

# The relationship between social support and subjective well-being among college students: an analysis of the mediating effect of mental toughness

Jihu LU<sup>1</sup>, Tingting HU<sup>2</sup>, Xiaowei WANG<sup>3</sup>, Yan WANG<sup>4</sup>

1. Philippine Christian University, Manila 0900, Philippine 2. Shanxi Datong University, Datong 037009, China  
3. Taiyuan University, Taiyuan 030032, China 4. Jinzhong University, Jinzhong 030619, China

---

**Abstract:** The main aim of this research is to get a thorough comprehension of the underlying mechanisms, through which social support influences an individual's subjective well-being. A mediation model has been created to examine the relationship between social support and subjective well-being with mental toughness serving as a mediator. The study was conducted using a sample size of 596 college students. The questionnaire method was used to investigate their social support, mental toughness, and subjective well-being. The findings indicate that (1) a significant positive link is seen between social support, mental toughness, and subjective well-being. Furthermore, a significant positive association has been seen between social support and subjective well-being. (2) The relationship between social support and the subjective well-being of college students is somewhat influenced by the mediating factor of mental toughness. This suggests that social support has the capacity to affect the subjective well-being of college students, both via direct means and indirectly through the mediating factor of mental toughness. The study results not only provide a valuable contribution to enhancing the subjective well-being of college students but also support the advancement of targeted mental health education.

**Key words:** mental toughness; subjective well-being; social support; college students

---

## 1 Introduction

Numerous studies have shown the significant impact of social support on enhancing individual mental well-being, including the alleviation of psychological tension and the eradication of psychological obstacles [1]. With the rise of positive psychology, the focus on social support has shifted from examining its relationship with negative psychological indicators such as psychological stress and psychological disorders to its relationship with positive psychological indicators, especially subjective well-being [2]. In the present investigation, subjective well-being (SWB) will be used as an indicator of mental health [3]. Subjective well-being pertains to individuals' subjective evaluations and affective experiences of the anticipated quality of their lives and is often used to measure an individual's overall level of social adjustment, reflecting the individual's quality of life [4].

It has been found that personality is an important internal factor influencing subjective well-being, and mental toughness is a personality trait characterized by the ability to overcome and triumph over adversity and return to

normalcy [5][6]. Mental toughness in college students predicts positive emotions and general well-being [7]. Mental toughness refers to the adaptive capacity to effectively recover from challenging events when confronted with various forms of adversity, trauma, tragedy, danger, or notable pressures in life [8]. Mental resilience helps individuals to cope positively with adversity, mitigate negative impacts, and promote individual mental health levels by increasing protective factors from the individual, family, and outside the family, of which social support (external factors) is one of the protective factors [9][10]. Consequently, the present research posits a hypothesis suggesting a positive association between social support and mental toughness, with mental toughness serving as a mediating factor in the connection between social support and subjective well-being.

The main aim of this research is to examine the role of mental toughness, an inherent characteristic, in mediating the association between social support and subjective well-being. The study results not only provide a valuable contribution to the improvement of subjective well-being among college students but also hold promise for promoting more targeted methods in mental health education.

## **2 Methodology**

### **2.1 Subjects**

In this study, online questionnaires were distributed at two universities in Shandong and Shanxi, and 596 valid questionnaires were obtained after invalid questionnaires excluded. The student population consisted of 215 males, accounting for 36.1% of the total, and 381 females, comprising 63.9% of the total; 225 freshmen (37.8%), 250 sophomores (41.9%), and 121 juniors (20.3%); and the average age of the subjects was between 17 and 24 years old ( $19.73 \pm 1.257$ ).

### **2.2 Tools**

#### **2.2.1 Mental toughness scale**

The scale was developed by Yueqin Hu and Yiqun Gan using exploratory factor analysis and item discrimination analysis in accordance with the process model of mental toughness. The measure has a total of 27 items and encompasses five distinct elements, namely positive cognition, goal focus, interpersonal help, family support, and emotional management. The Cronbach's alpha coefficient of 0.902 was calculated for the scale used in this specific study.

#### **2.2.2 Social support scale**

The scale was devised by Xiao Shuiyuan and has a total of ten questions, including three distinct aspects, namely subjective support, objective support, and utilisation of social support. The scale is assessed using a four-point scoring system, with the cumulative score of each dimension determining the level of accessibility for students. A higher score indicates more ease in obtaining life support. The Cronbach's alpha coefficient achieved for the scale used in this specific study is 0.770.

#### **2.2.3 Subjective well-being scale**

The scale was revised by Duan from the Foreign General Well-Being Scale (GWB). The revised scale was reduced from 33 to 18 question items. The scale contains six dimensions: worry about health, satisfaction and interest in life, control of emotions and behaviors, energy, depressed or happy state of mind, relaxation and tension (anxiety). A higher total score on the scale indicates a stronger subjective well-being. The Cronbach's alpha coefficient for the scale used in this specific study is 0.764.

