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Depression and the Meaning of Life in University Students in Times of Pandemic

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Depression and Meaning of Life in University Students in Times of Pandemic

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Abstract

The emergence of the pandemic has led to fundamental social and economic swaps throughout the world, the sponsored measures taken have a significant effect on the mental health of individuals. The objective of the study was to compare the level of depression related to the meaning of life in students in times of pandemic at the Continental University of Peru and the "Rafael María Baralt" National Experimental University of Venezuela. The type of research developed was descriptive correlational with a cross-sectional design. The sample was made up of two groups: the first corresponds to 300 students from Peru and 300 from Venezuela. The Beck Depression Inventory and the Dimensional Sense of Life Scale, standardized version for Latin America, were used as measurement instruments. With the Spearman correlation coefficient it was determined that there is a moderate negative relationship of -0.610 , which indicates that there is an inverse correlation in the variables level of depression and sense of life of the students and it was concluded that, among the students university students from both countries, there is a moderate inverse significant correlation between depression and the meaning of life, in the current times of pandemic.

Palabras clave: Depression, college students, pandemic, meaning of life.

Depresión y Sentido de la Vida en Estudiantes Universitarios en Tiempos de Pandemia

Rosario Mireya Romero Parra
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Resumen

La aparición de la pandemia ha conllevado a permutas primordiales en lo social y en lo económico en todo el mundo, las medidas patrocinadas asumidas presentan un efecto significativo en la salud mental de los individuos. El objetivo del estudio fue comparar el nivel de depresión relacionado al sentido de la vida en estudiantes en tiempos de pandemia de la Universidad Continental del Perú y de la Universidad Nacional Experimental “Rafael María Baralt” de Venezuela. El tipo de investigación desarrollado fue descriptivo correlacional con diseño transversal. La muestra quedó integrada por dos grupos: la primera corresponde a 300 estudiantes del Perú y 300 de Venezuela. Se utilizaron como instrumentos de medición el Inventario de Depresión de Beck y la Escala Dimensional de Sentido de Vida versión estandarizada para Latinoamérica. Con el coeficiente de correlación de Spearman se determinó que existe una relación negativa moderada de $-.610$, lo cual indica que hay una correlación inversa en las variables nivel de depresión y sentido de la vida de los estudiantes y se concluyó que, entre los estudiantes universitarios de ambos países, existe una moderada correlación significativa inversa entre la depresión y el sentido de la vida, en los actuales tiempos de pandemia.

Palabras clave: Depresión, estudiantes universitarios, pandemia, sentido de la vida.

The World Health Organization (WHO, 2019) emphasizes the relevance of adolescent mental health care, urging the development of social and emotional habits that contribute to mental well-being, including sleep patterns, sports practice, resilience, emotional intelligence among others. The WHO alert is based on the estimate that between 10 and 20% of adolescents worldwide suffer from mental involvement and are undiagnosed. In net, an estimated 120 million adolescents suffer from mental illness, which is taxed by the concomitance of social, ethnic, cultural and economic conditions of stigmatization and exclusion that exacerbate risky situations for adolescents and young people. In 2018, 65 million adolescents lost their lives to self-infringing injuries or suicide (WHO, 2019). These figures express a reality that tends to be diluted among the multiplicity of risky conditions faced by adolescents and young people today.

Of all the mental pathologies affecting youth, depression positioned as the riskiest epidemiologically. Depression is seen as a global public health problem.

WHO's Mental Health Programme developed the Tenth version of the International Classification of Diseases CIE 11 - F30-39, which describes depression as a modality of Affective Disorder that may or may not present symptomatology (WHO, 2019). INCIE-11 defines recurrent depressive disorder as a pathology expressed by the successive sequence of depressive episodes. These episodes can fluctuate in the same individual from mild, moderate, or severe. Diagnosis is associated with apathy, inability to achieve pleasure, recurrent tiredness.

According to Beck, Steer and Brown (1996), depression originates because the person perceives the world in a negative and unrealistic way. According to this same author, people who become depressed have negative cognitions in three areas: themselves, the environment and the future.

Beck's Depression Inventory identified indicators of depression where self-negativity, the environment, and the world induce the subject toward pessimistic perspectives and unquestionable fatalities. No rational argument that provides alternatives other than those of the depressive subject is validated by the depressive subject. Beck et al. (1996) delve into identifying indicators of depression by distinguishing them from indicators of anxiety.

The depressive self-asserts in futility, hopelessness and loss, anxious subjects focus on imminent threats and their vulnerability to them.

For college students, depression is a factor that affects their academic performance, desertion, and overall quality of life. Factors such as time load, misfits, recurring economic failures, inadequacy of prior knowledge to address courses, among others maximize conditions for depressive pathologies to manifest at various levels (Bruffaerts et al., 2018; Gajana & Minchekar, 2018; Ngasa et al., 2017; De Luca, Franklin, Yueqi, Johnson & Brownson, 2016). Studies have shown the association between depression and the abandonment of university studies (Mouza, 2015; Iglesias-Benavides, Blum-Valenzuela, López-Tovar, Espinosa-Galindo & Rivas-Estilla, 2016; Marthoenis, Meutia, Fathiarani & Sofyan, 2018). However, depression has levels that do not necessarily result in drop-out of schooling and/or extreme suicide cases. However, it is undeniable that depressive pathologies are elements that influence the quality of life of higher-level students (Moreno, 2014; Hwang, 2016; Alonso et al., 2018). It is then that the family, educational institutions and society at large are responsible for giving young people motivations and prospects of self-realization that give them meaning of life.

The search for the meaning of students' lives provides an efficient strategy to confront what Gengler (2009) called existential frustration, by activating the will of meaning. The will of meaning that understands the conscious responsibility to answer the questions that life asks it on a daily basis corresponds to the search for happiness and the inherent training to endure suffering during transit towards the attainment of transcendence. Otherwise, subjects who do not develop the will of meaning can potentially lead to existential emptiness, where conformism predominates and in its multiple manifestations.

In addition, everything raised is more accentuated in these times of COVID-19 pandemic, since, in case of contracting the virus, the likelihood of severe complications and even death is considerable (Mortier et al. 2015; Lizaraso & Del Carmen, 2020). In this sense, the population is generally affected by the consequences of the pandemic, leading from depressions to in many cases death.

In Peru, COVID-19 arrived on March 11, 2020, when President Martin Vizcarra reported the initial cases in Peru and similarly in Venezuela on

March 13, 2020, the first cases of the coronavirus disease pandemic were reported by Venezuela's vice president, Delcy Rodríguez. As a result, in the event that Peruvians are in a state of emergency, in recent months the population and communities are hit by COVID-19 disease, leading to the collapse of the health system. And in the case of Venezuelans, the situation presented by the pandemic must be added to the social problems already suffered by its inhabitants. Therefore, this COVID-19 disease has generated chaos and fear, creating existential emptiness, which is associated with depression.

In this order of ideas, Délano (2020) expresses how in recent months a new viral disease has been seen causing collapse in health systems and creating chaos and fears in people, first quetching Wuhan, China, and which is currently complicating everyone. However, activities do not stop, including academic ones, so it is necessary to specify and solve the depressive levels that university students may be presenting based on their senses of life in these times of pandemic.

The emergence of the pandemic has led to primordial social and economic swaps around the world, sponsored measures for their conduct have a significant effect on the mental health of individuals. Research suggests that from the initial moment of the pandemic people have generally had psychological problems, such as distress, depression and stress (Cobo-Rendón, Vega-Valenzuela & García-Alvarez, 2020; Eyzaguirre, Le Foulon & Salvatierra, 2020). The mental health of individuals in the face of this new context is at risk. Indeed, research on epidemics and retrospective pandemics states that individuals in the face of this prototype of circumstances manage to feel insecurity, fear of being a victim, impressions of isolation, heartbreak and irritation (Velavan & Meyer, 2020).

In educational contexts, establishments have had the need to continue educating students through the use of technologies, greatly transforming the formative and socio-emotional advancement of students. Previously, university classes were a stage especially with characteristics of socially very active interaction between students, currently they have to adapt to the new formative development and the way of teaching (online) demanded to prevent infections in the current times of pandemic. This is a new practice in which the student may feel somewhat confused to develop his or her particular abilities and abilities.

Previous research on the issue of depression in college schoolchildren exposed to the pandemic refers to economic conditions, as well as delays in academic actions being recognized as components of danger to the progress of distress, signs that have been verified in great measure have been the increase in depressive symptoms, stress and distress (Lopez et al. , 2020; Pereyra, 2020). Studies in Chinese schoolchildren reveal that, at the same time of the existence of depressive signs and stress, excessive emotions of mistrust and problems in the permanence of sleep have been detailed, a study with Greek students verified an increase in suicidal inclinations in them (Kaparounaki et al., 2020; Tang et al., 2020).

Consequently, considering the transmission of COVID-19 and general care measures, the use of instructional models not agreed upon in university education regimes has become a forced tactic for the compliance with teaching purposes and commitments (Morales-Ulloa, Paz, Castro, Barahona & Fonseca, 2020). In this sense, the use of Information and Communication Technologies (ICTs) to promote an effective teaching-learning process remotely or remotely has proven to be an effective tool, which supports increasing the effectiveness of remote teaching methods and the accommodating of the thematic axes to the formative priorities of academic collectivity at stages of high application such as , by pattern, socioeconomic difficulties, natural disasters or pandemics (Carrillo, Aragon & Navas, 2020; Rosario-Rodríguez et al., 2020). On the other hand, within the malleability and advantages of ICT-mediated teaching, he emphasizes the contingency of building training environments that consent to: first, to increase the independence and commitment of the student in the timely development of learning; second, to break down the constraints stimulated by set-aside in space and time; third, allow the combination of fonts at different times; and fourth, collaborative training (Cobo-Rendón et al., 2020). The above advantages provide the ideal space for the impulse of an eager and interactive teaching-learning process taking into account the particular priorities and discrepancies of academic collectivity, especially that of students.

However, taking into account the coupling of the COVID-19, academic, scientific and psychic instances (caused by the impassable execution of instructional models in remote times and problems in the progress of effective implementation and training policies) have contributed to the perceived problems and obstacles of the university student, as well as taking an effective

attitude towards the use of ICTs in the instructional process (Sanz, Sáinz & Capilla, 2020). Consequently, global organizations such as UNESCO (2020) persuade an approximation based on the conceptual and theoretical assumptions in order to demonstrate the operations, instructions and routes that should be assumed in favor of academic collectivity, emphasizing the students (Monasterio & Briceño, 2020). All this, in order to verify elements that affect a good distance instruction experience and allow to refine the promised effects; circumstances where the procedures adopted are in the hands of the competences, resources and particularities of training with which each nation and its university training schemes present.

In this line of research, the most important discoveries show that students assumed difficulties related to stressors due to excessive schoolwork, poor execution of online courses, impairment of guidance of their institutions, little flexibility of their professors, among other aspects. These discoveries give rise to the analysis of the per mouths of the didactic characteristics (in person online) subjects and their effects on students (Rosario-Rodríguez et al., 2020). The results found achieve increases in signs of depression, craving, post-traumatic stress, desperate ideation and sleep inconveniences. The operations that institutions achieve in favor of the mental health of their students during and post-pandemic could soften the psychological consequences of COVID-19 and promote the progress of society.

In this sense, the possible adverse consequences of the extensive cessation of face-to-face classes in the training of students and the dangers a resulting therein, such as the widening of the fissures of teaching and student desertion (Cobo-Rendón et al., 2020). Therefore, three elements that are considered elementary in distance instruction are analyzed: fundamental skills for remote training, material circumstances of residence and support of family members. Analyzing the available data, one in five students were found to show significant inadequacies in the aspects analyzed. On the other hand, approximately one-third of the students of the first quintile of income are located in the highest-risk set and only 7% of the students of the richest quintile are located within this set (Eyzaguirre et al., 2020). Extensive disruption of face-to-face classes more acutely disrupts the most sensitive children and youth in nations and can have unfavorable effects of extended term if student drop-out and learning fissures increase.

In context, the question arose as to whether these mental health problems are linked to depressive states and/or demotions to find a meaning of life, appropriate for their academic performance and the achievement of their expectations of personal and professional development in their present life and for their future. From the above, the objective of this study was aimed at comparing the level of depression related to the meaning of life in times of coVID-19 coronavirus pandemic in students from two universities in Peru and Venezuela.

Methodology

Correlational descriptive type research. This type of study is used to calculate two variables and determine the extent to which two variables are related at a single time (Hernández, Fernández & Baptista, 2018). This research described the variables: the level of depression and the meaning of life in coVID-19 coronavirus pandemic times in college students and determined the relationship between the two aspects. Likewise, the study design was cross-sectional, since the data were collected in a single moment.

The exhibition consisted of two groups: The first corresponds to 300 students belonging to the First Cycle of the Continental University of Peru. The second Study Sample consisted of 300 students belonging to the Engineering Program of the First Semester. The inclusion criteria were: 1. Student enrolled in the Semester 2020 - I. 2.- Enrollment greater than 13 credits. 3.- Voluntary acceptance to participate in the study. The technique for collecting information that was used was the survey. The data collection instruments were two questionnaires, being applied to each subject, which are described below.

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Beck Depression Inventory (BDI-2)

It corresponds to a self-administered instrument designed to quantitatively assess a person's depression levels (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). For Beck the BDI-2 addresses depression as a syndrome that can be screened by applying the instrument. Subsequent research showed that BDI-2 is efficient in diagnosing depression (Ginting, Noring, Van der Veld, Srisayekti & Becker, 2013; Contreras-Valdez, Hernández-Guzmán & Freyre, 2015; García-Batista et al., 2019). In this study the BDI-2 was applied validating it using Connbach Alpha, .905 was obtained for 21 elements.

Dimensional Scale of Sense of Life (EDSV) standardized version for Latin America

It corresponds to an instrument designed to evaluate the affective/cognitive perception, which drives the action of people, based on values and references that are their own (Martínez, Trujillo, & Osma, 2011). In this study the EDSV was applied validating it using Connbach Alpha, it was obtained. 926 for 20 elements.

The results were statistically analyzed with the SPSS Program and Spearman's correlation coefficient was determined.

