

Social support and vicarious posttraumatic growth among psychological hotline counselors during COVID-19: the role of resilience and cognitive reappraisal

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ABSTRACT

Background: The COVID-19 pandemic is a serious threat to people's lives and mental health. As a key worker providing psychological assistance services, the purpose of this study was to explore the relationship between social support and vicarious posttraumatic growth of psychological hotline counselors during COVID-19 and its mechanism.

Methods: A questionnaire survey was conducted among 241 psychological hotline counselors. Path analysis was conducted through structural equation modeling.

Results: The direct path from social support to vicarious posttraumatic growth of psychological hotline counselors was not significant, but the indirect path between them was significant. Social support can influence vicarious posttraumatic growth of psychological hotline counselors through the mediating effects of resilience and cognitive reappraisal as well as the chain mediating effects of these two factors.

Conclusions: Social support does not directly stimulate vicarious posttraumatic growth in psychological hotline counselors, but social support can influence counselors' vicarious posttraumatic growth through the role of resilience, cognitive reappraisal, and the chain-mediated effects of psychological resilience and cognitive reappraisal. This encourages hotline counselors to be intentional about applying resources to balance the effects of trauma work on them as they face their clinical work.

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Introduction

Since December 2019, novel coronavirus disease 2019 (COVID-19) has broken out globally, posing a substantial threat to people's lives and mental health (Wang et al., 2020). In this context, it is particularly important to provide high-quality mental health assessment and counseling services to the public (Clemente-Suárez et al., 2021).

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As frontline workers providing public psychological assistance, psychological hotline counselors have been experiencing indirect but prolonged exposure to traumatic events during COVID-19. They are thus prone to depression, anxiety, and other emotional problems, thereby becoming a high-risk population for secondary traumatic stress (Wan & Zhang, 2021). However, exposure to traumatic events can lead to positive changes in individuals, such as *vicarious posttraumatic growth* (VPTG), in which the emotional and cognitive responses a counselor experiences from secondary trauma serve as catalysts for positive changes in their understanding of the human spirit, including appreciation of the resilience of the human spirit, enhancement of interpersonal skills, and an awareness of life's values (Arnold et al., 2005; Lai et al., 2021). This suggests that the process of exploring new perceptions of the self with traumatized clients may, in turn, help counselors work through the shock of indirect trauma exposure and become better equipped for hotline work. Previous studies have found that social support, the resources that individuals obtain from their interpersonal networks (Xiao, 1994), is an important factor affecting individual VPTG (Măirean, 2016). A higher level of social support can effectively relieve the psychological distress and physiological reactions of individuals, enabling them to better cope with stressful events and experience positive psychological changes (Jia et al., 2017). Based on a comprehensive review of previous literature, few studies have been conducted on the intrinsic mechanisms of psychological hotline counselors' social support and VPTG during COVID-19, and an in-depth exploration of these factors will not only help clarify the mechanism of the influence of social support on the VPTG of psychological hotline counselors but also provide insight into the practical application of psychological hotline counselors' alternative post-traumatic growth to help them continue to move forward in their new identity.

Resilience refers to the ability of individuals to adapt effectively when coping with crises (Zautra et al., 2008). It helps individuals redefine the value of life during traumatic experiences and acquire VPTG while learning to find positive meaning in trauma (Üzar-Özçetin & Hiçdurmaz, 2019). According to the framework of *Resilience in Action* framework, when external resources from family, society, and peer groups meet the individuals' psychological needs, they develop strong resilience (Li & Zhang, 2006). Adequate social support fosters high resilience levels so that individuals can better mobilize resources to actively cope with traumatic events and achieve greater growth while solving problems (Luo et al., 2020). In summary, individuals who receive more social support tend to have greater resilience (Karadaş & Duran, 2022), be able to actively cope with challenges, and experience VPTG (Lyu et al., 2021).

Studies have found that individuals using cognitive reappraisal strategies can positively reframe traumatic events and reconstruct their understanding of their experiences, thereby promoting VPTG (Zhou et al., 2019). *Cognitive reappraisal* is an emotional regulation strategy of antecedent attention. Before the occurrence of adverse effects, individuals understand anew, recognize, and evaluate traumatic events that induced negative emotions to reduce adverse effects and facilitate growth by viewing the significance of these events from a more positive perspective (Gross & John, 2003). Studies have shown a close relationship between social support and cognitive reappraisal (Du et al., 2023). Individuals with stronger social support are more likely to use cognitive reappraisal strategies actively to alleviate negative emotions triggered by the pandemic. In conclusion, compared with individuals who use cognitive reappraisal strategies

independently, individuals who receive help and care from others can more effectively reduce negative emotional reactions (Liu et al., 2022), thereby activating VPTG during traumatic experiences (Laslo-Roth et al., 2022).