## **3 Results**

### **3.1 The management and evaluation of prevalent methodological aberrations**

The current study use Harman's one-way test to investigate the probable existence of common method bias in both the independent and dependent variables. The findings indicated that there were ten factors exhibiting eigenvalues above a

value of one. The component with the highest magnitude accounted for 24.497% of the variance, which falls below the crucial threshold of 40%. Therefore, it can be concluded that this research does not exhibit significant common method bias.

### 3.2 Means, standard deviations and correlation of variables

Descriptive and correlation analyses have been performed for each variable, and the results are known from Table 1. The findings demonstrate a significant and favourable association between mental toughness and subjective well-being ( $r = 0.471, p < 0.01$ ), as well as between social support and subjective well-being ( $r = 0.666, p < 0.01$ ). Moreover, a significant and notable positive correlation can be seen between social support and subjective well-being ( $r = 0.497, p < 0.01$ ).

Table 1. Results of descriptive statistics and correlation analyses

	M	SD	1	2	3
Mental toughness	93.337	15.812	1		
Social support	36.831	8.257	0.471**	1	
Subjective well-being	78.215	12.700	0.666**	0.497**	1

Note: \*\* denotes P 0.01, and \*\*\* denotes P 0.001; the same applies below.

### 3.3 A test of the moderated mediation model between meta-emotions and subjective well-being

To commence, the present study employed the Process plug-in in SPSS 26.0 statistical software and the Bootstrap approach devised by Hayes to investigate the role of mental toughness as a mediator in the relationship between subjective well-being and social support, with gender, grade, and age as control variables. Model 4 was chosen for the simple mediation modelling test. The results are shown in Table 2, which indicates that social support significantly predicts subjective well-being ( $B = 0.764, t = 14.012, p = 0.001$ ), and the statistical analysis reveals that the impact of social support on subjective well-being remains statistically significant even after accounting for the mediating variable of mental toughness ( $B = 0.374, t = 7.280, p = 0.001$ ). Subjective well-being is significantly predicted by mental toughness ( $B = 0.439, t = 16.262, p = 0.001$ ), and social support predicts mental toughness significantly ( $B = 0.890, t = 12.873, p = 0.001$ ).

Table 2. Mediation model test for mental toughness

	Mental toughness		Subjective well-being		Subjective well-being	
	B	t	B	t	B	t
Gender	0.542	0.443	-1.163	-1.447	-0.925	-0.957
Grade	2.709	3.357***	0.885	1.656	2.075	3.257**
Age	-0.017	-0.036	0.452	1.488	0.444	1.217
Social support	0.890	12.873***	0.374	7.280***	0.764	14.012***
Mental toughness			0.439	16.262***		
R square	0.239		0.493		0.265	
F	46.389***		114.562***		53.324***	

Furthermore, the findings are presented in Table 3. The Bootstrap 95% confidence intervals for the direct influence of social support on subjective well-being, in addition to the mediating effect of mental toughness, do not encompass the value 0. Consequently, it is indisputable that subjective well-being is not only directly predicted by social support, but also predicted through the mediating effect of mental toughness. The mediating effect (0.391) and direct impact (0.374) contributed 51.11% and 48.89%, respectively, to the overall effect (0.764).

Table 3. Decomposition of total, direct, and mediating effects

	Effect	BootSE	BootLLCI	BootULCI	Effect proportion
Mediating effects of mental toughness	0.391	0.045	0.307	0.484	51.11%
Direct effect	0.374	0.062	0.256	0.498	48.89%
Total effect	0.764	0.056	0.656	0.877	

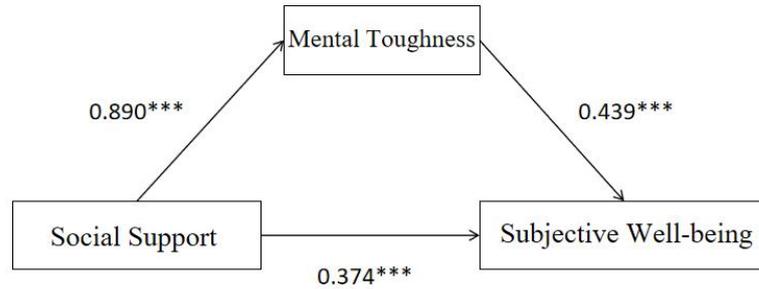


Fig. 1. Model diagram of the mediating role of mental toughness

#### 4 Discussion

In accordance with previous scholarly investigations, the findings of this study demonstrate a considerable positive relationship between mental toughness, social support, and subjective well-being. Notably, social support exhibits a robust positive association with subjective well-being [11][12][13]. The findings suggest that there is a favourable relationship between social support, mental toughness, and the subjective well-being of college students.

