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Gendered Patterns of Coping Responses to Academic Sexism in a Group of Spanish Secondary Students

Abstract

This study analyzes predictors of students' coping responses to academic sexism. 954 high school students (mean age = 17; 57% girls) participated. Boys were therefore more likely to use avoidance responses, whereas girls confronting and help-seeking responses. Likewise, hierarchical regression analyses suggest that girls in comparison to their male counterparts and boys and girls whose parents had high educational level, and without sexist attitudes about women's higher level of competence in biology and languages, were more likely to deploy confronting responses. Similarly, girls and boys who did not embrace either of the stereotypes that boys are better at science and technology or that girls are better at biology and languages were more likely to seek help. Furthermore, boys and girls who believed that girls are better at biology and languages were more likely to develop avoidance responses. Interaction between gender and parental educational level shows that boys with highly educated parents were more likely to avoid the sexist situation. The present research contributes to the study of factors shaping gender differences in students' coping responses to academic sexism. The role played by students' adherence to stereotyped beliefs about boys' and girls' academic abilities in those coping responses is also discussed.

Keywords: academic sexism, coping, discrimination, gender, STEM, stereotypes

Introduction

In most Western countries, women are less likely than men to pursue STEM (science, technology, engineering and mathematics) subjects and careers (OECD, 2015). Research on the underrepresentation of women in STEM suggests that, whereas males have been traditionally associated with a higher level of competence in STEM subjects such as math or physical sciences, females have been associated with a higher level of competence in verbal abilities (Eccles, 2009; Sáinz & Eccles, 2012). These beliefs not only lead girls to attach less value to STEM subjects and careers than their male counterparts, but they also result in them developing less competence in STEM subjects (Eccles, 2009). This academic sexism is a form of gender-based discrimination, as it makes reference to the fields in which males and females are expected to excel (Leaper & Brown, 2014) and affects young people's aspirations.

The common assumption related to high-level cognitive ability (brilliance, genius, or giftedness) seems to be present more often in men than in women (Meyer, Cimpian, & Leslie, 2015).Women are more likely than men to be underrepresented in STEM fields which require 'raw intellectual talent' — the sort of talent that women are stereotyped to possess less of than men (Meyer et al., 2015). This 'brilliance = males' stereotype seems to explain the gender gaps in many prestigious occupations, such as physical science or engineering (Leslie, Cimpian, Meyer, & Freeland, 2015). This stereotype begins to shape children's interests as soon as it is acquired and it is thus likely to narrow the range of career options that they will one day consider (Meyers et al., 2015; Leslie et al., 2015). This situation may explain why girls are less likely than boys to pursue STEM subjects and careers, which are frequently associated with brilliance.

The prevalence of academic sexist beliefs in our society (mainly in family and school settings) has important theoretical and practical implications. When many young people make academic and occupational decisions based on these sexist beliefs, they do not develop their own talents in areas where they have the potential of attaining a high level of academic and professional achievement (Sáinz, Solé, Fàbregues, & García-Cuesta, 2019). In fact, many secondary school students abandon the idea of developing academically and professionally in these non-traditional fields (Sáinz & Meneses, 2018). This is the case of girls in some STEM subjects, such as science and technology, and, conversely, of boys in education and other fields related to humanities and health (Sáinz & Meneses, 2018).

Confronting sexist contexts involves stressful situations that may have a negative impact on several academic indicators, resulting in, for instance, a diminished level of satisfaction in academic pursuits (Steele, James, & Barnett, 2002) or the lowering of academic confidence (Leaper & Brown, 2014; Brown & Leaper, 2010). But how do young people learn to implement a positive adaptive approach to sexism? To what extent is confronting sexism in the academic setting a topic of interest for educators, students, parents, academic advisors, and anyone interested in reducing sexism (Boysen, 2013)? To the authors' knowledge, no research has been conducted on these issues within the Spanish context and, even more importantly, on how both girls and boys deal with them. The present research therefore aims at looking at the existence of gender differences in the coping responses deployed by secondary school students when experiencing academic sexism.

Sexist Beliefs about Boys' and Girls' Academic Competence

Girls face more sexist attitudes about their academic competence in STEM subjects than boys do in non-STEM subjects (Leaper & Brown, 2014). However, boys may also suffer from sexist attitudes, and the unrealistic beliefs regarding boys' higher level of competence in

STEM subjects may negatively influence their performance in these subjects and the ultimate career choices they make (Sáinz & Upadyaya, 2016). In fact, the assumption that boys are worse than girls in reading skills is also a negative stereotype about boys' capabilities in languages (Bian, Leslie, & Cimpian, 2017). In this regard, girls' internalization of gender stereotypes about their competence in STEM subjects may affect their achievement in these subjects (Leaper & Brown, 2014; Riley, 2014). The same would be applicable for boys in languages-related subjects, which have been traditionally associated with girls (Retelsdorf, Schwartz, & Asbrock, 2015). However, research tackling boys' perceptions of academic sexism and how they may cope with sexist situations is not as much prolific as research on sexism experienced by girls. In this regard, research drawing from stereotype threat theory has examined the influence that negative stereotypes about boys' abilities in reading have on their performance in this subject (Pansu et al., 2016). For this reason, in the present study we examine both male and female secondary school students' coping responses in the face of academic sexism towards gender stereotypical academic subject areas.

