EDU**XX1**

Effect of academic support on school outcomes through school engagement: evidence of gender invariance

Efecto del apoyo académico sobre los resultados escolares a través del compromiso: evidencia de la invarianza de género

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ABSTRACT

In order to understand the adequate development of students, direct measures such as their grades, but also indirect measures such as their satisfaction with school, must be taken into account. It is also important to determine which variables promote it and how. This study aims to explore if the mediating effect of school engagement between academic support (from teachers, parents, and peers) and school outcomes (satisfaction with school, and grades) is gender invariant. The sample was 1712 students with a mean age of 14.73 (52.7% female). The model was tested using Structural Equation Modeling and an invariance routine was carried out to test gender moderation. The model satisfactorily fitted the data, with the school engagement mediating the effect of parents, teachers, and peer support on satisfaction with school and grades. Teacher support was the dimension of academic support with the highest impact. The model explained 46% of the variance of satisfaction and 7.8% of grades. The invariance routine revealed no moderation effects due to gender. The proposed model is invariant across boys and girls, being the academic support equally relevant for both correct involvement and performance in school. Implications are discussed.

Keywords: academic support, school engagement, satisfaction with school, grades, structural equation modeling

RESUMEN

Para entender el adecuado desarrollo del alumnado deben de tenerse en cuenta medidas directas como sus calificaciones, pero también medidas indirectas como su satisfacción con la escuela. Así mismo, es importante determinar qué variables lo promueven y cómo. El presente estudio tiene como objetivo explorar si el efecto mediador del compromiso escolar entre el apoyo académico (de profesores, padres e iguales) y los resultados escolares (satisfacción con la escuela y notas) es invariante al género. La muestra fueron 1712 estudiantes con una edad media de 14.73 (52.7% mujeres). El modelo fue puesto a prueba mediante un Modelo de Ecuaciones Estructurales y se llevó a cabo una rutina de invarianza para evaluar la moderación del género. El modelo ajustó satisfactoriamente a los datos, con el compromiso escolar mediando el efecto del apoyo del profesorado, padres e iguales sobre la satisfacción con la escuela y las notas. El apoyo del profesorado fue la dimensión del apoyo académico con un mayor impacto. El modelo explicó un 46% de la varianza de satisfacción y un 7.8% de las notas. La rutina de invarianza reveló la ausencia de efecto de moderación del género. Consecuentemente, el modelo propuesto es invariante a través de los y las estudiantes, siendo el apoyo académico igual de relevante para el correcto desarrollo en la escuela de ambos. Se discuten las implicaciones.

Palabras clave: apoyo académico, compromiso escolar, satisfacción con la escuela, notas, modelo de ecuaciones estructurales

INTRODUCTION

The adequacy of students' educational functioning can be evaluated through direct performance measures (such as grades) or indirect measures (such as students' satisfaction) (Antičević et al., 2018). The consideration of both kinds of academic outcomes is essential to promote higher academic achievement, motivation, and students' future professional success (Gutiérrez & Tomás, 2019). Previous research has evidenced that direct outcomes, such as high school grades, constitute one of the strongest predictors of academic achievement (Brookhart et al., 2016; Duckworth et al., 2012), related to other relevant variables such as on-time college graduation (Galla et al., 2019). Additionally, the consideration of indirect outcomes became a complement that enrich the comprehension of students' academic achievement. Among the indirect outcomes, school satisfaction has been considered as one of the most relevant factors affecting quality of life in childhood and adolescence (Verkuyten & Thijs, 2002). However, this variable has received less attention in previous research (Gutiérrez et al., 2017).

School satisfaction is defined as "the student's subjective cognitive appraisal of the quality of his or her school life that can be linked to the construct of quality of life" (Löfstedt et al., 2020, p. S60). Other authors, such as Elliott and Healy (2001), defined student satisfaction as a "short-term attitude resulting from an evaluation of a student's educational experience" (p. 2). This appreciation of the school context is crucial for student's development, being related to other variables such as academic success or psychosocial adjustment (e.g. Daily, 2020; Huebner & Gilman, 2006; Persson et al., 2016). For this, Gutierrez et al. (2017) claimed that for a better understanding of successful learning, the consideration of school satisfaction, along with other direct measures of academic achievement, is crucial.

