Effect of Positive Emotions on the Quality of Life of Chinese College Students

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Abstract

The purpose of this study is to examine the effect of positive emotions on the quality of life (QOL) of college students in China using the Positive Emotion Scale (PES, eight items) and The World Health Organization's Quality-of-Life Brief Scale (WHOQOL-BREF, 24 items) to conduct a questionnaire survey of 961 college students in China. The study's results show that female college students have significantly higher positive emotions than their male counterparts, but there is no difference in the QOL between men and women. Positive emotions have a significant positive effect on the QOL of Chinese college students. The findings identified the relationship between college students' positive emotions and QOL, taking gender differences into account.

Keywords: positive emotions, QOL, college students, gender

1. Introduction

Since the 1960s, quality of life (QOL) has gradually attracted the attention of researchers in many fields (Moons et al., 2006). WHOQOL Group (1998) defined the QOL as individuals' perception of their position in life based on their specific culture and value systems and in relation to their goals, expectations, standards and concerns. Governments worldwide, including China, have also begun to consider improving people's QOL as their most important national goal (Andrews, 1974).

Allison et al. (1997) pointed out that QOL is dynamic and varies among different groups. A high QOL can motivate college students to achieve self-transcendence (Meece et al., 2006) and help them to work and study (Hunt et al., 2012). It is also an important prerequisite for college students' learning ability (Henning et al., 2011), learning motivation, and academic performance (Emamjomeh et al., 2021). Meanwhile, university is an important stage for college students to "socialize" as people (Padgett et al., 2010) and gradually deepen their understanding of society (Brim Jr, 2012). This is also an important stage for their physical and mental development (Dinzeo et al., 2014). Thus, the QOL during this period is of great significance to college students.

Individuals' QOL comprises various aspects such as their physical, psychological, and social activities and living environment (Andrews, 1974; Dong et al., 2020). Recent studies have shown that the QOL of college students is not ideal (Morozova et al., 2022). For a long time, college students' QOL was not a priority for colleges and universities (Ribeiro et al., 2018; Tao et al., 2019), especially in China, where students' academic performance was often regarded as the only value (Tao et al., 2019). Hence, Chinese college students' QOL in terms of their physical (Wu & Yuan, 2019), psychological (Zeng et al., 2019; J. Zhang et al., 2017; Z. Zhang et al., 2019), and social functioning (Meng et al., 2018), along with other components of QOL, were not ideal.

Positive emotions are crucial to improving people's lives (Fredrickson & Branigan, 2005). The deepening of related research has led to a new research trend regarding the role of positive emotions in improving QOL (Shamim & Muazzam, 2018), and education researchers have also begun to pay attention to the importance of emotional education for students (Hoyos & Rivero, 2022). The broaden-and-build theory of positive emotions explains that individuals can construct their physical, psychological, and social resources on positive emotions and benefit from indirect long-term effects in the future (Fredrickson, 2001; Fredrickson & Losada, 2005; Fredrickson et al., 2003); therefore, positive emotions may help college students improve their physical, psychological, and social QOL. At the same time, prior researchers have pointed to the different emotional responses of men and women in that women are

more likely than men to experience positive emotions (Chraif & Aniţei, 2013; Deng et al., 2016). Therefore, based on the expansion and construction of positive emotions, the purpose of this study was to explore the effect of positive emotions on college students' QOL and determine if there were differences in the positive emotions of college students of different genders to provide a practical reference for colleges and universities to improve their students' QOL.

2. Literature Review

2.1 Positive Emotions and Quality of Life

The World Health Organization (WHO) defines QOL as "people's perception of their life situation with their goals, expectations, standards and the relationship between life and death" (WHOQOL Group, 1994). An individual's QOL is composed of their physical, psychological, and social relationship with their living environment (Andrews, 1974; Dong et al., 2020). According to Fredrickson's (2001) theory of the expansion and construction of positive emotions, people's short-term thought–action range can be broadened by positive emotions, and long-lasting personal resources can be built from physical and intellectual to social and psychological aspects. Previous researchers have found that initial positive emotions can spiral in a way that improves individuals' lives and well-being (Fredrickson & Joiner, 2002), thereby enhancing their QOL (Boissy et al., 2007). An experiment based on loving-kindness meditation (LKM) conducted with 102 subjects in the LKM group and 100 in the control group showed that positive emotions can promote factors that improve people's satisfaction with their QOL, such as psychological and social resources, interpersonal relationships, and physical health (Fredrickson et al., 2008).

