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STUDENT WELL - BEING: IDENTIFYING THE CONTRIBUTION OF OPTIMISM AND LOCUS OF CONTROL

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Abstract: Studies have shown that personality characteristics play a significant role in explaining the differences in well-being. To better understand the effect of personality traits, the study explored the role of locus of control and optimism for student college-related well-being. In a sample of 187 university students in Croatia, who responded to a set of personality questionnaires, it was found that both locus of control and optimism correlated with well-being. Moreover, results also revealed that optimism moderated the relationship between external locus of control and well-being. Our findings suggest that positive thinking may buffer the adverse effects of external locus of control on student well-being.

Keywords: Locus of control; Optimism; Student well-being

INTRODUCTION

Growing evidence in recent years stresses the importance of student well-being for their education and success, with educational institutions prioritizing well-being as an essential aspect of student development (Beynon, 2019; Waters, 2017) that helps students prosper in both the academic environment and various social relations. Specifically, higher levels of student well-being are associated with positive education-related outcomes such as increased engagement in schooling (Lewis, Huebner, Malone, & Valois, 2011), better mental health (Gilman & Huebner, 2006), and better academic performance (Lyons & Huebner, 2016). Moreover, higher well-being can positively impact later life achievements such as future income and relationship satisfaction (Waters, 2017).

Life satisfaction is a critical constituent of well-being (Ho, Cheung, & Cheung, 2010). However, there are individual differences in youth's life satisfaction (e.g., DeNeve & Cooper, 1998; Di Fabio & Kenny, 2019; Huebner, 1991; Park, 2004). The contribution of various personality traits to well-being has been investigated in many studies (e.g., Avey, Luthans, Smith, & Palmer, 2010; Cole & Korkmaz, 2013; DeNeve & Cooper, 1998; McCrae & Costa, 1987; Myers & Diener, 1995; Spector, Cooper, Sanchez, O' Driscoll, & Sparks, 2002). Locus

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of control and optimism feature as important factors in shaping subjective well-being (e.g., Ayyash-Abdo & Alamuddin, 2007; DeNeve & Cooper, 1998). Studies have shown that internal locus of control has beneficial effects on well-being, while external locus of control has a detrimental impact on well-being (e.g., Klonowicz, 2001; Li, Lepp, & Barkley, 2015; Pu, Hou, & Ma, 2017; Spector et al., 2002). Regarding optimism, previous studies have shown that optimism is associated with high levels of well-being (e.g., Ferguson & Goodwin, 2010; Ho et al., 2010; Khoo & Bishop, 1997; Scheier et al., 1999). Furthermore, optimism is related to well-being in a way that buffers the effects of stressful events and supports an active coping style that promotes healthy behaviors (Ben-Zur, 2003). Optimism also plays a moderating role on the effects of perceived stress on psychological well-being (Chang, 1998), negative life experiences on suicide ideation and attempts (Hirsch, Wolford, LaLonde, Brunk, & Parker, 2007), and neuroticism and distress on life satisfaction (Jibeen, 2014).

Furthermore, optimism has a protecting effect against adverse psychological and physical problems. Although previous studies examined the effect of locus of control and optimism on well-being independently, the question of how locus of control and optimism in concentration contribute to well-being is still underexplored, particularly when it comes to student education-related well-being, a completely neglected domain. Specifically, the present study aimed to investigate whether optimism plays a moderating role between locus of control and student well-being.

