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ORIGINAL RESEARCH

The Impact of Social Support for Patients with COVID-19 in Post-Traumatic Growth: A Mediating Analysis Study

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Background: Although it is known that social support can promote post-traumatic growth (PTG) of trauma survivors, the specific mechanism is still unclear in the case of government policy intervention and large-scale population infection with COVID-19.

Methods: Through snowballing sampling from January 7 to February 13, 2023, we collected data from 1381 patients tested positive for COVID-19, excluding asymptomatic or undiagnosed cases. Participants completed effective scales measuring social support, PTG, and proactive coping behaviors. Multiple linear regression and mediation analysis were used to process the data.

Results: Social support significantly predicted PTG (β=0.26, $p<0.001$), with proactive coping mediating 44.7% of this effect. About 32.66% of COVID-19 patients reported a medium-to-high level of PTG.

Conclusion: This study uniquely captures the PTG dynamics during China's sudden policy transition, demonstrating the positive role of social support in PTG and emphasizing that proactive response is a key intervention goal for public health crises.

Keywords: social support, proactive coping behavior, post-traumatic growth, mediating effect, COVID-19 pandemic

Introduction

As one of the worst global public health emergencies in history, the COVID-19 is characterized by wide coverage and serious outcome, causing severe trauma to the physical and mental health of patients. On the one hand, COVID-19 has brought death threats to infected individuals. According to the World Health Organization, over 760 million cases and 6.9 million deaths have been recorded worldwide since December 2019.[1] In contrast, the Severe Acute Respiratory Syndromes in 2003 had a total of 8,422 infections and 908 deaths globally.[2] On the other hand, the psychological problems caused increased significantly. The global prevalence of anxiety and depression increased dramatically by 25% in the first year of the COVID-19 pandemic.[3] To minimize the impact of the pandemic on economic and social development as much as possible, the Chinese government released updated pandemic prevention and control policies in December 2022, including the easing and lifting of regional containment measures, nucleic acid testing requirements,

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and quarantine protocols.[4] Within 2 weeks of the policy announcement, COVID-19 infections and deaths surged dramatically. However, the primary quarantine approach shifted from hospital-based to home-based isolation, which may foster novel PTG experiences among the public.

Post-traumatic growth (PTG) refers to the positive psychological changes that individuals experience after life crises or major challenges.[5] Previous studies have shown that traumatic events such as natural disaster, physical illnesses, and bereavement can positively promote the growth of victims.[6–8] After experiencing traumatic events, individuals may experience growth from different aspects.[9] There are multiple factors that can influence PTG. Previous studies have identified social support, proactive coping, family structure, and trauma exposure as potential contributing factors. Social support is based on the social network between individuals, which refers to the spiritual and material support individuals receive through social connections.[10] Social support contributes to cognitive expression and critical environmental resources in post-traumatized individuals, which can promote PTG.[11,12] Proactive coping refers to the adaptive behavioral strategies that individuals adopt proactively to manage stressors, regulate emotions, and solve problems when faced with stress or challenges.[13] Proactive coping behavior can promote PTG.[14] Because this coping strategy can rebuild the victim's beliefs and outlook on life.[15] Trauma exposure refers to the degree to which an individual directly or indirectly experiences a potential traumatic event. Traumatic exposure can affect the psychological outcomes of traumatized individuals.[16] Moderate traumatic exposure may trigger PTG, but excessive exposure can actually inhibit growth and even lead to post-traumatic stress disorder.[17] Family structure refers to the composition, role division, and relationship patterns among family members, such as marital relationships and the number of elderly/children, which may have an impact on PTG. The study found that married nurses had more positive attitudes and psychology during the COVID-19 period, which may be related to married nurses getting more social and mental support from their families.[18] Large families experienced more PTG than small families, which may be related to the emotional and economic resources provided by intimate family member networks.[19]