In addition, resilience predicts the tendency to use cognitive reappraisal strategies (Li, 2019). Specifically, individuals with a higher level of resilience can actively adopt cognitive reappraisal strategies to rationalize events that induce emotional stimuli, alleviating the adverse effects of emotional reactions under stress (Mouatsou & Koutra, 2023). COVID-19 is a public health emergency impacting the entire world. When hotline counselors are exposed to callers' traumatic experiences, they are often unable to achieve self-awareness, resulting in vicarious trauma. At this point, social support provides a safe environment and atmosphere for counselors to recover from exposure to stressors and improve resilience (Kılınç & Çelik, 2021). This high level of resilience further helps counselors choose positive emotional regulation strategies to reduce adverse effects while reconstructing a positive understanding of traumatic experiences (Bensimon, 2012) to achieve growth.

The current study

In this study, we conducted a web-based survey of psychological hotline counselors during COVID-19, aiming to examine the underlying mechanisms by which social support affects the VPTG of psychological hotline counselors in the context of the epidemic. First, we examined the impact of social support on psychological hotline counselors' VPTG. Second, we explored important factors (resilience and cognitive reappraisal) that promote VPTG among this population. Finally, we also identified a model of the relationship between social support and VPTG among psychological hotline counselors and proposed three hypotheses:

Hypothesis 1: Resilience mediates the relationship between social support and the VPTG of psychological hotline counselors.

Hypothesis 2: Cognitive reappraisal mediates the relationship between social support and psychological hotline counselors' VPTG.

Hypothesis 3: Resilience and cognitive reappraisal mediate the relationship between social support and psychological hotline counselors' VPTG.

Method

Participants

This study adopted a convenience sampling method, carried out from October 2021 to April 2022, and selected psychological hotline counselors during the period of COVID-19 as the research object. Inclusion criteria were as follows: (1) individuals who were psychological hotline counselors who provided psychological assistance to the public during the COVID-19 epidemic and who (2) understood the purpose of the study and agreed to participate voluntarily. The cross-sectional questionnaire survey method was adopted in this study, and an electronic questionnaire was generated using the Wenjuanxing software and distributed through WeChat. Our samples covered 18 Chinese provinces, municipalities directly under the central government, and autonomous regions

Table 1. Participants' demographic characteristics ($N = 241$).

| Characteristics | Categories | <i>n</i> (%) |
|--|--------------------------|--------------|
| Gender | Male | 22 (9.1%) |
| | Female | 219 (90.9%) |
| Age | 17–29 | 41 (17%) |
| | 30–39 | 63 (26.1%) |
| | 40–49 | 85 (35.3%) |
| | ≥50 | 52 (21.6%) |
| Education | Associate degree | 85 (35.3%) |
| | Bachelor's degree | 80 (33.2%) |
| | Master's/Doctoral degree | 76 (31.5%) |
| Years of work | 0–5 years | 140 (58.1%) |
| | 6–10 years | 63 (26.1%) |
| | ≥11 years | 38 (15.8%) |
| Professional qualification certificate | Yes | 196 (81.3%) |
| | No | 45 (18.7%) |
| Receive professional supervision | Yes | 138 (57.3%) |
| | No | 103 (42.7%) |
| Receive ethics training | Yes | 173 (71.8%) |
| | No | 68 (28.2%) |

(Gansu, Shaanxi, Henan, Sichuan, Jiangsu, Shanxi, Beijing, Hebei, Xinjiang, Zhejiang, Anhui, Hainan, Hunan, Hubei, Tianjin, Ningxia, and Liaoning). A total of 247 questionnaires were collected. After excluding five people who provided responses that were too short and regularity, 241 valid questionnaires remained. The validity rate of the questionnaire was 97.9%. The subjects' basic information is shown in [Table 1](#).

Ethics statement

The study was approved by the ethics committee of the school of psychology, northwest normal university (IRB 2021007).

