandemic, the public experienced panic, anxiety, suspicion, boredom and so on, and even psychological problems caused sleep and physical health problems (Mamun & Griffiths, 2020). Therefore, it is of urgency to explore the social support that people receive during the COVID-19 and how to respond it. This study investigated the status of people's social support, coping styles, and their relationship with personality from April 1 to April 15, 2020.

This study can keep abreast of the public's psychological condition during the COVID-19.

The current academic research on the COVID-19 is generally concentrated in the medical field, that is, the research, evaluation and prediction of this pandemic from the perspectives of epidemiology; in the field of psychology, research on the public's psychological state is relatively scattered. The research literature has not yet been formed, and it is still in the investigation and research stage. This study investigates the extent to which the COVID-19, a public health emergency, has an impact on the public, and understands the public's psychological state; and through research on factors that affect public psychology, including personality, social support and coping styles, explore the impact model of influencing factors on public psychology, which provides empirical evidence for subsequent public psychological intervention services.

In addition, this work can keep abreast of the needs of public psychosocial services during the COVID-19. During the COVID-19, the normal life of the public was broken. Panic, anxiety, depression and other psychology would occur due to lack of understanding of the pandemic. Therefore, it is necessary to understand the public's psychological state and the needs of the public in a timely manner, grasp the public's psychological stress during the pandemic and related influencing factors, and carry out targeted social psychological services to the public.

COVID-19 is a public health emergency, which brings major changes to people's lives and production, and has a significant impact on people's physical and mental health. Therefore, this study conducted research on the public's personality factors, the level of social support, and the level of coping styles and related relationships during the pandemic.

This study investigates the public's psychological conditions, understands the public's stress and uses a scale to make a simple judgment on the personality, social support level and coping style of the surveyed populationduring the COVID-19. At the same time, it studies the factors that affect the public's psychological status, including personality, social support and coping styles, and explores the influence models of influencing factors on the public's psychology.

The hypotheses of this study are:

Hypothesis 1: There is a positive correlation between public social support and coping styles

Hypothesis 2: There is a positive correlation between public personality types and social support.

Hypothesis 3: There is a positive correlation between public personality types and coping styles.

II. LITERATURE REVIEW

Coping styles are the conscious and purposeful adjustment behaviors that individuals make when facing changes in the objective environment. They can be divided into two types: positive coping styles and negative coping styles. Positive coping styles can relieve the individual's tension, while negative coping styles have the opposite effect (Lin & Huang, 2011). Personality is a unique pattern that constitutes a person's thoughts, emotions and behaviors, and contains a stable and unified psychological quality that distinguishes a person from others. According to Tapez's Big Five personality theory, personality types can be divided into five types: extraversion, agreeableness, conscientiousness, neuroticism, and openness (Peng, 2001). At present, the academic circles have no consensus on the concept of social support, but a large number of studies have shown that social support has a significant positive correlation with an individual's mental health status, and a significant negative correlation with worry, obesity and other emotions. Support can be divided into objective support, subjective support and utilization. Current research on social support theory can be divided into the following three categories (Wang, 2004). The first category is the social support situational influence view. This view believes that the connection between individuals and other individuals in the social environment is social support. This lack of social connection may lead to psychological abnormalities in individuals, such as psychological feelings of loneliness and loneliness.

There are two main ways to measure social support under this view. The first is to make full use of indicators that reflect the individual's social connection, such as participation in community activities, marriage and family status, and friends, etc.; the second is to analyze the individual's social network and use the size and intensity of the social network as evaluation indicators. The social support measurement under this view can only reflect the individual's social support, and it is difficult to further study the relationship between social support and the individual's mental health, coping style, etc. The second category is the perception of social support. This view holds that social support should be evaluated by what the individual can perceive. Judging from the current research, this view has been universally recognized and used. By evaluating the available social support perceived by the individual, clarify the individual's social support situation. Although this view is widely used, it still has certain shortcomings, that is, the measurement method is self-reported by the subjects, and this self-

report of social support is subjective and may not necessarily represent the true situation of individual social support. The third category is the action-oriented view of social support. This view believes that social support should be reflected in specific actions. Therefore, the measurement of individual social support should also use concrete actions as indicators. This view has higher objectivity than the previous two views, and at the same time helps researchers to grasp the behavioral support and individual behavior response mode. Studies have shown that social support has a direct impact on individual coping styles (Zhang, 2020). During the outbreak of the COVID-19, social support is related to individual coping styles (Kuang et al., 2020). The research of Liang et al. (2000) showed that personality is an important factor that affects the individual's choice of coping style. During the pandemic, the public was prone to psychological problems such as anxiety and depression; and the pandemic showed strong contagion at the beginning of the outbreak, the vaccine is still in the development stage, and the public is very likely to show a high level of stress. The current research has not yet linked the public's social support, personality and coping styles. This study explores the relationship between the public's psychological status and social support, personality and coping styles, and provides empirical evidence for the subsequent development of social psychological services.