The research on PTG of patients with COVID-19 mainly has the following defects: Firstly, previous studies on the mental health of patients with COVID-19 focused more on the negative impact of this major epidemic, but less on positive psychological outcomes such as PTG. Previous studies have shown that patients diagnosed with COVID-19 show a higher incidence of depressive symptoms and poor sleep quality, and about three out of every ten survivors of COVID-19 infection suffer from post-traumatic stress disorder.[20,21] Secondly, those studies that explore the positive psychological outcomes of COVID-19 patients have the limitations of too small sample size and hospital isolation. Small-scale surveys are difficult to represent the diversity of the target population.[22–24] The patients isolated by the hospital are mainly the severe group of COVID-19.[25–27] They mainly received social support from medical staff and lacked intimate interaction with their families. In China's collectivist cultural context, where familial bonds and social connections are inherently stronger, hospital-isolated patients lack crucial social support systems and thus constitute a non-representative sample. Finally, regarding the exploration of the mechanism of social support on PTG, previous studies lacked exploration of the important role played by behavioral level in the pathway. Most explored the mediating effect of cognitive level, such as cognitive restructuring and self-efficacy.[28,29]

The purpose of this study was to explore how the drastic change of China's prevention and control policy and collectivism culture jointly affect the PTG of COVID-19 patients, focusing on the psychological adaptation mechanism in the special period from strict prevention and control to social restart. By analyzing the synergistic effect between policy driven stability and culturally rooted social support, we attempted to reveal how these macro forces regulate individuals' psychological adaptation to collective trauma. The research focused on elucidating how social support and proactive coping behaviors affect the formation pathway of PTG in the context of large-scale infections. Based on the shortcomings of existing research, this study studied for the first time the positive psychological outcome (PTG) of the special period (under the situation of the rapid increase in infection after the relaxation of the prevention and control measures of COVID-19 in China), the scale of more than one thousand people (1381), and the special population (COVID-19 patients isolated in hospital and at home). This study can not only expand the research on the impact of social support on PTG in theory but also provide reference for emergency preparedness and intervention methods for public health emergencies in practice.

Research Methodology

Research Subject and Sample Method

The subjects of this study were adults (≥18 years old) diagnosed with COVID-19 through nucleic acid testing in Chinese Mainland. We conducted a survey on COVID-19 patients in Chinese Mainland from January 7 to February 13, 2023, using the snowball sampling method. Twelve initial infected individuals confirmed by nucleic acid testing were the first to post the questionnaire link and expand the participants on the WeChat network, such as WeChat Moments and WeChat groups. Each participant was required to invite at least two participants to participate. Their geographical location covered the main regions of China, such as the eastern/western/central regions, etc.; Their infection stages included current positive symptoms, recovery period, and repeated infections; Their professions were diverse, with social networks covering the healthcare system, education system, corporate employees, and freelance work. In order to verify the infection status of participants, they were required to provide at least one of a nucleic acid test report/positive antigen test photo/hospital diagnosis certificate. The study finally included patients diagnosed with COVID-19, including "recovered" and "tested positive" patients, and excluded "uninfected" and "have some symptoms but not tested". Participants who did not complete all questionnaire questions were unable to submit the questionnaire, so invalid samples were excluded from the initial design of the survey. A total of 1659 questionnaires were distributed for the study, and 1381 samples were included after screening. The filtering process is shown in Figure 1.

Research Tools

This study used authoritative scales to measure social support, proactive coping behavior, and PTG. In addition, we collected demographic information including gender, age, marital status, number of children, number of elderly people, isolation style, and duration of illness, as control variables in statistical analysis.

Social Support Rating Scale

The study used social support rating scale designed by Xiao, composed of three dimensions: objective support, subjective support, and utilization of social support, with a total of 10 items.[30] Objective support mainly refers to the direct support

