

The Impact of Perfectionism on the Incidence of Major Depression in Chinese Medical Freshmen: From a 1-Year Longitudinal Study

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Background: Perfectionism is a pivotal factor in the etiology and prognosis of major depression. Nevertheless, there is a scarcity of longitudinal research examining the association between perfectionism and major depressive disorder (MDD). The objective of this study was to explore the impact of perfectionism on MDD among a cohort of first-year Chinese university students.

Methods: This study employed a longitudinal design to investigate the relationship between perfectionism and MDD in a sample of first-year Chinese university students (n=8079). Socially prescribed perfectionism and almost perfectionism were measured using the Multidimensional Perfectionism Scale (MPS) and the Almost Perfect Scale-Revised (APS-R), while MDD was assessed using the Composite International Diagnostic Interview (CIDI-3.0). Random effects logistic regression modeling was utilized to estimate the associations between the variables.

Results: The findings revealed that the incidence of MDD was 0.6%. Lifetime exposure to severe traumatic events (≥ 10) (OR=2.619, 95% CI: 1.502–4.565) and almost perfectionism (OR=1.015, 95% CI: 1.004–1.026) were identified as significant risk factors for MDD.

Conclusion: It is evident that perfectionism is linked to an increased susceptibility to MDD. However, additional longitudinal studies focusing on university students are imperative to delve deeper into the influence of perfectionism on the initial manifestation of MDD.

Keywords: freshmen, major depressive disorder, perfectionism, lifetime severe traumatic events

Introduction

Perfectionism is commonly regarded as a stable personality trait, characterized by an ongoing and excessive pursuit of perfection and a strong preoccupation with self-evaluation in relation to performance outcomes.¹ At moderate levels, perfectionism is associated with positive affect and is considered adaptive.² However, when perfectionism reaches high levels, it is deemed maladaptive as it can lead to abnormal cognitive processes.³ Existing research considered that the fundamental components of perfectionism are the pursuit of perfection and the preoccupation with achieving perfection.^{4,5} Perfectionistic behaviors are typically manifested as an insistent demand for flawlessness and the establishment of unattainable benchmarks.⁶ The anxiety associated with perfectionism often leads to intense self-criticism and self-evaluations, driven by an obsession with meeting the expectations and judgments of others.⁶

Major depression exhibits a diverse range of symptoms including negative ideation, anxiety, sleep disturbances, and other manifestations, with a lifetime prevalence of 10%-30%.⁷⁻⁹ The Global Burden of Diseases (GBD) global prevalence of mental

illnesses chart indicates that major depression affected over 300 million individuals worldwide in 2019.¹⁰ Projections made by Mathers and Loncar in 2006 anticipate that depression disorders will rank second in terms of disease burden and disability on a global scale by 2030.¹¹ The prevalence of depressive symptoms is notably concentrated within university campuses. Data indicate that 29% of college students experience varying degrees of depressive symptoms, and this trend has been increasing annually.¹² During the period spanning from adolescence to young adulthood, major depression reaches its peak, exerting a substantial influence on an individual's capacity to pursue educational and vocational aspirations.^{13,14} Remarkably, major depression stands as the second leading cause of mortality among adolescents and young adults globally, often precipitating suicidal ideation and behaviors.¹⁵ Furthermore, it is anticipated that depression will emerge as the primary determinant of impairment across all mental and physical afflictions in the forthcoming years. Despite notable progress in comprehending the pathophysiology of major depression, there persist numerous unresolved inquiries pertaining to the etiology and progression of this disorder. Upon entering university following the rigorous college entrance examination, freshmen encounter novel pressures and challenges stemming from alterations in their living environment, learning methodologies, and social interactions. Failure to promptly adapt to these new circumstances may result in significant psychological conflicts, potentially culminating in depression. Medical students, as a distinct cohort within the university population, may experience heightened academic pressure and elevated expectations, thereby exhibiting a greater prevalence of depressive symptoms compared to their peers in other disciplines.¹⁶ Consequently, identifying the factors influencing depressive symptoms in new medical students is crucial for fostering the advancement of their mental health.

