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Abstract

COVID-19 infection can cause psychological distress and profoundly impact patients' lives, but it can also lead to positive changes and post-traumatic growth (PTG), or positive psychological change in response to challenging life circumstances. Current research on the influence of COVID-19 infection has mainly focused on its negative effects. Therefore, the aim of this study was to investigate whether patients with COVID-19 in China experienced PTG and, if so, what changed for them during the process of PTG. We used a qualitative descriptive approach to conduct this study. Using the purposive sampling recruitment method, patients with a confirmed COVID-19 diagnosis were recruited from a COVID-19 designated hospital in Shanghai, China, from April to July 2020. Data were collected using semi-structured, in-depth interviews conducted via cell phone or in person while social distancing to prevent the spread of COVID-19. Forty confirmed COVID-19 patients (19–68 years old) were recruited. Several prominent themes and subthemes were extracted from the interview responses regarding participants' experiences of PTG. The following are among the positive changes that occurred for these participants after their diagnosis of COVID-19: (1) Reevaluation of their life priorities, which included a greater appreciation of being alive and re-evaluating their values and goals, (2) Improved relationships within their social circles, which included establishing or maintaining closer relationships with family and friends and a greater willingness to help others, and (3) Perceived changes regarding themselves, which included personal growth and increased awareness of the importance of their health. The study identified potential positive impacts of COVID-19 on patients, which could be helpful in the implementation of interventions to facilitate PTG among COVID-19 survivors.

Keywords

post-traumatic growth, COVID-19, descriptive, qualitative study, China

Since the outbreak of the novel coronavirus disease 2019 (COVID-19) in China, more than 117 million people have been infected with the virus and nearly 2.6 million have died (World Health Organization [WHO], 2020b). The COVID-19 pandemic has affected 216 countries or areas worldwide (WHO, 2020b) and has caused panic and mental health problems for populations and affected people's quality of life, especially those infected with the virus (Bao et al., 2020; Nguyen et al., 2020). The COVID-19 pandemic has indeed become a major threat that greatly affects the public's physical and mental health (Qiu et al., 2020). Experiencing a COVID-19 infection is highly stressful and involves a threat to life and mental health, and this was especially true at the time this study was conducted, when testing, effective medications, and vaccines were not widely available (Luo et al., 2020).

Studies have found that survivors of severe acute respiratory syndrome (SARS) in the early 2000s experienced

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varying degrees of psychological impact, even after they had been cured and discharged from the hospital (Cheng et al., 2004; Wu et al., 2005a, 2005b). Extensive research on patients with COVID-19 has highlighted the negative consequences of living with the infection, including physical symptoms, post-traumatic stress symptoms, and depressive symptoms (Chakraborty et al., 2020; Duan & Zhu, 2020; Talevi et al., 2020; Vindegaard & Benros, 2020). People who were diagnosed with COVID-19 infection in China often faced challenging experiences, including designated hospitalization and 14 days of quarantine after discharge from the hospital, which resulted in psychological stress (Fu et al., 2020). However, in addition to the unpleasant experiences, people who have been infected with COVID-19 may gain strength psychologically or emotionally from facing the challenges of COVID-19.

Background

Post-traumatic growth (PTG) is defined as the positive psychological changes in areas of self-perception, life philosophy, and interpersonal relationships that can result from an individual's struggle with challenging life circumstances (Tedeschi & Calhoun, 1996). The concept of PTG comprises five domains of positive changes in coping with adverse events: improved relations with others, identification of new possibilities for one's life, increased personal strengths, spiritual growth, and enhanced appreciation of life (Tedeschi & Calhoun, 1996). Although the Post-traumatic Growth Inventory has been widely and commonly used to measure PTG, using quantitative methodology may not provide a full picture of the experiences of patients with COVID-19 in relation to the five PTG domains (Cheng et al., 2017; Scignaro et al., 2016). Therefore, to enhance the understanding of PTG after a COVID-19 diagnosis, we chose qualitative in-depth interviews to obtain information on the PTG experiences of those diagnosed.