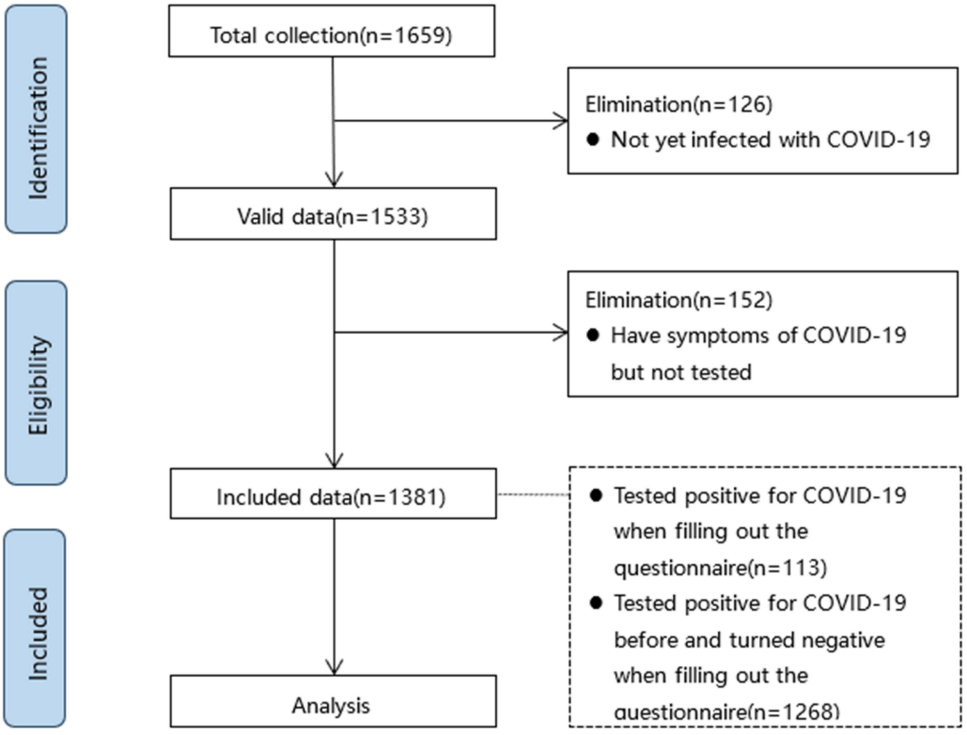

Figure 1 Flowchart of inclusion and exclusion.

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received by individuals, such as the number of actual material aid sources, etc. Subjective support focuses on evaluating the support individuals feel, such as their evaluation of the supported experience. The utilization of social support refers to an individual's proactive use of social support, such as actively seeking help or speaking out. The total score range is 12–64 points. The higher the score, the greater the social support the individual receives.

Proactive Coping Behavior Participation Scale

The proactive coping behavior participation scale developed by Zhang was used to measure the frequency of patients' proactive coping behavior during the illness of COVID-19, composed of three dimensions: protecting personal health, protecting others' health and seeking external resources, with a total of 8 items.[31] The scale adopts the 5-point Likert scale scoring method, with total score range 8–40 points. The higher the score, the more positive the patient's attitude towards the traumatic event.

PTG Scale

The PTG Scale designed by Tedeschi consists of five dimensions: personal strengths, relationship to others, appreciation of life, spiritual and existential change, and new possibilities.[5,32] The scale contains a total of 25 items, using a 6-point scoring system with a total score range of 0–125 points and a sub-domain score range of 0–25 points. The higher the score, the higher the individual's level of PTG. Based on a meta-analysis on PTG, we define scores greater than or equal to 60% of the total score as moderate-to-high levels of PTG.[33]

Statistical Methods

Data cleaning and preliminary analyses were conducted in STATA 17.0, while advanced modeling utilized SPSS 27.0 with PROCESS macro (v4.2). Firstly, we conducted reliability tests on the three main scales used in the questionnaire survey. The Social Support Scale (Cronbach's alpha=0.774), proactive coping Behavior Scale (Cronbach's alpha=0.819), and PTG Scale (Cronbach's alpha=0.961) all had good reliability.[34] Secondly, we conducted descriptive statistics on the demographic information of the included samples, mainly including the number, mean, and standard deviation of infected individuals' gender, age, family structure (marriage, number of children, number of elderly), trauma exposure (isolation method, duration of illness), etc. Next, after testing the normality of social support, proactive coping, and PTG, we determined the correlation between the main variables through Pearson correlation analysis. After using VIF to test for the absence of multicollinearity among the main variables, we conducted multiple linear regression analysis to investigate the impact of factors such as social support and proactive coping on PTG. Finally, we used PROCESS macro model 4 to test the mediating effect of proactive coping through 5000 resampling iterations of guidance.

