

State Quo of Anxiety and Depressive Disorder in Parents of Teenagers with Major Depressive Disorder, Associated Factors and Efficacy Evaluation of Self-Service Based Cognitive Behavioral Therapy on Line

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ABSTRACT

Purpose: To investigate the status quo of generalized anxiety disorder (GAD) and depressive disorder (DD) and the efficacy of interventions in parents of adolescents with major depressive disorder (MDD).

Design/Methodology/Approach: 428 parents of adolescent MDD patients were enrolled through convenient sampling from January 2022 to December 2023. Of these, 58, meeting the severe criteria for GAD and DD, received self-service-based online cognitive behavioral therapy.

Findings: 224 (52.34%), 216 (50.47%) of the parents in adolescent MDD patients met the diagnostic criteria for GAD and DD, respectively. The scores of Generalized Anxiety Disorder-7(GAD-7) and Patient Health Questionnaire-9 items (PHQ-9) negatively correlated with subjective social support, utilization of social support and positive coping style, and positively correlated with negative coping style ($P < 0.01$). Logistic regression showed that female, insufficient subjective support, support utilization, insufficient positive coping style and excessive negative coping style were risk factors for GAD and male, insufficient subjective support, support utilization, insufficient positive coping style and excessive negative coping style were risk factors for DD in parents of adolescent MDD patients ($P < 0.05$ or 0.01). After self-service based cognitive behavioral therapy on line, subjective support, support utilization and positive coping style were improved, while negative coping style was decreased, and the scores of GAD-7 and PHQ-9 were decreased significantly correspondingly ($P < 0.01$).

Conclusion: The parents of adolescent MDD patients have higher rate of GAD, DD and self-service based cognitive behavioral therapy on line can alleviate their anxiety and depression by improving social support and coping style.

Keywords: Anxiety, Depression, Parents, Cognitive behavioral therapy, On-line intervention, Social support, Coping style.

1. INTRODUCTION

Adolescence, as a transitional phase for individual's life, is a critical period for both physical and psychosocial development. In recent years, due to complex factors, the incidence of depressive disorder (DD) among teenagers has been on rise due to a variety of complex factors. A survey involving 22,693 children and adolescents who were enrolled by stratified random sampling from the fourth grade of primary school to the third grade of junior high school in 10 provinces across 4 major economic regions in China showed that the overall prevalence of depressive symptoms was 17.9%, among which mild depressive symptoms accounted for 12.8% and severe depressive symptoms for 5.1% (Zhao, 2024).

Previous studies have shown that DD was related to these adolescents' suicide, mental disability, substance abuse, and academic failure (Cui et al., 2024; GBD 2019 Mental Disorders Collaborators, 2022; Liu et al., 2024; Strong, Thomas, Adams, & Hulvershorn, 2025); Meanwhile, DD, for its salient features of chronicity, difficult to be treated

thoroughly, high recurrence rate, needed a comprehensive medical program of antidepressant, psychotherapy, physical therapy, and rehabilitation training, etc. (Farokhzadian, Shahrabaki, Farahmandnia, Eskici, & Goki, 2024; Yildirim, Akman, Ozturk, & Yakin, 2024). It was confirmed that DD in adolescents imposed a considerable disease burden, including medical and rehabilitation expenses and care burden, on the parents of patients (Kim et al., 2024). DD may also cause teenagers to miss the critical period for knowledge learning, skill acquisition and social participation, which had an adverse impact on future employment and social activities. This kind of pressure passed on to the parents of adolescent patients with major depressive disorder (MDD) would generate pessimistic future expectations and cause great interference to their daily life arrangement, therefore, they may be more prone to experiencing negative emotions, such as anxiety, depression, despair and helplessness (Ma et al., 2024; Mondoloni et al., 2024). The mental health status in parents of adolescent MDD patients is a topic worthy for further concern.

The stigmatization of mental illness is widespread around the world. The rate of seeking medical treatment for mental illness has always been very low, a survey in Hebei province of China show that the rate of seeking medical treatment for mental illness was only 12.76% (Amer et al., 2022; Mengelkoch, Gassen, Slavich, & Hill, 2024). Therefore, parents of adolescent MDD patients may avoid social interactions for their incorrect understandings or attitudes regarding the treatment, recurrence, and rehabilitation of DD. Negative coping styles and the lack of social support further aggravate psychological burdens and raise the risks of anxiety and depression.