PTG has been a standing interest in the field of health care, as it is strongly associated with psychological outcomes, such as depression, stress, and anxiety (Garrido-Hernansaiz & Alonso-Tapia, 2017; Tedeschi & Calhoun, 2004). Studies have shown that PTG is negatively associated with anxiety and depression in the presence of many diseases, including HIV and cancer (Casellas-Grau et al., 2017; Rzeszutek & Gruszczyńska, 2018). PTG also correlates with the adoption of effective coping strategies (Ogińska-Bulik & Kobylarczyk, 2015). Traumatic events can lead to cognitive processing of those events and can influence individuals' beliefs about the world, which may result in their coping with the trauma (Rogan et al., 2013). Individuals with positive psychological perspectives are more likely to develop adaptive coping strategies (Pérez-San-Gregorio et al., 2018). These research findings regarding PTG offer a potential alternative and positive perspective on traumatic events in that they explore the possibility of turning patients' suffering

of adverse events into an opportunity for them to find positive meaning and effect constructive changes, both of which are important to their well-being (Mehrabian et al., 2015; Mols et al., 2009).

Post-traumatic stress disorder (PTSD) is the most widely researched consequence of traumatic life events. During and after the SARS epidemic, posttraumatic stress symptoms (PTSS)/PTSD, anxiety, and depression among patients infected with SARS-CoV-1 was widely reported, even after 1 month, 1 year, 30 months, and even longer periods (Chua et al., 2004; Lee et al., 2007; Mak et al., 2009; Wu et al., 2005b). Similar to research on the SARS epidemic, research regarding COVID-19 has focused on the negative psychological and emotional implications of the disease on individuals (Talevi et al., 2020; Torales et al., 2020; Vindegaard & Benros, 2020). However, PTG can coexist with PTSD after the experiencing of traumatic events (Wu et al., 2015), and PTG as a potential positive source for coping with the negative effects of COVID-19 infection has not been explored. Thus, the main purpose of this study was to explore the phenomenon of PTG among COVID-19 patients in order to gain a more comprehensive understanding of the potential positive psychological impact of COVID-19 on patients.

Purpose of the Study

The aim of this study was to explore PTG in patients with COVID-19 in Shanghai, China. Our hope was that the results of the study would provide insight into PTG among COVID-19 patients, so as to assist healthcare providers in developing interventions to facilitate PTG among COVID-19 survivors.

Design

The study used a qualitative descriptive approach to obtain and analyze participants' experiences and perspectives regarding positive psychological impacts of COVID-19. The study was conducted via cell phone or in person using social distancing, which allowed us to gain insight into the experiences of PTG among COVID-19 patients while following recommendations for averting the spread of COVID-19.

Participants and Setting

A purposive sampling method was used to recruit individuals from a designated hospital for COVID-19-confirmed cases in Shanghai, China. Inclusion criteria were as follows: over 18 years of age, confirmed COVID-19 infection, and willingness to share personal experiences within the study parameters. The recruitment included two steps. First, we reached the potential participants via their contact information listed in their medical records and preliminarily selected participants according to the exclusion and inclusion criteria. The study objectives were then explained to the potential participants and their questions were answered. They also were told

that they had the right to refuse to participate and that if they did participate, they had the right to withdraw from the study at any time without consequences. After receiving their oral approval to participate, we emailed the study consent form to them. Upon securing completed informed consents through a secured research link, the researchers scheduled a time for a one-on-one interview. Written informed consent was obtained from all study participants. Seventy-six ($N=76$) potential participants were contacted. As the in-depth interviews were being conducted, the study team continued to recruit, as many of our participants had foreign experiences when the pandemic started. We continued to recruit to the point where participants provided no new responses to the interview questions, in other words, at the data saturation point (Blaikie, 2018). At that point, we had a sample of 40 participants. All participants received a small reimbursement for their participation.