If we aim to understand the development of an academic successful adjustment and development, we need to clarify which variables are predicting the aforementioned outcomes and how the process is developed in the students. Among the antecedents of adequate academic achievement, school engagement has achieved a predominant role in previous research (Gutiérrez et al., 2017; Reyes et al., 2023; Serrano & Andreu, 2016; Tomás et al., 2020), being considered a key point in school accomplishment from both a theoretical and a practical way. School engagement is defined as the student's perception of connectedness with their academic environment (Veiga, 2013). Engagement has traditionally been decomposed into three main components: emotional, cognitive, and behavioral engagement. Behavioral engagement refers to the student's implication in school activities (Fredricks et al., 2004). Emotional engagement refers to feelings of belonging, school enjoyment, and appreciation of success in school (Voelkl, 1997). Finally, cognitive engagement alludes to self-regulated or strategic learning (Pintrich

& De Groot, 1990). Nevertheless, some authors consider a fourth dimension, the agentic engagement (Reeve & Tseng, 2011). Agentic engagement would be defined as the students' capability to set their own academic goals, with an active and constructive attitude (Tomás et al., 2016). This conceptualization with four dimensions of school engagement is frequently used in current literature (e.g. Li et al., 2024).

The literature supports that school engagement is a relevant predictor of school satisfaction (e.g. Gutiérrez et al., 2017; Reyes et al., 2022; Tomás et al., 2020) and academic achievement (e.g. Moreira et al., 2018; Virtanen et al., 2018). However, some of these studies went a step further proposing comprehensive theoretical models that integrate school engagement as a mediator among some contextual variables and academic outcomes (e.g. Gutiérrez et al., 2017; Gutiérrez & Tomás, 2019; Skinner et al., 2008). Regarding its antecedents, school engagement is related to environmental factors such as social support (Fernández-Lasarte et al., 2020). Gutiérrez et al. (2017) asserted that family, peers, and teachers' support has an important role in school engagement according to scientific evidence (Bru et al., 2021; Estell & Perdue, 2013; Garcia-Reid et al., 2015; Jia & Cheng, 2024; Ramos-Díaz et al., 2016; Wang & Eccles, 2012). There is a general agreement in the relevance of teachers and parents' support in school engagement (Cirik, 2015; Fernández-Lasarte et al., 2019; Fernández-Zabala et al., 2016; Oriol-Granado et al., 2017; Quin et al., 2018; Virtanen et al., 2014; Wang & Fredricks, 2014). Nevertheless, the effect of peer support remains more controversial. Some studies did not find a direct relationship (Fernández-Lasarte et al., 2020; Gutiérrez et al., 2017; Pietarinen et al., 2014; Ramos-Díaz et al., 2016), while others showed a negative effect (Rodríguez-Fernández et al., 2018), and some studies consider peer support as the most relevant social predictor (Kozan et al., 2014; Wang & Eccles, 2012). Besides, the support given by peers, teachers and parents' support is also related to academic achievement and satisfaction with school variables (Elmore & Huebner, 2010; Li et al., 2011; Shao et al., 2024; Sivandini et al., 2013).

Although this pattern of relationships has been tested previously, its invariance across genders remains understudied. Previous gender studies have been mainly focused on the differences in some variables, with little attention to differences in the processes and relationships between variables. For example, it is well-studied that males, compared to females, tend to perform worse in secondary school (Voyer & Voyer, 2014). Additionally, they present lower motivation (Butler, 2014) and engagement (Bru et al., 2021; Lam et al., 2012; Wilcox et al., 2018). Oga-Baldwin and Fryer (2020) understood this phenomenon pointing out that externally controlled motives were more likely in males, which could decrease their motivation and performance. The differences in the antecedents of these variables are less clear. Although some previous studies showed that boys and girls experience different

levels of support from teachers and peers (Bru et al., 2021; Rueger et al., 2010; Tennant et al., 2015; Wilcox et al., 2018), a meta-analysis evidenced that these results are inconclusive (Roorda et al., 2011).