Some researchers explored the effect of positive emotions on different aspects of QOL (physical health, psychology, social relationships, living environment) and found that positive emotions not only promote one's physical health (Stellar et al., 2015; Steptoe et al., 2008), mental health (Santos et al., 2013), and social relations (Damen et al., 2008; Gueguen & De Gail, 2003), but they can also enhance satisfaction with one's living environment (Bastian et al., 2014; Lin, 2019).

Positive emotions are extremely important for people's physical health (Cohen et al., 2006), and those with more positive emotions tend to live longer (Kok et al., 2013; Pressman & Cohen, 2005) and have better health (Steptoe et al., 2008). People who have positive emotions can better control cancer, blood pressure, heart disease, and other related diseases (Shamim & Muazzam, 2018). A study of 180 Catholic nuns showed that positive emotions were significantly inversely associated with the risk of death (Danner et al., 2001). When Cohen et al. (2006) surveyed 193 volunteers, they found that those with a higher positive mood had stronger resistance to colds and a lower risk of respiratory diseases. A study of 2,873 healthy people in the U.K. also showed that a positive emotional state is associated with good health outcomes and that higher levels of positive emotions are associated with lower levels of inflammation (Steptoe et al., 2008). Another study's results supported the effect of positive emotions on physical health via a potential biological pathway of proinflammatory cytokines (Stellar et al., 2015).

Positive emotions are also closely related to mental illness (Santos et al., 2013) and mental health (Weiss et al., 2020). The results of a group-controlled study showed that positive emotions were associated with the course of bipolar disorder (Gruber et al., 2009). Weiss et al. (2020) conducted a questionnaire survey on Amazon and found that the dysregulation of positive emotions can lead to psychological problems such as depression and alcohol and drug abuse. Santos et al. (2013) systematically analyzed 3400 previous studies and found that many of them pointed out that increasing positive emotions can reduce the symptoms of psychological problems, such as depression, and prevent their recurrence.

Previous researchers have also found that positive emotions contribute to people's social functioning (Damen et al., 2008; Gueguen & De Gail, 2003). For example, in a comparative study, the researchers smiled at passersby in the experimental group, eliciting positive emotions, whereas they did not smile at people in the control group. As a result, they found that people in the experimental group were more likely to help others, proving that positive emotions promote individuals' altruistic behaviour (Gueguen & De Gail, 2003). When Damen et al. (2008) conducted research on leaders and subordinates in organizations, they discovered that those individuals who displayed positive emotions received more positive responses, which improved their social resources. The aforementioned researchers demonstrated that increased positive emotions may promote individuals' social functioning, whereas a decrease in positive emotions will lead to a decline of trust between people (Anderson & Dickinson, 2010), hindering the accumulation of their social resources.

Satisfaction with the QOL also depends on people's living environment, which includes facilities and economic conditions (De Jong et al., 2002), while positive emotions can change individuals' perception (Fredrickson, 2001),

thus reducing their material desires (Lambert et al., 2009), serving as a buffer against the dependence on external material environment (Lee & Ahn, 2016), making people feel better about themselves (Shamim & Muazzam, 2018), and improving their satisfaction with the QOL (Bastian et al., 2014). Bastian et al. (2014) examined more than 9,000 college students from 47 countries or regions and found that the higher the frequency of their positive emotional experiences, the higher their life satisfaction. It was. Another cross-sectional study of 375 college students in Taiwan showed that positive emotions can predict college students' life satisfaction (Lin, 2019).

Based on the aforementioned previous studies, the first hypothesis is as follows: H1: Positive emotions can significantly and positively predict the QOL of college students.

