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Does Gender Affect Coping Strategies Leading to Well-being and Improved Academic Performance?☆

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ARTICLE INFO

Article history:

Received 11 May 2018

Accepted 30 January 2019

Available online 7 May 2019

Keywords:

Academic engagement

Academic performance

Coping

Gender

Satisfaction

University students

ABSTRACT

The interest in developing a high-quality educational system requires constant research on different aspects of diversity (e.g., gender). The aim of this study is twofold: (1) to analyze the use of different coping strategies from a gender perspective in university students; and (2) to investigate the effect of university students' coping strategies on their psychological well-being (i.e., academic engagement) and academic success (i.e., performance and satisfaction) depending on their gender. A sample of 767 students (59.7% female) was drawn from a Spanish University. ANOVA analyses showed that the use of some coping strategies differs depending on the gender: females showed a higher level of Support-seeking coping whereas males showed a higher level of Meaning-focused coping. Results of multi-group structural equation analysis showed a good model fit, revealing that only Problem-focused and Avoidance coping are related with performance and satisfaction through engagement. For females, engagement fully mediates the relationship between Problem-focused coping with Satisfaction and performance, as well as between Avoidance coping with Satisfaction and performance. For males, engagement fully mediates the relationship between Problem-focused coping with Satisfaction partially mediates the relationship between Problem-focused coping with performance. Implications for research and practice are discussed, as well as future research directions.

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¿El género afecta en las estrategias de afrontamiento para mejorar el bienestar y el desempeño académico?

RESUMEN

El interés en desarrollar un sistema educativo de alta calidad requiere una investigación constante sobre diferentes aspectos de la diversidad (e.g., género). El objetivo de este estudio es doble: (1) analizar el uso de diferentes estrategias de afrontamiento desde una perspectiva de sexo en estudiantes universitarios; y (2) investigar el efecto de las estrategias de afrontamiento de los estudiantes universitarios en su bienestar psicológico (i.e., engagement académico) y éxito académico (i.e., rendimiento y satisfacción) según su sexo. Una muestra de 767 estudiantes (59.7% mujeres) se extrajo de una universidad española. Los análisis ANOVA muestran que el uso de algunas estrategias de afrontamiento difiere según el sexo: las mujeres perciben un mayor nivel de *búsqueda de apoyo*, mientras que los hombres reportan un mayor

Palabras clave:

Engagement académico

Desempeño académico

Estrategias de afrontamiento

genero

Satisfacción

Estudiantes universitarios

PII of original article:S1136-1034(18)30145-X.

☆ Please cite this article as: Martínez IM, Meneghel I, Peñalver J. ¿El género afecta en las estrategias de afrontamiento para mejorar el bienestar y el desempeño académico? Revi Psicodidact. 2019;24:111–119.

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nivel de *afrentamiento centrado en el significado*. Los resultados de ecuaciones estructurales multi-grupo revelan que solo el *afrentamiento de evitación* y el *afrentamiento centrado en el problema* están relacionados con el rendimiento y la satisfacción a través del engagement. Para las mujeres, el engagement media la relación entre el *afrentamiento centrado en el problema* con la satisfacción y el rendimiento, así como entre el *afrentamiento de evitación* con la satisfacción y el rendimiento. Para los hombres, el engagement media la relación entre el *afrentamiento centrado en el problema* con la satisfacción, mientras que media parcialmente la relación entre el *afrentamiento centrado en el problema* con el rendimiento. Se discuten implicaciones teóricas y práctica, así como futuras direcciones de investigación.

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Introduction

Starting one's university studies may be a stressful experience because it involves many important changes, such as being separated from friends and family, moving to a new area, establishing a different social network, and beginning new studies. Most students perceive these changes as challenging, but for others they can affect their well-being (Serrano & Andreu, 2016). Short-term stress experiences are normal and can often be resolved by something as simple as completing a task (and thus reducing the workload), or by talking to friends and taking time to relax or practice sports. Thus, the way students cope with academic stress is the key to whether or not it develops into a health problem. In fact, literature has confirmed: (1) mental health problems among university students are increasing in both number and severity (Hunt & Eisenberg, 2010); (2) university student has consistently shown high levels of stress (Zajacova, Lynch, & Espenshade, 2005); and (3) high rates of failure and drop-out have been identified as serious problems for higher education students in Spain (Cabrera & La Nasa, 2000). Then, academic stress could directly influence students' academic performance and have an impact on their later development in a broad range of areas (Gallagher, 2004).