In summary, this study aims to investigate the mental health status and its associated factors and psychological intervention for parents of adolescent MDD patients, thereby providing a scientific basis for the prevention, treatment and rehabilitation of anxiety and depression in adolescents and their parents.

2. RESEARCH METHODOLOGY

2.1. Participants

428 parents of adolescent MDD patients who were admitted to psychiatry department Mental Health Center of Qingpu District from January 2023 to December 2024. The participants, including 157 males and 271 females, aged from 41 to 57 years old. Inclusion criteria for the participants are on good health conditions in the past without major physical or mental diseases; all participants do not experience major traumatic events in the past 6 months, such as unemployment, divorce, accidents, disaster etc. and sign the informed consent form. The participants with psychosocial dysfunction such as unemployment, video game addiction, social phobia, etc., psychoactive substance abuse, a history of committing crimes and receiving criminal penalties and lack basic abilities in listening, speaking, reading and writing comprehension were excluded.

2.2. Assessment Tools for Mental Health

Generalized Anxiety Disorder-7 (GAD-7) GAD-7 is used to evaluate the anxiety symptoms in primary health care center and communities for screening of generalized anxiety disorder. It consisted of 7 items and is scored on a 4-point scale from 0 to 3. The total score, with 0 to 4 indicating no anxiety symptoms and with scores of 5 to 9 was classified as mild, 10 to 14 as moderate, and ≥ 15 as severe. When GAD-7 was used as an auxiliary diagnosis for anxiety disorder, the cut-off value was ≥ 10 points (Mughal et al., 2020). The Cronbach's α of GAD-7 was 0.793 in this study.

Patient Health Questionnaire-9 items (PHQ-9) The PHQ-9 was used for depressive disorder screening or auxiliary diagnosis in primary health care center and communities. It consisted of 10 items, including 9 items for symptom assessment and 1 item for function assessment, and PHQ-9 was scored on a 4-point scale ranging from 0 to 3. With a total score of 0 to 4 which was summed by the first 9 items indicated no depressive symptoms and of 5 to 9 was classified as mild, 10 to 14 as moderate, and ≥ 15 as severe. PHQ-9 could be used for the auxiliary diagnosis of depressive disorder with a diagnostic cut-off value ≥ 10 points. In this study, the Cronbach's α of PHQ-9 was 0.807.

Social Support Rating Scale (SSRS) The SSRS was developed by Xiao (1994) and widely used in China with good reliability and validity property. The SSRS consisted of 10 items which was assigned into 3 evaluation dimensions, objective support, subjective support, and support utilization. The higher the score of SSRS, the better the social support (Zhang, Qi, & Ma, 2025). In this study, the Cronbach's α of SSRS was 0.827.

Simplified Coping Style Questionnaire (SCSQ) The SCSQ, consisted of 20 items which were scored on a scale of 0 to 3, included two evaluation dimensions, positive coping and negative coping (Wang et al., 2023). In this study, the Cronbach's α of SCSQ was 0.773.

2.3. Psychological Intervention

A total of 58 people, met with the criteria of GAD-7 or PHQ-9 \geq 15, or those with both GAD-7 and PHQ-9 \geq 15, were defined as case group (Mughal et al., 2020). A self-service system based cognitive behavioral therapy (SSSBCBT) was carried out in the case group for 8 weeks.

SSSBCBT was established as an online diagnosis and treatment system for depressive disorder and anxiety disorder in 2022. It has initially formed a self-service psychotherapy system mainly based on the theory of cognitive behavioral therapy, and the basic models of cognitive behavioral therapy were presented through various interactive media (such as comics, animations, videos, etc.). This system guides visitors to identify, understand and take active actions for testing the different consequences of negative and positive cognitive biases. SSSBCBT included 5 sections, including mental health assessment, science education, relaxation training, self-guidance for emotion (activating event-belief-consequence, ABC), and homework (rational cognitive training and behavioral testing). The frequency for psychological intervention was twice a week with each lasting for 1 hour.

2.4. Statistical Methods

All data were statistically processed using SPSS SSL7.0. Descriptive statistical analysis, independent sample t-test, Pearson's correlation, Logistic regression analysis was conducted respectively. P value <0.05 was considered statistically significant.

3. RESULTS

3.1. The State Quo of Anxiety and Depression among Parents of Adolescent MDD Patients

The descriptive statistical analysis showed that 55 cases (12.85%) with severe anxiety symptoms, 169 cases (39.49%) with moderate, 191 cases (44.63%) with mild, 13 cases (3.04%) with no anxiety disorder and 43 cases (10.05%) with severe depressive symptoms, 173 cases (40.42%) with moderate, 190 cases (44.39%) with mild, 22 cases (5.14%) with no depressive symptoms among parents of adolescent MDD patients.