Well-being

Well-being is a multidimensional concept that has been mainly studied in organizational research because of its importance to healthy physical and psychological functioning. Subjective and psychological well-being are recognized as two main dimensions of one's well-being (Chen, Jing, Hayes, & Lee, 2013). According to Diener (1984), subjective well-being is conceptualized as the prevalence of positive over negative affect in one's life as well as satisfaction with life in general. Therefore, subjective well-being is essentially reduced to happiness. Psychological well-being, on the other hand, is broader and comprises self-acceptance, autonomy, social connections with others, aspiration in life, personal development, and environmental superiority (Ryff, 1989). Studies usually focus on one component of well-being, subjective or psychological, but there is need for additional studies that would incorporate both dimensions of well-being (Brouzos, Vassilopoulos, & Boumpouli, 2016; González-Carrasco et al., 2019). A definition of well-being that incorporates both dimensions is the one by Demo and Paschoal (2016), stating that well-being is the experience of more often positive than negative affects and development of personal potential. Positive affects include positive emotional states such as alertness, joy, excitement, and confidence, while negative affects are composed of emotional states such as fear, guilt, contempt, and sadness (Ben-Zur, 2003).

Locus of control

Locus of control can be defined as "the extent to which people believe that they have control over their fate" (Ng, Sorensen, & Eby, 2006, p. 1057). Rotter (1966) distinguishes internal and external locus of control. People develop an internal or external locus of control through learning (Rotter, 1966). People with an internal locus of control believe that they are in control over events in their lives because good outcomes are the result of their own behavior or characteristic. On the contrary, people with external control perceive all events in their life as being the outcome of luck, fate, or chance and that they have no control over them. Internals believe that they can influence their environment while externals do not perceive any connection between their behavior and its outcome (Ng et al., 2006). Locus of control is connected to well-being by emboldening feelings of competence and effective coping (Fisher, 1989; Parkes, 1984, as cited in Daniels and Guppy, 1997), especially in difficult and stressful situations. Successful coping with such situations, provides the individual with a sense of achievement that is associated with well-being. Based on their interaction with the environment, individuals learn from their behavior and the behavior of others that personal events may be more or less controllable (Daniels & Guppy, 1997). Moreover, prior experiences impact the expectation that a future encounter will be challenging or threatening, which consequently influences coping (Folkman, 1984). Internals are more prone to use active coping mechanisms, which helps them to deal with stress (Folkman, 1984) while externals use passive coping mechanisms and show less resistance to stress (Arslan, Dilmac, & Hamarta, 2009).

Previous studies have supported the notion that control beliefs influence well-being (Ng et al., 2006; Spector et al., 2002; Wang, Bowling, & Eschleman, 2010). Specifically, Spector et al. (2002) concluded that internality is connected with higher levels of positive well-being. Also, Ng et al. (2006) demonstrated that individuals with an internal locus of control experience greater general well-being in terms of better mental well-being, life satisfaction, and physical health. Furthermore, Klonowicz (2001) showed that externality is associated with lower levels of subjective well-being in a way that externals experience more often negative affects, less positive affects, and have lower life satisfaction. Moreover, Daniels and Guppy (1997) have found an association between high levels of depression and external locus of control, while Schmitz, Neumann, and Oppermann (2000) have shown that external locus of control is linked to burnout. In their meta-analysis, DeNeve and Cooper (1998) had found locus of control as one of the traits among 137 personality constructs that are most closely related to subjective well-being.

Studies on student samples have also demonstrated that internal locus of control is related to higher levels of life satisfaction (Huebner, 1991) and lower levels of stress (Au, 2015; Roddenberry & Renk, 2010). Ben-Zur (2003) showed that mastery or sense of control and optimism are negatively correlated with negative affect and positively correlated with positive affect. For external locus of control, the findings are in the opposite direction. The stronger the students' tendency for external locus of control, the weaker their sense of subjective well-being (Li et al., 2015; Pu et al., 2017).

Optimism

Optimism is defined as "generalized expectations of the occurrence of good outcomes in one's life" (Scheier & Carver, 1985, p. 239). It is associated to positive thinking, which is essential for students' motivation because it helps them achieve their goals and performance outcomes due to their positive attitude and striving for excellence (Phan, 2016). It influences their emotional states, educational experience, and well-being (Phan, 2016). In two different studies, students who scored high on the optimism scale at the beginning of the semester reported better subjective well-being, better physical health (Scheier & Carver, 1985), and less psychological distress (Aspinwall & Taylor, 1992) at the end of the semester. Ayyash-Abdo and Alamuddin (2007) confirmed a positive correlation between students' optimism and subjective well-being. Ho et al. (2010) also found an association between adolescents' optimism and well-being operationalized as life satisfaction as a positive indicator and psychosocial problems as a negative indicator. Specifically, optimism was positively related to life satisfaction and negatively to psychosocial issues.