Results

Peru

In Figure 1, the level of depression of university students in Peru is observed in 2020, where the highest percentage 65.3% is the minimum level, followed by the mild level with 18.4%, while the moderate level obtained 11.2% and the lowest is weighted at 5.1% of the level of severe depression in times of the

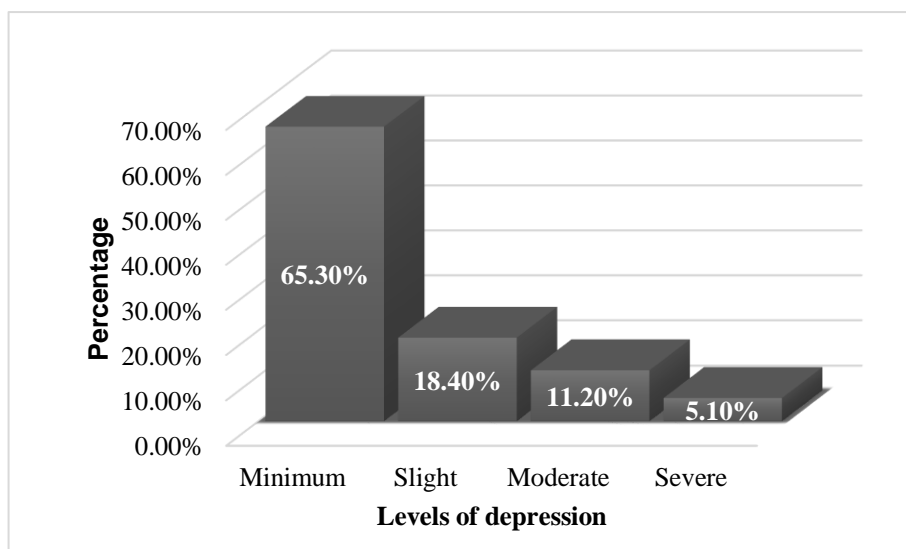


Figure 1. Level of depression of university students in Peru.

Figure 2 shows the variable meaning of life of University students in Peru in 2020, where the highest percentage 48.5% is represented by students with a presence of meaning of life, followed by undefinition with 32.7% of students and 18.9% have a lack of meaning of life in times of the COVID-19 coronavirus pandemic.

Moreover, according to Spearman's Rho test there is a moderate negative relationship of -0.486 , indicating that there is inverse correlation in the variables depression level and life sense of students at times of the COVID-19 coronavirus pandemic.

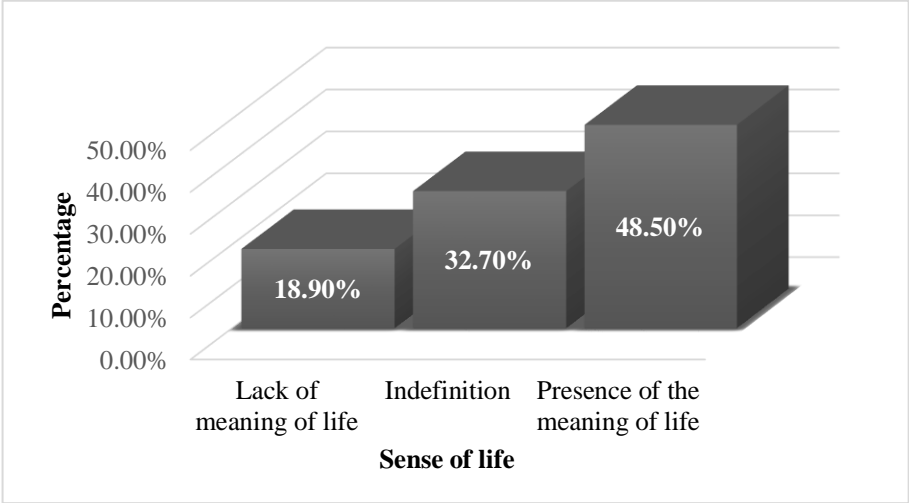


Figure 2. Sense of life of university students in Peru.

Venezuela

Figure 3 shows the level of depression of Venezuelan university students, where the highest percentage 88.64% is the minimum level, followed by the mild level with 6.36% and the lowest is weighted at 5.00% in the level of moderate depression at times of the COVID-19 coronavirus pandemic. It is important to note that, the level of severe depression is not present in any of the students unlike Peru that has 5.10% of students with severe depression level.

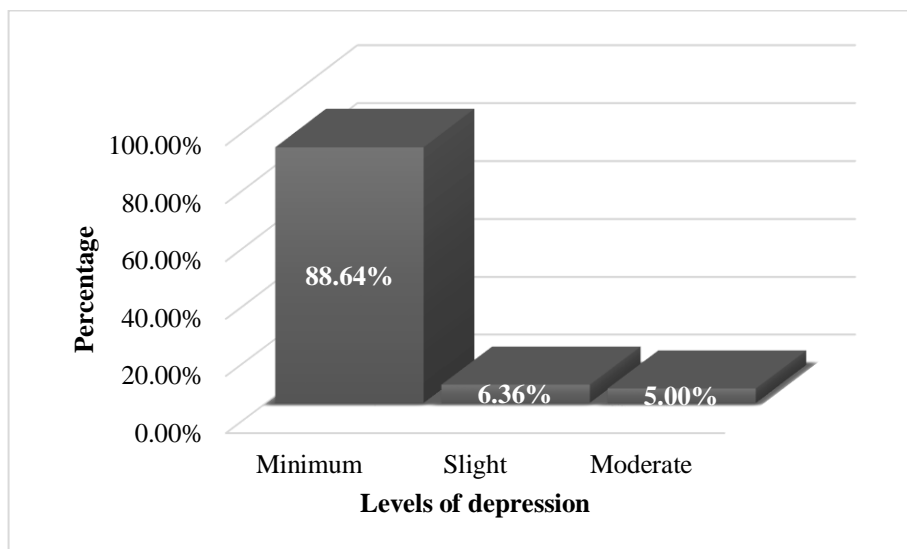


Figure 3. Level of depression of university students in Venezuela.

Figure 4 shows the variable sense of life of Venezuelan students, where the highest percentage 55.45% is represented by students with a presence of meaning of life, followed by undefinition with 31.36% of students and 13.18% have a lack of meaning in life. These results are similar to those produced in students in Peru. However, it can be seen that Venezuelan students have a greater presence of life in times of the COVID-19 coronavirus pandemic.

Moreover, according to Spearman's Rho test, there is a moderate negative relationship of $-.579$, indicating that there is inverse correlation in the depression level and life sense variables of college students at the time of the COVID-19 coronavirus pandemic.

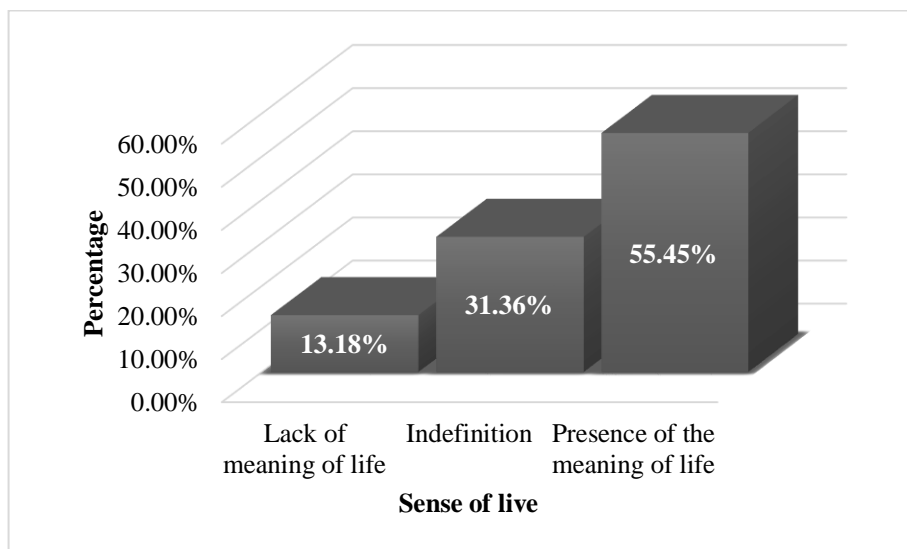


Figure 4. Sense of life of university students from Venezuela.

Discussion

In the case of university students in Peru, participants in the study found that 34.7% showed symptoms of depression between mild, moderate and severe, according to the Beck Depression Inventory (BDI-2), which shows a much higher rate than that expressed by the 9% recorded by WHO in 2019 for the general population. These results are analogs with those obtained by Brenneisen et al (2016), who conducted multicentric research in 22 Brazilian medical schools, analyzing personal and institutional factors applying the Beck Depression Inventory (BDI), finding that of 1350 students 41% had the prevalence of depressive symptoms. In this order, there are also the results of the review conducted by Ibrahim, Kelly, Adams and Glazebrook (2012), who found an average prevalence of 30% in the rate of depression among college students.

In the field of the sense of life, 48.5% of Peruvian students surveyed expressed the meaning of life associated with the goal set as a life project. In addition, the results corroborate that obtained by the research of Hernández,

Valdez, Aguilar, Torres and González (2017), who found that 35.19% of men and 28.82% of women identified the meaning of their life with professional development.

The results indicate that, for Peruvian students, there is a significant high correlation between the level of depression and the meaning of life in students; in addition, the ratio turned out to be negative (reverse) of moderate level (-.307); that is, when a student has a higher level of depression the sense of life decreases, this is similarly to the results obtained by Smedema-Malonda and Franco-Módenes (2018), who found negative relationship between meaning of life and negative affectivity (depression, anxiety), among university students.

For Venezuelan students, it was observed that 11.36% showed symptoms of mild to moderate depression, without recording any cases of severe depression, according to the Beck Depression Inventory (BDI-2), which shows a rate close to that expressed by the 9% recorded by WHO for the general population. These results are analogs with the results obtained by Molina-Correa, Gómez-Puentes, Bonilla-Pabón and Roperio-Gutiérrez (2018), who in the study carried out to medical students of the Institute of Caldas found that 10% on average in students manifest some degree of depression.

In the field of the sense of life 55.45% of Venezuelan students surveyed expressed the meaning of life associated with the goal set as a project of professional life. This result corroborates that obtained by the research of Chalela-Naffah, Valencia-Arias, Ruiz-Rojas and Cadavid-Orrego (2020), who conducted a study on students from seven universities in the city of Bogotá, concerning the meaning of life of university students; these authors found that young students expressed that the meaning of life found it in achieving material goals associated with the professional.

The results indicate that there is a significant high correlation between the level of depression and the meaning of life in Venezuelan students; in addition, the ratio turned out to be negative (reverse) of moderate level (-.520); that is, when a student has a higher level of depression the meaning of life decreases.

Comparing the results of selected universities in both countries, a high significant correlation was found; between depression and the meaning of life; because according to Spearman's Rho test the significance was calculated well

below the error (1%). In both countries the level of correlation was moderate; however, in Peru the correlation level turned out to be a little lower (-.355), than in Venezuela where the correlation was -.520. In both samples of university students, an inverse relationship was evident between the variables depression and sense of life at the time of the COVID-19 coronavirus pandemic. The greater the depression, the sense of life falls. These results are analogs with those obtained by Smedema-Malonda and Franco-Módenes (2018) and those of Chalela-Naffah et al. (2020).

According to Spearman's Rho test for being the bilateral asymptotic significance (Sig.000) lower than the maximum permissible error level (.01), there is sufficient evidence to confirm the research hypothesis: the level of depression is significantly, inversely and moderately related to the meaning of life at the time of the COVID-19 coronavirus pandemic in university students in Peru and Venezuela.

Conclusions

The study expressed according to the Beck Depression Inventory (BDI-2), differences between the rate of depression expressed by university students in Peru and those in Venezuela at the time of the COVID-19 coronavirus pandemic. In the Peruvian case, depression at mild to severe levels exceeds WHO's overall indicators by 20 percentage points. In Venezuelan, the difference is 1.36 percentage points from the overall WHO rate.

Determining the correlation between the study variables showed that there is a significant high correlation between the level of depression and the meaning of life in college students; in addition, the relationship turned out to be negative (reverse) of a moderate level, that is, when a student has a higher level of depression the meaning of life decreases.

On the other hand, comparing the results of selected universities in both countries found a high inverse significant correlation; between depression and the meaning of life in times of the COVID-19 coronavirus pandemic. In addition, university students from both countries agree to associate the meaning of life with the achievement of career goals. It is therefore essential that universities generally take the relevant forecasts to avoid major ills in their students.

In this sense, it is necessary to carry out activities in the universities that grant the student to promote the national commitment of their educational institution. In the light of the above, pandemic-time universities must address the difficulties of the nation and its benefit teams, including the mental health of their students through their institutional core purposes. In this way, the pandemic disturbs all the environments of universities: from instruction to extension; equivalently upsets the university community from teachers to students, goods and services; the relevance of leadership skills of teachers and governing authorities.

The management of mental health in the pandemic has to be assumed from a comprehensive approach without prepondering economic aspects above the social. So, the committed conception of the mental health of its students is truly due to two of its brands as an organization. Firstly, it is a mission, because by worrying about its participants and internal benefit sets, it creates a socially comprehensive university association. On a secondary level and according to the above, it compensates to some extent for its formative impacts, since the student, by perceiving in the work of the organization the concern for his mental health, assimilates from those general practices and services, on a large scale impacting on his values, his way of deciphering the universe and holding on to it.

In addition, if the above is added to the scientific perspective in the production of socially committed knowledge combined with its mediation in the mental health of its students, it can be reflected that the institution is also responsible for its cognitive impact, so it affects the clarification and discrimination of the difficulties of the academic agenda, creating a sense of belonging in the face of the general emergency and its recipients. Finally, each of the activities carried out by educational institutions in favor of the mental health of their educated during and after the pandemic, admits that universities take care of the progress of society and promote the solution to essential difficulties, transcending and creating positive social impacts in communities.

In this order of ideas, universities can implement as organizational components as welfare units for students, with psychological care and general guidance, as areas outlined for the promotion of mental health in the institutional environment by executing operations with mediation regimes, support or educational advice for the progress of healthy educational journeys that take stock of the university demands of the hand with the priorities of the

context in which they are developed. Likewise, through the institutional activities of the units raised, they can also be engaged in the prevention of psychosocial conflicts such as the psychological moments mentioned as academic distress, sense of life, decay of the purposes of existence caused by the consequences of the pandemic, which without hesitation will disturb the interest of students, the willingness of learning and persistence in the regime of universities.

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Bullying's Negative Effect on Academic Achievement

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Abstract

Bullying carries great harm for all involved, undermining academic achievement as well. The strength of such impact is yet to be clarified, existing many possibilities and variables to analyze – classroom behavior being one.

The present cross-sectional investigation goal was to study the impact of bullying (mediated by the classroom behavior) on the academic achievement.

Participants consisted of 288 children (from the 1st to 4th school years), 51% females and 49% males, and an average age of: $M = 8.09$ years ($SD = 1.193$; $Min = 7.94$, $Max = 8.21$). Children filled out a self-report questionnaire on bullying; their teachers reported on classroom behaviors and academic achievement.

Results showed that the bullying situation itself, didn't significantly explain the academic achievement of those involved. Indirect effects were found for both victims and perpetrators. Victims revealed worse school results through worse classroom behavior (specifically, excessive motor activity). Aggressor presented worse school results through worse classroom behavior (specifically, opposition behavior, excessive motor activity, and hyperactivity).

These results highlight the importance of the educational agents' attention to the existing behaviors in their classrooms, not only to the disruption established in each classroom's environment, but as a possible sign of an involvement in the existing bullying dynamics.

