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Mindfulness Abilities Are Associated with Anxiety Levels, Emotional Intelligence, and Perceived Self-Efficacy

Inés Martínez-Pérez ¹, Almudena García-Rodríguez ¹, Francisco Manuel Morales-Rodríguez ²
and José Manuel Pérez-Mármol ^{3,4,*} 

¹ Departamento de Medicina Legal, Toxicología y Antropología Forense, University of Granada, 18016 Granada, Spain

² Department of Educational and Developmental Psychology, Faculty of Psychology, University of Granada, 18011 Granada, Spain

³ Department of Physiotherapy, Faculty of Health Sciences, University of Granada, 18016 Granada, Spain

⁴ Instituto de Investigación Biosanitaria (ibs.GRANADA), 18016 Granada, Spain

* Correspondence: josemapm@ugr.es; Tel.: +34-958246218

Abstract: This study examined the relationship between anxiety, emotional intelligence, perceived self-efficacy, and mindfulness abilities. A total of 205 Spanish university students were assessed for mindfulness (Freiburg Mindfulness Inventory-14), state-trait anxiety (State-Trait Anxiety Inventory), emotional intelligence (Trait Meta-Mood Scale-24), and general perceived self-efficacy (General Self-Efficacy Scale). The Student's *t*-test was used to evaluate the possible differences between sexes for the study variables. Multiple regression analyses were conducted for each sex independently to evaluate the relationship between mindfulness and the other psychological variables, using mindfulness dimensions as a dependent variable. The results showed significant differences between females and males in mindfulness dimensions of self-control ($p < 0.001$) and acceptance ($p = 0.012$), and state ($p = 0.005$) and trait anxiety ($p < 0.001$). Multiple linear regression analyses revealed that the models for the relationship between mindfulness dimensions (attention, self-control, acceptance, and self-perception) and the other variables differed between females and males. Our results suggest that anxiety, emotional intelligence, and general perceived self-efficacy may be related to mindfulness abilities among a sample of Spanish university students. These findings could inform the development of targeted intervention programs to improve these psycho-emotional abilities.

Keywords: mindfulness; state-trait anxiety; emotional intelligence; self-efficacy; university students



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1. Introduction

Mindfulness is conceptualized as the ability to pay attention to external and internal stimuli within our bodies without interpreting them at the cognitive level. The concept of “mindfulness” originates from oriental meditation practices. The intentional carrying out of mindfulness practice has become popular in the Western world, with this English term being used in all languages. This term is equivalent to the Pali expression “sati,” meaning awareness and attention [1,2]. Mindfulness has been defined as “bringing one’s complete attention to the present experience on a moment-to-moment basis” [3] (p. 68); in Baer [4] and as “paying attention in a particular way: on purpose, in the present moment, and non-judgmentally” [5] (p. 4); in Baer [4]. Kabat-Zinn [6] defines it as “a feature of consciousness brought up by intentionally, although not just-mentally, paying attention to present experiences (thoughts, feelings, and sensations).” Some authors, such as Baer [4] and Alvarado-García et al. [7], define mindfulness as the unprejudiced observation of the continuous stream of internal and external stimuli as they arise, which is focused on the present moment and does not involve the passing of any form of judgment. Mindfulness is not about striving to feel a particular emotion, such as happiness, peace, or relaxation. Instead, it is about accepting and becoming more aware of our present experiences, both

positive and negative, as they arise in each moment [8]. From a psychological perspective, many constructs could jointly impact the ability to achieve mindfulness, such as anxiety [9–11], emotional intelligence [12,13], and general perceived self-efficacy [10,11]. Several instruments for the evaluation of mindfulness abilities are available for use in Spanish speaking adult populations: Freiburg Mindfulness Inventory-14 (FMI-14) [1]; Five Facets of Mindfulness Questionnaire [14]; Mindfulness and Awareness Scale (MAAS) [15]; Mindful Organizing Scale [16]; Philadelphia Mindfulness Scale (PHLMS) [17]; the Spanish version of the Scale of Body Connection (SBC) [18]; and State Mindfulness Scale for Physical Activity (SMS-PA) [19]. However, the FMI-14 is administered as a self-report with a brief format of 14 items that quickly evaluates the relevant dimensions of mindfulness abilities. Moreover, this inventory has been widely applied in the Spanish context, not focusing on physical activity, body dimension, or organizational scenarios.