Perfectionism has been consistently associated with depression in numerous studies.¹⁷ It has been found that individuals who exhibit high perfectionism are more likely to experience lower levels of subjective well-being and higher levels of psychological maladjustment, emotional disorders, stress, and interpersonal difficulties.^{18,19} Specifically, a substantial body of literature supports the notion that various forms of psychological distress, such as depression, are consistently linked to maladaptive aspects of perfectionism.²⁰ Moreover, self-critical perfectionism has been identified as a significant factor contributing to a range of psychopathological conditions, including depressive symptoms.¹⁹ The relationship between perfectionism and depressive symptoms has been found to be either positive or negative.^{20,21} Individuals with higher levels of self-critical perfectionism tend to report more depressive symptoms, whereas those with higher levels of personal standards perfectionism tend to report fewer depressive symptoms during the epidemic. Despite limited evidence supporting this association, numerous studies have consistently demonstrated a connection between high levels of perfectionism and high levels of depression.^{20,22,23} Major depression not only seriously affects college students' normal study and life, but also causes huge social public cost and family living cost. Consequently, reducing the overall burden of major depression necessitates delaying the onset of the disorder within the general population and enhancing the prognosis, particularly among young individuals. To date, no comprehensive investigation has been conducted to examine the correlation between perfectionist attributes and major depression in various studies. Exploring potential associations between perfectionism and major depression among young individuals may facilitate the identification of preemptive measures and inform therapeutic interventions.

Methods

Study Design and Population

To investigate the correlation between perfectionist attributes and major depression, a baseline survey was conducted across three campuses (Jining, Rizhao, and Weifang) of two medical universities in Shandong Province, P.R. China during April to October 2018. Follow-up survey was conducted among participants in the baseline survey from April to October 2019. The study only included first-year students from Weifang Medical University in Weifang, Shandong province, P.R. China, as well as Jining Medical University, which has a main campus in Jining and a satellite campus in Rizhao. Participants were selected from diverse majors such as clinical medicine, pharmacy, public health, and basic medical sciences. Approximately 60% of the student population at Weifang Medical University and Jining Medical University hailed from Shandong province, representing a diverse range of geographic origins, encompassing over 25 provinces and regions. These students' families resided in various locales, spanning rural counties, towns, as well as major and medium-sized urban cities. Prior to their participation, individuals under the age of eighteen were required to

provide informed consent, with additional consent obtained from their parents or guardians. The study protocol received approval from the Medical Ethics Committee of Jining Medical University.

Data Collection

The data collection process for the baseline and initial follow-up was conducted at libraries in all three sites, utilizing the cluster sampling technique. A total of 9928 freshmen from the academic years 2017 and 2018 were selected from two colleges. The survey was successfully completed by 8079 participants, representing 81.38% of the selected sample, during the period between April and October 2018. Participants who reported having had lifetime MDD, schizophrenia, bipolar disorder, and severe physical diseases at baseline were excluded from the analysis ($n = 437$, 6.25%). A total of 6985 participants completed the 2019 follow-up survey, accounting for 91.4% of the 7642 valid baseline samples. To facilitate data gathering, a computer-based self-administration system with logical checks and jumps was installed on 365 PCs across the three campuses. The responsibility of addressing the queries raised by the participants was assigned to six proficient investigators. Subsequent to the completion of the survey by the participants, the data was promptly uploaded onto the central server of Jining Medical University. The study protocol received approval from the Ethics Committee of Jining Medical University. In order to partake in this study, each individual was required to fulfill an informed consent form. The volunteers did not receive any monetary incentives throughout the duration of the trial (Figure 1).

Measurements

Major Depressive Disorder (MDD)

The measurement of major depression based on the DSM-IV criteria was conducted using an adapted version of the Composite International Diagnostic Interview (CIDI-3.0).^{24,25} The CIDI is a meticulously structured and validated diagnostic interview designed to be administered by trained lay interviewers. Huang et al (2010) reported that the Chinese version of major depression demonstrated a sensitivity and specificity of 71.1% and 89.0%, respectively, along with a test-retest reliability coefficient of 0.74.²⁴ Based on the criteria outlined in the CIDI-3.0, MDD is characterized by meeting the diagnostic requirements for a major depressive episode, excluding any previous occurrence of a manic or hypomanic episode.