Despite the differences in the magnitude of some variables in each gender, what about the relevance of these contextual variables and psychosocial antecedents on academic achievement? Is the interaction among them equally relevant for both? Regarding the gender differences in the strength of the relationships between academic support, academic engagement, and academic outcomes (satisfaction with school or grades), the literature is scarce. Lietaert et al. (2015) found that the association between autonomy support from teachers and behavioral engagement was stronger in males than females. Recently, Bru et al. (2021) carried out research to study the effect of gender on the teachers' support–engagement relationship. Their study showed that, although the effect of learning process support and emotional support on emotional engagement was stronger in females, the effect of structuring of learning activities on emotional engagement was stronger for males (Bru et al., 2021). The effect of support on behavioral engagement was gender invariant (Bru et al., 2021). Wilcox et al. (2018) showed similar results about the effect of support on academic engagement, this relationship seems to be equivalent between males and females. However, these studies lack on considering the full picture, including the transference of school engagement into academic performance or academic achievement.

While analyzing the aforementioned relationships, it is important to take into account the age of the participants and how it affects the other variables. Some previous studies have evidenced that students in higher levels present lower results of school engagement (Goñi et al., 2018) and satisfaction that younger students (Gutiérrez et al, 2021; Lampropoulou, 2018; Liu et al., 2016). However, these relationships could be different for males and females. Wilcox et al. (2018) found that grade level was only relevant for academic engagement for males, presenting a non-statistically significant effect for females. For this reason, it is crucial to consider age as a control variable.

Except for the aforementioned studies, there is a lack of literature analyzing gender differences in the relationships among variables that precede and promote positive academic outcomes. Consequently, the present study aims to test a theoretical model based on previous literature (Gutiérrez et al., 2017; Gutiérrez & Tomás, 2019; Tomás et al., 2020) where the school engagement mediates between academic support (from teachers, parents, and peers) and school outcomes (satisfaction with school, and grades). This objective is based on six hypotheses: (1) perceived support from the teachers, family, and peers positively impacts the school engagement of the students, (2) school engagement is a positive predictor of the grades, (3) school engagement positively promotes school satisfaction, (4)

there is a positive relationship between the grades the students obtain and their school satisfaction, and, finally, as a consequence, (5) the perceived support from the teachers, family and peers indirectly increase grades and (6) school satisfaction. Additionally, our main contribution is to evaluate if this model is gender invariant or, in turn, if there are relevant gender effects to consider in academic achievement promotion.

METHOD

Participants

The sample consisted of 1712 students from the Dominican Republic with a mean age of 14.73 (SD = 1.18), ranging between 12 and 20 years. 902 students were female and 809 were male, 52.7% and 47.3%, respectively. One student did not report gender information. Most participants attended public institutions (n = 1278, 74.65%). The rest attended private institutions (n = 268, 15.65%) or semi-official institutions (n = 166, 9.70%).

Instruments

The survey included some sociodemographic questions (e.g. age, gender) and educational indicators. All of the indicators and questionnaires were administered in Spanish, the mother tongue of the participants. For the aim of this study, the relevant questionnaires used were:

1. *Perceived Academic Support Questionnaire (PASQ*; Reyes et al., 2022)*. This scale is assessed three sources of academic support: teacher's support, a dimension consisting of three items (e.g. "At my school, there is a teacher who is kind to me"); peer support, also with three items (e.g. "At my school, I have a friend who really cares about me" or "At my school, I have a friend who helps me when I have difficulties (problems)"); and family support, a dimension composed by six items (e.g. "My parents worry about my education"). All the items ranged from 1 (strongly disagree) to 5 (strongly agree). The three dimensions showed adequate reliability with Cronbach's Alpha values of .90, .79, and .76, respectively.

2. *Student Engagement Scale- 4 dimensions* (Veiga, 2013). This 20-item scale measures school engagement through four dimensions: affective (e.g. "My school is a place where I feel integrated"), agentic (e.g. "I make suggestions to teachers on how to improve things"), behavioral (e.g. "I miss classes while at school") and cognitive (e.g. "When I read a text, I try to understand the

meaning of what the author wants to convey"). Following Tomás et al.'s (2016) recommendation, items 2 and 18 were removed. In the proposed model, the dimensions are considered as indicators of the latent construct of school engagement. The internal consistency of the dimensions was reasonable. The internal consistency estimate was .71 for affective engagement, .69 for agentic engagement, .83 for behavioral engagement, and .68 for cognitive engagement.

