

Role of Psychological Capital and Gratitude in the Association Between Stress and Well-Being Among College Students in the United States

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The purpose of the study was to examine whether psychological capital (PsyCap) and gratitude mediate the association between stress and well-being of college students in the United States. Results indicated the mediating role of PsyCap and gratitude, suggesting that both constructs could be a positive resource for fostering well-being. The development and exercises for PsyCap and gratitude should be included in well-being promotion. Implications for college counselors and recommendations for future researchers are offered.

Keywords: psychological capital, gratitude, PERMA well-being, stress, college students

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Stress continues to remain a significant health concern among college students across the globe (Civitci, 2015; Garrett et al., 2017). Unique challenges experienced by students while in college expose them to a wide range of genetic, biological, environmental, and institutional stressors (Acharya et al., 2018). Approximately half of university students report moderate levels of stress-related mental health concerns (Regehr et al., 2013). Researchers report chronic stress to be negatively correlated with mental health outcomes, which substantially impacts students' academic performance and reduces student success (American College Health Association, 2021). Such effects of stress on students' performance and mental health while in school were well documented, even before the onset of the global coronavirus (COVID-19) pandemic (Wang et al., 2020). The COVID-19 pandemic further caused heightened disruptions to students' learning, housing, jobs, and financials, thus, globally exasperating the levels of perceived stress and negative effects on well-being (Cao et al., 2020; Charles et al., 2021) among individuals, including students in the United States (Wang et al., 2020). In general, increased stress is found to contribute to physical and mental health problems, including sleep disturbances, depression, suicide, substance use, post-traumatic stress disorder, and eating disorders (Brownson et al., 2014; Metzger et al., 2017; Stoltzfus & Farkas, 2012; Wallace et al., 2017). Therefore, the stress experienced by college students not only elevates the risk of developing mental illnesses but also hinders their positive mental health.

Well-Being

Mental health is more than the lack of illness (Keyes, 2002). It is a state of complete well-being, encompassing the ability to enjoy life and deal with its challenges.

Positive psychology interventions focus on employing effective strategies that promote well-being (Donaldson et al., 2015; Seligman, 2012) by identifying the psychological and character strengths of individuals that aid in adapting successfully to challenging situations, recovering quickly from adversities, as well as the ability to flourish (Seligman, 2012). Seligman (2012) developed the model of well-being which includes five building blocks or elements of flourishing life: Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment (PERMA). Examining well-being is effective in supporting the need for mental health promotion intervention (Doré et al., 2020). Therefore, it is of critical importance that mental health professionals work with students to help them adopt effective strategies to reduce their stress levels, and to promote higher levels of well-being in order to ensure flourishing mental health among college students. In recent years, reports of increased levels of anxiety and stress among college students results from fear, uncertainty, and altered education and work contexts (Cho, 2020; Grubic et al., 2020; Wang et al., 2020), exploring the relative effects of specific personal psychological resources on well-being in attenuating stress in general is significant.

Association Between Psychological Capital, Stress, and Well-Being

Psychological Capital (PsyCap; Luthans et al., 2006) consists of four constructs; hope, self-efficacy, resilience, and optimism, which act as a barrier against stress and mediate its impact (Avey et al., 2009; Rahimnia et al., 2013). When an individual is hopeful, optimistic, resilient, and efficacious, they are likely to believe they have sufficient resources to deal with a stressful environment (Rioli et al., 2012). Studies show a strong predictive association between PsyCap and PERMA well-being among

college students (Prasath et al., 2021). This suggests that students with high PsyCap cope better with stress and maintain greater well-being when compared to their counterparts (Rioli et al., 2012). Given the developmental nature of PsyCap (Luthans & Youssef, 2017), it is critical to provide additional evidence to support previous studies show that students' well-being, engagement, and academic performance improved over learned components of PsyCap through guidance and interventions within schools and universities (Luthans et al., 2012; Luthans et al., 2016; Prasath et al., 2022).

Association Between Gratitude, Stress, and Well-Being

Gratitude is described in many ways including an emotion (McCullough et al., 2002), a trait, or life orientation (Wood et al., 2010). Numerous researchers indicate that gratitude is positively associated with well-being and significantly linked to reducing stress (Alkozei et al., 2018; Bazargan-Hejazi et al., 2021; Chen et al., 2012; Kern et al., 2015). Particularly, students who reported higher levels of gratitude experienced greater positive emotions, higher engagement in their everyday work, were in healthy and meaningful relationships, possessed better purpose in life, and were also found to be high achievers concerning their own goals (Bazargan-Hejazi et al., 2021). Gratitude interventions are classified into two categories, matched-activity conditions (e.g., daily gratitude lists) and psychologically active conditions (e.g., acts of kindness, or thought records; Davis et al., 2016). An effective intervention among students for developing gratitude is the utilization of journal exercises and meditation tactics (Seligman et al., 2005).