According to the cut-off values of GAD-7 and PHQ-9 \geq 10 (Mughal et al., 2020) 224(52.34%) cases and 216 (50.47%) cases respectively met diagnostic criteria of generalized anxiety disorder and depressive disorder.

3.2. Correlation Analysis of Anxiety Symptoms, Depressive Symptoms and Social Support, Coping Styles in Parents of Adolescent MDD Patients

Pearson's correlation suggested that GAD-7, PHQ-9 negatively correlated with subjective support, support utilization and positive coping styles and positively correlated with the negative coping style (P<0.01), see Table 1.

Table 1. Pearson's correlation between anxiety symptoms, depressive symptoms and social support, coping styles.

Variable	Subjective support	Objective support	Support utilization	Positive coping style	Negative coping style
GAD-7	-0.554**	0.005	-0.412**	-0.619**	0.589**
PHQ-9	-0.478**	0.033	-0.457**	-0.462**	0.615**

Note: ** is P<0.01.

3.3. Logistic Regression Analysis of Risk Factors for Anxiety Symptoms, Depressive Symptoms in Parents of Adolescent MDD Patients

Taking the cut-off value of GAD-7 and PHQ-9 \geq 10 as demarcation criterion with 1 representing those with GAD-7 and PHQ-9 \geq 10 and 2 representing those with GAD-7 and PHQ-9<10, Logistic regression analysis was conducted with GAD-7 and PHQ-9 as dependent variables and gender, age, social support, and coping style as independent variables, respectively. The results showed that female, insufficient subjective support and support utilization, insufficient positive coping styles, excessive negative coping styles were independent risk factors for anxiety disorder and male, insufficient subjective support and support utilization, insufficient positive coping styles,

excessive negative coping styles were independent risk factors for depressive disorder among parents of adolescent MDD patients ($P < 0.05$ or 0.01), see Table 2 and 3.

Table 2. Logistic regression analysis for risk factors for anxiety disorder in parents of adolescent MDD patients.

Variables	Regressive coefficient	Standard errors	Walds	P	OR values
Gender	0.559	0.278	4.042	0.044	1.749
Age	-0.024	0.028	0.724	0.395	0.976
Subjective support	0.176	0.055	10.364	0.001	1.193
Objective support	0.033	0.042	0.631	0.427	1.034
Support utilization	0.235	0.113	4.304	0.038	1.265
Positive coping style	0.278	0.034	66.329	0.000	1.320
Negative coping style	-0.119	0.040	8.619	0.003	0.888

Table 3. Logistic regression analysis for risk factors for depressive disorder in parents of adolescent MDD patients.

Variables	Regressive coefficient	Standard errors	Walds	P	OR values
Gender	-0.599	0.259	5.359	0.021	0.550
Age	0.038	0.027	1.905	0.167	1.038
Subjective support	0.178	0.052	11.633	0.001	1.195
Objective support	-0.028	0.041	0.471	0.493	0.973
Support utilization	0.582	0.116	25.222	0.000	1.790
Positive coping style	0.068	0.025	7.364	0.007	1.071
Negative coping style	-0.252	0.045	31.813	0.000	0.777

3.4. Comparison of Anxiety Symptom, Depressive Symptom, Social Support and Coping Styles before- and after-Psychological Intervention

Independent sample t-tests suggested that subjective support, support utilization and positive coping style were increased, while negative coping style, GAD-7 and PHQ-9 were lowered significantly after psychological intervention ($P < 0.01$). Objective support showed no significant difference between before- and after-intervention ($P > 0.05$), see Table 4.

Table 4. Comparison of anxiety symptom, depressive symptom, social support, coping style between before- and after psychological intervention ($\bar{X} \pm SD$).