Results

Descriptive Statistics

Among the 1381 COVID-19 patients included in the study, the proportion of men (43.23%) and women was almost the same. Most of them (77.19%) were aged 18–40 years old. Few elderly patients (2.39%) were over 60 years old. Married people (49.17%) accounted for half of the total sample. During the illness of COVID-19, most of the patients recovered at home, and a few (22.59%) were treated by hospital isolation, hotel isolation, shelter isolation, etc. The average duration of illness was 18.63 days, see Table 1 for details. As shown in Table 2, the mean scores of social support, proactive coping behavior, and PTG of infected population were 38.67, 28.02, and 63.13. In addition, the skewness of the three variables was −0.50, −0.05, and −0.16, and the kurtosis was 0.01, −0.49, and 0.02. It can be seen that the three key variables have a normal distribution with a certain right bias, which indicated that the social support, proactive coping behavior and PTG of COVID-19 patients are at a moderately high level. There were certain differences in the PTG across the dimensions, with the highest mean score for interpersonal relationships (M=17.67, SD=8.72), followed by psychological changes (M=14.86, SD=7.69), new possibilities (M=12.16, SD=6.50), personal strength (M=10.76, SD=5.31), and appreciation of life (M=7.69, SD=4.20). More than half (52.79%) of COVID-19 patients had a total PTG level of more than 62.5 points, and most (82.69%) of COVID-19 patients had a subdomain PTG level of more than 12.5 points. About 32.66% of COVID-19 patients reported a medium-to-high level of PTG.

Table 1 Distribution of Characteristics of Population Indicators

Variable	Group	N(%)	Sum	Mean	SD
Female	Female	784(56.77)	1381	0.568	0.496
	Male	597(43.23)			
Age	Under 18 years old	20 (1.45)	1381	–	1.429
	18~25 years old	484(35.05)			
	26~30 years old	243(17.60)			
	31~40 years old	319(23.10)			
	41~50 years old	174(12.60)			
	51~60 years old	108(7.82)			
	60 years old or older	33(2.39)			
Marriage	Yes	679(49.17)	1381	0.492	0.500
	No	702(50.83)			
Child	Yes	680(49.24)	1381	0.492	0.500
	No	701(50.76)			
Old	Yes	1181(85.52)	1381	0.855	0.352
	No	200(14.48)			
Treat	Yes	1069(77.41)	1381	0.774	0.418
	No	312(22.59)			
Duration	Continuous variable	–	1381	18.63	10.04

Notes: Female = whether or not female; age = age; marriage = whether or not married; child = whether or not have children; old = whether or not have elderly; treat = whether or not home isolation; and duration = duration of illness.

Table 2 Descriptive Statistics and Correlation Analysis of Key Variables

		Correlation							
Variables	M(SD)	SS	PCB	PTG Total	PTG_PS	PTG_RO	PTG_AL	PTG_SEC	PTG_NP
SS	38.67(8.10)	1							
PCB	28.02(7.27)	0.261***	1						
PTG total	63.13 (29.34)	0.260***	0.386***	1					
PTG_PS	10.76(5.31)	0.185***	0.347***	0.880***	1				
PTG_RO	17.67(8.72)	0.246***	0.376***	0.932***	0.758***	1			
PTG_AL	7.69(4.20)	0.178***	0.347***	0.839***	0.764***	0.721***	1		
PTG_SEC	14.86(7.69)	0.274***	0.358***	0.923***	0.743***	0.832***	0.703***	1	
PTG_NP	12.16(6.50)	0.252***	0.306***	0.911***	0.766***	0.798***	0.717***	0.807***	1

Note: ***p<0.001.

Abbreviations: SS, social support; PCB, proactive coping behaviors; PTG, post-traumatic growth; AL, appreciation of life; PS, personal strengths; NP, new possibilities; RO, relationship to others; SEC, spiritual and existential change.