2.2 Effect of Gender Differences on Positive Emotions and QOL

People of different genders have different levels of emotion (McRae et al., 2008), and many previous researchers have confirmed this difference (Chraif & Aniţei, 2013; Deng et al., 2016; Shamim & Muazzam, 2018). For instance, Shamim and Muazzam (2018) conducted a questionnaire survey of 200 respondents aged 17–69 in Pakistan and found that men experienced more positive emotions than women, whereas McRae et al. (2008) conducted a survey of young people aged 18–22 and found that women can mobilize positive emotions to a greater extent than men. Therefore, based on previous studies of gender differences, this study explores whether there are differences in the positive emotions of male and female Chinese college students.

Numerous previous researchers have demonstrated differences between men's and women's evaluation of the QOL (Bisegger et al., 2005; Castellano-Guerrero et al., 2020; Fumaz et al., 2019; Michel et al., 2009; Noh et al., 2015). A study conducted in South Korea of people over 18 years of age revealed that individuals of different genders perceived QOL differently, with males having a significantly better perception than females. It was also found that the main factors affecting how individuals perceived QOL vary by gender, with economic activities having a greater effect on men's perception. In contrast, women's perception is affected by educational levels and physical stress (Noh et al., 2015). Bisegger et al. (2005) studied 3,710 students in seven European countries. They found no gender difference in the perception of QOL by children under 12. However, after that age, the QOL of students began to decline, and QOL of female students began to be lower than that of male students. A study by Michel et al. (2009) of 8–18-year-old students in 12 countries reached conclusions similar to those of previous studies. They found that children were more satisfied with their QOL than adolescents. However, the satisfaction gradually decreased with age, and the rate of decline was greater for female than for male adolescents, resulting in female respondents' satisfaction with the QOL being significantly lower than that of male respondents. Fumaz et al. (2019) studied 799 AIDS patients, and Castellano-Guerrero et al. (2020) studied patients with long-term type 1 diabetes. They both found that the perception of the QOL of men and women differed, with women having a significantly lower perception than men. Although many previous researchers have discussed gender differences in perception of QOL, there are few relevant studies of Chinese college students. Therefore, this study attempts to fill this gap; based on the above research results, the second and third hypotheses are as follows.

H2: College students of different genders have significantly different positive emotions.

H3: College students of different genders have significantly different perceptions of their QOL.

3. Methodology

3.1 Participants and Procedures

Purposeful sampling was used in this study to conduct a questionnaire survey of college students in four colleges and universities in different regions of China. The survey was based on online questionnaires, and the data was collected from four Chinese colleges and universities, two of which were in the north of China, one college in the south, and the last in central China. All four are comprehensive universities.

Submission of the questionnaires and data processing for this study was anonymous. The teacher in charge of distributing the online questionnaire informed the participants of the basic overview and purpose of its design before asking them to complete it. No privacy concerns were associated with the questionnaire, and the responses were only to be used only for scientific research. If the respondents had any doubts during the completion process, they could refuse or withdraw at any time without adverse consequences. A total of 1200 questionnaires were distributed in this study; a completion time of <120 seconds was considered too short and invalidated the response. Two hundred thirty-nine invalid questionnaires were eliminated, and 961 valid questionnaires were recovered, with an effective rate of 80%. There were 429 (44.6%) male respondents and 532 (55.4%) female respondents.

3.2 Measurements

3.2.1 Positive Emotions

The 8-item Positive Emotion Scale developed for Chinese students (Chen & Zhang, 2004) was used to measure the positive emotions of the Chinese college students in this study. The questionnaire was found to have good reliability and validity (Chen & Zhang, 2004). This was a single-dimension questionnaire with a total of eight items, and a 4-point Likert scale was used for scoring, ranging from 1 (none) to 4 (often), with a higher score indicating that the college student had higher positive emotions. The Cronbach's Alpha of the positive mood scale in this study was 0.927.

3.2.2 QOL

The World Health Organization's QOL Evaluation Short Form (WHOQOL-BREF), developed by the WHOQOL Group in 1998, was used to measure the perception of QOL of the college students in this study. This scale has been verified as having good reliability and validity (WHOQOL Group, 1998). The questionnaire consisted of 24 questions and was divided into four dimensions: physical health, psychology, social relationship, and environment. The scale adopted 5-point scoring; the higher the score, the more positive the college student's perception of QOL. Reverse questions were deleted when processing the data, and Cronbach's Alpha for this study's QOL scale was 0.935.