Male and female university students may perceive stress experiences differently. Previous research showed that females reported experiencing a greater number of academic stressors than males (Day & Livingstone, 2003). In this line, Misra, McKean, West, and Russo (2000) concluded that males tend to perceive life events as being less stressful and react more positively to academic stressors. From a stress-coping perspective, previous studies have highlighted the importance of coping when dealing with stress (e.g., Clauss-Ehlers, 2008; Leipold & Greve, 2009). Individuals can use a range of coping strategies and, depending on differences in stress perception, it can be supposed that females and males use different coping strategies to deal with stress (Liu, Spector, & Shi, 2008). These differences can be explained through the socialization of the gender role. We will argue this in the next section.

Interest in the prediction and improvement of academic success in higher education has grown considerably in recent years, in both the scientific research and university management fields (Schmidt & MacWilliams, 2011). To advance the conceptualization of students' academic performance, the literature on workers provides some insights. Like many workers, students work in hierarchical structures with defined job tasks and variable levels of control and academic demands. They are also required to meet deadlines, and their progress in their courses depends on their performance (Chambel & Curral, 2005; Cotton, Dollard, & de Jonge, 2002). In the same way as in the work context, well-being and academic performance are fundamental for university students. Particularly, success in university is one of the most important factors associated with job attainment, higher income, upward social mobility, and even overall health and well-being (Ma, Pender, & Welch, 2016).

In the present study, we first investigate gender differences in the use of coping strategies. We also examined the role played by different coping strategies as antecedents of engagement, and whether coping strategies are related to students' performance and satisfaction through engagement. This study has some strengths that contribute to research in this field. First, it analyzes the use of different coping strategies using a broader conceptualization of coping strategies than previous studies. Second, it investigates the relationship between engagement and performance in university students. Although previous research has shown the relationship between engagement and performance in work contexts, as far as we know there is little evidence of this relationship in university students. Also, we include the Grade Point Average (GPA) provided by the University as an objective measure of academic performance in order to have an objective evaluation and better control for method bias. Finally, the study gives evidence about how the way that students cope with stress can influence their engagement and success (i.e., performance and satisfaction).

Coping strategies

Coping has been defined as a person's "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). Researchers have generally distinguished two main purposes of coping (Folkman & Lazarus, 1980): problem- and emotion-focused. Problem-focused coping involves addressing the problem causing distress, and it contributes to positive psychological states by allowing people to experience some personal control and sense of accomplishment. Emotion-focused coping is aimed at regulating distress and negative emotion using strategies such as avoidance and support-seeking. These strategies involve thoughts and/or actions that relieve the emotional impact of stress. Recent studies identified meaning-focused coping as a different type of coping where cognitive strategies are used to manage the meaning of a situation (Folkman & Moskowitz, 2004). Meaning-focused coping is aimed at regulating positive emotions, in light of the evidence suggesting that positive emotions are of great significance in adaptation (Folkman, 2008). Therefore, positive emotions need to be included in order to learn more about how people generate and sustain them and further explore their significance in relation to outcomes.

In accordance with these different kinds of coping categories (i.e., problem-focused, avoidance, support-seeking, and meaning-focused) we postulate that the use of a coping strategy may depend on gender. In fact, each person's tendency to use coping strategies that agree with his or her socialized gender role may lead to their proficient use (González-Morales, Peiró, & Rodríguez, 2010). Previous studies about gender differences in the use of coping strategies showed different results (for a review see Tamres, Janicki, & Helgeson, 2002). Shek (2005) showed that males are more likely to use internal coping strategies (e.g., mobilization of

personal resources to solve problems), whereas females are more likely to use external coping strategies (e.g., seeking social support). Similarly, a longitudinal study by Palus, Fang, and Prawitz (2012) showed that females were more likely than males to seek social support and their coping strategies are thus more strongly influenced by social and emotional context and interpersonal relationships (Krajewski & Goffin, 2005).

This can be explained because “women may use social support more effectively because asking for help is congruent with traditional feminine gender role prescriptions and incongruent with those prescribed by the masculine gender role” (Greenglass & Burke, 1988, p. 226). Through gender role socialization, it would understand the use of different coping styles. Women have been educated in a nurturing and emotional role that encourages them to care about people, express emotions, and seek social support (Nelson & Burke, 2002). Females are also more influenced by social context, and their coping involves interpersonal relationships more than their male counterparts (Krajewski & Goffin, 2005). On the other hand, men have been predominantly socialized to develop action skills, planning, and competing activities (Burke, 2002). Consistently, men have reported more use of problem-focused coping strategies (Liang, Alvarez, Juang, & Liang, 2009).