Measures

Basic information questionnaire

The questionnaire covers basic demographic information (age, gender, education level, etc.), qualifications obtained by the hotline counselors, number of years of counseling experience, psychological supervision, and ethical training.

Social support

The Social Support Rating Scale was used to measure social support (Xiao, 1994). The scale consists of three factors and 10 items, including *subjective social support* (four items), *objective social support* (three items), and *utilization of social support* (three items). Among these, items 1–4 and 8–10 are entitled single choice and are recorded as 1, 2, 3, or 4 points depending on the response chosen. item 5 has response choices A, B, C, D, and E, which range from 'none' to 'full support' for a score of 0–4 points. The 'no source' option in response to items 6 and 7 receives 0 points. The number of points for the 'following sources' option is based on the number of sources. The higher the total score is, the more social support obtained. In this study, Cronbach's α coefficients of subjective social support, objective social support, and utilization of

social support were 0.70, 0.78, and 0.67, respectively. Cronbach's α coefficient of total scale is 0.76.

Resilience

The Connor-Davidson resilience scale was used to evaluate individual resilience (Yu & Zhang, 2007). The scale comprises 25 items divided into three dimensions: *tenacity*, *strength*, and *optimism*. Items are scored on a five-point scale (0 = *never*, 4 = *almost always*), and higher scores indicate higher levels of resilience. In this study, Cronbach's α coefficients for the dimensions of tenacity, power, and optimism were 0.93, 0.88, and 0.68, respectively. The Cronbach's α coefficient for the total scale was 0.87.

Cognitive reappraisal

The cognitive reappraisal strategy sub-questionnaire developed by Stanford University was used (Gross & John, 2003). The questionnaire consists of six items and is rated on a seven-point scale (1 = *strongly disagree*, 7 = *strongly agree*). Higher scores indicate that individuals are accustomed to using cognitive reappraisal strategies. In this study, the internal consistency (Cronbach's α) of the scale was 0.89.

Vicarious posttraumatic growth

The Chinese Revised Posttraumatic Growth Inventory measured individual positive psychological experiences (Wang et al., 2011). The 20-item scale comprises five dimensions, *personal strength*, *spiritual change*, *new possibilities*, *relationships with others*, and *appreciation of life*, rated on a six-point scale (0 = *no change at all*, 5 = *a lot of change*). Higher scores indicate higher levels of posttraumatic growth. In this study, Cronbach's α coefficients for the five dimensions of personal power, spiritual change, new possibilities, relationships with others, and appreciation of life were 0.70, 0.75, 0.84, 0.88, and 0.71, respectively. The Cronbach's α coefficient for the total scale was 0.88.

Data analysis

All survey data in this study were input into Microsoft Excel and then imported into SPSS. A chi-square test was calculated to establish whether there is an association between sociodemographic variables and the VPTG of psychological hotline counselors in the context of the epidemic. Cronbach's α coefficient was used to test the reliability and validity of each scale. SPSS 24.0 was used for descriptive statistics and correlation analysis. The structural equation model was developed using Mplus 8.0 to test the mediation model.

Results

Relationship between sociodemographic variables and the VPTG of psychological hotline counselors

According to the division interval of the post-traumatic growth scale (0–35, 36–70, and 71–100), we divided the samples into three levels, namely, low VPTG (9.5%),

Table 2. Association between demographic variables and VPTG of psychological hotline counselors.