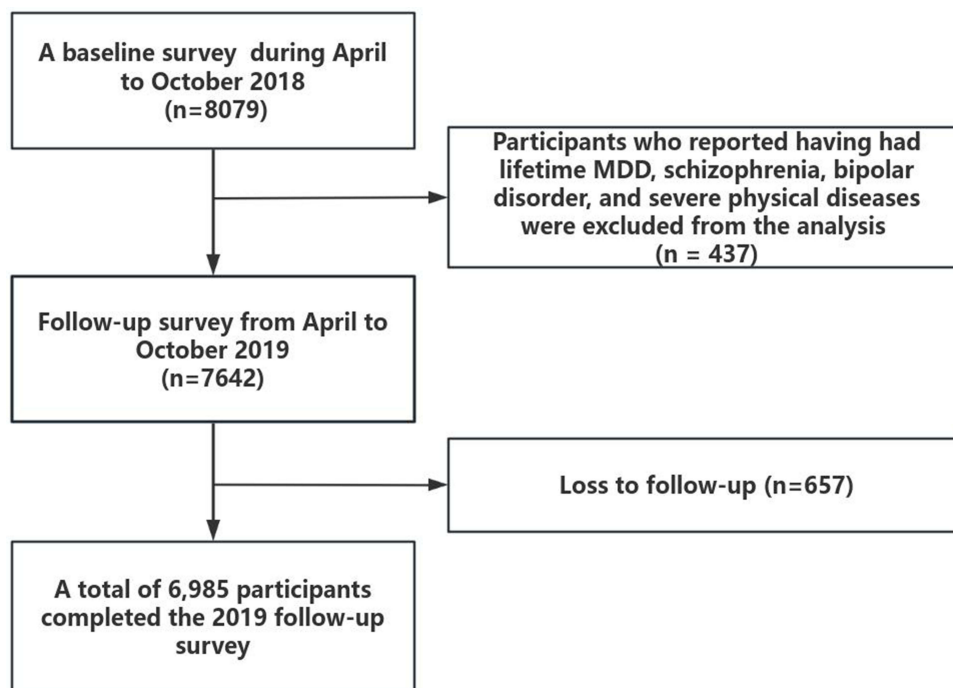


Figure 1 Flowchart of participant screening, inclusion criteria, and follow-up.

Perfectionism

The socially prescribed perfectionism dimension of the Multidimensional Perfectionism Scale (MPS) was assessed by all six items, which are worrying about mistakes (CM), doubting behavior (DA), personal standards (PS), parental expectations (PE), parental criticism (PC), and ordinal reasoning (OR),^{26,27} whereas the measure of almost perfectionism was measured by using the Almost Perfection Scale Revised (APS-R).²⁸ A 7-point rating system, ranging from 1 (strongly disagree) to 7 (strongly agree), was employed to rate the responses. The mean score for socially prescribed perfectionism and almost perfectionism was determined by computing the average of each subscale. Previous studies have demonstrated satisfactory levels of reliability and validity.

Covariates

Covariates considered in the analysis encompassed age, gender, family structure (eg, number of children or single-parent households), campus location, family composition (rural or urban), and severity of depression. To assess childhood traumatic events at baseline, a set of twenty-three specific questions pertaining to severe lifetime traumas was employed for quantification purposes.

The anxiety symptom score at baseline was quantified using the Beck Anxiety Inventory (BAI), which consists of twenty-one items. Participants responded to these items on a four-point scale, ranging from “None” to “Severe”. In general, individuals with a BAI total score of 45 or above are considered to have anxiety symptoms. Zheng et al (2002) reported a Cronbach’s α of 0.95 for the Chinese version of the BAI.²⁹

The depressive symptom scores of each participant were assessed using the Beck Depression Inventory (BDI).³⁰ The scale has a Cronbach’s α of 0.9, and the BDI consists of 21 questions, each of which is rated on a 4-point scale, with a total score of 0–63 points (0–13 points for “no depression”; 14–19 points for “minor depression”; 20–28 as “moderate depression”; 29–63 as “major depression”). The Cronbach’s α of the scale in this study was 0.91.

Statistical Analysis

We estimated the proportion of MDD over the follow-up period. Chi-square test (χ^2) was used to compare the incidence proportions of MDD by different groups. The final models were determined using stepwise logistic regression, incorporating both forward and backward steps to address collinearity issues among the independent variables. SPSS 22 was used for all statistical analysis.