A greater focus on mindfulness practice has opened new doors for future lines of research in which the prevention of emotional problems, and stressors, among others, could be covered more comprehensively [20]. Several studies have shown mindfulness programs' efficacy in promoting health and well-being [12,21,22]. In a recent systematic review, interventions using mindfulness exhibited an improvement in emotional aspects such as the emotional balance, emotional awareness, emotional acceptance, emotion recognition, or expressive suppression [23]. Other investigations showed an increase in the students' life satisfaction, a reduction of the anxiety levels, or an improvement of other psycho-emotional dimensions such as emotional intelligence or low levels of perceived self-efficacy [9–11]. According to the "emotional competence model", developed recently by Bisquerra and Pérez-Escoda [24–28], the psycho-emotional area may be integrated in a continuum between two opposite poles. On the one hand, a positive pole includes elements such as emotional intelligence, perceived self-efficacy, self-esteem, or social skills [29–31]. On the other hand, on the negative side of the continuum, it may be comprised of internalized symptoms such as anxiety, stress, or depression [32]. Currently, literature supports the relationship between mindfulness and emotional intelligence [12,13,21,33], perceived self-efficacy [21,23,34,35], or stress [21,36,37]. However, in comparison with stress, anxiety seems to represent better the past and present "inner world" of the individual since this construct may be registered as "state" and "trait". In this sense, anxiety identifies the balance-imbalance of the demands of the environment and the capabilities of the person [38,39]. Hence, it seems essential to investigate whether anxiety relates to an individual's ability to observe, accept, and be present in the moment. Probably, high anxiety levels hinder mindfulness skills. In the case of emotional intelligence and self-efficacy, it is also coherent to suppose that these abilities are needed to allow the individual to observe the world around them [20]. For these reasons, a combination among these psycho-emotional constructs could deeply explain the mindfulness skills, increasing the predictive capacity of the models currently in force.

Research reports anxiety, emotional intelligence, and perceived self-efficacy as relevant constructs in psychological and social well-being [10,23]. Concerning anxiety, this comprises two main dimensions. "State anxiety" is regarded as a transitory emotional state in the present moment. State anxiety constitutes a behavioral disposition or latent tendency to perceive inoffensive situations as threatening. Further, it is characterized by transitory responses of tension or apprehension. The anxious responses are interpreted as a signal that initiates a sequence of cognitive or motor processes designed to evade or face complex situations [40,41]. On the other hand, "trait anxiety" is considered as a trait of personality. Trait anxiety is usually caused by the experience that enables the individual to identify certain dangerous stimuli [40–42] more stably. Various studies have revealed high levels of anxiety among university students [43,44], which tend to increase during exam periods [8,45]. On the other hand, emotional intelligence is a broad concept linked to intelligence quotient. However, emotional intelligence goes beyond this coefficient, focusing on the potential impact of handling one's emotions on various realms of daily life, such as education and work. Emotional intelligence can shape each individual's interactions in reality and affect people's ability to enhance their everyday life skills. Regarding perceived self-efficacy, this

psychological construct has been defined as the judgments made by individuals on their skills and personal resources. This skill is essential to plan and carry out their actions with the desired level of performance in each particular area of life [46–48]. Efficacy expectations may affect activities that individuals choose to carry out, the amount of effort they dedicate to achieving their objectives, and their persistence in the face of failure and difficulties in life [49]. A person's perceived self-efficacy usually depends on the context, thus distinguishing this construct from others with more stable and less modifiable characteristics. Since general perceived self-efficacy is subject to change in internal and external factors, it can be tackled through different management approaches. General perceived self-efficacy could, therefore, affect judgments made by university students on their skills to plan and perform the actions required for specific situations [48]. However, it should be noted that self-efficacy concerns subjective beliefs the individual upholds on their skills that do not necessarily reflect their academic development [48,50]. Navarro Saldaña et al. [35] assert that students with low levels of general perceived self-efficacy tend to consider academic work challenging. Consequently, students fail to complete such tasks or avoid doing them altogether. The consequences are low educational attainment, poor attention levels during classes, and poor quality of academic work.

On the other hand, several authors have found differences between sexes in terms of levels of mindfulness [10], anxiety [51], and general perceived self-efficacy [22,35,37]. These findings may be explained given that historically there is a differentiated primary and secondary socialization between males and females in diverse societies [52–54]. Specifically, regarding mindfulness abilities, previous studies show the existence of statistically significant differences based on sex [10,23]; however, other studies did not exhibit these differences [33], or even did not include females in their design [55]. Regarding anxiety, background literature shows statistically higher levels of anxiety in females [51], and no differences based on sex [40]. In terms of emotional intelligence and perceived self-efficacy, research is needed to delve into this area [34,56]. Therefore, since sex could play a significant role in psycho-emotional dimensions but literature is still inconclusive, this factor should be considered in the design of future studies.