Keywords: Bullying, bully, victim, classroom behavior, academic achievement

El Efecto Negativo del Bullying en los Resultados Académicos

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Resumen

El bullying causa enorme daño a todos los implicados, perjudicando también sus resultados académicos. Tal impacto todavía está por aclarar, existiendo muchas posibilidades y variables por analizar – el comportamiento en el aula es una. El objetivo de la presente investigación transversal fue estudiar el impacto del bullying (mediado por el comportamiento en el aula) en el desempeño académico. Los participantes consistieron en 288 menores (del 1º al 4º año escolar), 51% niñas y 49% niños, y una edad media de 8.09 años (SD= 1.193; Min= 7.94, Max= 8.21). Los alumnos respondieron un cuestionario de autorreporte sobre bullying, sus profesores reportaron comportamientos en el aula y resultados académicos. Los resultados mostraron que la situación de bullying en sí no explicaba significativamente los resultados académicos de los involucrados. Se encontraron efectos indirectos tanto para las víctimas como para los perpetradores. Las víctimas revelaron peores resultados escolares mediante peores comportamientos en el aula (específicamente, actividad motora excesiva). Los agresores presentaron peores resultados escolares mediante peores comportamientos en el aula (específicamente, comportamientos de oposición, actividad motora excesiva e hiperactividad). Se evidencia la importancia de la atención de agentes educativos a las conductas existentes en sus aulas, a las perturbaciones establecidas, y a las posibles señales de participaciones en existentes dinámicas de bullying.

Palabras clave: Bullying, agresor, víctima, comportamiento en el aula, desempeño académico



Bullying implies repeated actions of aggression (whether is physical, verbal or relationship focused) that features a prolongation in time and a physical or web network context (Smith et al., 2008). In the bullying situation, one can play different roles, namely the bully and the victim (Boulton & Smith, 1994). This relationship implies an unbalance of power between individuals, where the first (the bully) exerts dominance and coercion over the second (the victim) (Olweus, 2012).

Bullying can happen in a quiet way where only the perpetrator and the victim interact, or it can happen in a social context and in high-profile conditions, such as in a school. In this context, some colleagues may witness bullying behaviors by reacting pro-socially either by defending the victim and expressing disapproval to the aggressor or by supporting the aggressor. Failure to react at all may also express tacit approval of that behavior. Bullying is a behavior that affects all the subjects involved and manifests complex interdependencies leading to a negative impact on various dimensions of the individual. If it occurs in the school context, it influences the attitude of the actors in that context (Van der Ploeg, Steglich, & Veenstra, 2020). Bullying can occur in many ways, the most common being physical, verbal, material, relational, and cyberbullying.

In a previous study developed by Gomes, Ferreira, Silva, and Castro Caldas (2017), using a sample of 883 participants, victims of bullying represent 69.5% of the sample and non-victims account for 30.5%. This showed a high prevalence of bullying in the school universe being a major problem in schools. Therefore, we are interested in investigating the consequence of these aggressive behaviors among school-age children.

The victims are more vulnerable to depression, low self-esteem, poor self-image. A lot of victims come up with psychosomatic disorders (with a variety of reported pains), anxiety, sleep disorders, social isolation and affection related disorder (Gomes, 2014). Meanwhile bullies have a tendency to delinquency, higher psychiatric risk, substance abuse, antisocial behavior, violence and criminal activity (Gomes, 2014).

The levels of violence against children are frighteningly high and it is estimated that up to one billion children between the ages of 2 and 17 have been victims of some form of violence (Ferrara, Franceschini, et al. 2019). Very few studies have provided data on physical violence at school, but it can have a worrying impact, causing psychological distress, permanent physical

disability and long-term physical or mental illness. Children who have been bullied at school may develop physical inactivity, overweight or obesity, diabetes, smoking, excessive alcohol consumption, physical health problems such as heart disease, respiratory diseases. Data from international studies clearly show that violent school experiences are related to worse school results (Ferrara et al. 2019).

Bullying and Academic Achievement

Within the dimensions vulnerable to the adverse effects of bullying, there is the variable academic achievement (Moore et al., 2013). Data that supports this connection is feeble especially when taking into consideration the victims (Beran 2008, Hanish & Guerra, 2002; Kochenderfer & Ladd 1996).

Nakamoto and Schwartz (2010) found a small but significant association between both in their meta-analysis. Authors acknowledge the need to explore other variables in order to explain this association (e.g., Buhs, 2005; Nakamoto & Schwartz, 2010; Schwartz, Gorman, Nakamoto & Toblin, 2005; Troop-Gordon & Kuntz, 2010; Vaillancourt & McDougall, 2013).

In a study with 3rd and 4th grade students, Troop-Gordon and Kuntz (2010) found that children who are victims of bullying and have a bad teacher-student relationship tend to have a higher risk of poor academic development, in comparison with children that have a solid relationship with their teacher. In a sample of Portuguese students (between 5th and 7th grade students) it was found that teacher attachment (measured in terms of communication and mutual acceptance) positively contributed to the academic investment and success (Sousa Machado, Tomás da Silva, Pacheco Miguel & Vieira, 2018).

McMillan, Myran & Workman (2002), consider that low academic performance could be explained by aspects such as classroom behaviour and students' performance in the tasks assessed (within the same classroom environment). Other authors emphasize variables such as depression and its role as a mediator with academic involvement (Schwartz, Gorman, Nakamoto, & Toblin, 2005; Buhs, 2005).

Considering that the anti-social, delinquent and aggressive behavior has a negative impact on grades and academic engagement (Coie, Dodge, & Lynam, 2006) it is possible that being a bully may negatively impact the academic achievement.

The involvement in bullying dynamics (for example, threatening to end a friendship depending on a specific behavior; ill-speak on someone to others) as shown in literature (Hymel, Comfort, Schonert-Reichl, & McDougall, 1996) puts children at risk for academic failure and abandonment. Despite this risk, and opposite to the conventional conception, bullies do not have deficient social-cognitive skills (Camodeca, Goossens, Schuengel, & Meerum Terwog, 2003). These skills are in fact important to the academic achievement.

A positive association was found between relational aggression and expressive and receptive vocabulary evaluation (Bonica, Arnold, Fisher, Zeljo, & Yershova, 2003). It was also verified that involvement in self-reported bullying behaviors (acknowledged by those involved) is associated with a higher academic achievement (Woods & Wolke, 2004). It is noteworthy that in this context these children have higher ability to manipulate peers (Garandeau & Cillessen, 2006; Sutton, Smith, & Swettenham, 1999).

Risser (2012) also found the existence of a negative association between academic achievement and manifested relational aggression with boys of the fourth and fifth grade. Manifested relational aggression was a predictor of academic achievement. When the manifested aggression is controlled, relational bullying appears as the only predictor of lower academic achievement among girls of the fourth and fifth grade. These results advance the fact that when girls involve themselves in these behaviors it clearly contributes to a decrease in their class performance. Violence and bullying are significantly associated with lower grades. Students in schools with higher levels of bullying have worse academic results. So, the school environment affects academic achievement, and this is true for all students, regardless of previous exposure to violence. Moore, Norman, Suetani, Thomas, Sly and Scott (2017) revealed an association between childhood bullying victimization and poor academic performance. In addition to negatively influence academic performance there is also a relationship between bullying victimization and an increased tendency to consume alcohol, loneliness, obesity, overweight, and psychosomatic symptoms. Experiences of bullying victimization and observation of bullying behaviours impact on the behaviour and mental health of children and adolescents, as well as on their academic outcomes. When a child has cumulative experiences for 5 years as a victim, aggressor, or viewer of bullying behaviors, they will manifest greater difficulties in academic performance, revealing less optimism in the future,

low self-esteem, and mental health symptoms (Evans, Smokowski, Rose, Mercado, & Marshall, 2019). Forster, Gower, Gloppen, Sieving, Oliphant, Plowman, Gadea and McMorris (2019) demonstrate that when students and teachers develop affectionate relationships among themselves there is less likelihood for bullying behaviors. Students who experience bullying behaviors, such as victimization, are less involved with the school and its outcomes. Schools that foster affective attachment between teachers and their students stimulate behavioral, emotional and cognitive involvement in general by promoting protective effects and improving school performance. School bullying exists in all schools, whether public or private. The existence of bullying in a school setting negatively affects the academic outcomes of both victims and aggressors (Al-Raqqad, Al-Bourini, Talahin, & Aranki, 2017). Victims of bullying have higher levels of depression and lower levels of interest in school (Stefanek, Strohmeier, & Takuya, 2017).

Bullying behaviors reveal an association with academic performance. Being a victim is associated with poorer academic performance but being an aggressor may not. Therefore, involvement in bullying behaviors as a victim or aggressor may have different implications for the academic performance (Clemmensen, et al. 2020).

Classroom Behavior and Academic Achievement

Another variable that can have an effect on academic achievement (namely, on students being approved or disapproved) is their classroom behavior. On the student part, this can be defined by challenging behaviors shown to the teacher (disregard, impulsiveness and disobedience or noncompliance with the rules). Those behaviors are presented in a range of 12 to 20% of American students (Fabiano, Pelham et al., 2013). Notwithstanding classroom behavior often appears to be superimposed to Attention Deficit Hyperactivity Disorder (ADHD) as demonstrated in recent studies. Other studies explored the impact of teacher classroom management strategies on first grade students. Within this sample 92.7% of individuals filled in the criteria for Attention Deficit Hyperactivity Disorder (ADHD), with 69.1% of them presenting combined symptomatology (Owens et al., 2017).

The victims of bullying often feel ridiculed because they are threatened, pinched, bitten, beaten, invited to fight. The emotions they experience after being bullied are anger, guilt, fear, sadness, boredom, pain, hopelessness,

feeling of not being accepted, anxiety. For aggressors the emotions experienced after the aggression are anger, sadness, guilt, regret, anxiety. For the viewer, emotions arise after witnessing bullying are sadness, anxiety and fear (Kustanti, Rahmandani, & Febriyanti, 2020). All emotions involved in bullying behaviors, whether as a victim, aggressor, or spectator, are potentially negative and enable the child to establish a bad relationship with the school context with implications for classroom behavior, motivation, and academic achievement (Kustanti, Rahmandani, & Febriyanti, 2020).

Academic provocation among students in a classroom context, like other forms of malicious provocation and intimidation, has negative consequences on academic achievement, as students hide the academic effort with the school, and teachers may believe that these students are not interested in the school. Classroom management skills and classroom behaviour are strong predictors of students' academic achievement. They react with frustration and using academic provocation, when classroom environments are inefficient, and when teachers are no longer interested in them. Students who experience negative school climates where bullying behaviors exist are more likely to engage in self-sabotage behaviors, including concealment and containment of academic effort, which impairs academic achievement (Dietrich & Hofman, 2020).

Bullying, Attention Deficit Hyperactivity Disorder (ADHD), and Academic Achievement

Attention Deficit Hyperactivity Disorder (ADHD) is one of most common neurodevelopmental disorders in childhood and impacts both academic achievement (e.g., school outcomes) and social adjustment (e.g., bullying), (Faraone, Sergeant, Gillberg, & Biederman, 2003; Gau, Chong, Chen & Cheng, 2005). Within the challenges that ADHD carries, those that may negatively influence academic achievement and social functioning are: attention problems and, on other hand, hyperactive and disruptive behaviors (such as hyperactivity and impulsivity).

Attention problems may limit children's with ADHD opportunities to acquire (and learn) both classroom skills and teaching materials (Frick et al., 1991) or even to learn essential and needed social skills to have positive interactions with others (Landau & Milich, 1988), such as skills that the

human being acquire through observational learning (Wheeler & Carlson 1994).

Hyperactive and disruptive behaviors may result in even more irritability and socially inappropriate behavior in the social context in question. This hinders children's opportunities to participate fully and appropriately in the classroom (Whalen & Henker, 1985), which may reduce their ability to learn from peers and teachers (for example, if a child misbehaves and goes to time-out, it stops the learning process) (Frick et al., 1991).

Research data succinctly points out that ADHD's characteristic symptoms, are negatively associated with academic achievement. It is typical of hyperactive children to present difficulties to concentrate on a single task, since they are usually working on multiple tasks simultaneously. This transposes to a difficulty to pay attention to classes and remember learned material (Barkley, 2003).

Children with attention deficit and hyperactivity disorder (ADHD) often reveal fewer friendships, more difficulties in social interaction in a constructive way by developing intimidating behaviors towards others and less confidence in their ability to participate in the activities of their peers. They often experience depressive and anxiety disorders (Lange, 2018).

Due to bullying behaviors in the classroom, students are unable to fully concentrate on their work activities, do not participate in class, and find it more difficult to follow the teacher's instructions and eventually disconnect from their studies. If the victim suffers from ADHD, being under anxiety and fear makes it easier to distance oneself from learning and their inattention or dysfunctional behavior may become accentuated. On the other hand, the impulsiveness presented in ADHD can also be a factor that promotes behavior disorders in a classroom context and enables aggressive behavior towards colleagues (Lange, 2018).

School Evaluation and Academic Achievement

Although is common sense that in terms of school evaluations the grades achieved by students at each moment of formal evaluation is the most important factor (McMillan et al., 2002) there are other elements that weigh in each student's final evaluation and test.

Literature shows evidence of a tendency for teachers to reward a mixture of attitude, effort and performance to a certain degree (Brookhart, 1991, p. 36;

Cross & Frary, 1996). Teachers base their assessment on two major domains: academic achievement and social behavior, the former being the most valued at an elementary level. However, teachers are a very important element in developing correct classroom behaviour and good test results (Chetty, et al. 2014). Marso and Figge (1993) gathered data from various investigations, and summarily these authors enhanced that teachers have a preference for other methods of assessment besides the traditional written in paper with pencil assessments.

Brookhart (1994) concluded that test scores contributed significantly to the final grade and that student effort and ability were also important as a parameter of evaluation. As defended by Airasin (1984) elementary teachers rely more on informal and observational evidences, while high school teachers use performance testing, written assessments as their main means of assessments. Interestingly, disruptive student behavior had no impact on students' academic achievement. Or if so, on their teachers' evaluation of them (McMillan et al., 2002). Which would logically make sense to happen, as the students (while in the classroom) would tend to exert little effort and tend to not participate actively. Despite this, poor academic achievement (in particular, of the bullies) might not have to do with the repercussions of engaging in violent behavior.

Objective and Hypothesis

Previous research has explored the role of bullying on academic performance, both from the perspective of the aggressor and the victim. There seems to be a tendency to recognize the negative effect of bullying on academic performance, but empirically there are doubts about the strength of such a relationship and even doubts about the very direction of the relationship between these constructs (whether it is positive or negative) as well as on the main mechanisms linking bullying to academic performance. This study seeks to clarify the relationship between bullying behaviors and school performance and test classroom behaviors in bullying victims and aggressors as a potential mediator of this relationship.

It is also interesting to study the impact of classroom behavior on academic performance. This relationship may be associated with a direct impact (when the student is not focused, is not able to capture the information, and therefore is likely to have a bad grade) or an indirect impact (when the student exhibits

behavior that is opposite to what the teacher expects. This may also have a negative influence on your assessment of academic performance).

Additionally, we want to look at what disruptive behaviors occur in the classroom, and to explore if are part of the group of behaviors that frame Attention Deficit Hyperactivity Disorder (ADHD). We want to verify if aggressors have behaviors that fit Attention Deficit Hyperactivity Disorder (ADHD). It is hypothesized that involvement in bullying dynamics manifests itself as harmful to classroom environments, which will also affect school performance.