Results

Characteristics of Participants

Descriptive characteristics of the participants are presented in Table 1. Out of the total 8079 participants, 3225 (39.9%) were male college students and 4854 (60.1%) were female college students. There were 2995 (37.1%) resided in urban areas and 5084 (62.9%) resided in rural areas. The average age of the participants was 18.36 ± 0.01 years. A total of 191 respondents exhibited a baseline Beck anxiety level greater than or equal to 45, while 7807 subjects had a baseline Beck anxiety score below 45. At the baseline of the Beck depression study, there were a total of 491 individuals without depression, 280 individuals with mild depression, 181 individuals with severe depression, and 46 individuals with major depression. The average score for socially prescribed perfectionism was 19.09 ± 0.052 , with the almost-perfectionism score of 93.54 ± 0.176 .

Linear Relationship Between Continuous Independent Variables and the Incidence of Major Depression

The Box-Tidwell method was employed to test for linearity between the continuous independent variables and the dependent logit transformations in Table 2. The study utilized a total of 12 items to evaluate the linearity of the model, with age, socially prescribed perfectionism score, and almost perfectionism score serving as the continuous-type independent variables. Additionally, gender, place of family dwelling, initial ASLEC, lifetime severe traumatic events, baseline Beck depression score, and Beck anxiety score were considered as categorical variables. The three terms of interaction were age * In-age, socially prescribed perfectionism * In Socially prescribed perfectionism and almost

Table 1 Descriptive Statistics of Variables (N = 8079)

Variables	n, (%)
Age (mean, SE)	18.36 (0.010)
Gender	
Male	3225 (39.9%)
Female	4854 (60.1%)
Family residence	
Urban	2995 (37.1%)
Rural	5084 (62.9%)
Baseline Beck Anxiety	
<45	7807 (97.6%)
≥45	191 (2.4%)
Baseline Beck depression	
0–3 no depression	7491 (93.7%)
14–19 minor depression	280 (3.5%)
20–28 moderate depression	181 (2.3%)
29–63 major depression	46 (0.6%)
Lifetime severe traumatic events	
0	2170 (27.6%)
1	3354 (42.6%)
2	1351 (17.2%)
≥3	991 (12.6%)
ASLEC	
0–3	1794 (22.8%)
4–6	2220 (28.2%)
7–9	1944 (24.7%)
≥10	1908 (24.3%)
Social prescribed perfectionism (mean, SE)	19.29 (0.052)
Almost perfectionism (mean, SE)	93.54 (0.176)

Table 2 Linear Relationship Between Continuous Independent Variables and the Prevalence of Depression

	β	S.E.	Wald	df	Sig	OR
Age* In-age	0.106	1.472	0.005	1	0.943	1.112
Social prescribed perfectionism *In Social prescribed perfectionism	-0.014	0.097	0.022	1	0.882	0.986
Almost perfectionism *In-almost perfectionism	0.033	0.031	1.115	1	0.291	1.034

Note: *The interaction between variables.

perfectionism * In-almost perfectionism. The Bonferroni corrected threshold of significance was determined to be 0.0042. The findings from the linearity test revealed a significant linear relationship between age, socially prescribed perfectionism score, and almost perfectionism score with the logit transformed value of the dependent variable.

Univariate and Multivariate Logistic Regression Analysis results

In this study, the relationships between social orientation perfectionism/almost perfectionism, lifetime severe traumatic events, demographic factors, and major depression were examined using uni variate logistic regression, as presented in Table 3. The results indicate that almost perfectionism (OR=1.015, 95% CI: 1.004–1.026 P < 0.05) and lifetime severe traumatic episodes (OR=2.619, 95% CI: 1.502–4.565 P < 0.05) were identified as significant risk factors for major depression (Table 3).