The results of previous research show considerable agreement on gender differences related to the use of coping strategies. In summary, women tend to use more emotion-focused strategies because their coping strategies are more strongly influenced by social and emotional context, whereas men use more problem-focused strategies. Thus, in this study we expect that female students show a greater use of emotion-focused (i.e., support-seeking and avoidance) as well as meaning-focused coping than male students. By contrast, we expect that male students will show a greater use of problem-focused coping.

Academic engagement

Engagement is a positive, affective-cognitive state of mind characterized by vigor, dedication, and absorption. Vigor is characterized by high levels of energy and mental resilience while working, the willingness to make an effort in one's work, and persistence even in the presence of difficulties. Dedication refers to being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is defined as being completely focused and happily engrossed in one's work. Time passes quickly, and the person finds it difficult to detach him/herself from the activity (Schaufeli, Salanova, González-Romá, & Bakker, 2002).

In the university context, academic engagement is considered in relation to students' tasks. High academic engagement can be linked to students' overall success, and it is of fundamental importance in understanding positive youth development (Li & Lerner, 2011). Academic engagement is characterized by a committed and study-related mindset (Schaufeli, Martinez, Marques-Pinto, Salanova, & Bakker, 2002) that predicts many positive long-term outcomes, such as higher education, better job possibilities (Upadyaya & Salmela-Aro, 2013), life satisfaction (Lewis, Huebner, Malone, & Valois, 2010), positive self-perceptions (Linnakylä & Malin, 2008), well-being (Salmela-Aro & Upadyaya, 2013), and academic success (Annunziata, Hogue, Faw, & Liddle, 2006).

Academic success: performance and satisfaction

Interest in predicting academic success in higher education has grown considerably in recent years. Students and parents are eager to determine the best allocation of their financial and time

investments (Cabrera & La Nasa, 2000) and university administrators dedicate extraordinary amounts of time and resources to ensuring favorable outcomes for their students (Adelman, 2006). Although the validity of school grades and admission tests has been investigated, less is known about non-cognitive predictors of academic success (Trapmann, Hell, Hirn, & Schuler, 2007). However, previous research supports psychological factors as important predictors of academic success (e.g., Salanova, Schaufeli, Martínez, & Bresó, 2010; Zajacova et al., 2005).

Academic success is usually expressed in terms of performance and measured by GPA, that is, the mean of marks from weighted courses contributing to the assessment of the final degree. The GPA is the key criterion for postgraduate selection and graduate employment, and it is predictive of occupational status (Strenze, 2007). As such, it is a performance index with direct relevance in training and employment opportunities (Plant, Ericsson, Hill, & Asberg, 2005), and it is meaningful for students, universities, and employers. The GPA is also an objective measure with good internal reliability and temporal stability (Bacon & Bean, 2006). Previous studies have considered predictors of the undergraduate GPA, founding that achievement motivation, referred to here as effort regulation (Pintrich, 2004), and academic self-efficacy were the best predictors (Robbins et al., 2004).

However, in the academic context, satisfaction is also a relevant indicator of school adjustment (Baker Dilly, Aupperlee, & Patil, 2003) and quality in higher education (Byrne & Flood, 2003). Academic satisfaction is understood as part of the process of pursuing a degree, where this process refers to the accumulation of all experiences related to one's degree program (Rothwell & Arnold, 2007). Salanova, Martínez, Bresó, Llorens, and Grau (2005) showed that academic satisfaction is positively related to academic engagement, happiness, and commitment to the university, but negatively related to academic burnout and propensity to leave.

Academic engagement as a mediator

Previous research corroborates the positive relationship between academic engagement and academic performance in university students. For example, Schaufeli, Martínez, et al. (2002) showed that engaged university students are energetic and immersed in their studies and, thus, successful. Vigorous students pass their examinations more often than their peers who feel less energetic. They also feel more efficient and may simply know how to maintain and manage high energy in their studies better, resulting in better outcomes. It is likely that engaged students perform better because they can draw on considerable energy resources, and they are deeply involved in studying. A positive relationship between engagement and performance was also found in an experimental study with students performing a group task: the more engaged the student groups felt, the better their group performance (Salanova, Llorens, Cifre, Martínez, & Schaufeli, 2003).