3. *Satisfaction with school* (Nie & Lau, 2009). This scale is unidimensional and is composed of four items (e.g. "I am happy to be at this school"). Its internal consistency estimate was .75.

4. *Grades*. Academic performance is externally measured, it was not self-reported by the students. It is modeled as a latent factor considering students' marks on Spanish language, Mathematics, Social Sciences, Natural Sciences, English, Artistic Education, and Physical education as indicators. The marks in all of these subjects have been considered for all the participants. The marks in the Dominican Republic range between 0 and 100, being 70 the minimum to pass the subject.

Psychometric information for all the scales employed in the model and for this sample are presented in Reyes (2019).

Procedure

After receiving the approval of the Ministry of Education of the Dominican Republic, the research team contacted all the regions. The study was conducted, within the regions that showed interest in participating, in two districts that were chosen in consideration of their indicators of academic success (low and high). The chosen districts were districts 04–03 and 11–01. 1712 participants were sampled from the 3387 students in the aforementioned districts, taking into account a 3% margin of error (with p = q = 0.5) and a level of confidence of 99%. Therefore, the sampling procedure was in part intentional (the two districts chosen) and then in these two districts the sample was randomly selected (probabilistic).

The procedure meets the ethical standards of the American Psychological Association (APA). Firstly, the educational authorities (school directors) of the institutions were contacted, and they approved the survey characteristics. Then teachers and families were informed about the objective and procedure of the survey. The participation was voluntary, confidential and not rewarded. The informed consents from the participants and families were obtained. The survey was completed during the first teaching hour, and it took 45 minutes. The survey

was administered by the teachers who had received training for this purpose from the research team. The number of incomplete questionnaires was negligible.

DATA ANALYSIS

Statistical analyses were carried out with IBM SPSS Statistics for Windows, Version 26.0 (IBM, 2019) and Mplus 8.7 (Muthén and Muthén, 1998-2017). Descriptive statistics and Cronbach's alphas were calculated with IBM SPSS Statistics. A value of Crobach's alpha above .70 was considered adequate (Kline, 2015). Mplus was employed to test for structural models. The estimation method in these structural models was WLSMV, adequate for non-normal and ordinal variables as the ones in this research. The theoretical model that proposes the mediation role of school engagement between academic support and satisfaction with school and grades was tested. Once the model was considered to fit the data for the total sample, the model was tested separately for each group: men and women. And finally, an invariance routine for gender was carried out.

This invariance routine is a sequence of increasingly constrained models for testing configural, metric invariance, and equal effects of the model (van de Schoot et al., 2012). First, the configural invariance checks the structural equivalence: if the pattern of relationships between the variables across the groups is common. In the configural model, parameters are freely estimated in both groups. The fit of the configural model was considered as a baseline fit. Second, a metric invariance was tested. Metric invariance fixes factor loadings across the groups. Metric invariance has to be stablished before relationships among constructs can be compared across groups. Third, equal effects were tested, forcing structural coefficients of the relationships among latent variables to be the same across groups.

The models fit was assessed through several indexes: (a) the chi-square statistic; (b) the Comparative Fit Index (CFI); (c) the Root Mean Square Error of Approximation (RMSEA); and (d) the Standardized Root Mean Residual (SRMR). Usually, an adequate fit is considered when CFI is above .90 and RMSEA and SRMS below .08 (Marsh et al., 2004). To compare the nested models in the invariance routine, CFI differences (ΔCFI) were used. An alternative is to use χ^2 differences ($\Delta\chi^2$) to compare nested models, but this statistical comparison presents the well-known problem of being too sensitive to trivial differences (Cheung & Rensvold, 2002). Regarding the interpretation of CFI differences, differences lower than .01 or .05 are usually used as cut off criteria for equivalence across groups (Cheung & Rensvold, 2002; Little, 1997). This evaluation was complemented with the consideration of changes in RMSEA and SRMR. For adequate metric invariance, changes on RMSEA and SRMR should be < .010 and < .025, respectively (Chen, 2007).