Method

Participants and Procedures

Participants were 288 students and their 13 teachers. The students were elementary school attendees in both public and private schools from the central part of the country (from Lisbon's district). The age range is between 6 and 11 years old. Of the participants, 147 were female (51%) and 141 were male (49%). In regard to the existing school years, 19.8% of the students attended the 1st grade, 20.1% the 2nd grade, 31.6% the 3rd grade and 28.5% the 4th grade. Among them, 215 (74.7%) attended a public school and 73 (25.3%) a private school. The mean and standard deviation of the students' age were: $M = 8.09$ years ($SD = 1.193$; $Min = 7.94$, $Max = 8.21$). In detail, the mean and standard deviation of the 1st grade attendees were: $M = 6.54$ years ($SD = 0.537$); of the 2nd grade were: $M = 7.33$ years ($SD = 0.509$); of the 3rd grade were: $M = 8.40$ years ($SD = 0.594$); and of 4th grade were: $M = 9.38$ years ($SD = 0.621$).

The researchers went to the schools and asked their principals for permission. After obtaining the permissions, the sample was collected during the second half of the school year.

The participants' data were identified with a personal code to protect the child's identity. Participants were informed about the characteristics of the research and the purpose for which their data would be used. All of the parents of the children gave their written consent, as did the children themselves.

The students' socio-demographic characteristics were first assessed, followed by bullying and behavioral measures. The children's teachers filled out the Conners Teachers Scale to assess the children's behavior and returned

it after a week. The application of the full protocol took place in the classroom, with the help of the teacher, and took 20 to 30 minutes.

Measures

Bullying. The Bullying Scale (Olweus, 1989; Portuguese version by Pereira & Tomás, 1994; and revised by Melim, 2010) assesses different components related to the involvement in bullying - either as bully or as victim. For this reason, the questionnaire is organized into three sections. The first addresses the sociodemographic information (7 questions), the second one aspects related to being a victim (consisting of 10 questions, for example “How often have you been bullied since the beginning of the school term?”) and the third one aspects related to being a bully (composed of 5 questions, one of which is “How often have you taken part in bullying others since the beginning of the term?”).

Cronbach's alpha in the present study was .80 to the total score.

Classroom behavior. The reduced version of the Conners for Teachers scale (Conners, 1997) aims to evaluate characteristic symptoms of Attention Deficit Hyperactivity Disorder (ADHD). This scale consists of 28 items, each of them distributed over 4 subscales:

Oppositional problems (from which belongs the item: “Actively defies or refused to comply with adults’ requests”); Absence of attention/cognitive problems (“Inattentive, easily distracted”); problems of motor over-activity (“She/He can’t keep him/herself calm”); and finally an Attention Deficit Hyperactivity Disorder (ADHD) index that is answered by the teachers and alludes to the child's behavior, using a 4-point Likert scale ranging from 0 (Never) to 3 (Very Frequently). The higher the scores (both from the subscales or from the overall outcome of the scale) the more severe are the ADHD’s symptoms.

In the present study, a Cronbach's Alpha of .97 was obtained for the total score. And for each factor, the following Cronbach’s Alphas were obtained: .91 for the “oppositional problems” factor; .90 for the inattention/cognitive problems factor; .92 for “motor over-activity problems” and finally, .87 for the ADHD index.

Academic Achievement. The Academic Achievement Rating Scale aims to measure the greater or lesser academic success and is reported by the teacher. It is based on a single item where teachers select the option that best

describes and characterizes each student performance. It is a Likert scale with five response options: 1 (Insufficient), 2 (Sufficient), 3 (Good), 4 (Very Good) and 5 (Excellent). The higher the score given by the teacher, the better it is the student's academic achievement.

Data Analysis

Data was analyzed using the statistical program SPSS (Statistical Package for the Social Sciences - version 24) for Windows. Descriptive statistics (means and frequencies) were calculated to characterize the participants and were calculated for all measures of the present study. Normality analysis were performed using the Kolmogorov-Smirnov test. No outliers were found following the graphical representation of the results. It was verified whether the collected data met the statistical assumptions necessary to advance to the data analysis, namely - Linearity, Homoscedasticity and Normality. Correlations were calculated between all study variables.

In order to find whether the oppositional behaviors (Mediator), inattention/cognitive problems (Mediator), motor over-activity problems (Mediator), and Attention Deficit Hyperactivity Disorder ADHD index mediated the relationship between aggression/victimization (Independent Variables) and the academic achievement (Dependent Variable) the PROCESS macro for SPSS (version 3.0) was used (Hayes et al. 2017).

This macro uses ordinary minimal squares or a trajectory based on an analytical strategy of the Bootstrapping Logistic Regression, a nonparametric test that does not violate the normality assumptions that was used to assess indirect effects. The indirect effect is considered to be significant if the 95% confidence interval does not contain 0.

Several models were tested to assess the indirect effects of behavioral problems on the association between being a victim and academic achievement. The same was done to assess the indirect effects of behavioral problems on the association between being an aggressor and academic achievement.

Results

Means, standard deviations and frequencies can be found in the Table 1. As for correlations, the relationships between victimization/aggression and

student academic achievement were low and statistically non-significant, since the values obtained were $r = .057$ ($p > 0.5$) for victimization and $r = -.009$ ($p > 0.5$) for aggression.

Table 1: Descriptive Statistical Analysis

Variable	M	SD	1	2	3	4	5	6	7
Victimization	.69	-	-	.21**	.06	.04	.01	.14*	.15*
Aggression	-	-	.21**	-	-.01	.21**	.06	.19**	.23**
Academic Achievement	2.98	1.034	.06	-.01	-	-.19**	-.61**	-.25**	-.36**
Opposition Behaviors	1.48	2.820	.04	.21**	-.19**	-	.35**	.80**	.75**
Cognitive Problems/Inattention	2.54	3.561	.01	.06	-.61**	.35**	-	.48**	.64**
Excessive Motor Activity	2.77	4.494	.14*	.19**	-.25**	.80**	.48**	-	.92**
Index of HAD	5.53	7.132	.15*	.23**	-.36**	.75**	.64**	.92**	-

* $p < .05$; ** $p < .01$

All the correlation between victimization and variants aspects of classroom behavior were low. Only motor over-activity ($r = .137$, $p < 0.05$) and hyperactivity index and attention deficit ($r = .157$, $p < 0.05$) were statistically significant.

Correlations between aggression and aspects of classroom behavior were small as well. Oppositional behaviors ($r = .209$, $p < 0.01$), motor over-activity ($r = .185$, $p < 0.01$), hyperactivity index, and attention deficit ($r = .226$, $p < 0.01$) were the ones revealed to be statistically significant

In contrast to these last results and in regard to the correlations between aspects of classroom behavior and academic performance, only the oppositional behaviors showed a weak correlation ($r = -.193$, $p < 0.01$),

revealing a statistically significant but negative association. Also showing the same type of associations with motor activity ($r = -.246$ $p < 0.05$); hyperactivity index; and attention deficit ($r = -.363$ $p < 0.05$), revealing medium associations. Meanwhile cognitive problems/inattention showed a positive (and strong) correlation ($r = .61$ $p < 0.05$).

Regarding the victims, there was only one significant and indirect effect throughout behavioral disturbance –excessive motor activity [*indirect effect* = $-.08$; 95% *CI* ($-.143, -.017$); $R^2 = 7\%$]. Being a victim seems to be associated with greater motor activity in the classroom, and this type of behavior seems to be associated with poorer academic performance.

Regarding bullies, three significant indirect effects were found through behavioral problems: opposition behaviors [*indirect effect* = $-.08$; 95% *CI* ($-.145, -.032$); $R^2 = 4\%$], excess of motor activity [*indirect effect* = $-.09$; 95% *CI* ($-.164, -.034$); $R^2 = 6\%$] and hyperactivity [*indirect effect* = $-.13$; 95% *CI* ($-.215, -.036$) $R^2 = 15\%$]. From these results, it seems that being abusive is associated with more oppositional behaviors, more motor activity and more classroom hyperactivity, and these types of behaviors seem to be associated with poorer academic performance.

Discussion

In this study, we explored the association between bullying and academic achievement and explored the potential mediating role of classroom behavior on this association.

Associations between bullying and academic achievement were small and non-significant. These results confirm the empirical fragility found in the relationship between these variables. The explanation for those results seems to be related to the bullying phenomenon. Especially since its expression is found in a variety of forms, according to the role - victim or bully.

It is important to mention that victimization was significantly associated with the excess of motor activity. This relationship may be the reflection of the presence of depressive or anxious symptomatology following episodes of victimization (Lansford et al., 2007; Oldehinkel et al., 2007). Evans, Smokowski, Rose, Mercado, and Marshall (2019) assume that bullying behaviors have an impact on children's behavior and mental health. When a child has cumulative experiences for 5 years as a victim, aggressor, or viewer

of bullying behaviors, they will reveal less optimism in the future, low self-esteem, and mental health symptoms.

It can also be alluded that aggression also correlates in a significant way to the excess of motor activity; and to oppositional behavior and Attention Deficit Hyperactivity Disorder (ADHD) index as well, indicating a generalized problematic, behavior wise (which can be the result of a diagnostic comorbidity of typical symptoms that are characteristic of ADHD since the co-occurrences of both of this diagnostics in children are usual and significant) (APA, 2013).

Taking in consideration the previous points, it seems that victims eventually tend to present depressive symptomatology (Hawker & Bolton, 2000; Healy & Sanders, 2018) and anxious symptomatology following victimization episodes. That anxiety manifestation is harmful in a classroom environment, and in this way compromises the academic achievement (Schwartz et al., 2005). On their part, bullies might have a possible mix of symptoms (Opposition Perturbation and Attention Deficit Hyperactivity Disorder ADHD) that when expressed in a classroom environment result in a reduced academic performance.

The bullying phenomenon is a complex one, and that is reflected in the results of this investigation –on the low and non-significant direct correlations, and on the existence of both negative and positive correlations (inverted correlations). For example, this study obtained a negative correlation between victimization and the academic achievement in contrast to other studies who found a positive correlation. In addition to this incoherence, the relationship between aggression and academic achievement also differs from what was revised from the literature like studies of Moore, Norman, Suetani, Thomas, Sly & Scott, 2017; Al-Raqqad, Al-Bourini, Talahin, & Aranki, 2017; Kustanti, Rahmandani, & Febriyanti, 2020; Clemmensen, et al. 2020. All these studies have revealed a direct relationship between bullying behaviour and a decline in academic performance.

With these findings, indirect and significant effects obtained corrupt the idea that either a victim or a bully that exerts a negative behavior (in the classroom environment), will have negatives repercussions on the academic achievement. Following not having been found results that were totally significant and effects that were fully direct (with the exception of the effect

found between bullying involvement), other models and other explanations must be taken into consideration.

It is worth to mention the proposal made by Jeffrey Young derived from the Schema-Focused Therapy (Young, Klosko, & Weishaar, 2003). From its theoretical conceptualization, is interesting the definition of the concept of coping styles (processes of schema maintenance) of Young et al. (2003). Three styles are defined: processes of maintenance, of avoidance, and of schema compensation. As whole these three styles form the usual response of the individual when a certain premature and ill-adaptive schema emerges following non satisfied emotional needs (Young et al., 2003).

According to the finding presented here, and following the coping style mentioned, the academics results obtained will differ from style to style. In the victims' case that is particularly noticeable, since the use of an avoidance of schema will be most probable. Which it can mean that following the victimization phenomenon, they develop a negative self-image that manifests itself forming a depressive and anxious symptomatology, which in turn will translate itself to an academic disinvestment (Caputo, 2014), reflected also on a poorer academic achievement.

In contrast with these students, other colleagues will tend to involve themselves in processes of schema compensation, mobilizing themselves to antagonize that same poor self-image by strongly investing on the academic part of their lives (for example, by studying more hours), and that will resonate on a better academic achievement.

Studies focused on bullies demonstrate that they will also present a poor image of themselves (Jevtić & Mikanović, 2017; O'Moore & Kirkham, 2001), assuming globally a behavior of challenge to rules and authority figures. That same behavior can be manifested on a classroom environment when they systematically challenge their teacher authority as a possible way to capture their peers' attention as a way to be recognized as dominant by the same peers (Olthof, Goossens, Vermande, Aleva & van der Meulen, 2011; Rodkin, Espelage & Hanish, 2015). This can be translated on a schema of compensation that will end up harming their (direct or indirect) evaluation made by their teacher.

It can also be considered that some children who objectively have superior cognitive resources (in comparison to others), to whom school experience is extremely noxious, may present a disinvestment on school since they do not

believe it to be worth it. In this case, we were speaking about a process of an avoidance schema.

Yet, from another point of view and as mentioned behindhand, there are students with superior social-cognitive skills (Bonica et al., 2003) allowing them a better academic achievement and easily investing themselves in bullying dynamics. For example, by manipulating peers (Garandeau & Cillessen, 2006; Sutton, Smith, & Swettenham, 1999).

Schools should be concerned about bullying and develop prevention and intervention programs; by doing so they are promoting positive school and psychosocial outcomes.

Conclusion

Bullying is a complex phenomenon that can create results that tend to be differentiated and multifaceted. This study explored the behavior in the classroom, indirect effects were found for both victims and perpetrators. Being a victim was associated with worse school results through worse classroom behavior (specifically, more excessive motor activity). Being an aggressor was associated with worse school results through worse classroom behavior (specifically, opposition behavior, excessive motor activity, and hyperactivity). It seems that in this population school results are being influenced by classroom behavior. In the case of victims, it is the excess of motor activity that indirectly disturbs school performance and in the case of aggressors it is the opposition behaviors, excess motor activity and hyperactivity that indirectly and negatively influence school results.

However, it is still to be investigated the role of many other factors such as depression, anxiety, self-centered beliefs, self-esteem, empathy, emotional intelligence and finally, self-concept, among others.

These issues also highlight the importance of the involvement and attention of educational agents (particularly, the teacher's involvement) in regard to the existing behavior in the classroom, not just simply because of the provoked disruption. But also, mainly because the child's behavior is a sign or symptom of the child's involvement in bullying dynamics (which are extremely noxious). This same sign also can reveal difficulties in emotional regulation. Teachers can have a very important role on the evolution of events, either by the relationship that they build with their students (Troop-Gordon & Kuntz,

2013; Sousa Machado et al., 2018) or by the evaluation that they attribute to each student.

It is well known that a well-succeeded teacher-student interaction in a classroom environment is determinant to the student's emotional, educational and social development. Fomenting a positive and empathic relationship is a promotor of greater levels of academic motivation and prevents behavioral problems in the classroom environment. The higher the emotional support felt by the students is, the higher their involvement in the learning process will also be (Jones, Bouffard, & Weissbourd, 2013). Positive relationships between teachers and students can act as a muffler against the potentially adverse effects that bullying might have on students' academic achievement. The quality of the relationship between teachers and students is crucial and as such should be a focus of attention in the school context. Forster, Gower, Gloppen, Sieving, Oliphant, Plowman, Gadea and McMorris (2019) demonstrate that when students and teachers develop affectionate relationships among themselves there is less likelihood for bullying behaviors.