| Demographic variables | | <i>n</i> | Low-level of VPTG, <i>n</i> (%) | Moderate level of VPTG, <i>n</i> (%) | High levels of VPTG, <i>n</i> (%) | χ^2 | <i>P</i> |
|--|----------------------|----------|---------------------------------|--------------------------------------|-----------------------------------|----------|----------|
| Gender | Male | 22 | 3 (13.6) | 5 (22.7) | 14 (63.6) | 5.87 | 0.053 |
| | Female | 219 | 20 (9.1) | 109 (49.8) | 90 (41.1) | | |
| Age | 17–29 | 41 | 7 (17.1) | 21 (51.2) | 13 (31.7) | 12.45 | 0.053 |
| | 30–39 | 63 | 7 (11.1) | 35 (55.6) | 21 (33.3) | | |
| | 40–49 | 85 | 8 (9.4) | 34 (40.0) | 43 (50.6) | | |
| | ≥50 | 52 | 1 (1.9) | 24 (46.2) | 27 (51.9) | | |
| Education | Associate degree | 85 | 6 (7.1) | 40 (47.1) | 39 (45.9) | 1.75 | 0.781 |
| | Bachelor's degree | 80 | 10 (12.5) | 36 (45.0) | 34 (42.5) | | |
| | Master/Doctor degree | 76 | 7 (9.2) | 38 (50.0) | 31 (40.8) | | |
| Years of work | 0–5 | 140 | 12 (8.6) | 64 (46.0) | 63 (45.3) | 1.46 | 0.834 |
| | 6–10 | 63 | 8 (12.5) | 30 (46.9) | 26 (40.6) | | |
| | ≥11 | 38 | 3 (7.9) | 20 (52.6) | 15 (39.5) | | |
| Professional qualification certificate | Yes | 196 | 19 (9.7) | 83 (42.3) | 94 (48.0) | 11.09 | 0.004 |
| | No | 45 | 4 (8.9) | 31 (68.9) | 10 (22.2) | | |
| Receive professional supervision | Yes | 138 | 8 (5.8) | 62 (44.9) | 68 (49.3) | 7.94 | 0.019 |
| | No | 103 | 15 (14.6) | 52 (50.5) | 36 (35) | | |
| Receive ethics training | Yes | 173 | 15 (8.7) | 77 (44.5) | 81 (46.8) | 3.41 | 0.182 |
| | No | 68 | 8 (11.8) | 37 (54.4) | 23 (33.8) | | |

Note: *N* = 241.

medium VPTG (47.3%) and high VPTG (43.2%). Chi-square test results showed that there was a statistically significant association between psychological hotline counselors having a professional qualification certificate, receiving professional supervision, and having ethical training and their level of VPTG during the epidemic period (Table 2).

Descriptive and correlation analyses

Table 3 displays the means, standard deviations, and correlation analysis results for each variable. The correlations between social support, resilience, cognitive reappraisal, and VPTG were significant.

Mediation analyses

Figure 1 presents the model structure and path coefficients. The model fit index showed a good fit ($\chi^2/df = 2.29$, CFI = 0.97, TLI = 0.96, RMSEA = 0.07, SRMR = 0.04). The bias-corrected percentile bootstrap (repeated sampling 5,000 times) was used to test the mediating effect. As shown in Table 4, the direct effect of social support on VPTG prediction

Table 3. Means, standard deviations, and bivariate correlations.

| | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 |
|-------------------------|----------|-----------|--------|--------|--------|---|
| 1.Social support | 45.99 | 8.84 | 1 | | | |
| 2.Resilience | 72.47 | 13.50 | 0.49** | 1 | | |
| 3.Cognitive reappraisal | 31.78 | 6.05 | 0.35** | 0.45** | 1 | |
| 4.VPTG | 64.14 | 21.06 | 0.29** | 0.39** | 0.42** | 1 |

Note: VPTG = Vicarious posttraumatic growth. ***P* < 0.01.

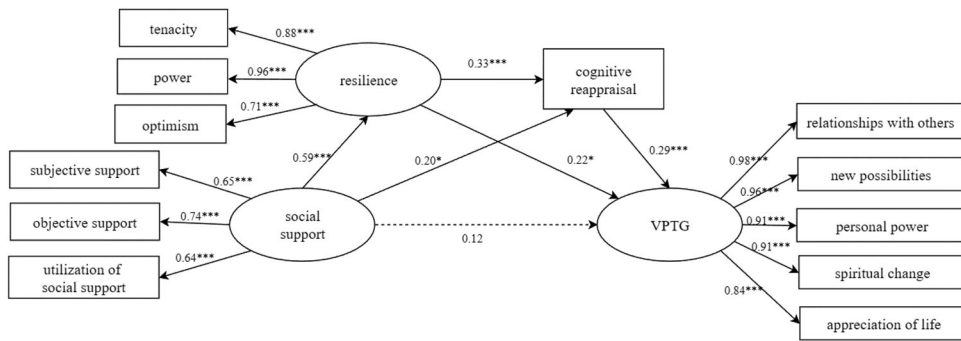


Figure 1. Serial mediation of social support, resilience, Cognitive reappraisal and VPTG. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

was not significant. The mediating effects of resilience and cognitive reappraisal were significant. The chain-mediating effect of resilience and cognitive reappraisal was also significant. Indirect effects accounted for 67.57% of the total.