Results

Table 1 includes the descriptive statistics of the studied variables in the general sample, males and females. Table 2 presents the bivariate correlations of the observed construct that will be modeled as latent variables in the model. Firstly, the theoretical model shown in Figure 1 was tested. The structural coefficients presented in Figure 1 are standardized. The model fitted the data adequately: χ^2(338) = 1926.207, p < .001, RMSEA = .052, 90% confidence interval [CI] = [.050, .055], CFI = .933, SRMR = .048. For clarity's sake, standardized factor loadings of the latent factors' indicators are not included in Figure 1, but they can be seen in Table 3. All of the indicators showed high loadings, ranging between .48 and .84 (p < .001), except for two of them. In school engagement, behavioral engagement showed a low negative coefficient (-.18, p < .001). Additionally, the third indicator of school satisfaction had a low loading (.22, p < .001), being an inverted item.

Table 1
Descriptive Statistics

	Full sample			Male			Female		
	M(SD)	Kurt	Skew	M(SD)	Kurt	Skew	M(SD)	Kurt	Skew
Parental support	4.27 (0.78)	2.92	-1.64	4.19 (0.84)	1.85	-1.44	4.34 (0.71)	4.31	-1.85
Teacher support	3.88 (0.91)	0.44	-0.83	3.84 (0.93)	0.22	-0.76	3.92 (0.89)	0.66	-0.90
Peer support	3.82 (0.99)	0.12	-0.79	3.67 (0.99)	-0.21	-0.57	3.96 (0.96)	0.69	-1.02
School engagement	3.16 (0.55)	0.70	0.23	3.19 (0.60)	0.59	0.30	3.14 (0.51)	0.59	0.08
Satisfaction with school	3.61 (0.71)	1.16	-0.73	3.58 (0.76)	0.75	-0.65	3.63 (0.66)	1.60	-0.80
Grades	83.75 (5.44)	-0.13	-0.00	82.72 (5.40)	-0.27	0.09	84.67 (5.31)	0.11	-0.07

Note. M=Mean; SD=Standard deviation; Kurt=Kurtosis; Skew=Skewness.

Table 2

Bivariate Correlations

|	1	2	3	4	5	6
Age (1)	-					
Parental support (2)	-.164**	-				
Teacher support (3)	-.047ns	.368**	-			
Peer support (4)	-.093**	.316**	.498**	-		
School engagement (5)	.104**	.277**	.384**	.334**	-	
Satisfaction with school (6)	-.020ns	.345**	.370**	.322**	.398**	
Grades (7)	-.243**	.133**	.150**	.149**	.037ns	.104**

Note. ** $p < .01$.

Table 3

Standardized Factor Loadings

Indicator	Parental support	Teacher support	Peer support	School engagement	Satisfaction with school	Grades
I1	.740	.676	.780	.586	.835	.742
I2	.812	.773	.716	.512	.768	.614
I3	.803	.711	.716	.619	.219	.739
I4	.805	--	--	-.175	.630	.630
I5	.788	--	--	--	--	.655
I6	.753	--	--	--	--	.600
I7	--	--	--	--	--	.483

Note. I1-I7: General naming for the indicators of each factor, more information could be found in the section of Instruments. all of the standardized factor loadings were statistically significant $p < .001$.

Figure 1
Structural Equation Model
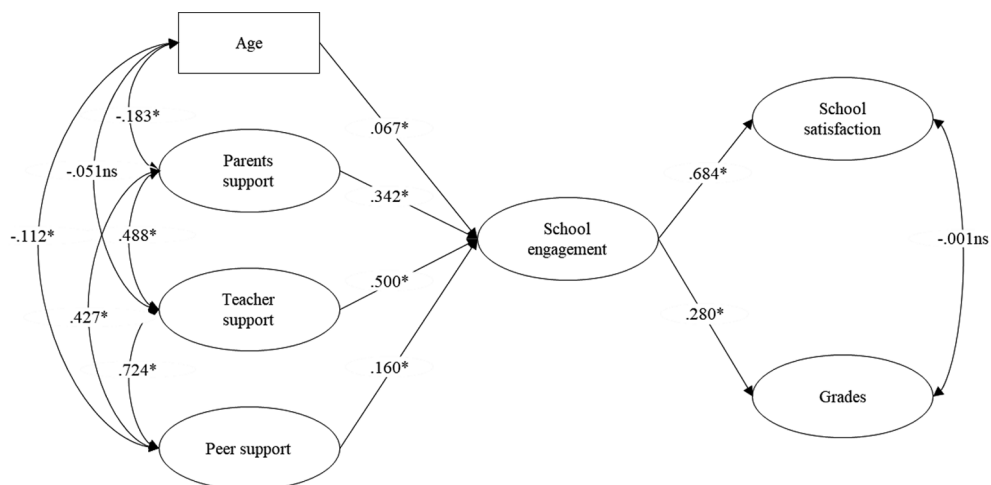
Note. The figure shows the standardized coefficients. For clarity's sake, indicators are not included in figure 1.
*p<.001.