Correlation Analysis of Key Variables

The coefficients in the Pearson correlation analysis indicated that both social support and proactive coping behavior were significantly positively correlated with the level of PTG both in total and in subdomain. Proactive coping behavior showed a stronger correlation with PTG compared to social support. In addition, there was a significant positive correlation between social support and proactive coping behavior, and the level of PTG in the different subdomains had a strong positive correlation.

Linear Regression Analysis of Social Support, Proactive Coping Behaviour and PTG

First, we assessed the multicollinearity of social support, proactive coping behavior, and other control variables through the VIF test. In general, a VIF value of less than 5 indicates that there are no multicollinearity problems.[35] It can be seen

Table 3 Linear Regression Analysis of Social Support, Proactive Coping Behavior, and PTG

Variables	VIF	β	Std. err	p	[95% Conf. Interval]
SS	1.29	0.546	0.12	0.000	[0.32,0.77]
PCB	1.15	1.424	0.12	0.000	[1.18,1.66]
Female	1.01	0.743	1.46	0.612	[−2.13,3.62]
Age	2.10	−0.548	0.71	0.440	[−1.94,0.84]
Marriage	2.50	−2.518	2.08	0.226	[−6.60,1.56]
Child	2.10	3.436	1.96	0.080	[−0.41,7.28]
Old	1.10	2.940	2.50	0.240	[−1.96,7.84]
Treat	1.10	−3.968	1.55	0.011	[−7.01,-0.93]
Duration	1.06	−0.021	0.07	0.773	[−0.16,0.12]

Note: Female indicates whether the interviewee is female; Age represents age; Marriage indicates whether one is married or not; Child indicates whether there is a child; Old indicates whether there is an elderly person; "Treat" indicates whether it is home quarantine; Duration represents the duration of illness.
Abbreviations: SS, social support; PCB, proactive coping behaviors.

in Table 3 that there was no high correlation between the variables, and the basic conditions for multiple linear regression analysis were met. Second, in addition to exploring the predictive effects of social support and proactive coping behavior on PTG, the study incorporated some demographic information as control variables, such as gender, age, marital status, number of children, number of elderly people. We controlled the degree of trauma exposure through isolation style and duration of illness in the regression model. The results showed that social support and proactive coping behavior had a significantly positive effect on PTG of COVID-19 patients, and proactive coping behavior had a greater impact on post-traumatic levels. In addition, we noticed that, COVID-19 patients with children had higher levels of PTG, and patients with hospital isolation had higher levels of PTG compared to home isolation.

Mediating Effects of Proactive Coping Behaviour

Mediation effects were tested using the Bootstrap method, setting up the study with 5,000 repeated samples. The mediation analysis showed that proactive coping behavior played a mediating role in the effect of social support on PTG. According to Figure 2, social support can significantly predict PTG (β=0.151, p<0.001), the better social support during the illness, the higher the level of PTG; besides, social support had a positive effect on the proactive coping behavior (β=0.345, p<0.001). The better social support COVID-19 patients enjoyed during its illness, the more patients tend to treat COVID-19 with proactive coping measures. Furthermore, proactive coping behavior had a contributory effect on PTG (β=0.353, p<0.001). The more COVID-19 patients actively respond to COVID-19, the higher the PTG level.

Proactive coping behavior played a significant mediating effect on the impact of social support on PTG levels. In the impact of social support on PTG, the indirect effect generated by proactive coping behavior (effect value of 0.441, Boot