Different scholars have confirmed the mediating role of engagement in the relationship between some antecedent variables and performance. Chambel and Cural (2005) showed that students' well-being mediated the relationship between control and academic performance whereas, Salanova et al. (2010) showed the mediating role played by engagement in the relationship between obstacles and facilitators, with academic performance. According to these results, academic engagement would serve as a mediator of the relationship between coping strategies and performance and satisfaction. In the present study, we assumed that, instead of directly influencing performance and satisfaction, coping strategies would have an indirect effect through student well-being (i.e., engagement). Numerous studies showed

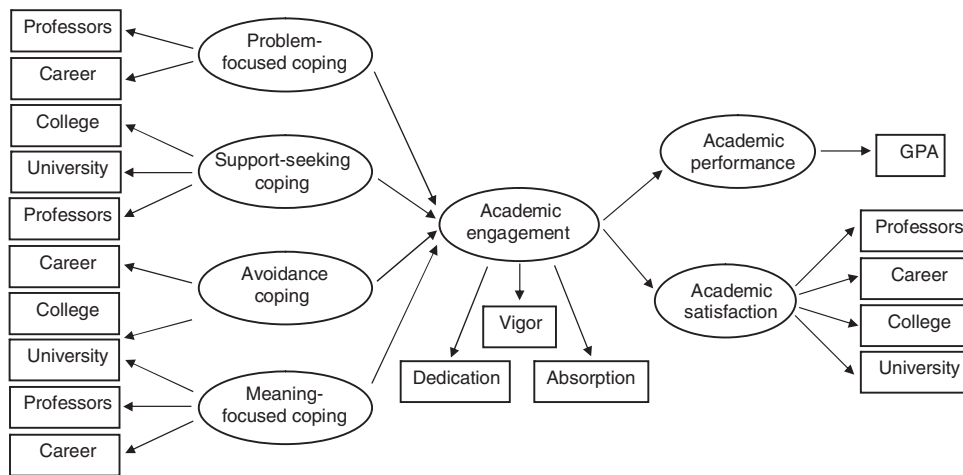


Figure 1. Proposed model.

the relationships between coping strategies and well-being. For instance, Kjeldstadli et al. (2006) showed that coping strategies as problem-focused and sought social support are related with lower level of stress. Similarly, Gustems-Carnicer and Calderón (2013) found that problem-focused strategies are related with lower distress in college students, whereas avoidance strategies are related with higher distress. These authors also investigated coping strategies related with acceptance and positive-reappraisal, which are conceptually similar to meaning-focused coping, but results are unsettled and they called for future investigations in this sense.

Therefore, we propose that academic engagement mediates the effect of coping strategies on academic performance and satisfaction. According to the revision of literature previously represented, the following hypotheses are presented: Hypothesis 1: There will be differences in the use of coping strategies depending on the student's gender. Females will show more support-seeking, avoidance and meaning-focused coping strategies than males. Males will show more problem-focused coping than females; Hypothesis 2: Academic engagement will fully mediate the relationship between coping strategies and academic performance (i.e., GPA); Hypothesis 3: Academic engagement will fully mediate the relationship between coping strategies and academic satisfaction. Hypotheses 2 and 3 were represented in Figure 1.

Method

Participants

A convenience sample of 767 students (59.7% female) was drawn from undergraduate students of Spanish University. The students belonged to the Faculty of Human and Social Sciences (FHSS, 33.2%), Faculty of Health Sciences (FHS, 17.3%), Faculty of Law and Economics (FLE, 24.5%) and School of Technology and Experimental Sciences (STES, 25%). Most of them (93.3%) were studying a four-year bachelor's degree, whereas the others were studying five-year degrees from the previous curricular plan. Regarding the course, 35.7% were enrolled in the first year, 37.2% in the second, 19.6% in the third, 6.5% in the fourth, and .9% in the fifth year. Eighty-four percent were not working at the time.

The sample size is adequate to carry out the proposed analyses since 767 subjects participated in the study and exceeded the minimum of 164 observations needed for a statistical power of .80 and 134 degrees of freedom (MacCallum, Browne, & Sugawara, 1996).