Limitations

Within the limitations of this study, is worth highlighting the instruments used to evaluate the selected constructs. The bullying phenomenon was captured through the Bullying Scale of Olweus, from which is possible to point out some fragilities. Academic achievement is not assessed through objective measures of the students' performance (for example, final term scores), instead, is the result of a classifying appreciation made by a certain teacher at a certain moment. The Conners scale englobes 28 items (in the teacher's version) and 4 subscales that evaluate oppositional problems, inattention/cognitive problems, excessive motor activity and finally, the ADHD index. This scale is one of the most used instruments to evaluate behavioral changes in 7-year-old children (Conners, 1997), but it is a very Attention Deficit Hyperactivity Disorder ADHD oriented instrument. Despite this last fact, it was the chosen instrument, since it seemed the simplest to ask of the teacher to fill out.

In this study, the variables were measured in a single moment, which is a methodological limitation, we propose that future studies reproduce with other

samples the analysis of the model presented using longitudinal drawings, measuring in two or three different moments.

This study does not focus directly on the Attention Deficit Hyperactivity Disorder (ADHD), we address this disorder simply because we are interested in verifying whether at the level of classroom behavior there are behaviors that compose it. However, we do not work with sufficient instruments to identify this disorder in the sample studied.

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The Value of Pedagogical Preferences: A Case of Personality and Learning Environments in Higher Education

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The Value of Pedagogical Preferences: A Case of Personality and Learning Environments in Higher Education

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Abstract

To improve learning outcomes, research evidence has accumulated regarding the principles of teaching and learning; however, students' perceptions of teaching methods have received little scientific investigation toward enhanced quality of their learning. To provide a demonstration of the value of researching student perceptions of the learning environments in which they find themselves, a sample of preference ratings ($n = 69$) was examined to test the hypothesis there exist among the Five Factor personality dimensions correlates of preference ratings for three environments: teacher-led, independent-autonomous, and groups. Results confirmed preference for group learning in our sample and statistically reliable zero-order positive correlations between group-based learning preference and both extraversion and openness scores and between preference for teacher-led environments and openness scores. First-order correlations showed no significant changes in accounted preference variation when controlling the other personality factors scores. These findings are discussed with respect to likely social-cognitive and neurodevelopmental bases of group learning effectiveness and the utility of investigating student preferences for improving the quality of learning.

Keywords: teaching practices, personality type, group work, student preference

El Valor de las Preferencias Pedagógicas: Un Caso de Personalidad y Entornos de Aprendizaje en la Educación Superior

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Resumen

Para mejorar los resultados del aprendizaje, se han acumulado pruebas de investigación sobre los principios de la enseñanza y el aprendizaje; sin embargo, las percepciones de los estudiantes sobre los métodos de enseñanza han recibido poca investigación científica para mejorar la calidad de su aprendizaje. Para proporcionar una demostración del valor de investigar las percepciones de los estudiantes sobre los entornos de aprendizaje en los que se encuentran, se examinó una muestra de calificaciones de preferencia ($n = 69$) para probar la hipótesis que existe entre los correlatos de las dimensiones de personalidad de los Cinco factores de las calificaciones de preferencia para tres entornos: dirigido por el profesor, autónomo independiente y grupos. Los resultados confirmaron la preferencia por el aprendizaje en grupo en nuestra muestra y correlaciones positivas de orden cero estadísticamente confiables entre la preferencia de aprendizaje basada en el grupo y las puntuaciones de extraversión y apertura y entre la preferencia por entornos dirigidos por maestros y las puntuaciones de apertura. Las correlaciones de primer orden no mostraron cambios significativos en la variación de las preferencias contadas al controlar las puntuaciones de otros factores de personalidad. Estos hallazgos se discuten con respecto a las posibles bases socio-cognitivas y del desarrollo neurológico de la eficacia del aprendizaje grupal y la utilidad de investigar las preferencias de los estudiantes para mejorar la calidad del aprendizaje.

Palabras clave: prácticas docentes, tipo de personalidad, trabajo en grupo, preferencia del estudiante

A movement is afoot within educational psychology to not only add more knowledge of teaching and learning principles but to demonstrate the potential value of education research for enhancing the quality of student learning (Biggs & Tang, 2012; Entwistle, 2019). One step toward the goal of improving learning quality is to discover those teaching practices that are satisfying to the student. Educational psychology has long understood the varying ways students process information and their personal motivations to succeed (Biggs, 1987; Curry, 1983) and has been long successful in improving learning through evidence-based methodologies (e.g., Horak & Horak, 1982; Parent, Forward, Cantor, & Mohling, 1975). Historically as well, education research has uncovered beneficial relationships among personality factors and individual approaches to learning (e.g., Duff, Boyle, Dunleavy, & Ferguson, 2004), often called learning *styles* (Dunn, Dunn, & Price, 1989; Felder & Spurlin, 2005; Furnham, 1992; Honey & Mumford, 1992; Sternberg, Grigorenko, & Zhang, 2008; cf. Curry, 1990; Riener & Willingham, 2010).

While knowledge of these factors related to academic success has increased over the decades, little evidence has accumulated regarding the quality and meaningfulness to the student of their learning toward “action theories” immediately applicable by educators (Entwistle, 2019). However, learning preferences have been largely neglected by educational science and only investigated within limited academic contexts (e.g., Chamorro-Premuzic, Furnham, Dissout, & Heaven, 2005; Murphy, Gray, Straja, & Bogert, 2004), without reference to academic outcomes (e.g., Khine, Fraser, Afari, Oo, & Kyaw, 2017), or with limited generalizability (Costa, Ransberg, & Rushton, 2007). Given that previous research shows a paucity of formal investigations into student pedagogical preferences, our purpose was to provide exploratory data not previously obtained to indicate the usefulness of investigating student preferences toward the enhancement of learning quality. In other words, a rich matrix of psychological data is promised by an analysis of reported relative preferences over the kinds of learning environments that teachers provide them in higher education, toward the development of action theories for educators. This article reports our attempt to achieve a modest demonstration of the value of learning environment preferences using a correlational design to discover the linear relationships between students’ preference ratings and their personality factor scores.

In the past achievement-focused research indicated enhanced academic performance to be a matter of matching the instructor's teaching methods to students' learning styles, or the ways they learn best (Dunn, Dunn, & Price, 1989; Kolb, 1984). In fact, it was suggested by Felder (1993) that for teachers to reach as many students as possible, a variety of teaching modalities should be used to accommodate the multiplicity of learning styles. But the matching approach was challenged in various reviews (e.g., Pashler, McDaniel, Rohrer, & Bjork, 2008) and by critiques (e.g., Riener & Willingham, 2010; Stander, Grimmer, & Brink, 2019) even while education research continued toward best practices by focusing on either side of the match. On the learning side, there has been an emphasis of theory and research on study process and motivation (Biggs, 1987; Biggs, Kember, & Leung, 2001; Lake, Boyd, & Boyd, 2017; Swanberg & Martinsen, 2010) and on levels of academic engagement (Johnson & Johnson, 2009; Skinner, Furrer, Marchand, & Kindermann, 2008). As for the teaching side, there has been particular interest in learning environments. Since the late 1990s, periodicals have targeted the environments, broadly defined, that teachers create and use within evidence-based practice. For example, recent studies have demonstrated enhanced student engagement as well as improved retention of information and increases in academic achievement within peer-group environments (see Vermette & Kline, 2017, for a review). Given this strong interest in the practical implications of learning environments, it would seem reasonable for quality teaching to discover whether there is value in knowing student preferences for them.

Learning environments are created within the variety of teaching modalities educators use and they are specified by the way information is delivered to the student and the social context of this delivery (Fraser, 2014; Friedman, & Alley, 1984; Mathews & Jones, 1994). Today's higher education employs a number of teaching modalities and a review of their relative effectiveness for student achievement is beyond the scope of the present research. For our purposes, three categories of teaching modality were stipulated on the assumption that modalities correspond to one of at least three logically separable learning environments created for the teacher's purposes. The first is *teacher-led* environments that include delivery of information in traditional lectures, small tutorial groups, one-to-one mentoring, and so on. Learning environments that are *independent* are distinguished by individual

student settings in which one learns autonomously. These may include individual study and independent achievement activities such as individual presentations, self-evaluations and, more recently, the flipped classroom (Jensen, Holt, Sowards, Ogden, & West, 2018). The third category includes the interactive learning environments created by educators who use *group-based* modalities (e.g., Frey, Fisher, & Everlove, 2009), including cooperative learning in workshops (Johnson & Johnson, 2009) and collaborations on products such as group presentations (Marton, 2015).

It is certainly true the concept of “group work” as a teaching modality is nothing new; practitioners and educationalists have appreciated the resourceful benefits of group-based learning environments and have incorporated it in their pedagogy for decades (Halpern & Hakel, 2003; Vygotsky, 1978), both in schools and universities (Ashman & Gillies, 2003) and across cultures (House, 2005). In a comparison study, 2nd grade students in classrooms that stressed cooperative learning were found to perform better on a measure of reading comprehension than those in traditional classrooms (Law, 2008). A meta-analysis of educators who use the collaborative group modality performed by Frey, et al. (2009) reported similar enhancing results. In their review, Nokes-Malach, Richey, and Gadgil (2015) recently suggested that the causes for the effectiveness of group learning environments were cognitive: the social interactions that groups provide assist learners in their memory retrieval and extend working memory capacity. One study in support of enhanced knowledge retrieval was an analysis conducted on a sample of approximately 5,000 Japanese adolescent science students from the Third International Mathematics and Science Study (TIMSS). The results showed that the use of small-group cooperative learning activities was associated with higher science achievement scores (House, 2005).

Cognitively, group-based environments may provide a means of focus for an individual’s learning processes. Building on the work of Piaget (1970) and Ausubel (1968), cognitive approaches to educational psychology have focused principally on the learner’s information processing, i.e., the access, use, accommodation, and often reconciliation of prior knowledge with new knowledge (Vermette & Kline, 2017). Group learning environments also support correcting one’s knowledge and reinforcing one’s growing knowledge. Group learning has been shown to stimulate individuals to engage in known creative cognitive processes, such as sharing prior

knowledge, retrieving ideas, and self-explaining whilst critically evaluating each other (Halpern & Hakel, 2003). Positive outcomes of collaborative group environments have been most recently emphasized by Entwistle (2019), drawing upon Marton's (2015) variation theory, that students involved in group work may often give more effort to their learning when preparing for collaborative tasks and attaining sufficient understanding to share concepts with peers.

Behaviorally as well, group-based learning environments may be effective for teaching due to their reinforcement value. In a previous study of the preferences of 212 students for seven teaching modalities, confounded with the topics studied, results showed “small groups” and “discussion group” modalities were positively correlated with agreeableness and openness scores while two factors were identified in the preference data structure: interactive and non-interactive teaching types (Chamorro-Premuzic, Furnham, & Lewis, 2007). In addition to the obvious social rewards made available by performing group activities with one's peers, it may be personally satisfying for students to accomplish learning outcomes as a group. For example, students may find group work rewarding because of the grades they attain relative to the time they take to attain them (Öhrstedt & Scheja, 2018). Whether it is efficiency that makes group-based learning satisfying and, consequently, an effective teaching method, or it is the interactive nature of the learning that is rewarding, we had sufficient reason to predict group learning environments would be generally preferred to others.

If individual differences predict preference for group learning environments, neuroscientific understanding of the student's developing brain may provide physiological clues to the effectiveness of group-based environments. For example, it is now common knowledge that neural connections are continually reshaped by experience and this plasticity appears pronounced in the amygdalae of adolescents (LeDoux, 2002), critical to attentional focus and social-emotional response. In addition, certain areas of the frontal lobe undergo measurable changes through adolescence (Choudhury, Charman, & Blakemore, 2008) and further research has shown adolescents find greater reward in risk-taking when among peers than when alone (Blakemore & Robbins, 2012). In group learning environments those risks may take the form of sharing contrary opinions and the critical evaluation of others' ideas that would not have taken place outside the social

context. Thus, there appear to be cognitive, behavioral, and neurodevelopmental factors related to the effectiveness of learning in group-based environments. It would seem most beneficial, therefore, to know the relative preference students give to their learning in group environments.

The present study gathered preference ratings for 21 teaching methods across a variety of learning environments. We first wanted to discover what a sample of typical university students consider to be the most desired teaching and learning environments and whether there exist relationships between those preferences and the personality dimensions of the Five Factor model (Costa & McCrae, 1992; see also Furnham, 2011). We expected a greater mean preference rating for group-based learning than teacher-led and independent learning environments and that one's preference for group-based learning would be linearly related to psychometrically specified personality dimensions. On the basis of Eysenck's (1992) argument that there exists an asymmetry between the sociability and emotionality factors in the standard five factor personality model, we anticipated preference ratings for group learning environments would be predicted by self-reported levels of the more sociable factors extraversion, agreeableness, and openness. Our overall intention, therefore, was to demonstrate that measurable pedagogical preferences are related to personality factors, providing the first steps toward understanding their basis and laying the empirical ground on which further investigation of learning preferences can build.

Method

Participants

The sample was 69 undergraduate students (46 self-identified as women) from a large urban university in the Northwest of England. The population of students from which the availability sample was drawn may be generally described as about 50% working class and 50% middle class from a variety of cultural backgrounds with a majority of white British background. Participants' ages ranged from 18-40 with 93.2% of the sample falling in the traditional age between 19-22 years. Six of the originally sampled 75 individuals returned incomplete questionnaires and their responses were removed from the analysis. Although the remaining sample was small, we had every reason to believe the size was sufficient to detect the relationships we predicted. Given that we expected significant elements in the correlation

matrix with coefficients on the order of .30 to .45, a power analysis following Hulley, Cummings, Browner, Grady, and Newman (2013) indicated a minimum sample size of 68 to maintain the Type II error (β) at .05, for $\alpha < .05$ two-tailed tests of such linear relationships. We also desired collection of data at one time and setting to avoid introducing further variability to the data and, for pragmatic purposes, we sought not to use more resources than necessary in this first exploration of learning environment preferences.

The sample was comprised of English-speaking volunteers undertaking modules that required attendance on campus either on a full-time or part-time basis. None received compensation for their participation. Prior to the study the volunteers gave their written consent to participate, informed by statements of minimal risk, confidentiality, means of data protection, and their right to revoke the agreement for any reason. All participants in this study were treated in accordance with the APA guidelines for human research protections and the university's research ethics committee.

Measures and Procedure

A short version of the NEO-PI-R (Costa & McCrae, 1992) assessed the five personality dimensions of neuroticism (emotional stability), extraversion, openness to experience, agreeableness, and conscientious. This inventory has been found to have strong reliability and validity (Mathews, Dreary, & Whiteman, 2003) and has been a useful tool for assessing relationships between personality and a number of variables including cognitive competence, self-esteem, and teaching effectiveness (McCrae, Kurtz, Yamagata, & Terracciano, 2010).