4. Results

SPSS was used in this study for reliability analysis of the measurement tools, common method bias tests, descriptive statistics of the participants and the research variables, a difference analysis, and a correlation analysis. AMOS was used for a validity and model fit analysis, and a second-order structural equation model (structural equation model, SEM) was constructed to test the research hypotheses. Finally, the bootstrap method was used to repeatedly draw 5000 samples to test the 95% confidence interval (confidence interval, CI) of the path coefficient to verify the stability of the hypotheses.

4.1 Common Method Variance (CMV)

Harman's one-factor test was used in this study to test the effect of the CMV. The results of testing the unrotated factors showed a Kaiser-Meyer-Olkin score of 0.953 (>0.8), and the Bartlett test of sphericity was significant (p=.000). A total of four factors were obtained from the analysis. The explanatory power of the first factor was 46.005%, which was within the critical value of 50% (Podsakoff et al., 2003), indicating that the problem of the CMV in this study needed to be more obvious.

4.2 Structural Validity

Thompson (2007) suggested that a confirmatory factor analysis (CFA) should be used to test the structural validity of the measurement model before analyzing the data. Structural validity includes convergent validity and discriminative validity. Therefore, a CFA was used to test the validity of the measurement model in this study. According to the results, the standardized factor loadings (SFLs) of the positive emotion measurement model were between 0.729-0.846 (>0.5), the composite reliability (CR) value was 0.929 (>0.7), and the average variance extracted (AVE) value was 0.620 (>0.5). The SFL of the QOL measurement model ranged from 0.653 to 0.846 (>0.5); the CR values were 0.835, 0.835, 0.822, and 0.886 (>0.7); and the AVE values were 0.561, 0.628, 0.607, and 0.565 (>0.5). The SFL, CR, and AVE indicators of the positive emotion and QOL measurement model met the standards (Cheung & Wang, 2017), indicating good convergent validity.

Table 1. Discriminant validity

Dimension	M	SD	Positive Emotions	Physiology	Psychology	Society	Environment
Positive Emotions	3.046	0.590	0.787				
Physiology	3.628	0.687	0.513***	0.749			
Psychology	3.557	0.704	0.492***	0.728***	0.792		
Society	3.656	0.695	0.515***	0.605***	0.717***	0.779	
Environment	3.625	0.643	0.566***	0.614***	0.621***	0.693***	0.752

Note: n=961; The bold and italic numbers in the diagonal are the square root of AVE; ***p＜.001.

Discriminant validity verifies whether there is a significant difference between two different dimensions of each measurement model. As shown in Table 1, the value on the diagonal is the square root of AVE. That the square root of the AVE of each latent variable is greater than the correlation coefficient of each latent variable on the off-diagonal is a better indication of the discriminant validity of the measurement model (Fornell & Larcker, 1981). Therefore, the construct validity of this study is ideal and can be further analyzed.

4.3 Descriptive Statistics and Correlation Analysis

The results of the descriptive statistics shown in Table 2 indicate that the college students' positive emotions (M=3.048, SD=0.590) and perception of QOL (M=3.619, SD=0.584) are above the middle level. The results of the correlation analysis indicate a significant positive correlation between college students' positive emotions and their perception of QOL (r=0.611, p<0.001).

Table 2. Preliminary analysis

Variables	M	SD	Positive Emotions	QOL
Positive Emotions	3.048	0.590	1	
QOL	3.619	0.584	0.611***	1

Note: n=961; ***p<.001

4.4 Analysis of Differences

Independent-sample t-tests were used to assess the different positive effects and perceptions of the QOL of college students of different genders. The results are shown in Table 3. The positive emotions of college students of different genders are significantly different (t=-3.272, p=0.001), with female college students found to have significantly higher positive emotions than their male counterparts. Therefore, Hypothesis 1 is accepted. In addition, there is no statistically significant difference in the perception of the QOL of college students of different genders (t=1.144, p=0.253). Therefore, hypothesis 2 is rejected.