Thus, optimism is associated with positive outcomes and positive anticipation about the future, just as locus of control does. Although optimism and locus of control are distinct constructs, they are still partially overlapping (Reker & Wong, 1984; as cited in Injeyan et al., 2011). Both include cognition and express individual life orientation toward the future (Ben-Zur, 2003) but differ in the sense that optimism does not imply control over events in one's life (Mäkikangas, Feldt, Kinnunen, & Mauno, 2013). Since the two characteristics share commonalities, it is important to test their joint effect on well-being. This is so because as Reker and Wong (1984; as cited in Peacock & Wong, 1996), argue, an individual's expectation of positive outcomes is based either on the expectation of good fortune or belief in one's own self-efficacy. If a person has an external locus of control but still believes in good luck, this expectation might buffer the adverse effect of external locus of control on well-being.

The present study

The main objective of this study was to identify the relationships between locus of control as a control belief trait, optimism as an expectancy belief trait, and student well-being. Notably, the aim was to examine the potential moderating role of optimism between locus of control and well-being. Since internal and external locus of control can be seen as two different poles of a single dimension, we decided to test external locus of control in relation to well-being.

Because optimism represents a positive attitude towards the future, it might moderate the relationship between external locus of control and well-being. However, to the best of our knowledge, no research examined optimism as a potential moderator between external locus of control and well-being. The assumption was that students with an external locus of control would experience lower levels of college-related well-being and that optimism would buffer this relationship. The hypotheses were the following:

H1: External locus of control is negatively related to college-related well-being.

H2: Optimism moderates the relationship between external locus of control and college-related well-being. Specifically, optimism buffers the negative effect of external locus of control to college-related well-being.

METHOD

Participants and procedure

To test the relationship between well-being, locus of control, and optimism, we conducted a cross-sectional empirical study. A convenience sample of students from the University of Zagreb in Croatia was used. The data was collected in December 2019 using an online survey. In total, 238 students completed the survey, but due to content non-responsivity (Nichols, Greene, & Schmolck, 1989), the final sample included 187 respondents. The mean age of respondents was 22.84 ($SD = 2.52$). Most of the respondents were female (76.5%). They were mostly graduate students in economics (47.1%) and participated in extracurricular activities such as student job, sport, volunteering, or learning foreign languages (82%).

Measures

Locus of control

The questionnaire used for the survey was based on previously used scale from the literature and validated in the Croatian language. The questionnaire, originally in the English language, was translated into the Croatian and back translated into English by language experts as well as experts in the field. Locus of control was measured using the 28-item Academic Locus of Control Scale (Trice, 1985) in a true-false format adjusted for college students and their academic achievements. The total score ranged from a minimum of 0 (internal locus of control) to a maximum of 28 (external locus of control). A sample item for internal locus of control is "College grades most often reflect the effort you put into classes", while for external locus of control is: "I came to college because it was expected of me". For the locus of control, we examined Kuder-Richardson Reliability Formula 20 (KR-20), which was .69, above the prescribed threshold.

Optimism

Optimism was measured with the 12-item Life Orientation Test Scale (Scheier & Carver, 1985), where respondents were asked to assess their level of agreement with the statements using a Likert 5-point scale (1- strongly disagree, 5 - strongly agree). Sample item is "In uncertain times, I usually expect the best". Confirmatory factor analysis showed acceptable model fit: $\chi^2(N = 187) = 24, p < .05$, TLI = .91, CFI = .94, RMSEA = .06 with 90% CI [.02,

.11] and SRMR = .07. All factor loading were within acceptable range. Composite reliability for optimism was .80. Construct reliability was established by Dijkstra-Henseler's rho (ρ_A), $\rho_A = .66$.