The model showed a direct effect of parents' support, teachers' support, and peers' support on school engagement, with structural coefficients of β = .34, *p* < .001; β =.50, *p* < .001 and β = .16, *p* < .001, respectively. These effects jointly explained 74% of the variance of school engagement. Regarding the prediction of satisfaction with school, the direct effect of school engagement explained 46% of its variance (β = .68, *p* = .001). Nevertheless, the effect of school engagement only explained 7.8% of the variance of grades (β = .28, *p* < .001). Additionally, there was no significant correlation between satisfaction with school and grades (β = -.00, *p* = .975).

Regarding the effect of the control variable, age showed a low negative effect on school engagement (β = -.07, *p* < .001). Additionally, age showed statistically significant correlations with parental support (β = -.18, *p* < .001) and peer support (β = -.11, *p* < .001). The correlation between teacher support and age was not statistically significant (β = -.051, *p* = .085). Its indirect effects on satisfaction with school and grades were statistically significant and negative (-.05, *p* = .018, and -.02, *p* = .035, respectively).

The indirect effects of parents, teachers, and peers' support on satisfaction with school were all positive and statistically significant (*p* < .05). Teachers' support was the strongest predictor among them (β = .34, *p* < .001), followed by parents' support (β = .23, *p* < .001) and peers (β = .11, *p* = .012). Similarly, the three sources of academic support presented an indirect impact on grades (*p* < .05). However,

their impact was lower compared with their effect on satisfaction with school. Teachers' support had the strongest indirect effect on grades (β=.14, p < .001). Parental support showed an indirect impact equal to .10 (p < .001) and the indirect impact of peers' support was .05 (p = .013).

Gender Invariance

The invariance routine starts testing the model fit in both samples: girls and boys. Table 4 shows goodness-of-fit indices for both groups, showing an adequate fit. When the overall fit in each group is guaranteed, configural invariance may be tested to set a baseline fit. As can be seen in Table 4, the configural model fitted the data well, and the same happened for the metric invariance model. Both models, configural and metric, were statistically different because the metric invariance model has significantly reduced the chi-square value. Moreover, the CFI improved with increasing degrees of freedom. Regarding the equal effects model, it was expected that the model fit decreased when introducing equality constrains, but indeed, it has shown an increase. Therefore, the three levels of invariance were verified. This means that girls and boys showed the same pattern of relationships in the prediction of satisfaction with school and grades with academic support through school engagement.

Table 4
Goodness-of-fit indices for each group studied and for the set of nested models to test for measurement invariance by gender

Model	χ^2	df	p	$\Delta\chi^2$	Δdf	p	CFI	ΔCFI	SRMR	ΔSRMR	RMSEA	ΔRMSEA	90% CI
Male	1092.596	338	<.001	--	--	--	.932	--	.054	--	.053	--	.049-.056
Female	1086.179	338	<.001	--	--	--	.935	--	.050	--	.050	--	.046-.053
Configural	2305.396	735	<.001	--	--	--	.930	--	.053	--	.050	--	.048-.052
Metric	2293.719	749	<.001	-48.308	14	<.001	.931	-.001	.054	.001	.049	-.001	.047-.051
Equal effects	2135.201	755	<.001	-4.800	6	.5697	.939	-.008	.054	.000	.046	-.003	.044-.049

Note. df = degrees of freedom; Δ = differences.