Data Collection

In-depth semi-structured interviews were conducted to collect the data. All interviews were audio-recorded and conducted in Chinese from April to July 2020. The interviews were conducted by cell phone and/or face-to-face by two researchers who had experience in providing care for patients with COVID-19. Before they conducted interviews, these two research nurses were trained on in-depth interview skills to ensure consistency between their research skills. Each interview lasted 40 to 60 minutes and was carried out in a private office. The audio recordings were first transcribed by a transcription software program. The two interviewer researchers then separately checked the accuracy of the transcriptions by comparing, verbatim, the audio recordings and the transcriptions. After the consistency between the transcriptions and recordings was checked, three participants were randomly selected and given a summary of their individual findings to ensure transcription accuracy, as well as to gain their feedback on whether their experiences were interpreted accurately. If consensus could not be reached between the participants and researchers, we deferred to the participants' interpretations of the interviews. Throughout the interviewing process, the interviewers discussed the results with members of our research team who were COVID healthcare providers, so as to ensure the trustworthiness of the data on the treatment process and to revise our interview guide.

Participants' demographic information, including gender, age, marital status, educational level, work status, residence, and medical insurance, was obtained at the beginning of each interview. The interview guide focused on participants' experiences regarding PTG after their COVID-19 diagnosis. The following is a sampling of the questions posed: "Please tell me, how did you know your COVID-19 diagnosis?" "Please share with me your life before and after COVID diagnosis," "What impressed you the most after the diagnosis?" and "What concerns you since the diagnosis?"

Data Analysis

Analysis of the transcripts was conducted using the content analysis approach (Hsieh & Shannon, 2005) using Atlas.ti software (Scientific Software Development Version 7.0, 2012). First, the study team (the two researchers who also conducted the interviews) read the interview transcripts individually several times to get a sense of the content. They then looked for categories of concepts and then code trees related to the positive changes that patients with COVID-19 experienced. The study team developed the preliminary codebook according to the concept of PTG (Tedeschi & Calhoun, 1996) and geared it to the individuals with COVID-19. Next, the two researchers coded three transcriptions individually and checked the consistency of the coding to ensure the reliability measures. For discrepancies of coding, the study team met to discuss the discrepancies and to achieve consensus. After securing the coding reliability, the two researchers reviewed the transcriptions separately and assigned codes based on the codebook. After finalizing the coding process, the researchers retrieved representative quotes and completed the assigned coded narratives, and one translated them into English and the other translated them back to Chinese for verification.

Ethical Considerations

The relevant institutional review boards approved this study (IRB approval numbers YZ-2020-S037-01 and IRB#20-000832). As noted above, interviews were conducted after securing signed informed consent forms from the participants.

Participant Characteristics

Forty participants completed the in-depth interview. The participants' ages ranged from 19 to 68 years old, with an average age of 32. Twenty-four (60.0%) of the participants were male. Many of the participants (87.5%) had a bachelor's degree or higher, and more than half of the participants were employed (60.0%). Also, half (50%) of them had traveled from other countries back to China and were diagnosed with COVID-19 in the airport through mandatory onsite polymerase chain reaction (PCR) testing. Most of the participants had medical insurance in China (85.0%, $N=34$). On average, participants stayed in the hospital for 17 days (range 6–44 days). Detailed demographic characteristics of the participants are presented in Table 1.

Findings

Three main themes were extracted from the transcriptions regarding the experiences of PTG among the COVID-19 patients: reappraisal of their life and priorities, improved relationships within their social circles, and perceived

Table 1. Demographic Characteristics (N=40).