Student college-related well-being

Student college-related well-being was measured using the 29-item Well-Being at Work Scale (Demo & Paschoal, 2016) that was adjusted for the student environment. Respondents were asked to assess their level of agreement with the statements using a Likert 5-point scale (1- strongly disagree, 5 - strongly agree). The scale measures positive affect (sample item: Over the past six months, my college made me feel happy), negative affect (sample item: Over the past six months, my college made me feel anxious), and personal fulfillment (sample item: In my college, I develop abilities that I consider important). The student college-related well-being construct was modeled as three-factorial as per other studies (Bråthen & Ommundsen, 2018; Demo & Paschoal, 2016). Confirmatory factor analysis indicated that the model fit the data well: $\chi^2(N = 187) = 274, p < .001, TLI = .91, CFI = .92, RMSEA = .05$ with 90% CI [0.04, 0.06] and SRMR = .06. All factor loadings were considered satisfactory. Composite reliability for the positive affect was .86, negative affect .85, and personal fulfillment .87, which is considered satisfactory. Construct reliability was established by Dijkstra-Henseler's rho (ρ_A): negative affect $\rho_A = .80$, positive affect $\rho_A = .82$, and personal fulfillment $\rho_A = .84$.

Statistical analyses

As the data were collected through self-report measures that tapped related constructs, we tested for the possible presence of common method bias. As suggested by Kock (2015), after conducting confirmatory factor analysis, we generated variance inflation factors (VIFs) for locus of control, optimism and college-related well-being. If the value of VIF is greater than 3.3, a model might be affected by common method bias (Kock, 2015). Two items from the negative affect scale had VIF value just above 3.3, so they were excluded from the analysis.

Confirmatory factor analyses were carried out with the Lava an package in R (Rosseel, 2012). Our models, as depicted in Figures 1 and 2, were analyzed using partial least squares structural equation modeling (PLS-SEM) in SmartPLS 3. The advantage of using PLS-SEM for this study is fourfold: it minimizes the error term of the college-related well-being, it is appropriate for small sample sizes, it is highly efficient in parameter estimation, and makes no assumption about the data distribution (Hair, Hult, Ringle, & Sarstedt, 2014). The minimum sample size for PLS-SEM with a statistical power of 80%, at a significance level of 5%, and minimum R^2 of 0.10 and with maximum two predictor variables is 110 respondents, which is below our sample size (Hair et al., 2014, p. 21). We applied the bootstrapping procedure using 500 subsamples to make sure that the results are not sample-

specific. Since both hypotheses indicate a direction of the effect, we used a one-tailed test. All variables were standardized and measured reflectively, so we used the orthogonalizing approach (Hair et al., 2014). In the current study, the PLS-SEM algorithm converged after 20 iterations.

In the process of evaluation of the reflective measurement model, beside reliability indices that have been mentioned, one has to also check convergent and discriminant validity (Hair et al., 2014). To check the extent to which the measures used in our study correlated positively with alternative measures of the same construct, we analyzed the convergent validity of each measure with outer loadings and average variance extracted (AVE) (Hair et al., 2014). Standardized outer loadings, also representing indicator reliability, were above .40 except for one item from Negative Affect, so it was excluded from the analysis as suggested by Hair et al. (2014). Considering AVE, for our only endogenous variable (college-related well-being), it was 0.22, which is below the rule of thumb (Hair et al., 2014).

To check whether each measure in our model represents a unique construct, we looked into discriminant validity using Fornell-Larcker criterion that focuses on each construct's AVE (Hair et al., 2014). In our model, the square root of each construct's AVE was greater than its highest correlation with any other construct. Thus, each construct shared more variance with its associated indicators than with any other constructs and therefore discriminant validity was established (Hair et al., 2014).

RESULTS

Descriptive statistics of the examined variables is presented in Table 1, including means and standard deviations for each variable in the model.