To assess preferences of teaching and learning environments, a self-report inventory was purposefully designed to collect agreement ratings with 21 teaching method statements within three learning environment categories: (a) *teacher-led*, including lectures, demonstrations, video presentations, guest speakers, teacher-led tutorials, teacher-led activities, and personalized academic support; (b) *independent (autonomous)*, including independent study, individual class activities, individual presentations, information seeking, self-evaluations, individual tutorials, and individual virtual learning; and (c) *group-based*, including seminar groups, collaborative presentations, peer evaluations, debate, group assignments and tasks, group tutorials, and

virtual learning in groups. Participants provided their ratings using a 5-point Likert scale with these labels: 1 = *always*, 2 = *usually*, 3 = *sometimes*, 4 = *seldom*, and 5 = *never*. While the psychometric properties of the preference scales were necessarily unknown as it was developed for our specific purpose, an attempt was made to determine its content validity. Five independent judges were invited to categorize the 21 methods equally into three categories of their own choosing and then to give a “label” to each category. Agreement among the categorizations was 100%, indicating category transparency, and the labels given to the categories were semantically consistent.

In the first 30 minutes of an otherwise standard lecture session, questionnaire booklets that assessed the five personality traits and collected the learning preference ratings for the 21 teaching methods were distributed, completed, and then collected by the class instructor. Participants were assigned code numbers on their questionnaires to ensure anonymity and thanked for their assistance.

Results

The sample’s quantitative description was comparable to the means and distributions reported by others recently (e.g., [Chamorro-Premuzic, et al., 2007](#); [McCrae, et al., 2010](#)) using the NEO-PI-R measure ([Costa & McCrae, 1992](#)). The mean preference ratings for the modalities within each learning environment category, *teacher-led*, *independent*, and *group-based*, were normally distributed. All measures’ distributions showed kurtosis attributable to the small sample size: three of the eight variables’ scores, *Agreeableness*, *Openness*, and *Independent* environment preferences, were slightly leptokurtic on analysis. The sample also self-reported slightly higher mean openness scores than we anticipated. Nonetheless, each of the NEO-PI-R factor scores in the sample showed acceptable levels of internal consistency, with all Cronbach’s alphas > .69. The learning environment preference ratings were less consistent across the seven teaching modalities within each category and likely due to their variety. [Table 1](#) displays the descriptive statistics obtained for the distributions of scores for personality factors and learning environment preferences.

Table 1

Descriptive Statistics for Trait Dimensions and Learning Environment Preferences

<i>n</i> = 69	Mean	SE	α^a
Extraversion	25.68	0.69	.78
Agreeableness	30.46	0.60	.71
Conscientiousness	30.39	0.66	.69
Neuroticism	23.93	0.58	.81
Openness	32.42	0.56	.77
Teacher-led Environments ^b	3.68	0.38	.58
Independent Environments ^b	3.18	0.61	.51
Group-based Environments ^b	4.05	0.45	.65

^a Cronbach's alpha^b 5-point ordinal scale across seven modalities

The expectation that group learning environments would be preferred by undergraduates to other learning environments received empirical support. A one-way repeated measures ANOVA on mean preference ratings resulted in significant differences among all three learning environments with teacher-led modalities ($M = 3.68$) preferred over independent learning pedagogies ($M = 3.18$) and group-based environments preferred most of all ($M = 4.05$), $F(2,66) = 22.02$, $MSe = .60$, $p < .001$. The planned contrast between preferences for group-based and non-group teaching modalities showed the group learning environments were preferred to the others, $t(67) = 5.38$, $p < .01$.

The matrix of Pearson product-moment correlations supported the hypothesis of personality correlates with evidence of the direction and magnitude of linear relationships among the five personality factor scores and preference ratings for the three learning environments. As predicted, and shown in Table 2, the extraversion ($r = .32$) and openness ($r = .25$) factors were positively correlated with preference for group-based work; agreeableness scores, however, were not correlated with this preference ($r = .05$), nor with preferences for any learning environment category. The missing relationship with agreeableness could very well indicate a sampling bias. Agreeableness scores were reliably correlated with conscientiousness and neuroticism scores. Preference for teacher-led learning environments

also resulted in relationships with personality factor scores, although these were divergent: openness was positively related to teacher-led preference ratings ($r = .31$) while extraversion's relationship was weak and negative ($r = -.11$). There were no other significant relationships found among learning environment preference scores and scores for the conscientiousness and neuroticism (emotional stability) factors.

Table 2

Correlation Matrix of Personality Factor Scores and Learning Environment Preferences

Variable	NEO-PI-R Factor				Environment		Group
	Agree	Consc	Neur	Open	Teacher	Independent	
Extraversion	-.084	-.052	-.095	.054	-.108	.052	.323 ^b
Agreeableness		.506 ^b	-.309 ^b	.233	.128	.196	.012
Conscientiousness			-.295 ^a	.009	-.009	.214	.104
Neuroticism				-.090	-.049	-.056	-.129
Openness					.307 ^a	.175	.246 ^a
Teacher-led						.529 ^b	.304 ^a
Independent							.252 ^a

$n = 69$

^a $p < .05$, ^b $p < .01$, two-tailed.

Additional analysis was intended to explore the characteristic personality factors that directly or indirectly align with learning environment preference. **Table 3** presents first-order correlations of personality and preference scores controlling for each of the other four personality factors. Although no significant partial correlations for independent learning obtained, the zero-order correlation between teacher-led environments and openness increased slightly when controlling for extraversion ($pr = .32$) and decreased when controlling for agreeableness ($pr = .29$). The correlation between group-based learning preference and extraversion scores showed no reliable change when controlling for each of the other factors, nor did the correlation of group-based preference ratings with openness scores.

Table 3

First-order Correlations of Personality Factor Scores and Learning Environment Preferences

Correlation	Factor Controlled				
	Extra	Agree	Consc	Neur	Open
Teacher-led					
Extraversion		-.098	-.109	-.113	-.113
Agreeableness	.120		.154	.119	.061
Conscientiousness	-.015	-.086		-.025	-.012
Neuroticism	-.060	-.010	-.055		-.023
Openness	.315 ^a	.287 ^a	.307 ^a	.304 ^a	
Independent					
Extraversion		.070	.065	.047	.043
Agreeableness	.201		.104	.188	.162
Conscientiousness	.217	.136		.207	.216
Neuroticism	-.051	.005	.008		-.041
Openness	.173	.136	.177	.171	
Group-based					
Extraversion		.315 ^a	.331 ^b	.315 ^a	.320 ^b
Agreeableness	.041		-.047	-.030	-.048
Conscientiousness	.128	.114		.070	.105
Neuroticism	-.104	-.132	-.103		-.111
Openness	.242 ^a	.250 ^a	.246 ^a	.237 ^a	

^a*p* < .05, ^b*p* < .01, two-tailed.

Discussion

We intended this study as a starting place to address the shortage of analysis on students' preferences for the learning environments they find in higher education, and to demonstrate the relationships of preferences with salient personality factors. Results supported our expectation that students in our sample preferred group-based environments the most. We also found in the sample that the personality factors openness and extraversion were positive correlates of this preference. These findings provide strong support for positive linear relationships between these students' preference for teaching modalities that involve interactive group tasks and two sociable personality factors. Interestingly, the openness factor was a positive correlate

of teacher-led environment preference ratings. These relationships support findings of Chamorro-Premuzic, et al., (2007) with respect to teaching modality preferences although the results did not replicate a similar relationship for the agreeableness factor.

More contributively, our findings demonstrate that psychometric investigations of students' teaching and learning preferences may have practical value toward a more complete psychology of effective teaching practice. For example, we might conclude from these data that level of openness is predictive of preference for both teacher-led and group-based environments. In contrast, the correlations of these preferences with the extraversion factor suggest those with higher levels of extraversion favor groups over teacher-led modalities. From these psychometric findings we can speculate that the social-interactive and shared experience, or what may be considered the "extraverted" features, of group-based learning environments are the likely drivers of student engagement in them. In these times of increasing demands on academic staff, requirements to innovate, and limitations on resources, the provision of environments where students learn from each other would seem to have practical benefit as well.

Taking caution regarding the limitations of this brief study, it is clear that variability in the data could be reduced with increased sample size such that additional detected relationships in the correlation matrix may emerge. Teaching modalities also could have been decomposed further than the practices surveyed here such that the preference self-report included more specific teaching activities such as in-lecture reflection activities or polling and other electronic response techniques that involve some social interaction. However, our purpose was not to describe the preferable features of teaching methods themselves but rather to probe into those characteristics of the one's personality that provide insights into teaching practice. In addition, the failure to replicate the linear relationship of preference for group environments with the agreeableness factor (cf. Chamorro-Pemuzic, et al., 2007) may suggest some bias in the sample. Nevertheless, the characteristics of the distribution of agreeableness scores indicate no such departure from typical findings using the NEO-PI-R measure with student populations. Replication of these findings is in order before stronger claims can be made about the value of investigating pedagogical preferences and their related individual differences.

While the present findings may be limited in external validity, at minimum they demonstrate revealing relationships of personality factors with the positive regard the typical university student has for group-based learning. Famously, Vygotsky (1978) drew attention to the “zone of proximal development” that is achievable through collaboration with others for effective learning, especially with a “capable partner” (p. 86). On this view, learning in groups may be preferred because it not only provides an environment to foster thinking, as do other learning environments, but it may support students’ thinking about their thinking, or metacognitions, in ways that independent and isolated learning environments cannot. For example, the best opportunity for students to learn problem solving skills is when working with others in the classroom (Johnson & Johnson, 2009). It was found that students’ social interactions in group learning environments gave them the chance to support each other academically and personally, referred to as “promotive interactions” by Johnson, Johnson, and Holubec (2008), by actively supporting their peers’ learning as they develop transferable skills. Furthermore, Frey, et al., (2009) argued that in today’s world of increasing technologies and social digital media that may isolate students, learning in peer groups may be preferred for the environment’s support of professional development.

Drawing further on recent neuroscientific findings, we also believe it is possible developmental factors of the adolescent brain may underlie undergraduates’ preference for group-based learning and its effectiveness. To highlight this possibility, the received view of brain development in adolescence and early adulthood has been recently challenged with the finding that structural changes in brain structure continue into this period and, as a consequence, cognitive processes undergo changes as well, particularly within social contexts (Choudhury, S., Charman, T., & Blakemore, S. J., 2008). Neuroimaging studies have provided evidence for differential changes in decision-making processes owing to structural changes in the impulse control and reward systems of the traditional age undergraduate brain (e.g., Wise, 2004). In particular, studies have shown adolescents to be hypersensitive to external rewards, including the social rewards of feedback when in peer contexts (Blakemore & Robbins, 2012; Gardner & Steinberg, 2005). It seems plausible that the brain of the typical student more strongly responds to the social interaction and feedback of the group learning environment and,

consequently, enjoys the enhanced retention of knowledge and working memory capacity the environment can provide (Nokes-Malach et al., 2015).

To be sure, some authors have pointed out potential problems with teaching modalities that involve group learning environments. Returning to the review by Nokes-Malach, et al. (2015), one critique of these modalities is that during group-based learning, without careful preparation of the group tasks, there can be challenges to the student's cognitive load, or working memory capacity, that can in effect "overload" memory and reduce the teaching methods' efficacy. It is also true that group work, in theory, should assist the cognitive demand of difficult tasks because complementary knowledge may be divided and shared among members of the group. Perhaps this question could be asked at the level of neuroscience if, for example, the developing adolescent reward system shows reduced responsiveness under certain conditions of cognitive demand, as they may happen, in group learning contexts. These demands might include repetitive switching from speaker to listener, multiple simultaneous perspectives, or great amounts of memory to be retrieved. Similarly, group dynamic factors may interfere with the enhanced constructive engagement of the group learning environment. One student who dominates the discussion and disrupts the interactive engagement intended can turn effective practice into diminished returns and, we would speculate, students do not generally prefer an environment contrary to our intentions. Johnson and Johnson (2009) suggested students need to interact in ways that promote cocreation of knowledge, such as demonstrating pro-social behavior and encouraging the deep processing of ideas. Clearly, the benefits and presumptive reasons for students' group learning preference depend on good planning of the educational activities involved.

It has been suggested that teaching decisions should have their basis in knowledge of how students learn (Biggs & Tang, 2011). We explored preferences for the environments in which students learn to better understand the personality-related features of learning environments that make them engaging and effective pedagogies. In this way the psychology of student perceptions can assist educators in discerning those factors that form the basis of quality learning across a range of instructional methods and assessment techniques. Educational psychologists are encouraged to continue investigation of pedagogical preferences and the psychosocial variables related to them, to extend the external validity of this study and to understand

more deeply those features of learning preferences that can improve the quality of student learning. In this regard, neuroscience on the brain's responses to particular teaching modes and learning environments may be fruitful as well. The strong relationships with personality factors reported here demonstrate that investigations of student preference for learning environments have value because they can provide teachers with knowledge of quality teaching to be put into practice.

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Academic Progress, Coping Strategies and Psychological Distress among Teacher Education Students

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Academic Progress, Coping Strategies and Psychological Distress among Teacher Education Students

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Abstract

Academic performance among university students is a fundamental factor in the analysis of quality of higher education. Despite the large volume of research on academic performance, there are no conclusive results regarding the influence of some variables on it. While some studies find differences attributable to gender, age, or psychological factors, such as coping strategies, others conclude that they are inexistent or insignificant. This article seeks to deepen about how these variables influence the academic performance of trainee primary-school teachers. Educational improvements in a society are only possible if teacher training guarantees a high qualification of its teachers. In this article we analyze academic progress in a sample of 136 students and the effect of gender, age and coping strategies and psychological symptoms. From the data analysis it can be concluded that all the analyzed variables cause differences in academic performance in teacher students. Therefore, it will be necessary to establish improvement plans for this degree that meet these conditions.

Keywords: academic progress, teacher training, coping strategies, stress.

Progreso Académico, Estrategias de Afrontamiento y Malestar Psicológico en Estudiantes de Maestro

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Resumen

El rendimiento académico es un factor fundamental en la calidad de la educación superior. A pesar del gran volumen de investigaciones sobre el rendimiento académico no hay resultados concluyentes respecto a la influencia de algunas variables sobre el mismo. Mientras que algunos estudios encuentran diferencias atribuibles al género, la edad o a factores psicológicos como las estrategias de afrontamiento, otros concluyen que son inexistentes o insignificantes. Este artículo busca profundizar acerca de cómo dichas variables influyen en el desempeño de los estudiantes del grado de maestro en educación primaria. Las mejoras educativas en una sociedad sólo son posibles si la formación docente garantiza una alta cualificación de su profesorado. En este artículo se analiza el progreso académico en una muestra de 136 estudiantes y el efecto del género, la edad y las estrategias de afrontamiento y los síntomas psicológicos. Del análisis de los datos puede concluirse que todas las variables analizadas provocan diferencias en el rendimiento académico en los estudiantes de maestro, por lo que será necesario establecer planes de mejora de esta titulación que atiendan tales condiciones.