This study evaluates the possible relationship of mindfulness abilities regarding anxiety levels, emotional intelligence, and general perceived self-efficacy in a sample of Spanish university students. The hypotheses of the current work are: (i) the anxiety levels, emotional intelligence, and general perceived self-efficacy are related to mindfulness abilities, (ii) the relationship between mindfulness abilities and these psycho-emotional constructs is different for males and females (Figure 1).

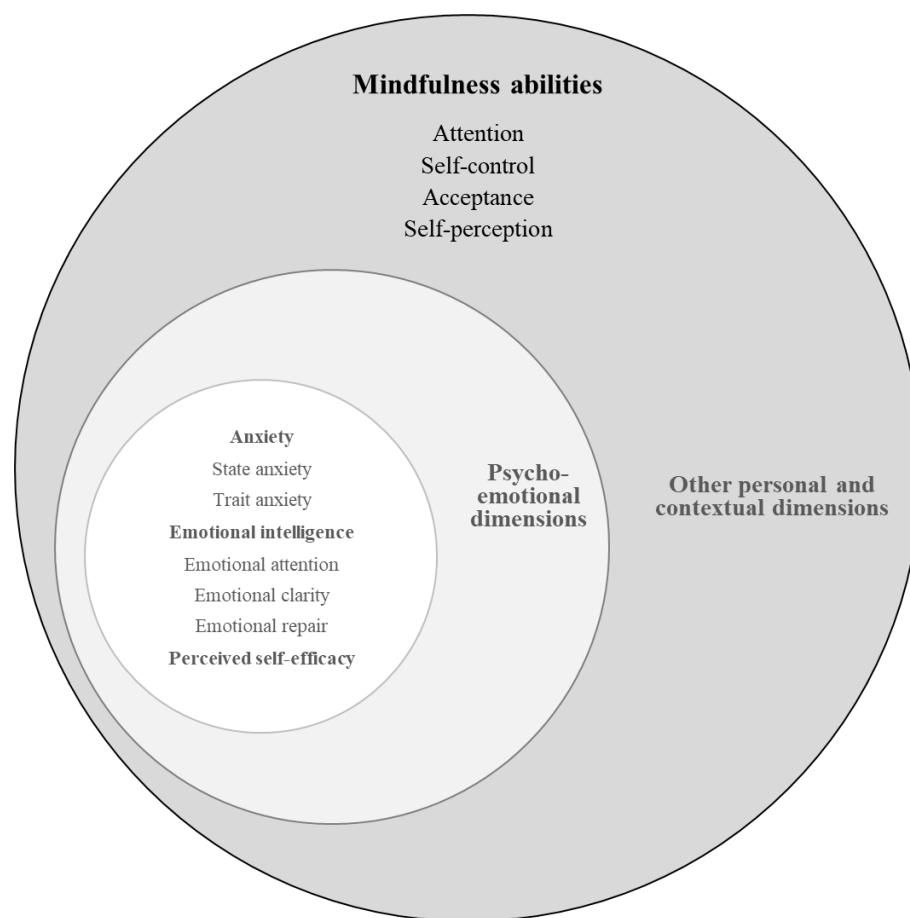


Figure 1. Hypothesized association of the dimensions of anxiety, emotional intelligence, and perceived self-efficacy in relation to the dimensions of mindfulness.

2. Materials and Methods

2.1. Design

A cross-sectional, observational-descriptive, ex post facto design approach was used in this study. Participants were asked to complete a series of self-report scales with a Likert response format. Participants were informed about the objectives and procedures of this study, and it was conducted according to the Declaration of Helsinki ethical principles. The data were analyzed using multiple regression statistics.

2.2. Participants

The inclusion criteria for the present study were (i) being a full-time university student; and (ii) being between 18 and 65 years old. The exclusion criteria were (i) students with special education needs, (ii) severe disabilities, or (iii) behavioral disorders. All study participants were informed of the study's objectives and procedures, which were conducted per the most recent amendment of the Declaration of Helsinki. The Ethics Committee of the University of Granada (Granada, Spain, 2696/CEIH/2022) approved the study protocol.