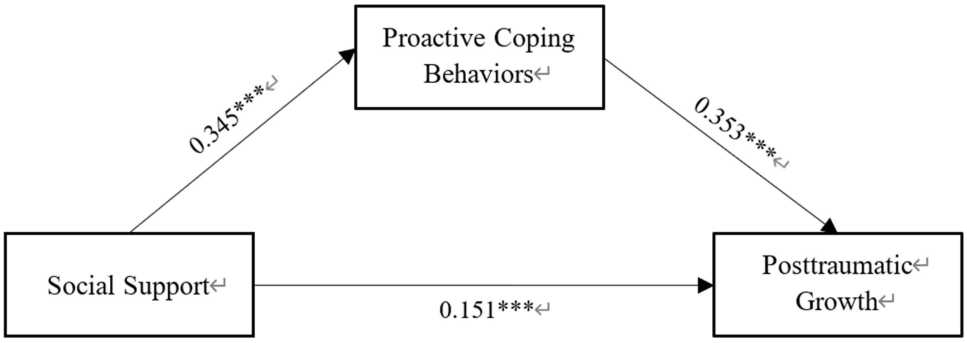

Figure 2 Mediational Model of Proproactive coping behaviors on Social Support and Posttraumatic Growth.
Note: ***p<0.001.

Table 4 Analysis of the Mediating Effect of Proactive Coping Behavior on Social Support and PTG

Dependent variables	Total Effect	Direct Effect	Indirect Effect	Prop Mediated
PTG total	0.987	0.546	0.441	44.68%
PTG_PS	0.132	0.059	0.073	55.30%
PTG_RO	0.287	0.162	0.125	43.55%
PTG_AL	0.087	0.037	0.050	57.47%
PTG_SEC	0.265	0.158	0.107	40.38%
PTG_NP	0.206	0.130	0.076	36.89%

confidence interval of 0.338–0.558) accounted for 44.68% of the total effect (effect value of 0.987, Boot confidence interval of 0.789–1.186). In addition, proactive coping behavior also played a high mediating effect between social support and the subdomains of PTG. Among them, the mediating effect of proactive coping behavior was the highest between social support and appreciation of life (57.47%), followed by personal strength (55.30%), interpersonal relationships (43.55%), changes in mental existence (40.38%), and finally new possibilities (36.89%), as shown in Table 4.

Discussion

Main Findings of the Present Study

This study took the drastic change of the Chinese government's policy to relax epidemic prevention and control measures as the research background, discussed the level of PTG of patients with COVID-19 when large-scale infection occurs, studied the impact of social support, proactive coping, trauma exposure, family structure, etc., on PTG, built a theoretical model of social support→proactive coping behavior→PTG, and emphasized the important value of coping behavior for human resistance to major public health events. The main findings of this study are as follows: On the one hand, after the Chinese government optimized the epidemic prevention and control measures, 32.66% of COVID-19 patients reported a medium-to-high level of PTG. Infected population showed positive psychological outcomes of PTG, in aspect of interpersonal relationships, spiritual existence, new possibilities, personal strength and appreciation of life. On the other hand, social support ($p<0.001$), proactive coping behavior ($p<0.001$), number of children ($p<0.1$) and isolation style ($p<0.05$) are the main factors influencing the PTG level of COVID-19 patients. The stronger the social support of COVID-19 patients, the more positive their attitude towards COVID-19, and the higher the growth level after COVID-19 disease. Patients with children had higher levels of PTG compared to those without children, and patients isolated in hospitals had higher levels of PTG than those isolated at home. In addition, proactive coping behavior plays an important mediating effect in this impact (44.68%). Specifically, the best mediating effect is manifested in appreciation of life (57.47%), while the impact on new possibilities is the lowest (36.89%).

Comparison with Other Studies

To start with, regarding the discovery of PTG levels, only 32.66% of the COVID patients reported a medium-to-high level of PTG. Compared to other studies, the proportion of PTG at medium-to-high level is slightly lower. Wu pointed out that the proportion of the medium-to-high level PTG was 52.6% in a meta-analysis.[33] Zhang reported 58.6% of medical personnels in COVID-19 frontline reached a medium-to-high level PTG in three months after the release of cities such as Wuhan in Hubei Province.[31] According to Pietrzak, 43.3% of US veterans reported moderate-to-high levels of PTG in nearly one year after the COVID-19 pandemic.[36] This is mainly due to the following two reasons: First, from the extent of trauma exposure, the trauma exposure of the COVID-19 outbreak was low during the study period. It was mainly because the consequences of COVID-19 infection were not serious at that time. This study was carried out in January 2023 during the optimization of COVID-19's management and control policies in China. Objectively, the corona virus has been no longer lethal, while treatment and medical experience have laid a solid foundation; subjectively, the public's fear of COVID-19 has decreased significantly. Secondly, from the perspective of recovery time from trauma, a shorter recovery time limited the likelihood of individuals achieving PTG. In the short period after a traumatic event,

individuals are more prone to negative cognitive and behavioral responses.[37] In contrast, individuals are more likely to generate positive emotions in the long period and gain insights and growth.