Table 1. Descriptive statistics

Variable	<i>M</i>	<i>SD</i>	<i>N</i>
Locus of control	0.48	0.44	187
Optimism	2.94	1.19	187
College-related well-being	2.84	1.21	187

Note: Locus of control is coded 0 = internal locus of control and 1 = external locus of control. Optimism and college related well-being scale of response: 1- strongly disagree, 5 - strongly agree.

Further, we tested the effect of control variables in our model, which were age, gender, year of study, and participation in an extracurricular activity. No significant differences were found in college-related well-being across all control variables.

In order to test the hypotheses, through two separate models, we examined: (i) the direct effect of external locus of control on college-related well-being and (ii) the moderating effect of optimism on the relationship between external locus of control and college-related well-being. As shown in Figure 1, the path from external locus of control to college-related well-being was negative and moderate (coefficient = -0.358). The coefficient of

determination (R^2) was 0.128, meaning that an external locus of control explained a small amount of variance in college-related well-being.

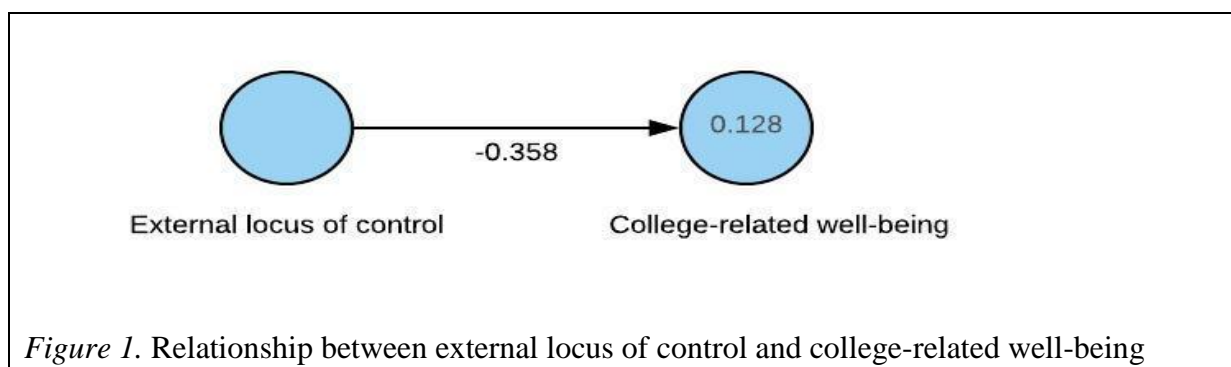


Figure 1. Relationship between external locus of control and college-related well-being

In addition, we assessed the f^2 effect size and predictive relevance Q^2 . Since our model had only one dependent variable, we did not examine q^2 effect size. F^2 effect size represents a change in the R^2 value when the independent variable is omitted from the model (Hair et al., 2014). In our model, f^2 effect size was 0.147, which is considered as a medium effect of the independent variable (Hair et al., 2014). Stone-Geisser's Q^2 value was 0.025, implying that a model has a predictive relevance for a dependent variable (Hair et al., 2014). To test whether the relationship in the model is significant, we employed a bootstrapping procedure. A significance level of 5% was used, meaning that the t -values in the one-tailed test should be above 1.658. The 95% confidence interval shows the stability of the coefficient estimate (-0.468, -0.226), the t -value is 4.872, which is above 1.658, and the p -value is below .05, concluding that the relationship was significant and that our first hypothesis was supported.

Moderation was tested in accordance with the procedure described by Hair et al. (2014). That is, we observed the interaction of external locus of control and optimism as a separate variable and estimated its joint effect on our main dependent variable – college-related well-being. We analyzed both direct and indirect relationships. As shown in Figure 2, the path from external locus of control to college-related well-being was still negative, but the effect was weaker (coefficient = -0.295). The relationship between optimism and college-related well-being was weak and positive (coefficient = 0.247). The moderating variable had a negative and weak impact, meaning that it changed the strength of the relationship between external locus of control and college-related well-being (coefficient = -0.161). The R^2 value was 0.214, which is considered weak, but more of the variance in college-related well-being was explained by adding optimism in the model.