The sample comprised 205 Spanish university students from different academic areas. A total of 74.6% of the participants in the sample were females ($n = 153$). The average age of female participants was 20.87 years, while the average age of male participants was 21.87 years. A total of 59.5% of female students were studying for health sciences degrees, while the remaining 40.5% were studying for humanities and social sciences degrees. The sample of males comprised 69.2% humanities and social sciences students, and 30.8% studying for health sciences degrees. Of the female participants, 25.5% were in the first year of their course, 49.7% were in their second, 10.5% were in their third, and 14.4% were

in their fourth. Among male participants, 40.4% were in the first year of their course, 32.7% were in their second year, 5.7% were in their third year, and 21.2% were in their fourth year.

2.3. Procedure

Undergraduate students were contacted online by the coordinators of their respective undergraduate courses. They were informed that the data collected would remain anonymous and be used solely for research purposes. The students completed a series of psycho-emotional measures by using an online app. They were sent a link to the online questionnaires at the end of their class, that is, the recruitment was performed face-to-face. They had the opportunity to ask the researchers about all their doubts while completing the instruments. The data were collected between September 2019 and July 2020.

2.4. Measures

Students were asked to provide socio-demographic data at the beginning of the questionnaire, including information on their age, sex, and field of academic knowledge, and the academic course in which they were enrolled. Mindfulness, anxiety levels, emotional intelligence, and general perceived self-efficacy were assessed via the following self-report questionnaires.

2.4.1. Mindfulness (Freiburg Mindfulness Inventory-14)

The Freiburg Mindfulness Inventory-14 (FMI-14) is a scale designed to assess several dimensions of mindfulness. The FMI-14 comprises 14 items graded using a four-point Likert scale (1: rarely; 2: occasionally; 3: frequently; and 4: almost always). This questionnaire assesses four dimensions: attention, self-control, acceptance, and self-perception. The higher the score on dimensions of the FMI-14, the higher the level of mindfulness. The Spanish version of the FMI-14 has proven sufficiently reliable ($\alpha = 0.80$) and adequately valid indices [1]. Comparing the FMI-14 with its extended version, the FMI-30 has revealed a strong correlation between these two scales ($r = 0.95$) [57].

2.4.2. State-Trait Anxiety

The State-Trait Anxiety Inventory (STAI) is used to assess state and trait anxiety [58]. The STAI comprises two sub-scales of 20 items for measuring the intensity of anxiety as an emotional state (state anxiety) and individual differences in anxiety-proneness as a personality trait (trait anxiety). When responding to the state anxiety items, participants indicate the intensity of their anxiety at that particular moment. Items are graded on this sub-scale using a four-point range: (1) no feelings at all, (2) slight feelings, (3) moderate feelings, (4) strong feelings. The responses to the items for trait anxiety require subjects to indicate how they generally feel, by asking them how often they have experienced feelings and cognitions related to anxiety on a four-point scale: (1) very rarely, (2) sometimes, (3) often, and (4) almost always [40]. The higher the score for dimensions covered by the STAI, the higher the level of anxiety. Concerning its reliability, this inventory has gained good internal consistency across various studies, with a Cronbach's alpha coefficient that has varied between a range of 0.9–0.93 for the state anxiety subscale and a range of 0.84–0.87 for the trait anxiety sub-scale [59].

2.4.3. Emotional Intelligence (Trait Meta-Mood Scale-24)

The Trait Meta-Mood Scale (TMMS) is a self-report measure designed to assess individuals' beliefs about their emotion regulation skills [60]. This test measures perceived emotional intelligence as the ability to manage and differentiate emotions and to use this ability to guide thoughts and actions. The TMMS-24 is a reduced version of the TMMS-48 [60], which consists of the three dimensions of the original scale: emotional attention, clarity, and repair. The final scale consists of 24 items, with eight under each dimension. The individual must assess their level of agreement with each of the items on a five-point Likert scale (1 = totally disagree, 5 = totally agree). The higher the score on the TMMS, the

higher the level of emotional intelligence. Regarding validity, the three dimensions correlate in the expected direction among those with depressive symptoms $r = 0.20$ (attention), $r = -0.24$ (clarity of feelings), $r = -0.33$ (emotional repair); among those with ruminative symptoms, $r = 0.37$ (attention), $r = -0.20$ (emotional repair); and among those with good life satisfaction, $r = 0.37$ (clarity of feelings), $r = 0.41$ (emotional repair) [61].

2.4.4. General Self-Efficacy

The General Self-Efficacy Scale is a comprehensive construct that refers to people's strong belief in their ability to handle a wide range of daily-life stressors sufficiently [62]. The validated version of the Spanish-language scale for students comprised of questions to which participants respond using a 10-point Likert scale, with 1 meaning "totally disagree" and 10 meaning "totally agree". The higher the score for these questions, the higher the level of general perceived self-efficacy. The general self-efficacy scale has demonstrated adequate internal consistency across the various studies, with a Cronbach's alpha coefficient varying between 0.79 and 0.93 [63].