Besides, regarding of the factors influencing PTG, the research showed that social support ($p<0.001$), proactive coping behavior ($p<0.001$), number of children ($p<0.1$) can significantly predict PTG, which is consistent with previous research results; isolation style ($p<0.05$) is a factor that affects PTG, which is an important supplement to previous research. Social support plays an important role in promoting the PTG of Chinese patients with COVID-19, mainly related to two factors: On the one hand, due to the influence of history and culture, the social connection in the Chinese primary society is stronger than that of other countries. Against the backdrop of the Chinese government's emphasis on epidemic prevention and control and the attention of all sectors of society to the epidemic development, this interpersonal connection had been further expanded; on the other hand, the characteristics of COVID-19 epidemic changed the infection of COVID-19 from an individual traumatic event to a group traumatic event. Patients exchanged infection experiences with each other, which greatly reduced patients' fear of COVID-19. Proactive coping behaviors promote PTG in infected individuals, which is closely related to the three-year duration of the epidemic. When the Chinese government optimized the prevention and control measures of COVID-19, the medical community had formed a feasible treatment system, while the public had accumulated rich experience in protection. In face of the wide coverage of COVID-19, the public chose to listen to the feedback from all sectors of society and actively responded to infection events. The number of children is a factor that promotes PTG, and patients with children had higher levels of PTG. This may be because patients with children were more motivated to actively seek social support and reconstruct their meaning of life, due to their sense of family responsibility and parenting needs, thereby promoting PTG. The impact of isolation methods on PTG is significant, which is an important supplement to previous research. Previous studies have mostly explored the psychological outcomes of COVID-19 patients under hospital isolation. This study was conducted after the relaxation of epidemic control measures in China, covering infected populations in hospital isolation and home isolation. We found that infected individuals isolated in hospitals had a higher experience of PTG. This may be because infected individuals isolated in hospitals had a higher level of trauma exposure. They not only experienced more severe symptoms but also lived in closed environments and witness others' deaths, resulting in a higher level of PTG.

Finally, proactive coping behavior plays a mediating role in the influence of social support on proactive coping behavior. Although previous studies have shown this, there is a lack of exploration into the specific manifestations of this mediating effect in subdomains. Yu argued that for women with infertility, proactive coping style played a mediating role in the positive impact of social support and resilience on PTG.[38] Rajandram noted in the conceptual framework of PTG that good social support enabled cancer patients to actively cope and solve problems, which led to better PTG.[15] It is worth noting that previous studies have mostly focused on the mechanisms of PTG from a holistic perspective, lacking an in-depth analysis of the mediating effects from a subdomain perspective. We explored the differences of this mediating effect in various sub-domains of PTG, which is an important supplement to previous research. Specifically, the best mediating effect was shown in appreciation of life (57.47%), while the lowest effect in new possibilities (36.89%). That may be because that individuals took proactive measures to deal with current challenges, which can improve the level of PTG. The self exploration and meaningful construction of COVID-19 patients after traumatic events were mostly based on the current life state and then focused on the possibility of the future.