Variables	Before psychological Intervention (n=58)	After psychological Intervention (n=58)	t	P
Subjective support	9.76 \pm 1.45	10.60 \pm 1.96	-2.640	0.009
Objective support	5.48 \pm 1.61	5.90 \pm 2.85	-0.685	0.495
Support utilization	4.02 \pm 0.74	5.76 \pm 2.25	-5.601	0.000
Positive coping style	8.72 \pm 2.66	10.67 \pm 1.93	-4.512	0.000
Negative coping style	18.47 \pm 3.48	14.26 \pm 2.79	7.184	0.000
GAD-7	16.28 \pm 3.54	14.71 \pm 2.75	2.665	0.009
PHQ-9	20.74 \pm 3.81	18.78 \pm 2.21	3.396	0.001

4. DISCUSSION

Mild anxiety and depression, commonly experienced in daily life, can boost work efficiency to a certain extent, attention and problem-solving, nevertheless, moderate to severe anxiety and depression can cause significant damage to psychosomatic functions, prosocial behaviors, job performance as well as sense of life satisfaction and happiness (Boukarras, Ferri, Borgogni, & Aglioti, 2024), therefore, anxiety and depressive disorder need to be faced and resolved positively.

This study found that the anxiety symptoms in 428 parents of adolescent MDD patients were as follows: 55 cases (12.85%) were diagnosed as severe anxiety disorder, 169 cases (39.49%) as moderate, 191 cases (44.63%) as mild, and 13 cases (3.04%) as healthy cases, while 43 cases (10.05%) were diagnosed as severe depressive disorder, 173 cases (40.42%) as moderate, 190 cases (44.39%) as mild, and 22 cases (5.14%) as healthy cases. According to cut-

off value of GAD-7 and PHQ-9 (Mughal et al., 2020) 224 (52.34%) and 216 (50.47%) participants respectively met the diagnostic criteria for generalized anxiety disorder, depressive disorder. Judging from the results of this study, parents of adolescent MDD patients experienced severe psychological crises, especially anxiety and depressive disorder. McDougall proposed the concept of "emotional contagion" and argued that emotion transmission, as a fundamental feature of human empathy, widely existed in social interaction. It was considered as a process which could automatically or unconsciously imitated and synchronized the emotions of others. Emotional contagion had a double-edged nature, on the one hand, it could enhance interpersonal connections and promote prosocial behavior, it may on the other hand convey negative emotions which become one of the inducing factors of psychological disorders, including anxiety, depression, fear, and conversion disorder (Amer et al., 2022; Ma et al., 2024; Yu, Bao, & Yin, 2024). The negative emotions, irritability, avoidance and withdrawal in adolescent MDD patients may cause their parents to be in chronic stress for a long time through the mechanism of "emotional contagion". Chronic stress was strongly confirmed to be strongly associated with anxiety and depressive disorder (Girotti, Bulin, & Carreno, 2024; Guo, Ali, & Li, 2025). Chinese culture has a strong family-oriented flavor which emphasizes family belief, there are some sayings, like "get married and start one's career", "rearing sons for help in old age" as well as the concepts of "genealogies and family ancestral halls", which attached great importance to the intergenerational inheritance of blood ties and family traditions (Mughal et al., 2020). The chronicity and high recurrence rate of depressive disorder may lead to pessimistic expectations for the future by causing huge psychological stress to parents of adolescent MDD patients in the form of academic failure, social withdrawal, unemployment, these may increase the risk of suffering from anxiety and depressive disorder.

The correlation analysis showed that insufficient of subjective support and support utilization, negative coping styles were risk factors anxiety and depressive disorder in parents of adolescent MDD patients. Social support and coping styles were greatly related to an individual's anxiety and depressive disorder, which was currently a general consensus in the mental health research field (Cheng, Ying, Ebrahimi, & Wong, 2024). Positive social support and adjusted coping style can buffer the impact of environmental stress on individuals' mental health by boosting psychological capital, social interaction and participation, problem-solving, thereby relieving the experience of anxiety and depression. In addition, this study found that the mothers of adolescent MDD patients were prone to anxiety, while the fathers were prone to depression. Previous study verified that the females had a trait of stronger neuroticism with typical features of tension and anxiety, The raised cortisol level in women under stress was more greatly related to their generalized anxiety disorder (Wang et al., 2023). The results of some previous reports about men were less prone to depression when facing stressful events was inconsistent with this current study (Alruwaili & Alanazy, 2024). This may be related to differences of cultural background and family belief, there was a great faith of "Men work outside and women take care of the home" in Chinese families, the mothers usually spend more time with their children, which is mainly reflected in the microcosmic fields of daily life including school homework, life skill training, primary socialization, however, fathers bear greater responsibilities in the field of livelihood. Therefore, it is easy for the fathers to feel desperate when facing unpredictable and uncontrollable predicaments, they may eventually be attacked by depressive disorder.