Table 3. Differences in the positive emotions and perception of QOL of college students of different genders

Variables	Male		Female				Post hoc
	M	SD	M	SD			
Positive Emotions	2.978	0.612	3.103	0.567	-3.272**	0.001	Female>Male
QOL	3.643	0.626	3.599	0.547	1.144	0.253	-

Note: Male (n=429), Female= (n=532)

4.5 Structural Equation Model

A second-order structural equation model was used in this study to test Hypothesis 3 (Figure 1). The model fitness index of the second-order model was RMR=0.033, GFI=0.829, CFI=0.893, NFI=0.879, TLI=0.880, IFI=0.893, PCFI=0.799, and RSMEA=0.074, which was in line with the proposed criteria for the model fit of Marsh et al. (1988), indicating that the hypothesized model had an acceptable degree of fit. The results showed that positive emotions significantly affect perceptions of QOL ($\beta = 0.649$, $p < 0.001$, 95% CI = 0.595-0.696), thereby validating Hypothesis 3.

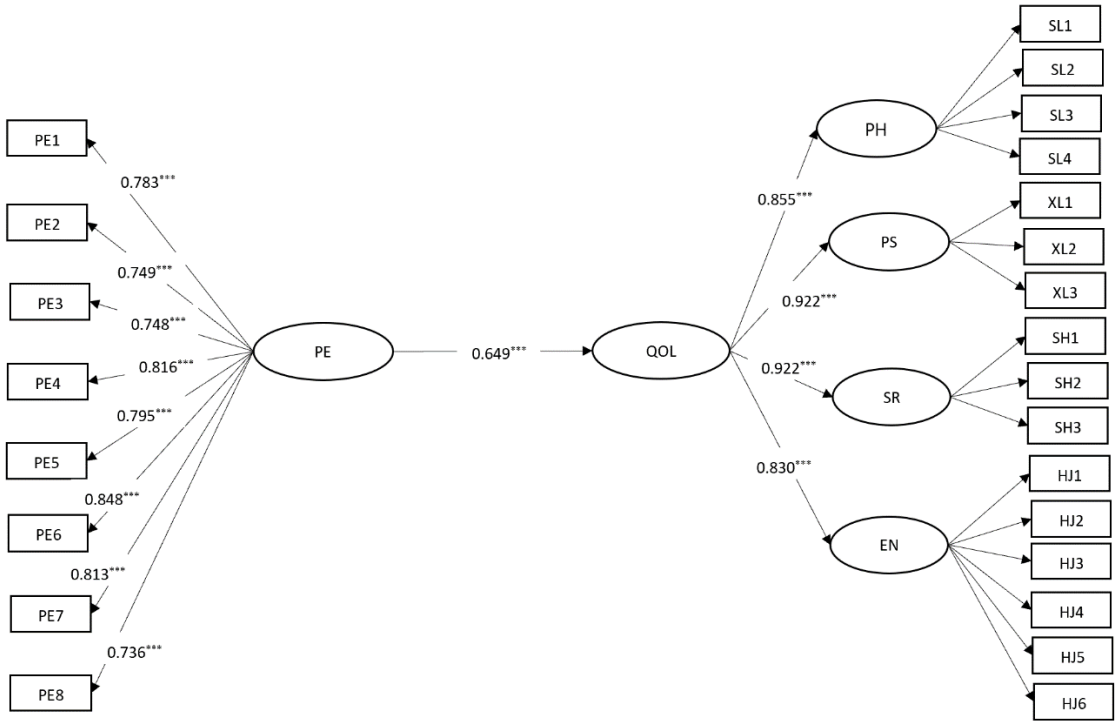

Figure 1. Structural equation model

5. Discussion

The results of this study support H1, indicating that positive emotions have a significant and positive effect on college students' QOL, which is consistent with the findings of previous researchers (Boissy et al., 2007; Fredrickson et al., 2008) and once again verifies the expansion and construction function of positive emotions. Positive emotions can broaden college students' short-term thought-action range, enabling them to build long-term personal physical, intellectual, social and psychological resources (Fredrickson, 2001; Fredrickson & Losada, 2005; Fredrickson et al., 2003), thereby promoting their QOL. At the same time, the research results show that positive emotions can also have a significant and positive effect on college students' perceived QOL, which supports the effect of positive emotions on people's cognition (Fredrickson, 2001), ability to reduce their material desires (Lambert et al., 2009), and act as a buffer against their dependence on external materials (Lee & Ahn, 2016). Because positive emotions make people feel better about themselves (Shamim & Muazzam, 2018), they improve their satisfaction with life (Bastian et al., 2014).