Palabras clave: progreso académico, formación de maestros, estrategias de afrontamiento, estrés.

Academic progress is a variable of great importance for all university studies, and especially those involving primary-teacher education students. Society can only be improved if university education produces high-quality teachers (Maandag et al., 2017). Developments in our society are rapid and schools and teachers are expected to adapt to them and if possible spur them on (Hofman, Hofman, & Gray, 2015).

Entering university is an inherently stressful and demanding transition (Kwan et al., 2016). Students find themselves in a new, changeable and competitive environment, and for many it is their first opportunity to experience the sensation of independence and responsibility. This usually occurs when they are about 18 years old and during their time at university, they will face numerous challenges and difficulties. To complete their studies, they will develop competencies and adopt coping strategies that will subsequently help or hinder them in their adaptation to the world of work.

A large number of factors contribute to explaining university students' academic progress (Gustems et al., 2019), including academic pressure (Kember & Leung, 2006), excessive workload, financial problems, and personal circumstances (Singh & Upadhyay, 2008). Knowing students' concerns is a subject of particular interest for those working in higher education, since it can assist them in better understanding what undergraduates are going through. In this regard, various authors have discovered differences between men and women in matters related to students' health and eating habits: women are more prone to suffering stress, perceiving themselves to be in poor health and having a higher prevalence of unhealthy eating behaviours than men (Varela-Mato et al., 2012). At the same time, male students tend to employ fewer coping strategies, seek less help from their fellow students and try to sort out their problems alone (Hsieh et al., 2014). Enlisting social support is a relevant factor in the university context, which is an environment that fosters peer and student-teacher relationships. It is therefore important that students take advantage of such interactions to exchange information, establish networks and develop new personal and social skills.

Various authors have related stress to coping strategies, specifically to avoidance coping (Holahan et al., 2005). Avoidance coping involves cognitive and behavioural efforts oriented toward denying, minimizing, or

otherwise avoiding dealing directly with stressful demands and is closely linked to distress (Aldwin et al., 2018). For example, cognitive avoidance against incipient stressors such as difficulties with fellow students or teachers, or of a financial nature that are constantly put off or avoided, may eventually become the source of major problems in the future. Behavioural avoidance may lead to the awakening of new stressors; for example, emotional discharge may further aggravate existing tensions with the family or at work (Holahan et al., 2005). Avoidance coping has also been linked to the increased presence of depressive symptoms in university students (Hye-Yun, 2016). In women, the association between avoidance coping and depression has been related to rumination, defined as a passive coping strategy and more frequent in women than men, which is linked to intensive, persistent depressive symptoms (Holahan et al., 2005).

It would also appear that stress levels are generally higher in the first and last years of the degree (Deasy et al., 2016), and especially in the first academic term (Bewick et al., 2010). Some authors suggest that the university context brings out more anxiety than depression because students have to face new environments with formidable intellectual and relational demands, and thus younger individuals tend to be more vulnerable. Moreover, those students who suffer the greatest emotional toll are most prone to experiencing burnout later in their professional career (McCarthy et al., 2017).

In the Spanish context, teacher training studies consist of a 4-year university degree with a workload of 240 credits, which represents a dedication about 30 hours of class per week, in addition to the effort that they must make to complete their apprenticeships and group work. In some cases, this represents a handicap for combining studies with part-time jobs, which contributes to the overload of effort and brings students closer to sources of stress.

Analysis of the factors determining whether undergraduates will successfully complete their university courses is of huge importance, especially in the case of teacher education students, who will have the responsibility of educating future generations. Previous research indicates that academic progress may be affected by a wide variety of academic, cognitive, demographic and psychological factors (Coertjens et al., 2017). Student gender and age also have a significant impact on performance: proportionally fewer men and younger students complete their studies (Jenzer et al., 2019).

Likewise, the academic progress of women tends to be higher than that of their male counterparts (Reilly, Neumann, & Andrews, 2015), as does that of the older students (Farley, Clayton, & Kaka, 2018).

Essentially, the literature indicates that psychological distress is related to coping strategies and that both have implications for academic progress. However, relatively few studies analyze psychological distress, coping and academic progress in teacher education students, comparing academic performance in men and women. This study analyzes a sample of teacher education undergraduates, and has three objectives: 1) to describe the problems the students express, and analyze their differences by gender; 2) to compare coping strategies and psychological symptoms on the basis of gender and age; and 3) to analyze the predictive relationship of coping strategies and psychological symptoms in the academic progress of men and women.

Method

Participants

A convenience sample of 136 undergraduate college students (68 men and 68 women) of the University of Barcelona was studied. The average age of the total sample was 24.2 years ($SD = 5.5$, range 19-39). The average age for men was 25.1 years ($SD = 5.8$) and for women it was 23.7 ($SD = 5.2$), no significant differences between them ($t = 1.399$, $p = .164$). The educational grade of the total population were 14.7% ($n = 20$) students of Early Childhood Education Degree and 85.3% ($n = 116$) were students of Primary Education Degree. With regard to the academic year, 11.8% ($n = 16$) were in second year, 55.9% ($n = 76$) in third year, and 32.4% ($n = 44$) in fourth year.

Based on Hollingshead four factor index (Hollingshead 2011), the participants' families corresponded to the following categories: 13.4% low Family Socioeconomic Status (FSS), 16.1% FSS low-medium, 23.6% FSS medium, 32.9% FSS medium-high, and 13.7% FSS high. The average FSS for men was 42.2 ($SD = 15.8$) and for women was 44.5 ($SD = 12.1$), no significant differences between them ($t = -.941$, $p = .348$), see Table 1.

Table 1

Descriptive statistics of relevant variables (n = 136)

Variables	Men	Women	<i>t</i>	<i>p</i>
Age. M (SD)	25 (5.8)	23.7 (5.2)	1.399	.164
Academic year. n (%)			.000	1.000
2 ^{on} year	8 (11.8)	8 (11.8)		
3 rd year	38 (55.9)	38 (55.9)		
4 th year	22 (32.4)	22 (32.4)		
Bachelor degree. n (%)			.000	1.000
Early childhood education	10 (14.7)	10 (14.7)		
Primary education	58 (85.3)	58 (85.3)		
Not provide information	2 (.6)	2 (.6)		
FSS family. M (SD)	42.2 (15.8)	44.5 (12.1)	-.941	.348
Completed academic credits. M (SD)	142 (47.7)	146.8 (51.0)	-.563	.575
Grade-Point Average M (SD)	7.5 (.41)	7.6 (.47)	-1.871	.064

Measures

The following questionnaires were administered:

The **socio-demographic data sheet** provided information about some characteristics of the group: age, gender, year of study, degree being studied, and Family Socioeconomic Status (FSS, [Hollingshead, 2011](#)). For the FSS, education and occupation levels of both parents were taken into account.

Coping Repones Inventory-Adult Form, CRI-A ([Moos, 1993](#)) was used to obtain an indication of the respondents' coping strategies. The Spanish adaptation ([Kirchner et al., 2008](#)) of the Coping Responses Inventory-Adult Form (CRI-A) was employed.

The test is structured in two parts: in the first, subjects describe the most difficult event or problem they have had to deal with in the last 12 months; in the second, they respond to 48 questions directly related to the type of coping strategy they employed to resolve the situation described. In assessing the issues the students explained, we followed the coding system based on work carried out by Forns et al. ([2004](#)), which breaks the problem down into four categories: nature, content, participants and context. The *nature* category identifies who is suffering the problem, which it organises into three sub-categories: personal, interpersonal and problems of others. The *content* category identifies the substance of the problem, meaning the facts,

circumstances or events that comprise it, and consists in 13 sub-categories: problems of relationships, divorce, guilt, performance, and change of residence, conflicts with rules, victimization, leisure activities, health, addictions, money-work, death, and others. The category of *participants* refers to those who are essentially involved in the conflictive situation, and comprises eight sub-categories: the subject, his or her immediate family or extended family or both, partner, teachers, adults and animals. The *context* category identifies the framework or setting in which the problem occurs and includes five sub-categories: home and extended family, school, leisure time, neighbourhood and other settings, and others.

To evaluate the coping strategies, the 48 items that require participants to indicate their responses on a four-point Likert scale anchored by ‘not at all’ and ‘fairly often’. These responses are measured by four scales: two scales measure approach coping and two scales measure avoidance coping (Moos, 1993). *The cognitive approach coping strategies* include: logical analysis and positive reappraisal. *The behavioural approach coping strategies* comprehend: seeking guidance and support, and problem solving. *The cognitive avoidance coping strategies* include: cognitive avoidance and acceptance/resignation. *The behavioural avoidance coping strategies* comprise: seeking alternative rewards and emotional discharge. The reliability coefficient of the CRI-Adult ranges from .58 to .74, thus indicating moderate to high internal consistency for the test. The Spanish adaptation of the CRI-Adult shows good reliability, with Cronbach’s alpha coefficients ranging between .81 and .90. The CRI-Adult is considered to be valid and has been used extensively by researchers (Patiño & Kirchner, 2010).

Brief Symptom Inventory. The BSI-18 (Derogatis, 2001) was used to measure participants’ psychological distress. This inventory includes 18 symptoms to assess the degree of distress on a Likert-type five-point scale, ranging from 1 (total absence of symptom) to 5 (full presence of symptom). The scale provides three groups of symptoms: somatization, depression, and anxiety, and a global severity index (GSI). The test-retest reliability ranged from .78 to .90. Cronbach’s alpha ranged from .81 to .90 (Derogatis, 2001).

Academic Progress (GPA). The students specified their university grade-point average and the number of academic credits they had successfully completed. The formal curriculum was meant to be completed in 4 years; however, the system was somewhat flexible and a number of students took

longer to complete their studies. Grade-Point Average (GPA) was considered as an indicator of academic progress. Students have access to this information in their intraweb personal space, and it is the information provided in this study.

Procedure

The students of Early Childhood Education Degree and Primary Education Degree were mostly women (4:1 or 3:1, respectively). We want to analyze the differences in men and women regarding the academic progress, coping and psychological symptoms. A total of 94 men from different degree years were invited to take part in the study, of whom 68 accepted and 26 declined (27.6%); the participation of 68 women from the same classes was sought, so invitations were extended to 80, of whom 12 declined (15%).

The questionnaires were applied collectively in groups of 10-20 students over one-hour session in their usual class, accompanied by one or two members of the research team to clarify doubts and help if necessary. This study was approved by the Ethics Committee of the University of Barcelona (Spain) and was conducted in line with the guidelines of the Belmont Report (1978). A consent form to be signed by students was requested the day of the data collection. The participation of study was voluntary and anonymous.

Data Analysis

The characteristics of the students were described. In the case of the quantitative variables, means and standard deviations were calculated; frequencies and percentages were used for qualitative variables. The reliability analysis of the coding problem has been conducted by Cohen Kappa index. Two independent psychologists, properly trained, coded problems. The index was found Kappa Cohen between coders taken in pairs, and the average value of the two index was calculated. The differential analysis by gender of the different categories of problems has been made by X2 technique and calculation of percentage differences. To maintain a nominal rate of type I error is .05. Bonferroni correction applied. Student's *t*-test was used to assess the statistical significance of the difference between gender and age. Bivariate correlations were calculated between academic progress, coping strategies and psychological distress by gender.

Linear regression analysis were used for predicting the relationship between coping strategies and psychological distress in academic progress by

gender in college students. Here, the stepwise method was employed. In the subsequent statistical analysis, university grade-point average served as the predictor variable in the regression analysis, while coping strategies (as measured by the CRI-A), and psychological distress (as measured by the BSI-18), was utilized as the criterion variable. The study used a stepwise selection method and, for the statistical analysis, Version 22.0 of the *Statistical Package for the Social Sciences* (SPSS). For all the tests carried out, bilateral statistical significance was set at p equal to or less than .05.

Results

Problems expressed by students by category and gender

Depending on the **nature** of the problem, male students describe problems they directly involves themselves (44.5%), and linked to the subject's relationship with other people (33.3%). In women, the problem described directly affected themselves (34.6%) or with the others (34.6%).

About the **content**, in male students 33.3% problems appear in the subject's relationship with others, and 26% the problem is limited to guilt, worry, restlessness and dissatisfaction that the subject experiences himself. In women, the problems are due to conflicts with other persons (30.7%) or are problems due to the onset of disease in 23% of cases. Women described more problems related to health issues than men, statistically significant differences ($Z = .029$, $p = .024$).

As **participation** in the problem, in 37% of men, the protagonist is the individual himself and another 37% are involved in the problem friends or colleagues of the subject. In women, 28.8% are problems that are involved in themselves and in 15.4% the problem occurs between them and their friends. Men described problems involving friends or colleagues more than women ($Z = .046$, $p = .031$).

Depending on the **area of occurrence** of the problem, in male students, 37% the problem arises in the employment context, and by 26% the problem occurs in the family context. In women, 34.6% the problem occurs in the neighbourhood and physical and occupational contexts, and in 28.8% the problem occurs in the context of the nuclear family or extended family. See [table 2](#).

Table 2

Classification of problems into categories (CRI-A). Percentages and significance by gender

Categories of problem	% Men	% Women	Z	p
Nature of the problem				
Personal	44.5	34.6	.466	.270
Interpersonal	33.3	30.8	.805	.505
Others	22.2	34.6	.309	.191
Content of the problem				
Relationships	33.3	30.7	.805	.505
Divorce	3.7	1.9	1.000	.570
Guilt	26	15.4	.365	.202
Academic performance	-	-	-	-
Change of residence	-	-	-	-
Conflicts with rules	-	5.7	-	-
Victimisation	-	-	-	-
Sport, leisure	-	-	-	-
Health	3.7	23	.029	.024
Addictions	3.7	-	-	-
Money, work	14.8	3.9	1.000	.612
Death, suicide	14.8	15.5	.435	.267
Others	-	3.9	-	-
Participants				
Oneself	37	28.8	.459	.311
Immediate family	26	33	.612	.362
Extended family	-	1.9	-	-
Fellow students, friends	37	15.4	.046	.031
Partner	--	11.5	-	-
Teachers	--	3.8	-	-
Adults	--	5.6	-	-
Context of the occurrence				
Home	26	34.6	.611	.300
School	7.4	1.9	.268	.268
Leisure, work	14.8	19.3	1.000	.596
Neighbourhood	37	28.8	.497	.435
Non-specific	14.8	15.4	1.000	.612

Gender differences in coping, psychological scales and academic progress

The coping strategies used by gender (Table 3) show that both men and women mainly used avoidance coping behaviour ($M = 51.2$, $SD = 6.4$ for men, and $M = 52$, $SD = 7.4$ for women), strategies as emotional discharge with

others persons, involvement in risky activities, relaxing or pleasure activities, etc. Comparing strategies between both genders, women use more cognitive strategies than men (logical analysis [$t = 2.071$, $p = .040$] and acceptance or resignation [$t = 2.245$, $p = .026$]). Likewise, the index of psychological distress is higher in women than in men ($t = 2.376$, $p = .019$), as well as somatization ($t = 2.043$, $p = .043$). Women show significantly more somatic problems and psychological distress than men.