The Current Study

The purpose of this study is to explore if PsyCap and gratitude mediate the association between stress and well-being among college students. Findings from various studies suggest that in times of stress, well-being decreases (Cho, 2020; Grubic et al., 2020; Wang et al., 2020). Therefore, exploring the relative effects of specific personal psychological resources on well-being in attenuating stress, in general, is significant. Furthermore, from the literature, we learn that PsyCap and gratitude, two personal psychological strength factors, are closely related to each other (Kern et al., 2015). Although both PsyCap and gratitude are positive resources, there exists evidence suggesting that PsyCap and gratitude are different constructs (Ahrens, 2016). Due to the apparent similarities and differences in the nature of both constructs—PsyCap and gratitude, the authors tested both of their mediating functions in the conceptual model.

Methods

Study Design and Sample

After receiving approval from the researchers' respective Institutional Review Board and ethical committee, participants were recruited by publishing a link on Amazon Mechanical Turk, offering a 25-cent compensation to every participant. Along with survey assessments, participants were asked to state their age, gender, the highest level of completed education, and employment status. The sample consisted of 385 US college students over 18 years ($M = 31.84$ years, $SD = 10.36$). Of the participants, 52.5% identified as male, 46.8% as female, and the remaining .5% as non-binary. The majority of students (51.2%) reported being enrolled in a bachelor's program and in some type of full-time employment ($n = 193$). Participants were informed that they would give their

consent by proceeding past the welcome page of the online survey and all participated voluntarily. The data was collected in the summer months of 2021. The assessment took 8-10 minutes for participants to complete.

Instruments

Stress

Stress was assessed using the Perceived Stress Scale (PSS-10; Cohen et al., 1983), using a 5-point response format ranging from 1 = “*never*” to 5 = “*very often*”. Participants rated ten given statements (e.g., “In the last month, how often have you felt nervous and “stressed”?”). A higher score indicates a higher level of perceived stress. In the current study, Cronbach’s alpha was .76 and McDonald's omega ω_t was .83.

Psychological Capital (PsyCap)

PsyCap was assessed using a revised version of the Compound PsyCap Scale - 12 (CPC-12R; Dudasova et al., 2021). Three items each assessed the four subscales “hope” (e.g., “I can think of many ways to reach my current goals.”), “self-efficacy” (e.g., “I can solve most problem if I invest the necessary effort.”), “resilience”(e.g., “After serious life difficulties, I tend to quickly bounce back.”), and “optimism” (e.g., “I am looking forward to the life ahead of me.”), with a higher-order factor “PsyCap” using a 6-point Likert scale ranging from 1 = “*strongly disagree*” to 6 = “*strongly agree*”. A higher score indicates a higher level of PsyCap. Studies show strong psychometric properties for CPC-12R across various population groups (Lorenz et al., 2022) and in the current study, Cronbach’s alpha was .90 and McDonalds omega ω_t was .91.

Gratitude

Gratitude was assessed using the Gratitude-Questionnaire (GQ-5; McCullough et al., 2002). Given a 7-point Likert scale ranging from 1 = “*strongly disagree*” to 7 = “*strongly agree*” participants were asked to rate to what extent the presented statements (e.g., “I have so much in life to be thankful for.”) applied to them. A higher total score indicates higher gratitude. In the current study, Cronbach’s alpha was .80 and McDonald’s omega ω_t was .86.

PERMA Well-Being

Well-being was assessed using the PERMA-Profilier (Butler & Kern, 2016), which uses an 11-point Likert scale ranging from 0 = “*never*” to 10 = “*always*” or 0 = “*not at all*” to 10 = “*completely*”. This scale is based on Seligman’s (2012) well-being theory that consists of five building blocks of well-being, namely positive emotions (i.e., experiencing happiness, joy, gratitude, etc.), engagement (i.e., using one’s strengths to meet challenges and experiencing flow), relationships (i.e., connecting with others and positive connections), meaning (i.e., finding one’s purpose, connecting to meaning), and accomplishment (i.e., pursuing and accomplishing goals). In addition to the 15 PERMA items (e.g., “How often do you become absorbed in what you are doing?”), the instrument includes eight filler items. A higher overall score indicates a higher level of well-being. In the current study, Cronbach’s alpha was .94, and McDonald’s omega ω_t was .96.