This study took the socialized intervention for psychological crises as the basic idea, a self-service system based cognitive behavioral therapy (SSSBCBT) was designed and implemented in the parents of adolescent MDD patients. The results showed that the anxiety and depressive disorder in parents were significantly relieved, and their social support and coping styles were improved. Given that an individual's anxiety and depressive disorder were correlated with social support and coping styles (Cheng et al., 2024) it can be referred in this current study that the relief of anxiety and depressive disorder among parents of adolescent MDD patients resulted from improvement of social support and coping style. SSSBCBT could enhance metacognition by which may promote identification and reflection on the role of irrational cognitive processes in the generation and development of negative emotions and correction of negative cognitive biases through actions (Muñoz-Navarro et al., 2022) thereby alleviating the anxiety and depressive disorder in parents of adolescent MDD patients by forming a positive cognitive biases towards life.

5. CONCLUSION

This study found that anxiety and depression was common in the parents of adolescent MDD patients and active intervention measures need to be taken in this group. The SSSBCBT could relieve their anxiety and depression by improving social support and coping styles.

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INSTITUTIONAL REVIEW BOARD STATEMENT

The Ethics Committee of the Mental Health Center of Qingpu, China has granted approval for this study on 10 January 2023 (Ref. No. P-2023-03).

TRANSPARENCY

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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REFERENCES

- Alruwaili, A., & Alanazy, A. R. M. (2024). The prevalence of depression among paramedical students and workers with highlights from the COVID-19 pandemic: A meta-analysis of prevalence. *General Hospital Psychiatry*, 87, 134–142. <https://doi.org/10.1016/j.genhosppsych.2024.02.010>
- Amer, S. A., Abd-Elatif, E. E., Hughes, P., Al-Enazi, H. M. G., AlHasan, A., Amer, M. A., & Elsayed, M. (2022). Emotional contagion scale and mental health status during the first wave of COVID-19 pandemic, national assessment. *Clinical Practice and Epidemiology in Mental Health : CP & EMH*, 18, e174501792208200. <https://doi.org/10.2174/17450179-v18-e2208200>
- Boukarras, S., Ferri, D., Borgogni, L., & Aglioti, S. M. (2024). Neurophysiological markers of asymmetric emotional contagion: Implications for organizational contexts. *Frontiers in Integrative Neuroscience*, 18, 1321130. <https://doi.org/10.3389/fnint.2024.1321130>
- Cheng, C., Ying, W., Ebrahimi, O. V., & Wong, K. F. E. (2024). Coping style and mental health amid the first wave of the COVID-19 pandemic: A culture-moderated meta-analysis of 44 nations. *Health Psychology Review*, 18(1), 141–164. <https://doi.org/10.1080/17437199.2023.2175015>
- Cui, L., Li, S., Wang, S., Wu, X., Liu, Y., Yu, W., & Li, B. (2024). Major depressive disorder: Hypothesis, mechanism, prevention and treatment. *Signal Transduction and Targeted Therapy*, 9(1), 30. <https://doi.org/10.1038/s41392-024-01738-y>
- Farokhzadian, J., Shahrababaki, P. M., Farahmandnia, H., Eskici, G. T., & Goki, F. S. (2024). Exploring the consequences of nurses' involvement in disaster response: findings from a qualitative content analysis study. *BMC Emergency Medicine*, 24(1), 74. <https://doi.org/10.1186/s12873-024-00994-z>
- GBD 2019 Mental Disorders Collaborators. (2022). Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990-2019: A systematic analysis for the Global Burden of Disease Study 2019. *The Lancet Psychiatry*, 9(2), 137–150. [https://doi.org/10.1016/S2215-0366\(21\)00395-3](https://doi.org/10.1016/S2215-0366(21)00395-3)
- Girotti, M., Bulin, S. E., & Carreno, F. R. (2024). Effects of chronic stress on cognitive function - from neurobiology to intervention. *Neurobiology of Stress*, 33, 100670. <https://doi.org/10.1016/j.ynstr.2024.100670>