Method: Participant This study uses online questionnaires to collect data. Participants include full-time students, teachers, civil servants, business managers and ordinary employees, professionals, military and police personnel, self-employed individuals, freelancers, agricultural practitioners, and services Professionals, social organization staff, temporarily unemployed and retirees. A total of 606 questionnaires were recovered and 606 valid questionnaires were collected. The basic situation of the subjects is shown in Table 1.

Table 1 Basic situation of the participants

		n	%
sex	male	108	17.8
	female	498	82.2
age	Below 18	1	0.2
	18-25	2	0.3
	26-30	141	23.3
	31-40	462	76.2
residence	city	353	58.2
	village	253	41.8
health	healthy	598	98.7
	Unwell but not COVID-19	8	1.3

Measures

General Information Questionnaire: The self-compiled general information questionnaire includes the gender, age, current province, city and place of residence, occupation, physical condition, current status, and number of COVID-19 cases in the residential community.

the Ten-item Personality Inventory- China (TIPI-C) : The Ten-item Personality Inventory-China (TIPI-C) was developed by Jinde Li (2013) and is currently one of the most used personality measurement tools in domestic research. TIPI-C has a total of 10 items, which are scored using the Likert 7-point scale, from 1 to 7 points from "absolutely disagree" to "absolutely agree". Among them, items 1, 3, 5, 7, and 9 are forward scoring items, and the remaining items are reverse scoring items. TIPI-C has five dimensions, namely neuroticism, extroversion, openness, agreeableness and conscientiousness. The internal consistency coefficient of the scale is 0.449, the KMO value is 0.724, and the reliability and validity are average.

The Simplified Coping Styles Questionnaires (SCSQ) : The Simplified Coping Styles Questionnaires (SCSQ) was developed by XieYaning (1998). There are 20 items in total. The two dimensions are positive coping styles and negative coping styles. Items 1-12 are positive coping styles, and items 13-20 are negative coping styles. A four-level scoring is adopted from 1-4, with 1 being "not adopted" and 4 being "frequently adopted". The internal consistency coefficient of the active coping style dimension of this questionnaire is 0.863, and the KMO value is 0.891; the internal consistency coefficient of the negative coping style dimension is 0.771, and the KMO value is 0.831, which shows good reliability and validity.

The Social Support Rate Scale (SSRS) : The Social Support Rate Scale (SSRS) was formulated by Xiao Shuiyuan (1994) in 1987. There are 10 items in total, and the three dimensions are objective support, subjective support and utilization. The scoring method for single-choice questions is 1-4 points for options 1-4 respectively; for the fifth question, each item from nothing to full support is scored 1-4 points respectively, and

the score for this question is the total score of the four items; sixth and seventh The question "No source" is scored 0 points, and the remaining sources each score 1 point. The total score of SSRS scale is composed of the sum of objective support score, subjective support score and utilization score. The internal consistency coefficient of this scale is 0.778, the KMO value is 0.756, and the reliability and validity are good.

III.   RESEARCH PROCEDURE

This study randomly distributed questionnaires and recovered data through the questionnaire star platform. All participants are voluntary and can withdraw at any time. This study did not provide remuneration for the participants. After the answer, there will be a random lottery. The prizes are training coupons, insurance money, etc. The data of this study was processed by SPSS 22.0 statistical software, mainly using descriptive statistical analysis, t test, F test, multiple stepwise regression analysis, homogeneity test of variance, and correlation analysis.

IV.   RESULTS

The basic situation of the public's social support and response methods during the COVID-19 : In this study, the Harman single factor test method was used to test the data for common method deviation. As a result, 17 factors with characteristic roots greater than 1 were extracted, and the maximum factor variance explanation degree was 10.22% (less than 40%), so there is no serious problem in this study. The score range for positive coping style is 12-48 points, the score range for negative coping style is 9-36 points, and the score range for social support level is 11-60 points. It can be seen from Table 2 that the public's average score for active coping style was 36.28, which was at a high level, and the average score for negative coping style was 17.96, which was at a medium level; the average score of social support was 35.676, which was at a medium level.

Table 2 Basic situation of the level of public social support and types of response methods

		M	*SD*
Coping style	Positive	36.28	5.99
	Negative	17.96	4.56
	Total	54.24	8.38
Social support	Objective	7.90	2.22
	subjective	20.13	4.84
	Utilization	7.72	1.84
	Total	35.76	6.83

Demographic differences in public social support and coping styles during COVID-19

It can be seen from Table 3 that through the analysis of gender differences in the types of public coping styles during the COVID-19, the total score and negative coping style scores had statistically significant differences (P<0.05), while the positive coping styles were not statistically significant. Significant difference (P>0.05).