Data Analysis

To assess the mediating effect of PsyCap and gratitude on well-being, a path analysis was conducted using the R package ‘lavaan’, version 0.6 -7 (Rosseel, 2012).

Parameter estimates were calculated with 1000 bootstrap samples since it is a nonparametric resampling procedure, which does not assume the normality of the sampling distribution (Preacher & Hayes, 2008). By using bootstrapping instead of the Sobel test, we follow the recommendations of MacKinnon et al. (2004).

Results

Associations Among Stress, PsyCap, Gratitude, and PERMA Well-being

Correlational analyses indicated a statistically significant correlation between stress and well-being ($r = -.36$). The correlations between PsyCap and well-being, and gratitude and well-being were statistically significant as well. A complete overview of the correlation results is shown in Table 1. According to Baron and Kenny (1986), one could estimate a mediation triangle if the three relations are statistically significant. Thus, we proceeded with the initially planned mediation analyses.

Mediating Effects of PsyCap and Gratitude

The results of the accelerated bias-corrected bootstrap tests of mediation are displayed in Table 2. The model consisted of stress as the independent variable, well-being as the dependent variable, and PsyCap and gratitude as mediators between the two variables. The effect of stress on PsyCap (a path; $B = -.536$, 95%-CI $[-0.641; -0.419]$), and gratitude (a path; $B = -.730$, 95%-CI $[-0.897; -0.565]$), was statistically significant. The effect of PsyCap (b path; $B = 1.229$, 95%-CI $[1.016; 1.437]$), and gratitude (b path; $B = .304$, 95%-CI $[0.161; 0.482]$), on well-being was statistically significant as well. Mediation analysis indicated the mediating role of PsyCap (a x b path; $B = -.658$, 95%-CI $[-0.846; -0.484]$) and gratitude (a x b path; $B = -.222$, 95%-CI $[-0.385; -0.109]$) in the relation between stress and well-being, thus indicating support for our hypotheses.

Discussion

In this study, the college students attending U.S. universities reported a moderate level of stress which was negatively associated with their overall well-being. Although stress management strategies may be effective in coping with stress (Amanvermez et al., 2020), our study findings go further and show that solely focusing on stress reduction interventions alone may not effectively promote the overall well-being of students. Other factors such as individuals' personal positive psychological resources such as hope, efficacy, resiliency, optimism, and gratitude play a major role in fostering well-being while students are experiencing stress. These results also confirmed certain aspects of the theoretical model we proposed, namely, high positive associations between gratitude, PsyCap, and overall PERMA well-being, and significantly negative association with stress, similar to various samples studied in Butler and Kern's (2016) study.

Secondly, stress correlates negatively with PsyCap, PsyCap correlates positively with well-being, and PsyCap partially mediated the association between stress and well-being. This result indicates that if we enhance PsyCap, the effects of stress on well-being may be reduced, and the levels of well-being can be increased overall. Previous findings establish PsyCap consistently as a protective buffer mitigating the effects of stress on the well-being of individuals (Rioli et al., 2012). Finally, we found that gratitude, similar to PsyCap, mediated the association between stress and well-being. Some researchers previously reported how gratitude and PsyCap behaved in similar ways as well as correlated strongly and positively with each other, that it is contemplated to be the fifth dimension of PsyCap (Ahrens, 2016; Luthans et al., 2006). Gratitude contributed to greater mental well-being, as seen in previous studies (Bono et al., 2004; Watkins et al.,

2003). These findings are significant because they indicate that students may effectively reduce stress by capitalizing on their own developmental positive psychological resources and in doing so also positively affect change in their overall flourishing mental health and well-being.

Implications for Counselors Serving College Students

Stress, in general, is complex, and when it is linked to detrimental effects on one's well-being it is even more pivotal to effectively manage stress levels by fostering one's own psychological resources such as psychological capital and gratitude. In particular, college counseling centers utilizing the multidimensional framework of well-being (i.e., PERMA) is meaningful as it not only provides a global indication of well-being but also highlights the specific dimensions that need targeting while designing specific strategies (see Butler & Kern, 2016; Kern et al., 2015). Nonetheless, with regard to well-being initiatives, PsyCap, as well as gratitude development interventions, can be used as both of these constructs are malleable state-like constructs and our study supports their role also in mitigating the levels of stress. PsyCap development interventions are described in multiple studies by Luthans and Youssef (2017) among college students (Luthans et al., 2012; Luthans et al., 2016). Interventions to develop PsyCap may include designing goals and generating pathways and strategies for overcoming obstacles identified (Snyder, 2000), efficacious role models (Bandura, 1999), enhancing assets through seeking networking opportunities and staying physically fit, and avoiding potentially adverse situations such as becoming stressed and burned out (Luthans & Youssef, 2017). Some PsyCap development approaches include reflecting, diagnosing, and identifying self-defeating beliefs while faced with adversity and replacing them with more realistic,