The random effects logistic regression analysis was used to assess the crude and adjusted correlations between almost perfectionism, socially prescribed perfectionism, and the risk of major depression. There was a positive association between perfectionism and the likelihood of developing major depression (OR: 1.23, 95% CI: 1.00–1.50 P < 0.05). The

Table 3 The Stepwise Logistic Regression Analyses for New-Onset SDD Among 8079 Freshmen

Variables	β	SE	Wald	P	OR	95% CI
Age	-0.075	0.096	0.615	0.433	0.928	0.769–1.119
Gender	0.243	0.175	1.935	0.164	1.275	0.905–1.795
Family residence	0.008	0.172	0.002	0.961	1.008	0.720–1.412
Lifetime severe traumatic events						
1	-0.385	0.226	2.909	0.088	0.680	0.437–1.059
2	0.057	0.250	0.052	0.819	1.059	0.649–1.727
≥ 3	0.376	0.251	2.241	0.134	1.456	0.890–2.382
ASLEC (0–3)	–	–	18.561	<0.01	–	–
ASLEC (4–6)	0.207	0.299	0.482	0.487	1.231	0.685–2.210
ASLEC (7–9)	0.316	0.301	1.107	0.293	1.372	0.761–2.473
ASLEC (≥ 10)	0.963	0.284	11.519	0.001	2.619	1.502–4.565
Social prescribed perfectionism	0.016	0.018	0.723	0.395	1.016	0.980–1.053
Almost perfectionism	0.015	0.005	7.538	0.006	1.015	1.004–1.026

Table 4 Odds of Developing MDD Among Those with Almost Perfectionism and Social Orientation Perfectionism Using Healthy Participants as Point of Reference

Perfectionism	Crude OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)	Model 4 OR (95% CI)	Model 5 OR (95% CI)
Almost perfectionism	1.029 (1.019, 1.039)	1.029 (1.019, 1.039)	1.028 (1.018, 1.038)	1.022 (1.012, 1.032)	1.020 (1.010, 1.030)	1.016 (1.006, 1.027)
Social prescribed perfectionism	1.065 (1.029, 1.101)	1.068 (1.032, 1.106)	1.064 (1.027, 1.102)	1.044 (1.009, 1.081)	1.039 (1.003, 1.076)	1.032 (0.996, 1.069)

Notes: Model 1: controlling for age, gender, family residence; Model 2: controlling for age, gender, family residence, baseline Beck Anxiety score; Model 3: controlling for age, gender, family residence, baseline Beck Anxiety score, baseline Beck Anxiety score; Model 4: controlling for age, gender, family residence, baseline Beck anxiety score, baseline Beck depression score, lifetime severe traumatic events; Model 5: controlling for age, gender, family residence, baseline Beck anxiety score, baseline Beck depression score, lifetime severe traumatic events, ASLEC score.

results of the bivariate analysis indicated a strong correlation between the risk of major depression and both almost perfectionism and socially prescribed perfectionism. These relationships remained statistically significant in the multivariate analysis (Table 4).

Discussion

This study has identified two distinct influencing factors, namely perfectionism and a history of traumatic experiences, for the onset of major depression among university students. Major depression exhibits a high prevalence among children and young adults, with a potential lifetime prevalence of 25% by the age of 29.³¹ It is imperative to prioritize the prevention of major depression in adolescents and young adults in order to alleviate the substantial burden associated with this condition.

Negative life events and traumatic childhood experiences have been identified as etiological factors contributing to major depression.³² Consistent with previous studies, our findings indicate that college students who have encountered significant traumatic events throughout their lives are more susceptible to developing major depression.^{33,34} Primarily, the experience of severe traumatic events over one's lifetime can elicit intense emotional reactions, including sadness, helplessness, and anxiety.³⁵ Insufficient release and regulation of these emotions may result in the manifestation of severe depression. Furthermore, enduring traumatic events throughout one's lifetime can impose significant psychological strain, inducing feelings of helplessness, hopelessness, and disorientation. The prolonged accumulation of stress can disrupt psychological equilibrium, thereby precipitating depressive symptoms.³⁶

Moreover, lifetime exposure to severe traumatic events can elicit neuroendocrine alterations, thereby impacting the levels of neurotransmitters and hormones within the brain.³⁷ These alterations have the potential to exert an influence on

an individual's mood and behavior, thereby heightening the susceptibility to depression. Additionally, experiencing severe traumatic events over the course of one's lifetime can induce modifications in self-perception, engendering a sense of incapacity to effectively navigate the challenges and hardships of life.³⁸ This adverse self-perception may serve as a catalyst for depressive symptoms, or even precipitate severe depression. Furthermore, enduring severe traumatic events throughout one's lifetime may result in the loss of social connections, such as friends and family, or give rise to other issues pertaining to social support.³⁹ These predicaments can engender emotional isolation and a sense of helplessness, thereby augmenting the likelihood of developing major depression.