Characteristics	N	Mean (%)
Mean age (years old)		32
Age ranges from		19–68
Gender (%)		
Male	24	60
Female	16	40
Education (%)		
High school degree or below	5	12.5
Bachelor's degree or higher	35	87.5
Employment (%)		
Employed	24	60
Unemployed	16	40
Residence (%)		
Shanghai	18	45
Zhejiang province	4	10
Hubei province	4	10
Sichuan province	3	7.5
Henan province	2	5
Other provinces*	9	22.5
Marital status (%)		
Unmarried	19	47.5
Married	21	52.5
Living with family members (%)		
Yes	11	27.5
No	29	72.5
Family members also COVID-19 confirmed (%)		
Yes	5	12.5
No	35	87.5
With medical insurance (%)		
Yes	34	85.0
No	6	15.0
Average length of COVID stay in hospital (days)		17
Range		6~44

*Other residence provinces were Fujian, Guangdong, Ningxia, Anhui, Shandong, Hunan, Guizhou, Liaoning, and Shanxi.

Table 2. Themes and Subthemes from the Analysis (N=40).

Themes	Subthemes
Reappraisal of their life and priorities	Appreciating being alive Re-evaluating values and goals
Improved relationships within social circles	Establishing or maintaining closer relationships with family and friends Willingness to help others
Perceived personal changes	Personal growth Increased aware of the importance of health

personal changes. The themes and subthemes are presented in Table 2.

Reappraisal of their Life and Priorities

Having COVID-19 resulted in evolution and growth among most of the participants. Many participants mentioned that this experience brought positive changes in their attitudes about life. They reappraised their perceptions of the meaning of life and their priorities. The main theme, reappraisal of their life and priorities, included two subthemes: appreciating being alive and re-evaluating values and goals.

Appreciating Being Alive

Most participants said that being diagnosed with COVID-19 brought a lot of uncertainty, as it is a new viral illness and there were no medications specifically targeted to the disease at the time of the study. Many participants mentioned that recovery from COVID-19 and simply being alive were the most important things in their lives.

One participant (45-year-old, male, married) said:

Life is very fragile. After being diagnosed with COVID-19 infection, I was taken to the Jinshan isolation ward [the designated hospital in Shanghai]. When the ward door was closed, I felt it was possible that I would never go back. It may be the first time for me that [I was] so close to death. Now, I feel that being alive is the most important thing and [I] cherish every day.

Another participant (41-year, female, married) said:

It is not easy to recover from COVID-19, [to] still be alive. One patient who lived in the same ward with me said that her brother-in-law (who also was infected with COVID-19) turned from mild to severe, as he didn't get timely treatment in Wuhan. . . now I feel like I (am) reborn.

Re-Evaluating Values and Goals

The experience of COVID-19 led to attitude changes among participants. They realized that they had incorrect perceptions about aspects of their life. After experiencing COVID-19, they tried to enjoy life by concentrating on meaningful values.

Compared with the past, I more greatly cherish daily life now. It is inevitable that some troubles happen in your life, such as conflicts between you and your husband. Now I don't get too tangled in negative emotions. Living happily every day is the most important thing. (32-year-old, female, married)

There are many things in life that you cannot control, so just be yourself. Life is short. I am more appreciative of it, and I am going to do what I want to do. (41-year-old, female, married)

Improved Relationships within Social Circles

Many participants expressed an increased positive connection with other people, especially family and friends. This manifested in establishing or maintaining closer relationships with family and friends and a willingness to help others. Experiences of these greater connections with others were described as valuable positive changes following COVID-19 infection.