2.5. Statistical Analysis

The statistical analysis was performed using SPSS Windows software version 21. A descriptive analysis was conducted using the mean and standard deviation for continuous variables and the frequency and percentage for qualitative variables. A *t*-test was conducted to compare the means of the study variables in terms of sex to determine if there were significant differences between the two groups. The Levene test was also used to determine whether there was equality of variances. A step-by-step statistical approach was chosen for the stepwise regression analysis. The model's compliance with the assumptions of normality, homoscedasticity, and independence of residuals was verified to run parametric analyses. Each regression model included the following: the dimensions of mindfulness as the dependent variable (attention, self-control, acceptance, and self-perception); and the dimensions of anxiety (state and trait), emotional intelligence (emotional attention, clarity of feelings, and emotional repair) and general perceived self-efficacy as independent variables. A *p*-value lower than 0.05 was considered statistically significant in all analyses.

2.6. Sample Size Estimation

The sample size calculation was performed under the F tests family, using a fixed model of linear multiple regression (r^2 desviation from zero), by an a priori power analysis with a simple size f^2 of 0.15 (medium effect), an α of 0.05, and a power of 0.95. The preliminary sample estimated was 172 individuals. This sample was increased by 20% to avoid possible loss during the study process since the information collected was completed electronically, having a final sample estimation of 206 participants.

3. Results

3.1. Descriptive Results for the Whole Sample

The descriptive information for mindfulness (FMI-14), anxiety (STAI), emotional intelligence (TMMS), and general perceived self-efficacy is shown in Table 1.

Table 1. Descriptive results and internal consistency coefficient for mindfulness, anxiety, emotional intelligence, and general perceived self-efficacy ($n = 205$).

Variables	Min.	Max.	Mean (SD)	Cronbach's α
Mindfulness (FMI-14)				
Attention	5	20	13.74 (3.16)	0.75
Self-control	3	12	7.13 (2.25)	0.72
Acceptance	4	16	10.16 (2.87)	0.75
Self-perception	2	8	5.14 (1.61)	0.56
Anxiety (STAI)				

Table 1. *Cont.*

Variables	Min.	Max.	Mean (SD)	Cronbach's α
State anxiety	−27	24	−2.38 (11.88)	0.91
Trait anxiety	−17	38	8.42 (12.57)	0.92
Emotional intelligence (TMMS)				
Emotional attention	10	40	27.65 (7.44)	0.91
Emotional clarity	8	40	25.92 (6.99)	0.90
Emotional repair	8	40	25.46 (6.67)	0.87
General perceived self-efficacy	10	97	64.77 (19.61)	0.95

Note: SD, standard deviation; FMI-14, Freiburg Mindfulness Inventory-14; STAI, State-Trait Anxiety Inventory; TMMS, Trait Meta-Mood Scale.

3.2. Differences between Sexes in Levels of Mindfulness, Anxiety, Emotional Intelligence, and General Perceived Self-Efficacy

Among male participants, the dimensions of mindfulness, mean scores for self-control ($p < 0.001$), and acceptance ($p = 0.012$) were significantly high. Further, regarding psychological variables, mean scores for state anxiety ($p = 0.005$) and trait anxiety ($p < 0.001$) were significantly high among female participants. There were no significant differences between male and female participants concerning emotional intelligence (emotional attention, clarity of feelings, and emotional repair) and general perceived self-efficacy (Table 2).

Table 2. Means, standard deviations, and differences between groups (female and male) for the clinical data in university students.

Variables	Females ($n = 153$)	Males ($n = 52$)	t	p
	Mean (SD)	Mean (SD)		
Mindfulness (FMI-14)				
Attention	13.50 (3.11)	14.44 (3.22)	−1.86	0.064
Self-control	6.79 (2.23)	8.13 (2.02)	−3.85 ***	<0.001
Acceptance	9.87 (2.82)	11.02 (2.87)	−2.53 *	0.012
Self-perception	5.08 (1.59)	5.31 (1.68)	−8.86	0.377
Anxiety (STAI)				
State anxiety	−1.03 (11.36)	−6.35 (12.59)	2.83 **	0.005
Trait anxiety	10.21 (12.19)	3.15 (12.27)	3.60 ***	<0.001
Emotional intelligence (TMMS)				
Emotional attention	28.16 (7.06)	26.15 (8.36)	1.69	0.093
Emotional clarity	25.60 (7.11)	26.87 (6.61)	−1.13	0.261
Emotional repair	25.23 (6.53)	26.15 (7.09)	−0.86	0.389
General perceived self-efficacy	64.52 (18.82)	65.50 (21.94)	−0.31	0.755