Table 3 Gender differences in the types of public response methods during the COVID-19

*P<0.05 **P<0.01

	male	female	*t*	*P*
Positive coping style	35.53±6.96	36.44±5.75	-1.43	0.141
Negative coping style	19.12±5.40	17.71±4.32	2.93	0.001[**]
Total	54.65±10.53	54.15±7.85	0.561	0.002[**]

It can be seen from Table 4 that through the analysis of the types of public coping styles of different age groups during the COVID-19, there were statistically significant differences in the total score and the scores of each factor (P<0.05).

Table 4 Comparison of types of public response methods of different age groups

	1	2	3	4	*F*	*P*
Positive coping style	36.00±0.00	21.50±13.44	36.11±5.87	36.39±5.93	4.22	0.006[**]
Negative coping style	24.00±0.00	10.00±2.82	17.80±4.21	18.03±4.64	2.73	0.043[*]

Total	60.00±0.00	31.50±16.26	53.92±7.99	54.42±8.35	5.32	0.001**

In this table, 1 is under 18 years old, 2 is 18-25 years old, 3 is 26-40 years old, 4 is 41-50 years old;

*P<0.05 **P<0.01

It can be seen from Table 5 that through the analysis of the types of public coping styles in different places of residence during the COVID-19, it can be seen that there was no statistically significant difference in the positive coping styles, negative coping styles and total scores of the public in different places of residence (P>0.05).

Table 5 Comparison of types of public response methods in different places of residence

	City	village	*t*	*P*
Positive coping style	36.18±6.30	36.41±5.53	-0.933	0.144
Negative coping style	17.79±4.42	18.20±4.74	-0.471	0.079
Total	53.97±8.48	54.61±8.24	-1.10	0.261

It can be seen from Table 6 that through the analysis of the gender difference in the level of public social support during the COVID-19, it can be seen that the objective support score had a significant difference in gender (P<0.05), and the objective support score of men was significantly higher than that of women. Subjective support, utilization scores and total scores were not statistically significant differences in gender (P>0.05).

Table 6 Gender differences in the level of public social support

	male	female	*t*	*P*
Objective support	8.04±2.67	7.88±2.10	0.686	0.016*
Subjective support	20.15±5.16	20.13±4.78	0.026	0.420
utilization	7.23±1.92	7.83±1.80	-3.057	0.891
Total	35.42±7.70	35.84±6.63	-0.577	0.205

*P<0.05

It can be seen from Table 7 that through the analysis of the level of public social support for different age groups during the COVID-19, it can be seen that the various factors and total scores of the public of different age groups had statistically significant differences (P<0.05). After LSD multiple test analysis, it can be seen that the public under the age of 18 was higher in all factors and total scores than other age groups. The 18-25 year-old public was lower than the older public in all factors and total scores.

Table 7 Comparison of public social support levels of different age groups

	1	2	3	4	*F*	*P*
Positive support	20.00±0.00	5.50±3.54	7.94±2.09	7.88±2.18	11.289	0.000*
Subjective support	32.00±0.00	13.00±2.83	20.15±4.59	20.14±4.88	3.490	0.016*
utilization	12.00±0.00	5.00±0.00	7.60±1.72	7.76±1.86	3.581	0.014*

Total	64.00±0.00	23.50±6.36	35.68±6.25	35.77±6.85	8.135	0.000*

*P<0.05

It can be seen from Table 8 that through the analysis of the level of public social support in different places of residence during theCOVID-19, there was no statistically significant difference in objective support scores, subjective support scores, utilization and total scores of the public in different places of residence (P>0.05).

Table 8 Comparison of the level of public social support in different places of residence

	City	Village	t	P
Objective support	7.96±2.21	7.85±2.25	0.564	0.447
Subjective support	19.58±4.92	20.92±4.67	-3.352	0.356
Utilization	7.82±1.88	7.61±1.78	1.405	0.317
Total	35.36±7.15	36.38±6.38	-1.797	0.241

Correlation analysis of public social support, personality and types of coping styles during the COVID-19
It can be seen from Table 10 that objective support scores were significantly correlated with subjective support, utilization, neuroticism, and active coping styles (P<0.05). Among them, there was a significant negative correlation with neuroticism, and subjective support, utilization, Positive coping styles showed a significant positive correlation; subjective support scores and objective support, utilization, extroversion, agreeableness, conscientiousness, and positive coping styles showed significant positive correlations (P<0.05); utilization and objective support, subjective Support, pleasantness, conscientiousness, and positive coping style showed a significant positive correlation (P<0.05). It can be seen from Table 11 that there was a significant positive correlation between personality types, social support and the total scores of coping styles (P<0.05), that is, groups of different personality types will receive different degrees of social support and had different coping styles. Social support will also have different coping styles.