Establishing or Maintaining Closer Relationships with Family and Friends

After being diagnosed with COVID-19, all patients were required to stay in designated hospitals, after which there were 14 more days of quarantine away from their family. Several participants mentioned that having COVID-19 caused them to better understand the importance of being with their family. One participant stated:

The COVID-19 infection let me think about what is most important to me. I told my wife that no matter what happens in the future, the most important thing is to stay together. . . This experience caused me to re-evaluate the meaning of life and changed my values, especially the family value. The epidemic really made you feel that your home was there, but you couldn't go back to it. Staying together with my spouse and children is the most important thing in my life. (38-year-old, male, married)

Participants stated that they received much support from others, especially from family and friends, during their hospitalization and quarantine, which helped them overcome the challenges of having COVID-19. One participant said that, "After (being) diagnosed with COVID-19, I felt many kindnesses from others. My boyfriend is always with me and gives me a lot of support." (24-year-old, female, unmarried)

This support built closer bonds with their family and friends. One participant said:

"I am the happiest. My family supports me a lot and my husband always encourages me. Because of their support, I was not so sad even (after) I was fired by my company and discriminated (against) by the community due to COVID-19 infection." (30-year-old, female, married)

Another participant stated:

When I (was) diagnosed with COVID-19 infection, I told some of my friends and colleagues. During my hospitalization, they (were) concerned (about) my condition and usually chatted with me. Some of them were not so close before. To tell the truth, I was moved at that time. (28-year-old, male, unmarried)

Willingness to Help Others

Another change in relationships, as some participants stated, was a sense of responsibility toward other patients who had

COVID-19 and a willingness to provide aid to help them cope with the disease.

The reason I was willing to participate in this study is that I wanted to help other COVID-19 patients. Besides, I also wanted to donate my blood because I felt I should contribute to the COVID-19 treatment. (40-year-old, male, married)

Perceived Personal Changes

From being diagnosed with COVID-19 to the time of the interview, many participants said they went through personal changes. These changes included personal growth and their increased awareness of the importance of their health.

Personal Growth

One of the reasons that several participants chose to be thankful for this experience was that it made them grow in their personal life. This was manifested as a growth in maturity and enriched life experiences.

Greater maturity. Most of the patients described becoming more mature in facing life stressors after their experiences with COVID-19 infection. This maturity manifested in their attitudes and abilities when faced with a challenging situation.

One participant mentioned, "After this experience (COVID-19 infection), I felt I grew and became more mature than before." (40-year-old, male, married)

Enriched life experience. Some of the participants said that their life experience was deepened after surviving COVID-19 infection. As one participant stated: "I think the one growth for me was that my life experience in college was enriched." (20-year-old, male, unmarried)

Increased Awareness of the Importance of their Health

The experience of COVID-19 infection made most patients aware of the importance of being as healthy as possible. This theme involved the subthemes of an increased emphasis on hygiene habits, a healthy lifestyle, and proactive health care.

Hygiene habits. Some participants expressed that experiencing COVID-19 infection highlighted the vital necessity of hygiene habits in daily life. After recovery from COVID-19 and returning to normal life, they still wore masks in public settings, washed their hands frequently, and used public chopsticks.

Now I am more accustomed to wearing masks. When I go out, especially on the subway, I feel uncomfortable [if I don't] wear a mask. Besides, I pay more attention to personal and environmental hygiene, such as washing hands more often and ventilating [rooms] more. (32-year-old, female, unmarried)

Healthy lifestyle. Improving immunity function through exercise and diet plays a vital role in the process of recovery from COVID-19 infection. Most of the participants mentioned that they changed bad habits and maintained the healthy lifestyles that the doctors had recommended during hospitalization. One participant said, “*My health attitude has changed after this experience. Now, I exercise every day to improve my immunity*” (34-year-old, male, married). Another participant said:

What impressed me most about this experience was the importance of learning how to manage physical health. I used to smoke, but now I have slowly quit it. I pay more attention to physical exercise. In the past, I exercised occasionally, but now I have gradually formed the habit of exercising.” (41-year-old, male, married)

Proactive health care. One of the changes in health awareness among COVID-19 patients was that they emphasized the importance of proactive health care, including vaccinations and regular physical examinations. One participant stated, “*I plan to get the flu vaccine and pneumonia vaccine every year, which I did not consider before*” (32-year-old, female, unmarried). Another said:

There are some changes in my attitude to health. In the past, I always worked and didn't pay much attention to my health. After this experience, I realized that it's important to find the potential health risks, instead of ignoring them. So, I will do regular physical examinations for both myself and my family.” (31-year-old, male, married)

Discussion

This qualitative study focused on the positive changes experienced by patients with COVID-19 in Shanghai, China. As the results revealed, COVID-19 infection can have a positive and multidimensional impact on patients, including leading them to reappraising their life and priorities, increasing their awareness of the importance of taking steps to remain healthy, improved relationships, and personal growth. Studies have shown that social isolation, perceived danger, physical discomfort, and fear of infecting others may lead to stress, loneliness, anger, anxiety, and depression among patients with COVID-19 (Kong et al., 2020; Mazza et al., 2020). However, besides the negative impacts, the challenges of having COVID-19 can lead to positive psychological changes, such as post-traumatic growth, which can result in adjustments to life priorities and the adoption of a healthy lifestyle (Mehrabi et al., 2015). These findings provide a basic understanding of the experiences of patients with COVID-19 and provide evidence and information for health-care providers to consider when designing interventions to enhance the resilience and PTG of these patients.

Consistent with previous studies on other traumatic stress events, such as infectious diseases and natural disasters (Hefferon et al., 2009; Karagiorgou et al., 2018; Mehrabi

et al., 2015), after having COVID-19, participants in this study experienced positive changes in their attitudes and values toward life. They reappraised their perceptions of life and re-evaluated their priorities. They realized the value of simply being alive and grasped the importance of their family to them. The outbreak of COVID-19 has brought public uncertainty and a sense of crisis due to its high infectivity and mortality rate (Zhou et al., 2020). In addition, when this study was conducted, targeted medications and vaccinations for COVID-19 were unavailable (Zhai et al., 2020), which meant that a COVID-19 diagnosis might be a threat to a patient's life. Therefore, after surviving COVID-19 infection, patients more avidly cherished their life.

Additionally, as the COVID-19 pandemic has globalized, a series of rigorous preventive and control measures were implemented, including lockdowns, quarantines, and traffic blockage (Ye et al., 2020). These control strategies have slowed the spread of COVID-19, but they also obstructed the way home for many, especially for those who were overseas from their home country. In this study, only 45% of participants lived in Shanghai, whereas 50% of the participants recently returned to China from other countries. Most of them experienced being separated from their family due to the COVID-19 pandemic. The value of family has long been a part of traditional Chinese values, but the experience of having COVID-19 increased survivors' appreciation of the importance of family in their lives. This psychological growth can be strengthened through culturally appropriate interventions, for example, encouraging patients to disclose their status to gain family support.

Another finding of this study was an enhancement among participants in personal growth after their COVID-19 diagnosis, including a growing maturity and enriched life experiences. COVID-19 infection brings challenges to individuals that they must confront and this can drive personal development by forcing them to face these challenges. Additionally, during the process of dealing with COVID-19, patients have faced existential experiences and developed coping skills that might be used later in life. This personal growth not only helps them adapt to the impact of infection on their lives, but also may benefit their future life.

As described by the patients in this study, the COVID-19 infection experience also changed their sense of relationships, resulting in them developing a closer bond to family and friends and a willingness to help others. These findings are consistent with the findings of other PTG literature, in which the desire to improve relationships is a main consequence of having faced traumatic events (Karagiorgou et al., 2018; Palmer et al., 2017). In line with many other studies of these other events, we found that experiencing COVID-19 infection has brought survivors closer to their family and friends. After being diagnosed with COVID-19, patients experienced various challenges in facing this life-threatening disease. During this period, social support was an important source for them to cope with these challenges (Khanjani et al., 2017; Rzeszutek, 2017). Generally, the social support

was mainly provided by family members and friends when participants struggled against the disease. The social support that helped patients cope with COVID-19 also improved their relationships. In addition, individuals who received support from others during COVID-19 infection became more aware of others' needs, which led them to be more willing to help others enduring the same experience. The growth in relationships exemplified the importance of social support and relationships in the process of facing trauma. Thus, it is critical to address social support and relationships in the development of PTG interventions.