Note: SD, standard deviation; FMI-14, Freiburg Mindfulness Inventory-14; STAI, State-Trait Anxiety Inventory; TMMS, Trait Meta-Mood Scale; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

3.3. Relationship between Mindfulness and Anxiety Levels, Emotional Intelligence, and General Perceived Self-Efficacy among Females and Males

The results of the multiple regression models for the four dependent variables (dimensions of the FMI-14) are shown in Table 3 for the female sample and Table 4 for the male sample. Among female participants, the “attention” dimension was found to be significantly related to trait anxiety, emotional attention, emotional repair, and general perceived self-efficacy, with a predicted proportion of 48% of the total variance ($F [4.152] = 29.858$; $r^2 = 0.447$; $p < 0.001$). Among male participants, state anxiety and emotional repair predicted a proportion of 47% of the total variance of the attention dimension ($F [2.51] = 21.646$; $r^2 = 0.469$; $p < 0.001$). The “self-control” dimension among female participants was significantly related to trait anxiety and emotional repair, with a predicted proportion of 33% of the total variance ($F [2.152] = 36.51$; $r^2 = 0.327$; $p < 0.001$). Nevertheless, for the same dependent variables among male participants, the predicted proportion of the total variance was 51%

($F [2.51] = 25.530$; $r^2 = 0.490$; $p < 0.001$). The “acceptance” dimension in female participants was significantly related to trait anxiety and emotional repair, with a predicted proportion of 38% of the total variance ($F [2.152] = 46.188$; $r^2 = 0.381$; $p < 0.001$). For emotional repair among male participants, however, the predicted proportion of the total variance of the “acceptance” dimension was 44% ($F [1.51] = 39.202$; $r^2 = 0.439$; $p < 0.001$). Finally, the “self-control” dimension among female participants was found to be significantly related to general perceived self-efficacy, with a predicted proportion of 9% of the total variance ($F [1.152] = 14.689$; $r^2 = 0.089$; $p < 0.001$). However, among male participants, the predicted proportion of the total variance was 32% ($F [1.51] = 23.102$; $r^2 = 0.316$; $p < 0.001$), including state anxiety and emotional repair.

Table 3. Multiple linear regression models for the dimensions of the Freiburg Mindfulness Inventory-14 (dependent variable) in female undergraduate university students.

Independent Variables	B	CI (95%)		β	SE	<i>p</i>
		Lower Bound	Upper Bound			
FMI-14 Attention ($r^2 = 0.447$)						
Trait anxiety	−0.076	−0.117	−0.035	−0.297	0.021	<0.001
TMMS Emotional attention	0.082	0.025	0.140	0.187	0.029	0.006
TMMS Emotional repair	0.141	0.064	0.217	0.296	0.039	<0.001
General perceived self-efficacy	0.035	0.010	0.061	0.214	0.013	0.007
FMI-14 Self-control ($r^2 = 0.327$)						
Trait anxiety	−0.045	−0.073	−0.016	−0.244	0.015	0.003
TMMS Emotional repair	0.137	0.083	0.191	0.402	0.027	<0.001
FMI-14 Acceptance ($r^2 = 0.381$)						
Trait anxiety	−0.041	−0.076	−0.006	−0.179	0.018	0.021
TMMS Emotional repair	0.217	0.151	0.282	0.502	0.033	<0.001
FMI-14 Self-perception ($r^2 = 0.089$)						
General perceived self-efficacy	0.025	0.012	0.038	0.298	0.007	<0.001

Note: r^2 , regression coefficient of determination; B, regression coefficient; CI, confidence interval; β , adjusted coefficient from multiple linear regression analysis; SE, coefficient standard error, FMI-14, Freiburg Mindfulness Inventory-14; TMMS, Trait Meta-Mood Scale.

Table 4. Multiple linear regression models for the dimensions of the FMI-14 (dependent variable) in male undergraduate university students.