- Guo, H., Ali, T., & Li, S. (2025). Neural circuits mediating chronic stress: Implications for major depressive disorder. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, 137, 111280. <https://doi.org/10.1016/j.pnpbp.2025.111280>
- Kim, S., Hwang, J., Lee, J. H., Park, J., Kim, H. J., Son, Y., & Yon, D. K. (2024). Psychosocial alterations during the COVID-19 pandemic and the global burden of anxiety and major depressive disorders in adolescents, 1990-2021: Challenges in mental health amid socioeconomic disparities. *World Journal of Pediatrics*, 20(10), 1003–1016. <https://doi.org/10.1007/s12519-024-00837-8>
- Liu, Z., Sun, L., Sun, F., Zhang, Y., Wang, J., Zhang, Z., . . . Liu, Y. (2024). The abnormalities of lipid metabolism in children and adolescents with major depressive disorder and relationship with suicidal ideation and attempted suicide. *Heliyon*, 10(9), e30344. <https://doi.org/10.1016/j.heliyon.2024.e30344>
- Ma, J., Chen, B., Wang, K., Hu, Y., Wang, X., Zhan, H., & Wu, W. (2024). Emotional contagion and cognitive empathy regulate the effect of depressive symptoms on empathy-related brain functional connectivity in patients with chronic back pain. *Journal of Affective Disorders*, 362, 459–467. <https://doi.org/10.1016/j.jad.2024.07.026>
- Mengelkoch, S., Gassen, J., Slavich, G. M., & Hill, S. E. (2024). Hormonal contraceptive use is associated with differences in women's inflammatory and psychological reactivity to an acute social stressor. *Brain, Behavior, and Immunity*, 115, 747–757. <https://doi.org/10.1016/j.bbi.2023.10.033>
- Mondoloni, S., Molina, P., Lecca, S., Wu, C. H., Michel, L., Osypenko, D., & Mameli, M. (2024). Serotonin release in the habenula during emotional contagion promotes resilience. *Science*, 385(6713), 1081–1086. <https://doi.org/10.1126/science.adp3897>
- Mughal, A. Y., Devadas, J., Ardman, E., Levis, B., Go, V. F., & Gaynes, B. N. (2020). A systematic review of validated screening tools for anxiety disorders and PTSD in low to middle income countries. *BMC Psychiatry*, 20(1), 338. <https://doi.org/10.1186/s12888-020-02753-3>
- Muñoz-Navarro, R., Medrano, L. A., Limonero, J. T., González-Blanch, C., Moriana, J. A., Ruiz-Rodríguez, P., & Cano-Vindel, A. (2022). The mediating role of emotion regulation in transdiagnostic cognitive behavioural therapy for emotional disorders in primary care: Secondary analyses of the PsicAP randomized controlled trial. *Journal of Affective Disorders*, 303, 206–215. <https://doi.org/10.1016/j.jad.2022.01.029>
- Strong, S. J., Thomas, H. A., Adams, Z. W., & Hulvershorn, L. A. (2025). Comorbid cannabis use and mood disorders among adolescents. *Focus the Journal of Lifelong Learning in Psychiatry*, 23(2), 133–140. <https://doi.org/10.1176/appi.focus.20240049>
- Wang, T., Li, Q., Liu, H., Shi, Q., Yang, F., Zhang, B., & Guo, J. (2023). Gender difference in the relationship between personality traits and changes in depressive symptoms before and after the COVID-19 outbreak: A follow-up study among Chinese adults. *Journal of Affective Disorders*, 326, 49–56. <https://doi.org/10.1016/j.jad.2023.01.085>
- Wang, Z., Gao, T., Li, G., Dong, G., Zhan, Y., Wang, B., & Sun, X. (2023). Effects of health education during public health emergencies on the health literacy, emotion and coping style of Chinese junior middle school students: A randomized controlled trial. *BMC Public Health*, 23(1), 2187. <https://doi.org/10.1186/s12889-023-17108-2>
- Xiao, S. Y. (1994). Theoretical basis and application of social support rating scale. *Journal of Clinical Psychiatry*, 4, 98–100.
- Yildirim, D., Akman, O., Ozturk, S., & Yakin, O. (2024). The correlation between death anxiety, loneliness and hope levels in patients treated in the cardiac intensive care unit. *Nursing in Critical Care*, 29(3), 486–492. <https://doi.org/10.1111/nicc.13007>
- Yu, D., Bao, L., & Yin, B. (2024). Emotional contagion in rodents: A comprehensive exploration of mechanisms and multimodal perspectives. *Behavioural Processes*, 216, 105008. <https://doi.org/10.1016/j.beproc.2024.105008>
- Zhang, Y., Qi, Y., & Ma, Y. (2025). The associations between social support and problematic mobile phone use among children and adolescents: A three-level meta-analysis. *Journal of Youth and Adolescence*, 54(1), 158–175. <https://doi.org/10.1007/s10964-024-02055-x>
- Zhao, X. (2024). Demographic characteristics and lifestyle related factors of depressive symptoms in Chinese children and adolescents. *Journal of Army Medical University*, 46(20), 2360–2368.