Instruments

Coping strategies. The Spanish version of the Brief COPE inventory was used to assess coping strategies (Perczek, Carver, Price, & Pozo-Kaderman, 2000). It includes 28 items on 14 subscales: active coping, acceptance, emotional support, instrumental support, positive reframing, planning, self-distraction, denial, behavioral disengagement, venting, self-blame, religion, humor, and substance use. An example item is: "I've been taking action to try to make the situation better". For each of the items, respondents indicated the extent to which they used the strategy to deal with stressful situations on a 4-point Likert scale (0 = not at all to 3 = a lot). We organized the data in four latent variables, based on results of previous study (Meneghel, Martínez, Salanova, & De Witte, submitted for publication): *problem-focused coping* (includes two subscales: active coping and planning, 4 items, $\alpha = .68$, $\omega = .68$), *support-seeking coping* (includes three subscales: emotional support, venting and instrumental support, 6 items, $\alpha = .81$, $\omega = .82$), *avoidance coping* (includes two subscales: disengagement and denial, 4 items, $\alpha = .70$, $\omega = .71$), and *meaning-focused coping* (includes three subscales: positive reframing, humor and acceptance, 6 items, $\alpha = .69$, $\omega = .69$). Subscales with a loading of less than .40 (self-blame, religion, substance use, and self-distraction) were deleted. Composite reliability ranged between .40 and .43, whereas variance media extracted between .32 and .49.

Academic engagement. The academic engagement scale was developed by Schaufeli, Martínez, et al. (2002). This scale has three subscales: *vigor* (3 items, "I feel energetic and capable when I'm studying or going to class"); *dedication* (3 items, "I am proud of my studies"); and *absorption* (3 items, "I am immersed in my studies"). All the items had a seven-point Likert response format ranging from 0 ("never") to 6 ("every day"), α was .88 and ω was .88. Composite reliability was .43 whereas variance media extracted was .64.

Academic satisfaction. Four items on the scale of satisfaction refer to four different aspects: Career, College and University, and Professors (e.g., "How satisfied are you with your career?"). The scale was based on academic satisfaction scale of Salanova et al. (2005) although the dimension of satisfaction with professor was added in this study. The students indicated their satisfaction on a 5-point scale containing faces ranging from 1 (frowning) to 5 (smiling). For this scale, α was .72 and ω was .73. Composite reliability was .44 whereas variance media extracted was .36.

Academic performance was assessed by using objective performance as reflected by GPA provided by the University at the end of

Table 1
Means, standard deviations, and correlations for the study variables ($N = 767$)

	1	2	3	4	5	6	7	M	SD
Problem-focused coping	–	.25**	–.03	.28**	.38**	.17**	.08	1.98	.56
Support-seeking coping	.14*	–	.18**	.19**	.15**	.02**	.08	1.39	.61
Avoidance coping	–.17**	.28**	–	.06	–.10*	–.03	–.10*	.42	.52
Meaning-focused coping	.20**	.19**	.01	–	.15**	.07	.01	1.80	.58
Academic engagement	.40**	.05	–.07	.05	–	.51**	.18**	3.53	1.05
Academic satisfaction	.21**	.008	–.19**	.03	.49**	–	.11*	3.67	.77
Academic performance	.17**	.09	–.08	–.04	.20**	.16**	–	6.85	.96
M	2.02	1.71	.37	1.67	3.84	3.84	7.10		
SD	.51	.62	.48	.54	.89	.64	.76		

Note. Correlations for male sample ($N = 309$) are reported below the diagonal and for females' sample ($N = 458$) are reported above the diagonal. Means (M) and standard deviations (SD) for male are presented in the horizontal rows, and means and standard deviations for females are presented in the vertical columns.

* $p < .05$.

** $p < .01$.

the exam session after the distribution of the questionnaire, thus 4–5 months later. The GPA ranged from 5 (poor) to 10 (excellent).

Procedure

Before beginning the research project, the present study received a favorable report by the Deontological Commission of the Universitat Jaume I for considering that it accomplish the deontological norms required (Resolution February 2, 2016). The data were collected through a paper and pencil questionnaire. Students received a brief presentation of the study by the researchers during class time, and they were invited to individually fill out a questionnaire. In the front page of the questionnaire, they read and signed an individual informed consent. The data collected by questionnaire and the GPA provided by University were matched through the National Identity document of each student.

In order to reduce common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012), the GPA was collected at a different point in time and was derived from a different source. However, coping strategies, academic engagement and academic satisfaction, which are self-reported, were measured with different scale properties (i.e., scale type, number of scale points, anchor labels). Thus, to eliminate common scale properties help reducing the risk of common method variance.