Independent Variables	B	CI (95%)		β	SE	<i>p</i>
		Lower Bound	Upper Bound			
FMI-14 Attention ($r^2 = 0.469$)						
State anxiety	−0.075	−0.132	−0.0185	−0.292	0.028	0.011
TMMS Emotional repair	0.240	0.139	0.341	0.529	0.050	<0.001
FMI-14 Self-control ($r^2 = 0.510$)						
Trait anxiety	−0.067	−0.104	−0.030	−0.406	0.018	0.001
TMMS Emotional repair	0.123	0.059	0.187	0.432	0.032	<0.001
FMI-14 Acceptance ($r^2 = 0.439$)						
TMMS Emotional repair	0.269	0.182	0.355	0.663	0.043	<0.001
FMI-14 Self-perception ($r^2 = 0.316$)						
TMMS Emotional repair	0.133	0.077	0.188	0.562	0.028	<0.001

Note: r^2 , regression coefficient of determination; B, regression coefficient; CI, confidence interval; β , adjusted coefficient from multiple linear regression analysis; SE, coefficient standard error, FMI-14, Freiburg Mindfulness Inventory-14; TMMS, Trait Meta-Mood Scale.

In summary, for the mindfulness dimension of attention, 44–48% of the total variance was predicted; for the self-control dimension, 33–51% was predicted; for the acceptance dimension, 38–44% was predicted; and for the self-control dimension, 9–32% was predicted (Tables 3 and 4).

4. Discussion

This study examined the relationship between mindfulness and anxiety levels, emotional intelligence, and general perceived self-efficacy in a sample of university students. Previous research has found significant differences between females and males in these variables [10,22,23,35,37,51]. In this study, we found differences between females and males in self-control and acceptance skills in mindfulness and state and trait anxiety levels. Therefore, the overall sample was divided into male and female groups. Different explanatory models were obtained among both sexes for the dimensions of attention, acceptance, and self-perception regarding the related psychological variables. Among female participants, the “attention” dimension of mindfulness was related to emotional attention, emotional repair, general perceived self-efficacy, and trait anxiety. However, this dimension was related to emotional repair and state anxiety among male participants. The “self-control” dimension was related to emotional repair and trait anxiety in both sexes. The “acceptance” dimension of female participants was related to emotional repair and trait anxiety. Nonetheless, this dimension was related to emotional repair among male participants. The “self-perception” dimension was related to general perceived self-efficacy among females, and emotional repair among males.

4.1. Relationship between Sex and Study Variables

Regarding mindfulness level, Slonim et al. [10] conducted a study on a sample of 207 Australian medicine students to determine whether there were differences between sexes, reporting significantly higher levels of mindfulness in males, as was the case in the present study. These authors explained that these differences may be due to mindfulness implying the need to pay attention to positive and negative stimuli and that females may find it much more difficult than males to be mindful of such stimuli [10]. In this study, we do not have information on how participants in the sample interacted with their environment, their thought processes, or the overall context in which they were situated. Consequently, we cannot confirm that these differences are exclusively attributable to sex. Another recent study [23] also found statistically significant differences in the mindfulness variable based on sex. Specifically, female showed higher scores in the dimensions of “acting consciously” and “observing” compared to male.

In terms of anxiety, there is current contention over its possible relation to sex. Bamber and Morpeth [51] state in their systematic review that sex was not a mediator variable for the effect of mindfulness interventions on anxiety levels. The same results were obtained by Alejandra and Zegarra [40], whose study also found no differences between male and female participants when comparing trait and state anxiety scores. However, other authors, such as Bamber and Morpeth [51], found that female participants displayed higher levels of anxiety, as was the case in this study, with higher mean scores being recorded for the two dimensions of anxiety (state and trait) among female participants.

Regarding emotional intelligence, Wang and Kong [13] conducted a study on 321 Chinese participants (students and non-students) to determine the effect of approaching emotional intelligence on mindfulness, specifically concerning life satisfaction and mental distress. Male participants achieved higher scores than female participants for emotional intelligence. Nevertheless, the results of the multi-group analysis demonstrated that there was no variance according to sex in any significant patterns in the final model. The non-student sample with high levels of mindfulness proved more likely to feel greater life satisfaction than the student sample. The study by Gutiérrez and Araya-Vargas [64] on 236 students to determine their level of emotional intelligence demonstrated that both sexes achieved similar and reasonable scores, as was the case in this study.

Regarding general perceived self-efficacy, Navarro Saldaña et al. [35] affirm that results are inconclusive in determining whether there are differences in levels of general perceived self-efficacy between sexes. Many pieces of research have reported significant differences between sexes, demonstrating a higher level of general perceived self-efficacy among males [65], cited in [66] in Navarro Saldaña et al. [35]. Others have reported a high level of

self-efficacy among females [67]. Conversely, other studies have demonstrated that there is no relationship [68]. Other pieces of research have indicated that differences between sexes can vary depending on the stressful task or environment confronting them [69]. Our study found no differences between sexes for this construct.