DISCUSSION AND CONCLUSIONS

Previous research evidences the importance of academic engagement in promoting academic achievement, whether measured through grades or including satisfaction with school. Although teachers' support and parents' support are key environmental factors for the development of academic engagement, peers' support presents more disparate results across research (Fernández-Lasarte et al., 2019, 2020; Gutiérrez et al., 2017). Regarding the effect of gender on these relationships, although gender differences in each of the aforementioned variables have been previously studied (e.g. Fernández-Zabala et al., 2016; Oga-Baldwin & Fryer, 2020; Ramos-Díaz et al., 2017), the moderating effect of gender is understudied. Consequently, the present paper attempts to provide evidence in favor of the mediating effect of academic engagement on the relationship between academic support and academic achievement, across genders.

As expected from previous literature (Elmore & Huebner, 2010; Li et al., 2011; Sivandini et al., 2013), our results show that academic support promotes satisfaction with school and student grades. Likewise, the different sources of academic support showed a positive impact on academic engagement and, through it, on academic achievement. These results support hypotheses 1, 2 and 3. When considering the academic support received by parents, teachers, and peers, we found that teachers are the group with the greatest impact on academic engagement. These results agree with those obtained by Fernández-Lasarte et al. (2019, 2020) and Gutiérrez et al. (2017) in samples of high school students. Concerning peers' support, in our study, it has a positive and statistically significant impact, although this result is not unanimous in previous literature (Fernández-Lasarte et al., 2020; Gutiérrez et al., 2017; Lam et al., 2012).

Regarding hypothesis 4, it was not supported by our results. Hypothesis 4 stated that grades and school engagement are positively correlated and the structural equation model presented a non-statistically significant relationship between both constructs. These results highlight the importance of considering both, direct and indirect measures of adequate students' educational functioning (Antičević et al., 2018).

The model evidenced that the three dimensions of academic support presented an indirect impact on satisfaction with school and grades, supporting hypotheses 5 and 6. Among them, the most impactful source of academic support was the teacher, followed by parents and peers. Our results agree with Gutiérrez et al. (2017) findings by showing teachers' support as the strongest indirect predictor of satisfaction with school. However, the indirect effect of peers' support in their study was not statistically significant (Gutiérrez et al., 2017).

Regarding the role of gender in the model, our study provides evidence of the robustness of the model across genders. The different relationships included in the model are invariant across the two groups, girls and boys. This tells us that, although some studies show mean differences in variables such as academic engagement or academic support as a function of gender (Fernández-Zabala et al., 2016; Ramos-Díaz et al., 2017), the importance of those variables in predicting academic performance is identical for both genders. Although some previous studies argued that boys and girls have different criteria for choosing their friends during school (Ciarrochi et al., 2016; Shadra et al., 2015), the academic support received from them is equally important for the development of academic engagement and, consequently, academic performance. These results extend previous research by considering support from groups other than teachers, and including the consequences of academic engagement in the study (Bru et al., 2021; Lietaert et al., 2015).

Our research presents some limitations that point out future research lines. First, the present study is based on cross-sectional data, which limits conclusions about causality between the variables. Also, like most previous research, gender has been treated as a dichotomous variable. Future research should delve deeper into the effect of gender identity and gender roles beyond the traditionally binary conception. Using latent profile analysis, Yu et al. (2020) found that different classes emerged according to gender role conformity between the boys and girls. Each of these profiles showed different school performance. These results show the need to test the gender invariance of the models with more detailed and plural classifications.

Additionally, our study focuses on the effect of academic support, without differentiating emotional and instrumental, and on academic engagement, without considering the effect of its different dimensions. Our results highlight the importance of considering different types of engagement because not all of them are positively correlated. Behavioral engagement presented a negative factor loading on general school engagement. Although these results could seem surprisingly, it has been found in previous literature in the Dominican Republic and Angola (Tomás et al., 2016). Bru et al. (2021) showed that the moderator effect of gender could vary across kinds of support and engagement dimensions. Further research is needed to understand in detail the complexity of the phenomenon considering different sources of academic support and different types of engagement.

The present study highlights the relevance of academic engagement as a precursor to satisfaction with school and academic achievement. Furthermore, it evidences the importance of academic support, especially that received by teachers, as an antecedent of academic engagement. These relationships are robust across boys and girls, being the academic support equally relevant for correct involvement and performance in school. These results help to understand the elements to

take into account when developing psychoeducational interventions that seek to improve the school adjustment of both boys and girls. These interventions may give rise to future longitudinal studies to test the causal relationships to which the present research points.

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