constructive, and accurate beliefs (Luthans et al., 2012). Additionally, positive boosting strategies such as interval coaching and gamification techniques have a long-term impact on positive student-based outcomes (Luthans et al., 2016). When incorporated into everyday life, these interventions become a habit and lead to flourishing, mainly by providing academic and career success (Luthans & Youssef, 2017). Counselors may offer PsyCap development interventions in the form of training programs both individually and as group work. For example, by developing PsyCap for college students during therapy, college counselors may aid in lowering their stress as well as enhancing their well-being (Prasath et al., 2022).

Likewise, gratitude exercises may be incorporated among college students to ameliorate stress and yield various physical, social, and psychological benefits (Wood et al., 2008). Some commonly studied gratitude exercises that have enhanced well-being include three good things, benefit appraisals, and a gratitude letter (Seligman et al., 2005). The *Three Good Things* exercise draws people's attention to what they are grateful for, the *Benefit Appraisals* exercise helps with reflecting more deeply on the reasons they are grateful for others, and the *Gratitude Letter* encourages individuals to express their gratitude (Baumsteiger et al., 2019). Baumsteiger et al. (2019) showed that these gratitude exercises increased the gratitude of young adults when implemented both through online and interactive formats. Based on their recommendations, college counselors and rehabilitative program administrators may consider using these programs in clinical settings to help individuals cope with adversity. They may also be distributed as an online self-help program for students to complete in their own time, as they are relatively convenient to implement.

Limitations and Recommendations for Future Research

Despite these strengths, two limitations of the present study are acknowledged. First, our study was cross-sectional, and thus we cannot assess the causal relations among study variables. However, our study hypotheses were built on solid theoretical and research foundations. The results from our cross-sectional study need to be replicated with a prospective cohort study. Second, the findings of the study solely rely on self-reported data from the participants with an online presence. Most of the participants reported being non-traditional college students with full-time employment. Therefore, the study may not have reached a representative sample of individuals with regard to age and thus lack generalizability. We recommend readers to take this into consideration while interpreting the findings and for future researchers to take steps to diversify the pool of participants.

Table 1*Means, Standard Deviations, and Correlations With Confidence Intervals*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Age	31.84	10.36					
2. Gender	-	-	-.06 [-.16, .04]				
3. Gratitude	5.22	0.91	.06 [-.04, .16]	-.07 [-.17, .03]			
4. Stress	2.91	0.59	-.09 [-.19, .01]	.05 [-.05, .15]	-.12* [-.22, -.02]		
5. PsyCap	4.61	0.80	.10 [-.00, .20]	-.10 [-.20, .00]	.68*** [.62, .73]	-.40*** [-.48, -.31]	
6. PERMA	7.38	1.53	.09 [-.01, .18]	-.04 [-.14, .06]	.74*** [.69, .78]	-.37*** [-.46, -.28]	.78*** [.74, .82]

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates $p < .05$. ** indicates $p < .01$, *** indicates $p < .001$.

Table 2*Mediation Analysis*

		<i>B</i>	<i>SE</i>	<i>p</i>	95%-CI
Role of PsyCap between stress and PERMA	a path: stress → PsyCap	-0.536	0.058	<.001	-0.641; -0.419
	b path: PsyCap → PERMA	1.229	0.106	<.001	1.016; 1.437
	c path (direct effect): stress → PERMA	-0.079	0.111	.478	-0.295; 0.142
	a x b path (indirect effect via PsyCap): stress → PERMA	-0.658	0.094	<.001	-0.846; -0.484
Role of gratitude between stress and PERMA	a path: stress → gratitude	-0.730	0.085	<.001	-0.897; -0.565
	b path: gratitude → PERMA	0.304	0.079	<.001	0.161; 0.482
	c path (direct effect): stress → PERMA	-0.079	0.111	.478	-0.295; 0.142
	a x b path (indirect effect via gratitude): stress → PERMA	-0.222	0.069	.001	-0.385; -0.109
Total effect on PERMA		0.574	0.146	<.001	0.286 0.844

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