Discussion

This study investigated the effect of social support on VPTG and its underlying mechanism on psychological hotline counselors during COVID-19. The results showed that social support influenced the VPTG of hotline counselors through the separate mediating effects of resilience and cognitive reappraisal as well as the chain mediating effect of resilience and cognitive reappraisal.

First, this study found that social support influences the VPTG of psychological hotline counselors through the mediating effect of resilience. This is consistent with previous findings and extends the classical buffering hypothesis of social support (Thoits, 2011), which suggests that social support can mitigate the negative impact of the epidemic on counselors' mental health by improving their mental resilience. The higher the level of social support received by psychological hotline counselors during COVID-19, the better their ability to regulate negative emotions. As an internal resource fostering effective adaptation, resilience reduces the adverse impact of traumatic events on counselors. It promotes positive dynamic regulation (Üzar-Özçetin & Hiçdurmaz, 2019), which leads to personal understanding and positive change.

Second, consistent with previous research, social support can positively predict psychological hotline counselors' VPTG through cognitive reappraisal. Positive change

Table 4. Direct and indirect effects for the mediation analyses.

| | Estimates | Bootstrapping 95% CI | |
|--|-----------|----------------------|-------|
| | | Lower | Upper |
| Social support → VPTG | 0.12 | -0.11 | 0.35 |
| Social support → Resilience → VPTG | 0.13 | 0.03 | 0.26 |
| Social support → Cognitive reappraisal → VPTG | 0.06 | 0.01 | 0.14 |
| Social support → Resilience → Cognitive reappraisal → VPTG | 0.06 | 0.02 | 0.11 |

Note: VPTG = Vicarious posttraumatic growth.

in individuals emerges from the cognitive processing and reconstruction of traumatic events (Tedeschi & Calhoun, 2004). During the pandemic, the support received through interpersonal relationships has promoted counselors' active use of cognitive reappraisal strategies to relieve stress (Du et al., 2023). At the same time, as a positive emotional regulation strategy, cognitive reappraisal helps psychological hotline counselors consider the traumatic event from multiple perspectives (Zhou et al., 2019) and contributes to the generation of VPTG through positive empowerment in relation to the trauma. This suggests that the process of exploring new perceptions of the self with traumatized clients may, in turn, help counselors work through the shock of indirect trauma exposure and enhance schemas related to other aspects of the trauma, such as strengthening one's desire to help others or becoming more aware of the importance of one's work.

Third, the study found, for the first time, that resilience and cognitive reappraisal played a chain-mediating role between social support and the VPTG of psychological hotline counselors during the pandemic. During the pandemic, counselors were under stress while providing psychological counseling to callers. Sharing the same predicament deepens their empathy for callers. When they feel callers' negative emotions, such as anxiety and panic, they are frequently prone to self-involvement and negative emotions. Thus, secondary trauma may occur (Lai et al., 2021). The support received from family, colleagues, and society helps hotline counselors maintain resilience. Counselors actively use the cognitive reappraisal strategy to modulate negative emotions, avoid secondary trauma, and achieve positive psychological changes when experiencing traumatic events (Kılınc & Çelik, 2021).

Finally, the chain-mediated path between social support and psychological hotline counselors' VPTG was not significant, which is not consistent with previous studies. The growth model points out that the key to determining VPTG lies in the process of an individual's struggle with trauma (Tedeschi & Calhoun, 2004). It gives meaning to trauma through cognitive processing and emotional investment and facilitates positive growth. As a powerful resource in the external environment, social support relieves hotline counselors' stress. However, social support alone cannot directly stimulate the generation of VPTG. Resilience and the cognitive reappraisal strategy should be combined to improve counselors' VPTG.

Several limitations of the current study need to be mentioned. First, considering the limitations of mediation analysis in cross-sectional samples, future research should further explore the causal relationships of variables. Second, the sampling of the current study focused on the northern region of China, and the generalizability of the results is thus limited. Third, the measures used in the current study relied exclusively on self-report, which may be affected by default response bias. In the future, attempts should be made to measure the specific performance of the VPTG of psychological hotline counselors and the factors influencing it from experimental or other perspectives. Fourth, the extent and specific forms of trauma exposure experienced by psychological hotline counselors during the epidemic were not examined in this study and need to be included in subsequent studies to better explain the internal mechanisms of VPTG in psychological hotline counselors. This study also has several important contributions. Theoretically, this study reveals the mediating roles of psychological resilience and cognitive reappraisal, which deepens the explanation of the mechanism of social support's

influence on psychological hotline counselors' VPTG in the context of the epidemic and enriches the study of VPTG. In practice, it provides an effective path for protecting the psychological health of psychological hotline counselors and promoting their VPTG. This encourages hotline counselors to consciously use various resources to balance the effects of trauma work on themselves when facing clinical work. In addition, the process of processing trauma and gaining alternative post-traumatic growth for hotline counselors can serve as a reference for other trauma workers, such as doctors and nurses, and even members of the public who are indirectly exposed to the trauma of others.