Data analysis

First, we calculated the scales' reliability with Cronbach's α and coefficient Omega ω (McDonald, 1999), descriptive analysis, and intercorrelations among the study variables, using the SPSS 21.0 program. Second, Harman's single factor test (Podsakoff et al., 2012) was used to test for bias in the study variables due to common method variance. Third, we performed an analysis of variance (ANOVA) to study gender differences in coping dimensions. Afterwards, the multi-group structural equation approach (male and female structural equation approach) was used to test our hypotheses. Maximum likelihood estimation methods were used by computing the absolute and relative indices of goodness-of-fit, i.e., the χ^2 Goodness-of-Fit Statistic and the Root Mean Square Error of Approximation (RMSEA), as well as the Incremental Fit Index (IFI), the Tucker-Lewis Index (TLI), and the Comparative Fit Index (CFI). Values below .06 for RMSEA indicate a good fit, whereas for the remaining indices, values greater than .90 indicate a good fit (Hu & Bentler, 1999).

In order to test mediation hypotheses, in the present study we used the product of coefficients method (MacKinnon, Lockwood, & Hoffman, 1998; MacKinnon, Lockwood, Hoffman, Wkoroest, & Sheets, 2002). This method (a) does not assume that the product of the regression coefficients that estimate the indirect effect is

normally distributed, and (b) is one of the four best-performing methods "in terms of the most accurate Type I error rates and the greatest statistical power" (MacKinnon et al., 2002, p. 95). To estimate these relationships, two regression models are needed. First, the mediator (M) is regressed onto the independent variable (X): $M = \beta_{0(1)} + \alpha X + \varepsilon 1$ (Eq. (1); where $\beta_{0(1)}$ and $\varepsilon 1$ are the intercept and error term, respectively). Second, the dependent variable (Y) is regressed onto the mediator (M), controlling for the independent variable (X): $Y = \beta_{0(2)} + \tau X + \beta M + \varepsilon 2$ (Eq. (2)). The product $\alpha\beta$ is the mediated or indirect effect, whereas (τ) is the nonmediated or direct effect. One can say that a relationship is mediated if (a) X is significantly related to M (testing for α), (b) M is significantly related to Y after controlling for X (testing for β), and (c) the mediated effect is statistically significant (testing for $\alpha\beta$; MacKinnon, 2008). Testing the mediated effect ($\alpha\beta$) using the product of coefficients method ($p = z_\alpha * z_\beta$) involves the calculation of two statistics: $z_\alpha = \alpha/\sigma_\alpha$ and $z_\beta = \beta/\sigma_\beta$, where is the respective standard error of α and β . Then the product $p = z_\alpha * z_\beta$ is obtained. Finally, assuming that α and β follow a normal distribution, the statistical significance of the product p can be tested using a critical value based on the distribution of the product of random variables, $p = z_\alpha * z_\beta$, to determine significance (Craig, 1936).

Results

Descriptive analyses

Table 1 shows the means, standard deviations, and correlations. Harman's single-factor test with Confirmatory Factor Analysis (CFA) was computed, showing that the model with one unique factor revealed a poor fit to the data $\chi^2(238) = 1937.34$, RMSEA = .10, CFI = .51, IFI = .52, TLI = .45, whereas the competing model with six latent factors (i.e., four coping strategies, academic engagement, and academic satisfaction) revealed a significantly better fit of the model to the data $\chi^2(208) = 718.34$, RMSEA = .06, CFI = .86, IFI = .86, TLI = .81, Delta $\chi^2(30) = 1219$, $p = .000$. Hence, one single factor cannot account for the variance in the data, and together with the other procedural remedies implemented; we cannot consider common method variance to be a serious deficiency in this dataset.

Hypothesis testing

The result support Hypothesis 1. ANOVAs by gender show differences in coping strategy scales: *support-seeking coping* $F(1, 763) = 50.74$, $p < .001$, $\eta^2 = .01$, *meaning-focused coping* $F(1, 763) = 8.74$, $p < .01$, $\eta^2 = .01$. Whereas females showed a higher level of *support-seeking coping*, males showed a higher level of *meaning-focused coping* (see Table 1). No differences were funded in

Table 2
Estimates for the direct and mediated (indirect) effects

				Males		Females		
				Estimates	p	Estimates	p	
<i>Direct effects</i>								
Problem-focused coping	→	Satisfaction		-.002	n.s.	-.036	n.s.	
Problem-focused coping	→	GPA		.238	*	.033	n.s.	
Avoidance coping	→	Satisfaction		-	-	.001	n.s.	
Avoidance coping	→	GPA		-	-	-.175	n.s.	
<i>Indirect effects</i>								
Problem-focused coping	→	Engagement	→	Satisfaction	.198	***	.256	***
Problem-focused coping	→	Engagement	→	GPA	.133	**	.170	*
Avoidance coping	→	Engagement	→	Satisfaction	-	-	-.128	**
Avoidance coping	→	Engagement	→	GPA	-	-	-.088	**

Note. n.s.: non significant.