The F^2 effect size of external locus of control (effect size = 0.102) was medium and the effect size of optimism (effect size = 0.072) and moderator variable (effect size = 0.032) were small. Stone-Geisser's Q^2 value was 0.04, demonstrating that an expanded model also had a predictive relevance for college-related well-being (Hair et al., 2014). As shown in Table 3, the path coefficient from a moderating variable to college-related well-being was significant (p -value below 0.05), indicating that the second hypothesis was supported.

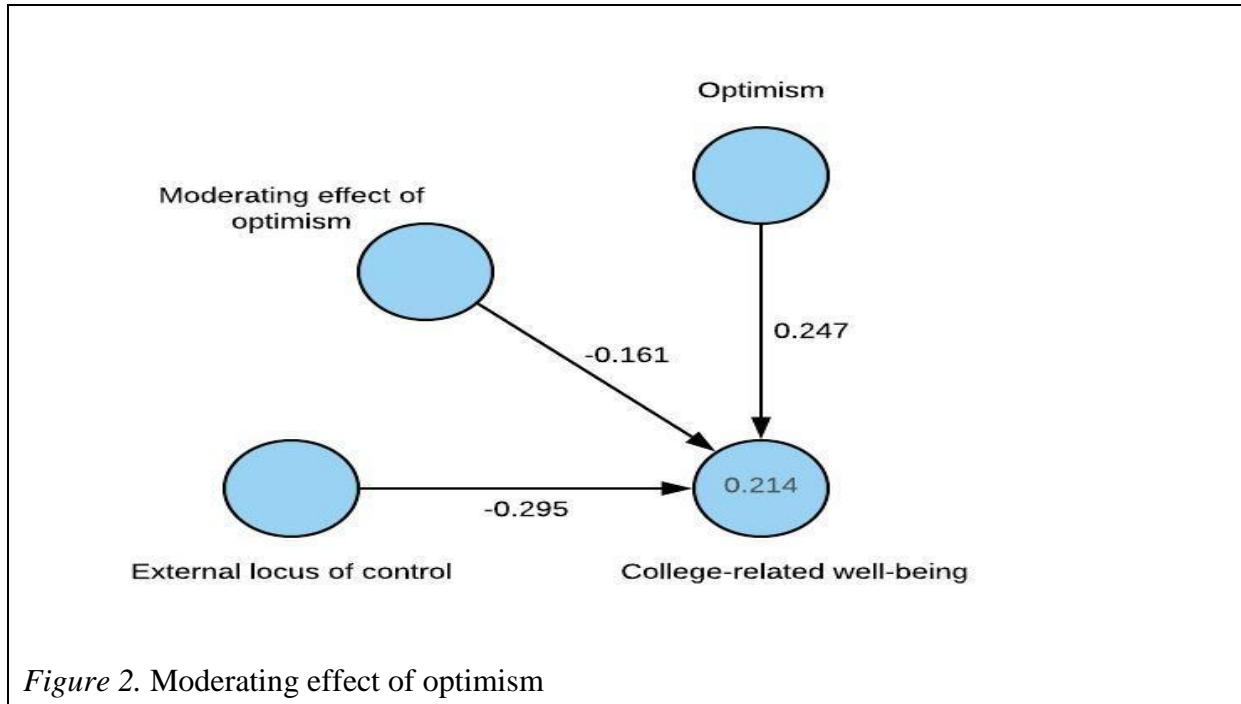


Figure 2. Moderating effect of optimism

Table 2. Significance analysis of the direct and indirect effects

	95% Confidence Interval	t-value	p
External LOC ->College-related well-being	[-0.409, -0.178]	4.123	< .001
Optimism ->College-related well-being	[0.156, 0.366]	3.913	< .001
Moderating effect of optimism -> College-related well-being	[-0.286,- 0.081]	2.173	.015