Conclusion

Our study showed that social support was positively related to resilience, cognitive reappraisal, and VPTG in two ways. Social support does not directly stimulate VPTG in psychological hotline counselors, but it can influence counselors' VPTG through the mediating roles of resilience and cognitive reappraisal as well as the chain mediating roles of psychological resilience and cognitive reappraisal.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Author's contributions

JYF and ZY were responsible for the study design. WYL and GY were responsible for data, statistical analysis, providing the data, and reviewing the article. JYF and QTT wrote the initial draft of the manuscript. All authors reviewed and agreed upon the final version of the manuscript.

Institutional review board statement

The study was conducted in accordance with the Declaration of Helsinki and was approved by an Institutional Review Board/Ethics committee. See details under Methods.

Data availability statement

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

References

- Arnold, D., Calhoun, L. G., Tedeschi, R., & Cann, A. (2005). Vicarious posttraumatic growth in psychotherapy. *Journal of Humanistic Psychology, 45*(2), 239–263. <https://doi.org/10.1177/0022167805274729>
- Bensimon, M. (2012). Elaboration on the association between trauma, PTSD and posttraumatic growth: The role of trait resilience. *Personality and Individual Differences, 52*(7), 782–787. <https://doi.org/10.1016/j.paid.2012.01.011>
- Clemente-Suárez, V. J., Navarro-Jiménez, E., Jimenez, M., Hormeño-Holgado, A., Martínez-Gonzalez, M. B., Benitez-Agudelo, J. C., Perez-Palencia, N., Laborde-Cárdenas, C. C., & Tornero-Aguilera, J. F. (2021). Impact of COVID-19 pandemic in public mental health: An extensive narrative review. *Sustainability, 13*(6), 3221. <https://doi.org/10.3390/su13063221>
- Du, X., Zhou, M., Mao, Q., Luo, Y., & Chen, X. (2023). Positive aging: Social support and social well-being in older adults—the serial mediation model of social comparison and cognitive reappraisal. *Current Psychology, 42*(26), 22429–22435. <https://doi.org/10.1007/s12144-022-03219-3>
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*(2), 348–362. <https://doi.org/10.1037/0022-3514.85.2.348>
- Jia, X., Liu, X., Ying, L., & Lin, C. (2017). Longitudinal relationships between social support and posttraumatic growth among adolescent survivors of the Wenchuan earthquake. *Frontiers in Psychology, 8*, 1275. <https://doi.org/10.3389/fpsyg.2017.01275>
- Karadaş, A., & Duran, S. (2022). The effect of social support on work stress in health workers during the pandemic: The mediation role of resilience. *Journal of Community Psychology, 50*(3), 1640–1649. <https://doi.org/10.1002/jcop.22742>
- Kılınç, T., & Çelik, A. S. (2021). Relationship between the social support and psychological resilience levels perceived by nurses during the COVID-19 pandemic: A study from Turkey. *Perspectives in Psychiatric Care, 57*(3), 1000–1008. <https://doi.org/10.1111/ppc.12648>
- Lai, L., Ren, Z., Yan, Y., Niu, G., Zhao, C., Luo, M., & Zhang, L. (2021). The double-edged-sword effect of empathy: The secondary traumatic stress and vicarious posttraumatic growth of psychological hotline counselors during the outbreak of COVID-19. *Acta Psychologica Sinica, 53*(9), 992–1002. <https://doi.org/10.3724/SP.J.1041.2021.00992>
- Laslo-Roth, R., George-Levi, S., & Margalit, M. (2022). Social participation and posttraumatic growth: The serial mediation of hope, social support, and reappraisal. *Journal of Community Psychology, 50*(1), 47–63. <https://doi.org/10.1002/jcop.22490>
- Li, C. (2019). Psychosocial resilience, emotion regulation and mental workload of operating room nurses: A study on something about an A-level of Grede III hospital. *Practical Journal of Medicine & Pharmacy, 36*(8), 744–748. <https://doi.org/10.14172/j.issn1671-4008.2019.08.025>
- Li, H., & Zhang, W. (2006). Review of the studies on psychological resilience. *Journal of ShanDong Normal University(Humanities and Social Science), 51*(3), 149–152. <https://doi.org/10.16456/j.cnki.1001-5973.2006.03.029>
- Liu, Q., Li, G., Huang, M., Yang, R., & Cai, X. (2022). The impact of social support on mental health under the COVID-19 epidemic: The mediating role of emotion regulation strategies. *Journal of Southwest Jiaotong University(Social Sciences), 23*(3), 71–82.
- Luo, R., Zhang, S., & Liu, Y. (2020). Short report: Relationships among resilience, social support, coping style and posttraumatic growth in hematopoietic stem cell transplantation caregivers. *Psychology, Health & Medicine, 25*(4), 389–395. <https://doi.org/10.1080/13548506.2019.1659985>
- Lyu, Y., Yu, Y., Chen, S., Lu, S., & Ni, S. (2021). Positive functioning at work during COVID-19: Posttraumatic growth, resilience, and emotional exhaustion in Chinese frontline healthcare workers. *Applied Psychology: Health and Well-Being, 13*(4), 871–886. <https://doi.org/10.1111/aphw.12276>
- Máirean, C. (2016). Secondary traumatic stress and posttraumatic growth: Social support as a moderator. *The Social Science Journal, 53*(1), 14–21. <https://doi.org/10.1016/j.soscij.2015.11.007>