Finally, COVID-19 infection experiences not only resulted in positive changes in participants' values, relationships, and personal growth, but also led to improvements in health awareness and behaviors, including improvements in hygiene habits, healthy lifestyles, and proactive health care. With a traumatic event, people become aware of their own vulnerabilities and strengths, which results in the development of coping behaviors (Janoff-Bulman, 2004; Rajandram et al., 2011). Since the COVID-19 virus can be transmitted through droplets, airborne transmission, and contact, maintaining hygiene habits, such as wearing masks, washing hands, and disinfecting items, can effectively preclude transmission (WHO, 2020a). Those patients who were infected with COVID-19 through these transmission routes may place more emphasis on the importance of hygiene habits. In addition, similar to other flu viruses, for most asymptomatic and mildly infected patients, recovery from COVID-19 infection depends mainly on the patient's immune system (National Health Commission of China [NHC], 2020). Therefore, a healthy lifestyle, such as exercising and quitting smoking, was adopted by COVID-19 patients to improve their immunity. Last, the infection experience has also led to participants focusing more attention on lessening their potential risk for other diseases through regular physical examinations and vaccinations.

Limitations

There are several limitations to this study. First, all participants were recruited from one designated hospital in Shanghai. As Shanghai is a major, metropolitan city, it usually has more healthcare resources than nearby vicinities. Also, COVID-19 control and treatment policies vary from place to place in China. Therefore, conditions that participants described in this study might not be generalizable to conditions experienced by patients with COVID-19 in other cities in China. Second, this study focused only on qualitative data regarding PTG. As quantitative PTG measures were developed, future research could quantify the PTG among individuals with COVID-19. Last, Shanghai had one of the few open airports in China during the pandemic. Therefore, many of the study participants were travelers returning to China who received their COVID-19 diagnosis during the required onsite PCR testing at the airport. This might skew the data, as most of them were highly educated. Therefore, their PTG might be more positive than that of

COVID-confirmed patients in other places in China. Future studies should be conducted in other cities to confirm the PTG in Chinese COVID cases.

Conclusions

The study provides insight into PTG experiences and perceptions in a sample of Chinese patients with COVID-19. Results indicate that some people with COVID-19 infection experienced positive changes and PTG, including a greater appreciation of life, a reappraisal of values and priorities, a greater emphasis on health maintenance, improved relationships, and personal growth. Healthcare providers should recognize these potential positive changes and growth among patients with COVID-19 and use them as a source for improving their patients' skills when facing the negative effects of COVID-19 infection.

Nursing Implications

This study presents the experiences and PTG of patients after being infected with COVID-19. The psychological and physical discomforts of COVID can profoundly impact people's lives; however, this stressful experience can also lead to positive changes. Healthcare providers can assist individuals in rethinking their life priorities and in considering potential coping strategies during the pandemic. Therefore, mental health issues should be included in assessments during provider-patient encounters. It is urgent that COVID-related stigma scales be developed, as many participants in this study described experiences of discrimination.

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Author Contributions

This study is the result of a collaboration among Wei-Ti Chen, Hongzhou Lu, and Lin Zhang, who are the correspondence authors of this study and were responsible for designing, planning, organizing, and guiding this study. Wenxiu Sun was responsible for the qualitative data analysis and manuscript writing. Feifei Huang was responsible for designing and guiding this study. Siyue Ma and Qing Zhang were responsible for data collection and data analysis.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.


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Ethical Conduct of Research

This research was approved by the relevant institutional review boards of UCLA (IRB#20-000832) and Shanghai Public Health Clinical Center (YZ-2020-S037-01).

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