Table 10 Correlation analysis of the sub-dimensions of public social support, personality and coping style

	1	2	3	4	5	6	7	8	9	10
1 subjective support										
2 objective support	0.330**									
3 utilization	0.232**	0.329**								
4 extraversion	0.036	0.163**	0.024							
5 agreeableness	0.068	0.113**	0.187**	0.323*						
6 conscientiousness	0.046	0.097*	0.135**	0.380*	0.379*					
7 neuroticism	-0.088*	-0.056	-0.034	0.244**	0.303**	0.281**				

8 openness	0.010	0.036	-0.051	0.431**	0.315**	0.385**	0.252**		
9 positive coping style	0.187**	0.267**	0.336**	0.289**	0.197**	0.233**	0.049	0.189**	
10 negative coping style	-0.020	0.027	-0.026	0.073	0.137**	0.128**	0.124**	0.192**	0.249**

*P<0.05 **P<0.01 ***P<0.001

Table 11 Correlation analysis of social support, personality and coping style

	1	2	3
1 Personality			
2 Social support	0.114**		
3 Coping style	0.307**	0.246**	

*P<0.05，**P<0.01

V. DISCUSSION

During the COVID-19, the public's social support was at a moderate level and there were gender and age differences

This study found that the public's social support during the COVID-19 was at a moderate level.
Through the analysis of gender differences in public social support, it is found that in the objective support factors, the level of social support of men was significantly higher than that of women; while there were no significant differences in subjective support factors, utilization factors and total scores.
Through the analysis of the public social support of different age groups, it is found that the social support factors and total scores of the public under the age of 18 were significantly higher than those of other age groups. This may be because young people were the main protection and concern objects in the family and society, and the social support they receive will increase accordingly. Moreover, as China has paid more and more attention to the mental health of adolescents, the intervention measures for the mental health of adolescents in schools, families and society had become more and more perfect. Therefore, for the public under the age of 18, the level of social support was higher than that of other age groups.
This study also found that the social support received by the public does not differ between rural and urban areas, indicating that during the pandemic, everyone received equal social support.

During the COVID-19, the public is more inclined to choose active responses: This study found that the public tended to choose active coping styles during the COVID-19, and the public's coping style choices were not significantly different in the place of residence (P>0.05), and there were significant differences in age and gender (P<0.05).Compared with people in other age groups, the public under 18 were less inclined to choose active coping methods to solve problems. This may be because the subjects under the age of 18 have less life and work experience, have not encountered major life events, or have been adversely affected by their peers. This study found that men are more inclined to choose negative coping styles than women, and there was no gender difference in positive coping styles. This showed that men often adopt negative countermeasures in the face of the pandemic. This study also found that there was no difference between the people's coping styles in rural and urban areas, indicating that the impact of the pandemic on the people was similar, and the people have adopted the same coping methods.

During the COVID-19, people's social support, personality and coping style are positively correlated :
This study found that during the covid-19, people's social support and its sub-dimensions, personality and most of its sub-dimensions are positively correlated with coping styles, which are consistent with previous research conclusions (Ma et al., 2004). This means that when people encounter major public health emergencies, whether they responded positively or negatively was closely related to their personality characteristics and the social support they received, that is, people who receive more social support were more inclined to adopt positive

responses the way. At the same time, people with personality characteristics such as extraversion, agreeableness, and conscientiousness were more inclined to adopt positive coping styles. This has important data support and theoretical guidance for the targeted development of people's psychological services during the pandemic.

Limitations: This study concludes that during the COVID-19 pandemic, people's social support was at a moderate level and tended to be active coping styles, and there was a significant positive correlation between social support, personality and coping styles. This research examines the social support and response methods of the people during the special period of the pandemic, pays attention to the public's psychological state during the pandemic, and responds to social concerns, which is innovative. Of course, this study also has certain limitations, such as uneven distribution of sample age. In this study, 76.2% of the respondents were 31-40 years old; data for other age groups was lacking. At the same time, this study did not pay attention to the public's stress status and influencing factors. The public's social support, personality, and coping styles are important influencing factors of stress conditions. Lower social support can predict theoretically higher stress intensity; adopting positive coping styles can help reduce the negative impact of stress events on individuals It can help individuals solve problems, reduce stress intensity, and restore good mental health (Ling, 2002); the level of individual stress is affected by personality, and individuals with high neuroticism feel more intense stress , the stress intensity is higher (Ma et al., 2004). These limitations need to be improved in future research.

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