* p < .05.

** p < .01.

*** p < .001.

problem-focused $F(1, 763) = 73.79, p = .29$ and avoidance coping $F(1, 763) = 9.47, p = .21$.

Hypotheses 2 and 3, regarding the mediation role of academic engagement between coping strategies and academic performance and academic satisfaction, were tested using multi-group analyses. Thus, a multi-group analysis was performed across both samples simultaneously. The model fits the data well, with all fit indexes satisfying their criteria $\chi^2(134) = 518.99, RMSEA = .04, CFI = .92, IFI = .93, TLI = .90$. For both genders, only the path from *problem-focused coping* to engagement is significant (male: $\beta = .39, p < .001$; female: $\beta = .47, p < .001$). For female, *avoidance coping* is close to significance ($\beta = -.10, p = .057$). *Support-seeking* and *meaning-focused coping* are not significant as antecedents of engagement, neither for males and females. The path from academic engagement to academic satisfaction is significant and positive in both samples ($\beta = .79, p < .001$), as is the path from academic engagement to academic performance (male: $\beta = .17, p < .01$; female $\beta = .19, p < .001$). In order to test the mediation hypotheses, we estimated the relationships between independent variables (*problem-focused* and *avoidance coping*), mediator (engagement) and each dependent variable (GPA and academic satisfaction) by using the product of coefficients method described above (MacKinnon et al., 2002). Results on mediation are presented in Table 2.

All the mediated (indirect) effects were statistically significant. For males, engagement fully mediates the relationship between *problem-focused coping* with satisfaction ($p = 39.55$) whereas

partially mediates the relationship between *problem-focused coping* with GPA ($p = 15.42$). For females, engagement fully mediates the relationship between *problem-focused coping* with both satisfaction ($p = 43.21$) and GPA ($p = 2.20$), as well as between *avoidance coping* with both satisfaction ($p = -21.34$) and GPA ($p = -10.93$). The final model is depicted in Figure 2.

Discussion

The purpose of this study was twofold: (1) to analyze different coping strategies from a gender perspective; and (2) to investigate the effect of university students' coping strategies on psychological well-being (i.e., engagement), academic performance (i.e., GPA) and satisfaction. In order to fulfill this research objective, we tested several hypotheses. The results partially supported Hypothesis 1, as gender explained differences in two of the four coping strategy dimensions: *support-seeking* and *meaning-focused coping*. Specifically, females reported high levels of *support-seeking coping* and men reported high levels of *meaning-focused coping*. However, it is important to consider that the effect size for the differences is very low, and for this reason, it is possible to have an error type I. No differences were found in *problem-focused* and *avoidance coping*. These results do not fully support the results of previous studies. We analyze the coping strategies in the academic context (university) and the previous studies were not carried out in this context. The response to stress in the students and the coping strategies

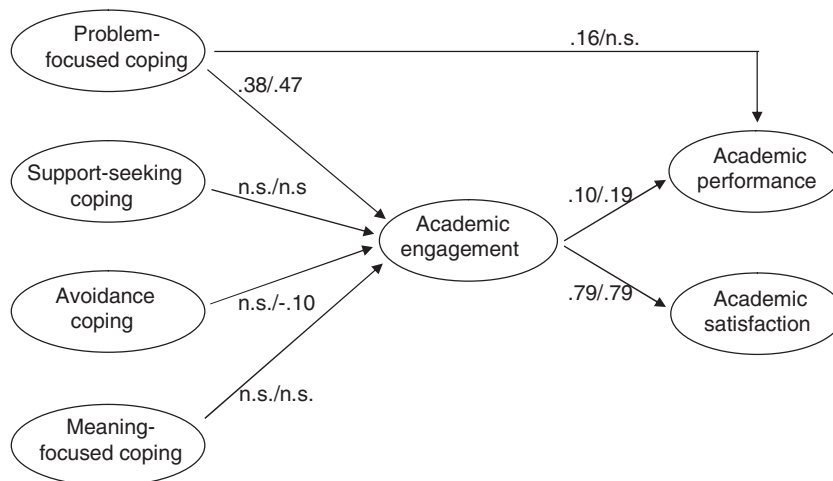


Figure 2. Model with standardized regression weight (males/females).

used by them, are different from other situations. It is possible that the gender role affects students less than other situations in life, such as work.