Table 3

Mean differences by gender in coping (CRI-A), psychological symptoms (BSI) and academic progress (GPA)

Coping Strategies	Men $n = 68$ M (SD)	Women $n = 68$ M (SD)	t	p
Approach cognitive coping	49.5 (8.0)	51.2 (6.3)	-1.348	.180
Logical analysis	47.8 (10.5)	51.1 (7.3)	-2.071	.040
Positive reappraisal	51.2 (7.7)	51.3 (8.5)	-.084	.933
Approach behaviour coping	47.1 (8.9)	49.1 (6.5)	-.789	.432
Seeking guidance	49.9 (10.2)	49.0 (7.5)	.615	.540
Problem solving	46.2 (9.9)	49.9 (8.4)	-1.944	.054
Avoidance cognitive coping	49.6 (8.0)	51.2 (8.1)	-1.151	.252
Cognitive avoidance	51.4 (11.8)	51.2 (9.4)	.128	.898
Acceptance or resignation	47.7 (7.4)	51.2 (10.1)	-2.245	.026
Avoidance behaviour coping	51.2 (6.4)	52.0 (7.4)	-.689	.488
Seeking alternative rewards	50.7 (10.2)	52.9 (11.3)	-1.189	.237
Emotional discharge	51.7 (8.7)	51.7 (7.9)	.379	.705
BSI- Psychological distress	64.3 (7.6)	67.7 (9.0)	-2.376	.019
Somatization	59.0 (8.4)	62.1 (9.5)	-2.043	.043
Depression	60.7 (6.9)	60.4 (6.1)	.339	.735
Anxiety	63.8 (8.5)	63.7 (8.1)	.051	.959
Academic progress (GPA)	7.5 (.41)	7.6 (.47)	-1.877	.064

Note. * $p < .05$; ** $p < .001$. M = Means; SD = Standard Deviation

Differences by age in coping, psychological scales and academic progress

The strategies used by younger vs older students (Table 4) show that younger students mainly used more cognitive avoidant strategies ($M = 52.8$, $SD = 7.8$, $t = 4.880$, $p = .001$), cognitive avoidance ($M = 55.1$, $SD = 9.9$, $t = 5.837$, $p < .001$), and more anxiety ($M = 65.5$, $SD = 8.1$, $t = 3.299$, $p = .001$) than the older students. While older students used more approach coping behaviour ($M = 50.9$, $SD = 7.9$, $t = -2.671$, $p = .009$) and problem-solving ($M = 50.8$, $SD = 9.4$, $t = -3.049$, $p = .003$) than the young ones, and had better academic performance ($M = 7.9$, $SD = .36$, $t = -6.537$, $p < .001$).

Table 4

Mean differences by age (younger vs older students) in coping (CRI-A), psychological symptoms (BSI) and academic progress (GPA)

Coping Strategies	Younger n = 85 M (SD)	Older n = 51 M (SD)	<i>t</i>	<i>p</i>
Approach cognitive coping	49.9 (7.5)	51.1 (6.8)	-.876	.383
Logical analysis	48.9 (8.4)	50.4 (10.3)	-.932	.353
Positive reappraisal	50.9 (8.8)	51.7 (6.8)	-.512	.610
Approach behaviour coping	47.3 (7.4)	50.9 (7.9)	-2.671	.009
Seeking guidance	48.6 (9.1)	50.9 (8.8)	-1.473	.143
Problem solving	46 (8.7)	50.8 (9.4)	-3.049	.003
Avoidance cognitive coping	52.8 (7.8)	46.3 (6.9)	4.880	.0001
Cognitive avoidance	55.1 (9.9)	45.1 (8.9)	5.837	.0001
Acceptance or resignation	50.6 (9.1)	47.6 (8.6)	1.919	.057
Avoidance behaviour coping	51.9 (7.3)	51.2 (6.2)	.539	.591
Seeking alternative rewards	51.9 (11.3)	51.8 (10)	.053	.958
Emotional discharge	51.9 (8.4)	50.7 (8.2)	.830	.408
BSI- Psychological distress	66.2 (8.8)	65.8 (7.9)	.280	.780
Somatization	60.6 (9.1)	60.5 (9.2)	.080	.937
Depression	60.4 (6.4)	60.8 (6.8)	-.357	.721
Anxiety	65.5 (8.1)	60.8 (7.7)	3.299	.001
Academic progress (GPA)	7.4 (.40)	7.9 (.36)	-6.537	.000

Note. * $p < .05$; ** $p < .001$. M = Means; SD = Standard Deviation

Bivariate correlations between GPA and psychological scales

The relationship between academic progress (GPA), coping (CRI-A), and psychological symptoms (BSI) was analyzed considering gender (Table 5). In men, the results show positive relationship between academic progress and psychological distress ($r = .272, p = .030$), negative relationship between academic progress and cognitive avoidance coping ($r = -.523, p < .001$) [that includes cognitive avoidance ($r = -.552, p < .001$), and acceptance ($r = -.247, p = .049$)], and also negative relationship between academic progress and anxiety ($r = -.291, p = .020$). In women, the results indicate positive relationship between academic progress and problem solving ($r = .289, p = .017$), psychological distress ($r = .335, p = .005$), anxiety ($r = .346, p = .004$), and somatization ($r = .243, p = .046$), and a negative relationship with positive reappraisal ($r = -.399, p = .001$), approach behaviour coping ($r = -.312, p = .010$), cognitive avoidance ($r = -.270, p = .026$), and approach cognitive coping ($r = -.264, p = .030$).

Table 5

Correlations between academic progress (GPA), coping (CRI-A) and psychological distress (BSI) by gender

Coping Strategies	Men n = 68	Women n = 68
Approach cognitive coping	.042	-.264*
Logical analysis	.016	.009
Positive reappraisal	.065	-.399**
Approach behaviour coping	.156	-.312**
Seeking guidance	.159	.210
Problem solving	.118	.289*
Avoidance cognitive coping	-.523**	-.190
Cognitive avoidance	-.552**	-.270*
Acceptance or resignation	-.247**	-.053
Avoidance behaviour coping	-.077	-.059
Seeking alternative rewards	-.036	.104
Emotional discharge	-.075	.039
BSI- Psychological distress	.272*	.335*
Somatization	.235	.243*
Depression	.204	.214
Anxiety	-.291*	.346**

Note. * $p < .05$; ** $p < .001$

Results of linear regression analysis for significance variables

To examine the predictive relation between coping strategies (avoidance cognitive coping, cognitive avoidance, and acceptance), BSI (psychological distress and anxiety) and academic progress in men, a linear regression analysis was conducted. The results of the linear regression indicated that psychological distress, cognitive avoidance, and age described 47% of the variance in academic progress in men ($F = 19.686$, $p < .001$). In women, a linear regression analysis was conducted between coping strategies (approach cognitive coping, approach behaviour coping, positive reappraisal, problem solving, and cognitive avoidance), BSI scales (psychological distress and anxiety) and academic progress. The results indicated that the positive reevaluation, problem solving, anxiety and age described 41% of the variance in academic progress in women ($F = 11.290$, $p < .001$). See [table 6](#).

Table 6

Regression model to study the link between psychological scales (BSI) and academic progress (GPA)

Independent Variable	Dependent Variable	Adjusted R Square	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.
			<i>B</i>	Std. Error	Beta		
Men							
Constant	Academic Progress ¹	.471	7,070	,422		16,765	,000
Psychol. Distress			,017	,006	,294	2,889	,005
Avoidance cognitive			-,023	,006	-,453	-4,148	,000
Age			,021	,008	,311	2,828	,006
Women							
Constant	Academic Progress ¹	.413	5,808	,609		9,542	,000
Positive Reeval.			-,020	,006	-,370	-3,581	,001
Problem solving			,014	,006	,244	2,419	,019
Anxiety			,019	,006	,332	3,437	,001
Age			,020	,010	,224	2,106	,039

Notes. Control variables: age

^a PSS. Perceived Stress Scales. Raw score.

¹ Grade-point average in the student's academic transcript

Discussion

The first goal we set in this study was to describe the problems the subjects explained to us and determine whether any difference existed between men and women. The results indicate that, regardless of gender, the students differ little in the context of what happened, though differences were encountered in the nature, content and participation in the problem.

With regard to nature, the men spoke more of problems in which they felt personally involved; in terms of content, the women described more health-related problems than the men; in the participation category, the men described more problems in which friends and/or fellow students were involved.

The men in our sample tended to focus their problem on themselves more than the women, whose concern for their health in this study is in line with previous findings (Ansari et al., 2014) presenting a greater tendency to worry about such problems than male students (Varela-Mato et al., 2012). These differences may be motivated by psychosocial determinants, structural contexts, lifestyles and vulnerabilities inherent in each gender, as Rodriguez et al. (2019) suggest. In the case of interpersonal difficulties, which are a common cause for concern among university students, the male subjects in our study described more conflicts with their peers than the females, a circumstance which may be related to their experiencing greater difficulties in handling social relationships (Hsieh et al., 2014).

The second aim of this study was to compare coping strategies and psychological symptoms on the basis of gender. Pedrelli, Borsari, Lipson, Heinze, and Eisenberg (2016) found that the way university students coped in the face of stressful situations varied according to gender: men drank more alcohol, while women suffered greater psychological distress. Both men and women in our sample employed avoidance coping behaviour such as emotional discharge and seeking alternative rewards. Avoidance coping involves strategies oriented towards denial, minimising or avoiding dealing directly with the situation causing the stress and is closely linked to distress and depression (Alwinet al., 2018). Although the role played by potential stress-generating situations in choosing the style of avoidance coping is unknown, that choice seems likely to produce a broad range of stressors. For example, behavioural avoidance may promote new stress situations, such as

when emotional discharge aggravates a family conflict or strains relationships at work (Davoren et al., 2015), or when the search for alternative reinforcement (as in alcohol, tobacco or cannabis consumption) leads to additional problems (Butler, Dodge, & Faurote, 2010).

In our sample, the women employed more logical analysis and acceptance or resignation and presented more distress and somatisation than the men. Holahan et al. (2005) suggest that women's use of cognitive strategies may be due to the role played by rumination, linked to the presence of depressive symptoms and more common in women than in men (Holahan et al., 2005). Future studies should analyze the possible role of rumination in the mediation between coping strategies and psychological distress. Acceptance or resignation coping has been associated with a higher risk of psychological distress and even increased suicidal ideation among Chinese university students (Tang & Qin, 2015). The greater presence of psychological distress in women than in men is consistent with results obtained by other authors (Deasy et al., 2014).

With regard to age, Bewick et al. (2010) found that students in the first years show more stress than others. Our results suggest that younger university students present a more avoidance-based coping profile and experience more anxiety than their older colleagues. It could be thought that older students would suffer more stress because they are under more pressure from financial problems or difficulties in finding a job; however, our findings show that anxiety is more present in the young. This could be connected with their adaptation to the academic environment which, in turn, may be linked to the resources available to them and their use of ineffective strategies that hinder their adaptation. In our study, young students tended to use less adaptive strategies to combat stress, a finding in line with literature on the subject which indicates that younger students are more likely to ignore their mental health (Davoren et al., 2015).

The final aim of our study was to analyze the predictive relationship of coping strategies and psychological symptoms in the academic progress of men and women. One of the main findings of this study is that academic progress varies according to gender and that coping, psychological symptoms and age play a significant role in performance. Greater academic progress in men can be explained by reduced cognitive avoidance coping and the presence of a certain degree of stress or psychological distress, which seems to increase

with age. In women, better academic performance seems to be related to a reduction in positive reappraisal together with increased approach coping and anxiety, and the latter also seems to rise with age.

In our sample, both men and women needed a certain amount of distress or anxiety in order to achieve improved progress. This coincides with the explanatory model of optimal challenge proposed by Csikszentmihalyi (2014), which holds that the most motivating activities are those in which there is initially an imbalance between the skills the individual has and those necessary to meet the challenges presented by a situation, but that through reasonable voluntary effort this imbalance can be corrected. However, should this not occur, two different outcomes are possible: if the challenge is greater than the individual's skills, the resulting difficulty produces an excess of anxiety; and if the skills far outweigh the challenges, the individual becomes bored and feels less motivated. This suggests that in an increasingly competitive academic environment the absence of stress or anxiety could reduce students' performance.

Likewise, a reduced use of avoidance strategies would also be linked to improved academic progress. Avoidance coping has traditionally been considered a maladaptive strategy in the academic context (Gustems & Calderon, 2013); students that resort to it tend to consume more alcohol (Butler et al., 2010) and tobacco (Davoren et al., 2015), and present more eating disorders (Tavolacci et al., 2013), depression (Hye-Yun, 2016) and psychological distress (Panova et al., 2019). However, coping strategies are not always prejudicial. When the situation is inevitable (such as the death of a family member or losing a job) cognitive avoidance may prove adaptive (Gustems et al., 2019), while in the university context students are expected to adopt a more proactive attitude, since the challenges they have to overcome are usually within their capabilities.

Although approach coping is related to reduced depression (Highhatgou & Peterson, 1995), it seems a reduction in positive reappraisal plays a role in the improvement of academic progress in women. This could be related to their propensity for rumination: a moderate use of cognitive reappraisal may be adaptive and positive, but used in excess could lead to despair, passivity and symptoms such as depression, a suggestion put forward by Holahan et al. (2005). As negative thinking has been linked to maladaptive strategies and anxiety (Mahmoud, Staten, Lennie, & Hall, 2015), social support may help

students better cope with the stressful situations encountered at university and reduce avoidance behaviours (Sañas et al., 2014).

Conclusions

The ability of teacher education students to withstand the growing pressure of university life is crucial for their well-being, academic progress and training. The results of this study demonstrate that the adaptation mechanisms of younger students, both male and female, are not well suited to this purpose, as they primarily employ conflict avoidance strategies. Gender analysis should be taken into account in future studies of university students, especially when related to degrees associated with the initial education of primary school teachers, to ensure that their curricula address the different needs of male and female undergraduates.

It is apparent that the teachers of this new millennium have, among other challenges, to confront the inequalities that afflict our society and to find a way of bringing the curriculum to people of all cultures (Byrd, 2012). The happiness of future generations depends on our teaching them to be happy people through the exercise of good behavior. The selection of teachers before and after their training should be based on an appropriate profile which allows them to feel and provoke well-being, to be a reference in this respect for their students and to stay in the profession for a long time. Teacher training must be an opportunity for exploring possibilities in order to improve academic achievement, improve students' coping strategies, and reduce psychological distress among them.

The results of this study provide information that is potentially useful for changing and improving coping strategies through the development of social networks involving the student body and, in particular, its younger members. These could include a system of cross-curricular tutorials that support students in the transition and challenges of the new academic environment, a guide to help first-year students establish reasonable goals, the organisation of extra-curricular activities in which students could develop their social skills, and initiatives to foster their desire for knowledge and technology innovation. All of these initiatives would enhance their potential and establish a sound basis for their professional future.

In future research it would be interesting to study the role of social support in relation to university students' commitment and academic progress.

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