Moreover, prior research has shown empirical findings that demonstrate a strong relationship between the presence of social support and an individual's subjective well-being [14][15]. Additionally, social support has been shown to influence subjective well-being indirectly by playing a mediating role in the development of psychological resilience. Individuals with higher mental toughness are more inclined to adopt positive emotion regulation strategies to reduce negative emotional responses, and this adaptive emotion regulation in turn protects and enhances an individual's mental toughness [16]. The integration model (IM) posits that the formation of psychological resilience is a dynamic process influenced by the interplay between stressful experiences and protective factors. Moreover, this process is subject to variation based on specific life circumstances and the passage of time [17]. The protective model proposes that protective variables play a role in alleviating the detrimental effects of stress, adversity, and other risk factors on the psychological resilience of individuals experiencing a traumatic event. As a result, these variables promote effective adaptation [18]. When individuals are faced with life changes that may be seen as threatening, their ability to withstand and overcome these challenges, known as mental toughness, becomes crucial. In this process, protective factors and social support networks collaborate to counteract the negative impacts of the surrounding environment [19]. As a result, this collaboration contributes to the enhancement of the individual's subjective well-being as a whole. Therefore, the subjective well-being of an individual is impacted by social support through its influence on psychological resilience.

The implications of the study's results hold substantial theoretical and practical weight as they contribute to the ongoing enquiry into the relationship between subjective well-being, psychological resilience, and social support. Additionally, these results may provide guidance for college students in enhancing their subjective well-being.

## 5 Conclusion

A significant positive link can be seen between social support, mental toughness, and subjective well-being. Furthermore, a significant positive association has been seen between social support and subjective well-being.

The relationship between social support and the subjective well-being of college students is somewhat influenced by the mediating factor of mental toughness. This suggests that social support has the capacity to affect the subjective well-being of college students, both via direct means and indirectly through the mediating factor of mental toughness.

## Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

## References

- [1] Wang YF. 2004. A review of the relationship between social support and mental health. *Psychological Science*, 27(5):1175-1177.
- [2] Yan BB, Zheng X, Zhang XG. 2011. The mechanisms of university students' subjective well-being: the mediating role of self-control and depression. *Psychological Science*, 34(2):471-475.
- [3] Diener E. 1984. Subjective well-being. *Psychological Bulletin*, 95(3):542.
- [4] Diener E. 2012. New findings and future directions for subjective well-being research. *American Psychologist*, 67(8): 590.
- [5] Song JM, Fan HY. 2013. A meta-analysis of the relationship between social support and subjective well-being. *Advances in Psychological Science*, 21(8):1357-1370.
- [6] Connor KM, Davidson JR. 2003. Development of a new resilience scale: the Connor-Davidson resilience scale (CD-RISC). *Depression and Anxiety*, 18(2):76-82.
- [7] Wang Y, Wang ZH. 2013. Psychological resilience of college students and its relationship with positive emotions and well-being. *Psychological Development and Education*, 29(1):7.
- [8] American Psychological Association. 2013. The Road to Resilience: What is Resilience. Retrieved from <http://www.apa.org/helpcenter/road-resilience.aspx>.
- [9] Fan XY, Yu S, Guo SJ, et al. 2015. Psychological resilience of clinical nursing interns and its influencing factors. *Chinese Journal of Health Psychology*, 23(4):620-623.
- [10] Li ZK. 2009. Research on the relationship between psychological resilience and social support in left-behind children. *Chinese Journal of Health Psychology*, 17(4):3.
- [11] Jiang YH, Li YA. 2011. The relationship between psychological resilience and subjective well-being in high school students. *Chinese Journal of Health Psychology*, 19(11):1357-1360.
- [12] Li YA, Zhang JX. 2011. The relationship between psychological resilience, subjective well-being, and psychological health in high school students. *Chinese School Health*, 32(7):797-799.
- [13] Li XP, Li SS. 2016. The impact of belief in a just world on adolescents' subjective well-being: the chain mediating effects of psychological resilience and self-esteem. *Chinese Journal of Special Education*, 3:71-76.
- [14] Ji YH. 2013. A study on the relationship between psychological resilience, stressful events, and social support in female college students. *Chinese Journal of Special Education*, 2:81-86.
- [15] Han L, Li MF. 2014. The relationship between depression and psychological resilience in rural college students. *Chinese School Health*, 35(3):385-387.
- [16] Troy AS, Mauss IB. 2011. Resilience in the face of stress: emotion regulation as a protective factor. *Resilience and Mental Health: Challenges Across the Lifespan*, 1(2): 30-44.

[17] Southwick SM, Litz BT, Charney D, et al. 2011. Resilience and mental health: challenges across the lifespan. Cambridge University Press:30-44.

[18] Kumpfer KL, Bluth B. 2004. Parent/child transactional processes predictive of resilience or vulnerability to substance abuse disorders. *Substance Use Misuse*, 39(5):671-698.

[19] Xi JZ. 2006. Research on child psychological resilience based on social cognition (unpublished doctoral dissertation). East China Normal University.