H2 was supported in finding gender differences among college students regarding positive emotions. Female college students experience more positive emotions than their male counterparts, which is consistent with the results of previous studies (Chraif & Aniţei, 2013; Deng et al., 2016; Shamim & Muazzam, 2018). This finding may be due to social gender roles, which cause emotional differences between men and women (Kazdin, 2000, p. 4128). Based on these gender roles, men are expected to take more social responsibility than women (Powell & Greenhaus, 2010). Initially, this may make boys more demanding, whereas girls may receive more encouragement (Lytton & Romney, 1991) such that women's emotions are more positive than men's. Second, because of different gender roles (Kazdin, 2000, p. 4128), men are required to make more decisions than women (Powell & Greenhaus, 2010), which may also make male college students more rational than female students. They may feel the need to suppress their emotions more (Flynn et al., 2010).

H3 is not supported. There is no significant difference between the QOL of college students of different genders. It is inconsistent with previous studies (Bisegger et al., 2005; Castellano-Guerrero et al., 2020; Fumaz et al., 2019; Michel et al., 2009; Noh et al., 2015). This may be due to the characteristics of the research population. Because some previous studies were focused on groups with severe diseases (Castellano-Guerrero et al., 2020; Fumaz et al., 2019), the different results may be due to the disease, and most college students do not have major diseases. However, Noh et al. (2015) studied adults in their research and found that the significant difference in QOL between men and women stems from issues such as economic and educational attainment. The life circle of college students

is dominated by classmates who are at the same level of education, but college students in China generally have no income. Thus, there will be no obvious differences in the economic and educational levels of college students of different genders, which may be why there is no gender difference in their QOL. Some studies, such as those of Bisegger et al. (2005) and Michel et al. (2009), are aimed at children and adolescents. Females usually enter puberty between the ages of 8 and 13, and males between the ages of 9 and 14 (Breehl & Caban, 2022), when they undergo physical and social transitions. Therefore, changes in physical and gender identities may contribute to a gradual decline in the QOL of minors as they mature. Female adolescents' physical changes are greater than men's, which may lead to their having a lower QOL than that of male adolescents (Michel et al., 2009). As adolescents may have adapted to these physical and social changes by the time they enter college, these changes will not continue to affect them as college students. This would explain the lack of gender difference in terms of the QOL of college students.

6. Conclusion and Suggestions

This study aimed to explore how positive emotions can significantly improve Chinese college students' QOL. The findings support the extended construction theory of positive emotions and provide empirical evidence for educators to develop effective preventive measures to help Chinese college students to improve their QOL. It has been verified that gender differences exist in terms of positive emotions and that female college students have significantly higher positive emotions than their male counterparts. First, colleges and universities should help students recognize the importance of positive emotions by holding related lectures so that they can focus on cultivating their own positive emotions. Second, regular training courses, such as Best Possible Selves, can effectively improve students' positive emotions (Sheldon & Lyubomirsky, 2006). In addition, as the positive emotions of male college students are significantly less positive than those of their female counterparts, colleges and universities should pay close attention to the different genders and prioritize male college students over females for assistance to increase their positive emotions, thereby enhancing their QOL.

7. Limitations and Future Research Directions

First, this study was conducted only among Chinese college students, which means there are some limitations in generalizing the findings. Subsequent researchers may consider expanding the scope of the sample, such as repeating research on college students in other countries, to expand and verify the results of this study. Cross-cultural studies can also compare cultural differences to determine whether they positively affect perception of QOL and gender differences (Fischer et al., 2004). Second, this study was based on a cross-sectional design, making it impossible to deduce the causal relationship between variables. Therefore, future researchers could conduct a longitudinal study (e.g., cross-lagged analysis) or an experimental study (e.g., analysis of covariance) for more comprehensive results. Third, the interview method can be used in future studies to further explore the impact of positive emotions on the QOL of college students.

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