DISCUSSION

To better understand factors contributing to student well-being, this study explored the contribution of locus of control and optimism to college-related student well-being. We applied PLS-SEM to test the direct role of external locus of control on college-related well-being and the moderating role of optimism. Our empirical research confirmed the negative relationship with well-being, which is in line with previous findings (Klonowicz, 2001; Ng et al., 2006; Pu et al., 2017). Studies have shown that because of their belief that uncontrollable outer events determine everything, externals become passive and are less resistant to stress. Consistent with previous findings (e.g., Aspinwall & Taylor, 1992; Ayyash-Abdo & Alamuddin, 2007; Ben-Zur, 2003; Ho et al., 2010; Scheier & Carver, 1985), optimism has beneficial effects on well-being. That is, students who believe that the future will bring positive outcomes for themselves are more likely to experience high levels of well-being. However, in contrast to previous studies, our study examined the mutual effect of the

predicting variables in the student academic environment. The results showed that the effect size of external locus of control on college-related well-being was stronger than the effect of optimism on college-related well-being. In other words, control over future events might be more important to college-related well-being than expectations about future. Furthermore, the moderating effect of optimism was confirmed. Thus, we may say that optimism buffers the negative impact of external locus of control to college-related well-being. Higher levels of optimism protect externally oriented students from lower well-being. Even if students might think that everything is determined by fortune or fate, our results show that if they still have an optimistic view of the future, it will lead to higher well-being. Previous studies with college students have also supported the notion that optimism buffers the negative effect of stress on psychological well-being (Chang, 1998) and negative life experiences on suicide ideation (Hirsch et al., 2007). We emphasize that nourishing positive thinking and trusting in their ability to influence future leads to higher college-related well-being. Finally, analysis of control variables and their relation to college-related well-being indicates that demographic variables are less important than personality characteristics to well-being, which is consistent with previous findings (e.g., Diener, 1984; Huebner, 1991; Huebner, Drane, & Valois, 2000).

Limitations

There are, however, limitations of the current research that should be acknowledged. The study was cross-sectional with a convenience sample, so it is not possible to draw inferences about causal relations between variables. Hence, a longitudinal study would be helpful to gain more in-depth knowledge about relationships between locus of control, optimism, and well-being. Another limitation is related to sample characteristics. Our research was conducted with a relatively small sample size, it was gender-biased, and graduate students were predominant in the sample. Due to those facts, we can not generalize our results to the whole student population. Therefore, it would be valuable to repeat the study with a more balanced sample. Another limitation is that all variables were self-reports, although we did examine the model for common method bias. Besides, future research should strive to incorporate additional variables in the model. For instance, school climate and social relations have also been found to enhance student well-being (e.g., Cole & Korkmaz, 2013). Our model is parsimonious, as the aim was to observe just the moderating effect of optimism on the relationship between external locus of control and college-related well-being. Thus, in the main model, we only had three independent variables. Well-being is a complex phenomenon, and it would be difficult to expect to explain part of its variability by just three variables. Compared to other known determinants of well-being (such as school climate), the impact of the variables in our study was indeed expected to be below. Still, the study provided important evidence to the field that could be used as starting point for future research.

CONCLUSION

Student well-being might be threatened during college time because of high pressure and demands students may experience. Although such stressful situations may give rise to mental health problems and depression, high levels of student well-being counteract the negative effects. As our research has shown, well-being is influenced by individual difference factors such as personality traits rather than demographic characteristics. We confirmed that an optimistic view towards the future impacts the strength of the relationship between external locus of control and college-related well-being. Our results can be of interest to educators and relevant stakeholders in the education system as they indicate the importance one should give to personal student characteristics when trying to enhance student well-being. Educators could specifically pay attention to students with low levels of optimism associated with external locus of control. Interventions and practices that address locus of control or optimism might prove helpful.

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