Then, academic engagement was explored as a mediating mechanism that may explain how students use their coping strategies to achieve better academic performance and greater academic satisfaction. The results revealed that engagement mediates the effects of the two coping strategies (i.e., *problem-focused coping*, *avoidance coping*) on performance (partially confirming Hypothesis 2) and on satisfaction (partially confirming Hypothesis 3).

Finally, we tested a multi-group structural equation model focused on the different genders in university students. Specifically, using gender as a group discriminant variable, we sought to discover whether different types of coping strategies have similar effects on academic satisfaction and GPA, indirectly through their impact on academic engagement. The multi-group results showed that, for males and females, *problem-focused coping* is related to engagement in the sense that *problem-focused coping* leads to being more engaged. Mediation analysis showed an unexpected relation: for men, *problem focused coping* is directly related to performance, that is, engagement partially mediates between *problem-focused coping* and performance. Additionally, in the case of females, *avoidance coping* is also related to engagement and it leads to being less engaged.

Theoretical and practical contributions

The findings from this study provide theoretical support for the relevance of considering the gender variable in research on students' academic success indicators. In fact, gender was found to be relevant in explaining cognitive and behavioral efforts to manage stress (i.e., coping strategies). Moreover, by proposing coping strategies as antecedents of academic engagement, we advance the theoretical understanding of the relationship between different kinds of coping strategies and engagement. It is interesting to highlight that, although we found gender differences in the use of coping, only *problem-focused coping* enhances engagement in both samples. In addition, for females, *avoidance strategies* reduce engagement, which probably due to the fact that ignoring the reality of a stressful situation may reduce stress, but it can allow the situation to worsen, thus increasing stress in the long run (Belanger, Lewis, Kasper, Smith, & Harrington, 2007). These results are only partially in accordance with the results of previous studies. This can be due to the context of study regarding the use of coping strategies that is academic context, whereas gender differences in the use of coping are usually studied in other situations in life, such as work.

Regarding the practical contributions, this study suggests a promising direction for interventions designed to increase well-being through the appropriate use of coping strategies. Specifically, efforts should be focused in promotion of *problem-focused coping strategies*, which have shown to be the only ones positively related with psychological well-being (i.e., engagement) and then lead to academic success (i.e., performance and satisfaction). Thus, teachers, parents, and university administrators should take these evidence-based findings into consideration in the processes they utilize to prepare students for college. Rather than focusing only on academics and test scores, they should also incorporate interventions to promote students' coping strategies and engagement, in order to foster performance.

Strengths, limitations and future research

This study has some noteworthy strengths. First, the large and heterogeneous sample increases the statistical power of this study. Second, to date, most of the research on engagement and

performance has focused on the workplace. Examining these variables in the academic context tests the boundaries of existing theories. Finally, the use of objective academic performance (GPA) is a strong point of this study because it reduces common-source and common-method biases (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

This study also has several limitations. First, a convenience sample was used, and mainly self-report measures. However, given the nature of this study, which includes psychological experiences such as coping strategies, academic engagement, and academic satisfaction, it is difficult use objective data. Moreover, Harman's one-factor and Podsakoff et al. (2012) test, suggests that common method variance should not be a major threat to the validity of our study. It is important to highlight that the value of variance average extracted are lower than expected and, although reliability measures (i.e., α , ω and composite reliability) generally showed acceptable values, convergent validity (i.e., AVE) of our measures did not meet the cutoff point. A final weakness of the present study is that, with exception of GPA, the data are cross-sectional. Although SEM analysis gives information about the possible direction of the relationships, cross-sectional studies do not make it possible to draw firm conclusions about the causal ordering of the variables.

Future research should examine these relationships longitudinally and experimentally to ascertain their magnitude and causal direction. Additionally, engagement and coping strategies may interact meaningfully with other predictors (i.e., intelligence; Schmidt, 2009), such as generalized self-efficacy, self-esteem, neuroticism, and locus of control (Judge & Bono, 2001), all of which have been supported in past research as important predictors of performance. The interaction between these predictors and coping strategies may make their relationships with performance stronger.

Funding

This work was supported by grants from the Consellería de Educación Generalitat Valenciana [#PROMETEO/2013/025] and Ministerio de economía, industria y competitividad [#PSI2015-6933-R]

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