Socially prescribed perfectionism is frequently cultivated as a means of conforming to societal norms and expectations. Individuals exhibiting this form of perfectionism prioritize their external perception and assessment by others, exerting considerable effort to present themselves flawlessly in order to attain acknowledgement and commendation.⁴⁰ Consequently, they may excessively fixate on minutiae and minor errors, striving to evade criticism or reproach by perpetually engaging in self-censorship and self-improvement. Regrettably, this brand of perfectionism can occasionally result in an overabundance of self-criticism and anxiety. There are multiple primary factors contributing to the association between socially prescribed perfectionism and depression. Firstly, the presence of excessive psychological pressure is notable. Individuals who adhere to socially prescribed perfectionism tend to excessively focus on the evaluations and expectations of others, striving to exhibit flawless behavior in order to garner acknowledgement and commendation from their peers.⁴¹ This heightened psychological pressure can result in prolonged states of tension and anxiety, subsequently impacting their overall mental well-being. Secondly, individuals who exhibit socially prescribed perfectionism frequently harbor unfavorable assessments of their own achievements and value, leading to tendencies of self-denial and self-doubt.⁴² This adverse self-perception can result in feelings of depression, helplessness, and disorientation, ultimately precipitating depressive symptoms. Additionally, individuals with socially prescribed perfectionism may exhibit inadequate abilities to relax and cope with stress, hindering their ability to effectively alleviate psychological stress and manage frustration.⁴³ In this scenario, individuals may encounter difficulties in effectively managing psychological stress, thereby resulting in a state of psychological imbalance and an elevated susceptibility to depression.

Almost perfectionism represents an intense manifestation of the pursuit of perfection, wherein individuals typically uphold elevated personal standards. Such individuals may prioritize self-regulation and self-administration over external evaluation and acknowledgment. There are multiple factors contributing to the potential link between almost perfectionism and depression. Firstly, individuals with almost perfectionism tend to exhibit an excessive pursuit of perfection, resulting in heightened psychological stress and anxiety due to their relentless demands and expectations. Secondly, these individuals often possess elevated levels of self-evaluation and self-expectation regarding their abilities and performance. If individuals are unable to meet these expectations, they may experience feelings of depression and disorientation, subsequently giving rise to depressive symptoms. Additionally, individuals with a tendency towards perfectionism may prioritize self-control and self-management, neglecting the development of adequate self-relaxation and stress coping skills. Consequently, when confronted with stress and setbacks, they may struggle to effectively cope, resulting in psychological imbalance and an elevated susceptibility to depression. Furthermore, individuals who exhibit tendencies of perfectionism may prioritize the expectations and evaluations of others over their own needs and emotions, resulting in the neglect of self-care. This disregard for personal well-being can lead to feelings of isolation, helplessness, and disorientation, ultimately contributing to the onset of depressive symptoms.

Socially prescribed perfectionism and almost perfectionism, fueled by a yearning for flawlessness, are distinct psychological inclinations with varying consequences. Frost et al (1990) broadly defined perfectionism as a complex phenomenon encompassing self-criticism and the pursuit of excessively lofty benchmarks.⁴⁴ The development of perfectionism among Chinese students is intricately linked to the cultural context of China. Confucianism, a foundational element of Chinese culture, emphasizes the principles of "self-cultivation, family harmony, governance, and world peace", thereby encouraging individuals to pursue excellence and perfection. This traditional ideology likely contributes to the inclination of Chinese students towards perfectionism. And Chinese society places significant emphasis on education, maintaining the belief that diligent study is essential for securing a prosperous future. The societal expectation for academic excellence may compel students to strive for perfection to align with prevailing societal norms and standards. Furthermore, within Chinese culture, there is a strong emphasis on success and achievement, with the belief that success constitutes the primary pursuit and

objective of life. This cultural perception may contribute to the development of a perfectionist mindset among students, as they endeavor to attain higher levels of achievement and social status.