Implication and Explanation of Findings

This study provided novel theoretical and practical insights for PTG in public health crises. On a theoretical level, this study extended Powell's inverted U-shaped model by revealing the moderating effects of policy and culture on the "trauma exposure - PTG" curve.[17] Our research showed that policy-led stabilization measures and collectivist social support can further compress subjective trauma intensity in the objective context of large-scale infections. This policy cultural synergy not only validated the non-linear relationship between trauma exposure and PTG but also exposed different judgments of trauma exposure in individualistic and collectivist societies. On a practical level, the discovery of isolation styles and family structure as predictive factors for PTG provided actionable tools for intervention. Unlike previous studies on hospital isolation, this study included patients in home isolation, indicating that environmental constraints may reverse improve PTG by promoting cognitive reappraisal and calling on policymakers to seek a balance

between prevention and control and psychological protection. In addition, actively addressing the mediating role played in social support and PTG suggests that crisis response should prioritize developing coping skills rather than providing support. The weak mediating effect on future-oriented growth further indicated that post crisis mental health programs need to extend their duration to promote meaning reconstruction. The study ultimately proposed that public health governance should integrate policy flexibility and cultural resources, construct a multi-level linkage psychological resilience framework, and balance risk control and humanized intervention in crises, providing new ideas and experiences for global health emergencies.

Strengths and Limitations

This article has the following strengths: Firstly, the timing of this study is unique. A large number of people were infected with COVID-19 due to the policy of relaxed prevention and control measures. Due to the expanded scope and increased impact of this traumatic event, the psychological health status of patients may differ from previous times under the influence of group effects. Secondly, the population of this study has specificity. With COVID-19 patients transitioning primarily from hospital-based to home-based isolation, their social support systems differ fundamentally from conventional contexts. Through large-scale surveying, this research investigated the psychological health status of survivors under different isolation styles following traumatic exposure, which has important reference value for psychological rehabilitation after traumatic events. Finally, the research results of this study are innovative. We proposed a theoretical model of social support→proactive coping behavior→PTG, attempting to explore the mechanism of the impact of social support on PTG at the behavioral level. We conducted a more detailed study on the variable of PTG, exploring the mediating effect of proactive coping in social support and different subdomains of PTG, which is beneficial for expanding the understanding and grasping of PTG.

There are some limitations to this study: Firstly, there was a lack of a control group to verify the experimental conclusion. The reason was that a large number of participants were infected with COVID-19 at the time of questionnaire collection, while the number of uninfected persons (7.6%) was not enough to serve as the control group. Therefore, we excluded those not infected with COVID-19. Secondly, some information was overlooked in the questionnaire settings, resulting in incomplete control variables. We objectively measured the degree of trauma exposure and collected information on isolation methods and duration of illness when setting up the questionnaire. However, there was a lack of subjective evaluation, such as patient fear and relative casualties. Finally, in this study, survivors had a shorter recovery time from traumatic events, which may affect their growth experience after infection. But we believe that the data collected during the period of policy upheaval is still valuable and rare, as it helps us effectively measure the significant impact of government policies on traumatic events and public psychology. At the same time, in order to make up for the lack of observation period, we plan to carry out a follow-up study 2–3 years after the first experiment to explore the long-term impact of COVID-19 on the psychological outcome of survivors.

Conclusions

This study elucidated the impact of traumatic events on public mental health under the dual effects of policy changes and collectivism in China's epidemic prevention and control policies and revealed the psychological adaptation mechanism during the special period from strict control to social restart. Research has found that patients with COVID-19 showed PTG after infection, but the level of PTG was not high due to the relaxed attitude of the government and the collective trauma situation reducing the degree of trauma exposure. Social support is an important factor in promoting PTG, and proactive coping behavior plays an important mediating role in the relationship, highlighting the core role of behavioral agency in trauma recovery. These findings elucidated how macro-governance and micro-cultural practices can synergistically optimize PTG under moderate trauma, with significant implications for future interventions in response to public health emergencies. This study called for combining policy responsiveness with cultural capital, prioritizing response skills training during crisis periods, and cultivating social support systems to maintain long-term recovery, which can promote positive psychological experiences for survivors in trauma events.

Ethics and Consent Statements

We state that a prior approval was obtained from the biomedical ethics committee of the second affiliated hospital, School of Medicine Zhejiang University, China (2023-IRB-0137) and that the experimental data were anonymized in this study. The guidelines outlined in the Declaration of Helsinki were followed. The objective of this study is COVID-19 patients. They gave informed consent before participating in the study.

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Disclosure

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