- Mouatsou, C., & Koutra, K. (2023). Emotion regulation in relation with resilience in emerging adults: The mediating role of self-esteem. *Current Psychology*, 42(1), 734–747. <https://doi.org/10.1007/s12144-021-01427-x>
- Tedeschi, R. G., & Calhoun, L. G. (2004). Target ARTICLE: "posttraumatic growth: Conceptual foundations and empirical evidence". *Psychological Inquiry*, 15(1), 1–18. https://doi.org/10.1207/s15327965pli1501_01
- Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behavior*, 52(2), 145–161. <https://doi.org/10.1177/0022146510395592>
- Üzar-Özçetin, Y. S., & Hiçdurmaz, D. (2019). Effects of an empowerment program on resilience and posttraumatic growth levels of cancer survivors. *Cancer Nursing*, 42(6), E1–E13. <https://doi.org/10.1097/NCC.0000000000000644>
- Wan, H., & Zhang, H. (2021). The vicarious trauma of counselors in Hubei in the novel coronavirus outbreak and the strategies. *Journal of Changchun Education Institute*, 37(1), 76–80.
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., McIntyre, R. S., Choo, F. N., Tran, B., Ho, R., Sharma, V. K., & Ho, C. (2020). A longitudinal study on the mental health of general population during the COVID-19 epidemic in China. *Brain, Behavior, and Immunity*, 87, 40–48. <https://doi.org/10.1016/j.bbi.2020.04.028>
- Wang, J., Chen, Y., Wang, Y., & Liu, X. (2011). Revision of the Posttraumatic Growth Inventory and testing its reliability and validity. *Journal of Nursing Science*, 26(14), 26–28.
- Xiao, S. (1994). Theoretical basis and research application of social support rating scale. *Journal of Clinical Psychiatry*, 4(2), 98–100.
- Yu, X., & Zhang, J. (2007). A comparison between the Chinese version of Ego-resiliency scale and Connor-Davidson resilience scale. *Psychological Science*, 30(5), 1169–1171. <https://doi.org/10.16719/j.cnki.1671-6981.2007.05.035>
- Zautra, A., Hall, J., Murray, K., & Group, T. R. S. (2008). Resilience: A new integrative approach to health and mental health research. *Health Psychology Review*, 2(1), 41–64. <https://doi.org/10.1080/17437190802298568>
- Zhou, X., Wu, X., Yang, X., Wang, W., & Tian, Y. (2019). Emotional expression and cognitive reappraisal mediate the relation between empathy and posttraumatic growth amongst adolescents after Ya'an Earthquake. *Journal of Psychological Science*, 42(6), 1325–1331. <https://doi.org/10.16719/j.cnki.1671-6981.20190607>