4.2. Relationship between Anxiety and Mindfulness

Our results showed a lower level of anxiety among university students with higher levels of mindfulness and vice versa. Similarly, Slonim et al. [10] demonstrated that anxiety is linked to high scores on the mindfulness sub-scales of attention, self-control, acceptance, and self-perception. Low anxiety scores were significantly related to higher spiritual growth and mindfulness scores. In this study, the final explanatory model showed an indirect relationship between anxiety and the following dimensions of mindfulness: attention, self-control, and self-acceptance among female participants; and attention and self-control among male participants. Another previous work [10] revealed anxiety as a predictor of mindfulness in a sample of 207 Polish participants aged between 19 and 29 years old, the majority of whom were women. Querstret et al. [38] found that mindfulness interventions were associated with lower levels of anxiety in a sample of 118 adults, mostly female. Dvořáková et al. [9] evaluated the efficacy of a mindfulness program in improving the health and well-being of 109 first-year university students in a study. The results show a significant increase in life satisfaction among students and a reduction in anxiety levels [9,11].

4.3. Relationship between Emotional Intelligence and Mindfulness

Previous studies have proven an important role and significant positive effect of emotional intelligence on mindfulness [13]. Those results agree with those obtained in this research since university students with higher levels of mindfulness displayed higher levels of emotional intelligence in all dimensions. According to Wang and Kong [13], “mindfulness may encourage individuals to perceive their own and others’ emotions accurately and effectively regulate emotions.” Similar results were obtained in a clinical trial by Rodríguez-Ledo et al. [12] using 156 high school students, confirming the relationship between emotional intelligence and mindfulness. Peerayuth [21] also found direct associations between psycho-emotional abilities and mindfulness. These researchers highlighted the need to enhance mindfulness by implementing a direct intervention program in the classroom and strengthening emotional intelligence resources.

4.4. Relationship between General Perceived Self-Efficacy and Mindfulness

In this study, university students with higher levels of mindfulness displayed higher levels of general self-efficacy and vice versa. Navarro Saldaña et al. [11] also reported a relationship between mindfulness and general perceived self-efficacy. Peerayuth [21] reported a positive correlation between the mindfulness abilities and general self-efficacy. Hall [56] evaluated 152 trainees at the Council for Accreditation of Counseling and Related Educational Programs from the United States. These authors suggest that training based on mindfulness and emotional skills should be considered with a view to enhancing the self-efficacy of students. These results have implications for education, paving the way for future research into the development of these students. The results of our study were consistent with those of the previous investigations, as individuals with higher mindfulness scores also had higher self-efficacy scores.

4.5. Implications for Education

The results highlight the need to design and implement intervention programs focused on training aspects that may be linked emotional intelligence, reducing anxiety levels, and ensuring a sufficient perception of self-efficacy. These initiatives could enhance mindfulness within the university environment to improve students’ psychological well-being and aca-

ademic attainment. This information can also be used at the institutional level to strengthen and extend student support and guidance resources to enhance self-regulation skills.

The current university landscape requires the intervention of academic agents to go beyond the pure conveyance of academic content and consider new approaches toward the improvement and overall well-being of university students [11]. Actors in the educational system must acknowledge the importance of providing opportunities to develop all aspects related to students' well-being by seeking to provide alternative development options equitably. Educational experiences should also be designed to enhance students' emotional management skills, self-awareness, and self-efficacy without making distinctions based on characteristics such as sex [35].

4.6. Limitations and Future Research Directions

This study has some limitations that must be considered when interpreting the results. First, there was a difference in the proportion of male and female responses, with the female sample being larger than the male sample. For future research, it would be desirable to make these proportions as equal as possible or investigate the reason behind such disparities between sexes. Second, the cross-sectional design of this study does not allow us to determine causality in the observed relationships. These relationships should be interpreted as possibly being bidirectional. Future longitudinal studies will be necessary to understand the cause-and-effect relationship better and inform the development of targeted interventions to improve relevant variables.

Future research must be carried out into the effectiveness of mindfulness practice on the independent variables included in this study. Notably, emotional intelligence, anxiety levels, and general perceived self-efficacy are improvable psychological dimensions. The effectiveness of various educational programs and university student profiles could be compared, considering the variables investigated in this study [11].

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