Empirical investigations have demonstrated a correlation between depression and heightened levels of perfectionism,¹⁹ with individuals experiencing depression exhibiting tendencies towards perfectionistic cognition.¹⁷ Given the strong association between perfectionism and depression, it is plausible that perfectionism could serve as a significant moderator in the relationship between comorbidity and depression. It is conceivable that individuals who strive for or expect perfection may be more vulnerable to experiencing disruption or distress in their lives. Such individuals tend to place excessive importance on negative events and exhibit limited cognitive adaptability, thus making the period of uncertainty and lack of control particularly challenging for them.⁴⁵ Perfectionists may exhibit higher levels of psychological distress due to their tendency to prioritize negative aspects over positive ones, as well as their limited ability to effectively replace the need satisfaction of autonomy, competence, and relatedness that may have been compromised by missed experiences. Additionally, perfectionism poses challenges in the treatment of anxiety and depression, as evidenced by studies conducted by Lundh and Ost (2001).⁴⁶ Consequently, perfectionism is considered a risk factor and a maintenance factor in various cognitive behavioral models.⁴⁷

In conclusion, the primary factors contributing to socially prescribed perfectionism leading to depression include an excessive preoccupation with the opinions and expectations of others, heightened psychological pressure, self-negation and self-doubt, a deficiency in self-relaxation and coping strategies, as well as an overwhelming psychological burden. The propensity towards almost perfectionism can engender elevated levels of psychological stress, anxiety, unrealistic self and societal expectations, an inadequacy in coping mechanisms, and a disregard for personal needs and emotions. These factors collectively heighten the vulnerability to depression among individuals. The study presents potential advantages for individuals suffering from major depression who demonstrate elevated levels of perfectionism, such as personalized treatment approaches, relapse prevention strategies, and enhancements in physical quality of life. Through rigorous research, a more profound understanding of the specific relationship between perfectionism and major depression can be achieved, thereby enabling the development of more tailored treatment plans for patients. By guiding patients in establishing healthy self-expectations and effective stress-coping mechanisms, the risk of depression relapse can be significantly reduced. By assisting individuals in liberating themselves from the constraints of perfectionism, they are afforded greater freedom to pursue personal interests and objectives, thereby leading to a more enriched and satisfying life.

Recognizing the connection between perfectionism and major depression holds significant implications not only for this population but also for mental health policy, clinical practice, and educational administration. In the development of pertinent mental health policies, it is advisable to incorporate strategies that address and guide individuals with perfectionistic tendencies, thereby facilitating the establishment of more realistic and healthy self-expectations. In clinical practice, it is imperative for physicians and psychologists to give heightened consideration to patients' perfectionistic tendencies, recognizing these as a critical component in the treatment of major depressive disorder. Furthermore, to reduce the risk of depression and facilitate psychological healing and recovery, it is recommended that educational administrators implement systematic monitoring of students who display perfectionistic traits and have a history of significant childhood trauma.

Limitations

There exist several limitations to this study that warrant attention. Primarily, it is crucial to acknowledge the presence of recollection bias when interpreting the findings of this investigation. The sensitive nature of the subject matter and the possibility of participants either underreporting or overreporting on specific topics may introduce bias into the self-reported data. Additionally, the reliance on participant self-reports to collect data on major depression rather than utilizing a diagnostic tool specifically designed for major depression assessment could potentially impact the validity of the results. To enhance the robustness of future research, it is recommended that both diagnostic measures and questionnaires be employed to evaluate participants' major depression status. Thirdly, the research was conducted at two medical universities situated in the Shandong province of China. Hence, when extrapolating the findings to different geographical regions and nations, it is imperative to exercise caution. Furthermore, the identification of perfectionism

disorders relied on self-report measures, thereby rendering the severity of the condition uncertain, which could potentially introduce an uncontrolled confounding factor.

Ethics Statement

This study was approved by the Medical Research Ethics Committee of Jining Medical University, Jining, China. We declare that participant was fully informed of the purpose and plan of the present study before the beginning of the research and provided informed consent in accordance with the Declaration of Helsinki. All the participants were anonymous and their data was protected.

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Disclosure

The authors report no conflicts of interest in this work.

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