Some studies have highlighted the important role that the stress and coping model plays in women's experience of sexism (e.g., Kaiser & Miller, 2004) or sexual harassment in the school setting (e.g., Leaper, Brown, & Ayres, 2013). To the authors' knowledge, there is a dearth of empirical evidence on how both genders cope with experiences of academic sexism (e.g., Leaper & Brown, 2008). Research on this issue has mainly focused on the experiences reported by girls. For this reason, and considering that boys can also be the target of academic sexist attitudes (Pansu et al., 2016; Retelsdorf et al., 2015), the perspective of boys' and girls' coping responses to academic sexist experiences has been incorporated into the present study. Furthermore, recent research in Spain shows the existence of academic sexism in the school setting (e.g., Sáinz & Eccles, 2012; Sáinz & Upadyaya, 2016). In relation to this issue, whereas boys rated their abilities in STEM subjects above their actual

performance, girls underrated their abilities in the same subjects (Sáinz & Eccles, 2012; Sáinz & Upadyaya, 2016). Similarly, girls showed less interest in pursuing STEM technological studies, whilst boys displayed greater interest in these studies (Sáinz & Eccles, 2012).

Sources of Academic Sexism

Despite strong empirical evidence showing the existence of more similarities than differences between males' and females' mathematical skills (e.g., Hyde, 2005), it is a common belief that girls have inferior mathematical and technological skills than their male counterparts. One consideration is that the expectations and attitudes of parents and teachers in relation to young people's abilities and interests have a strong effect on young students' motivational patterns, as they affect their self-perception and performance (Sáinz, Pàlmen, & García-Cuesta, 2012). Moreover, parents and teachers hold stereotypes about boys' and girls' competence in STEM subjects such as math and technology and expect boys to show a higher level of competence in these STEM subjects than girls (Sáinz et al., 2012). Similarly, many parents place less value on the importance of their daughters' participation in math and science (Eccles, 2009). Likewise, some parents sometimes perceive that STEM subjects are more interesting for boys than for girls (Sáinz et al., 2012).

In addition, both parents and teachers have different expectations for boys and girls and attribute boys' and girls' levels of competence to ability and effort, respectively (Chhin, Bleeker, & Jacobs, 2008; Li, 1999). Interestingly, some teachers tend to evaluate the mathematical competence of girls as higher than that of boys when they are aware of the students' gender, but not when they are blind to the students' gender (Lavy, 2008). Furthermore, many teachers expect that during the course of secondary school boys will show disruptive behavior in the classroom, whereas they believe that girls are better adapted to

school values (Farkas & Leaper, 2016; Sáinz et al., 2019). These stereotypical beliefs may make boys and girls targets of academic sexism.

In addition, peer influence seems to be particularly significant from middle-school onwards, as peers express sexism by teasing gender-atypical classmates or committing sexual harassment (Leaper & Brown, 2014; Leaper et al., 2013). Children who do not meet the norms or fit the stereotypes of the group may suffer negative consequences (such as being mocked or rejected by group members). In conclusion, peers regulate peer-group behavior by assuming that boys and girls have different levels of competence in different subject areas.

Coping with Academic Sexism

Lazarus and Folkman (1984) formulated one of the most influential theoretical backgrounds to explain people's own strategies for confronting and coping with stress. According to this theory, cognitive appraisals of stressful situations (such as the experiences associated with academic sexism) are related to each individual's coping strategies. That is, the person evaluates the situation and decides how to respond and cope with the stressful situation.

This model has been applied to coping with stress in several educational and non-educational settings (see Lazarus & Folkman, 1984, for a review) and plays an important role in the explanation of how women cope with sexism (e.g., Ayres, Friedman, & Leaper, 2009; Kaiser & Miller 2004). Interestingly, some research has linked strategies for coping with sexism to women's identification with feminist ideology (Ayres et al., 2009; Leaper & Brown, 2014; Leaper et al., 2013). In this regard and inspired by Lazarus and Folkman's (1984) model of stress and coping, Leaper et al. (2013) postulated that cognitive appraisals of coping were based on the reported likelihood of deploying the following three strategies in the face of sexual harassment: confronting, help-seeking, and avoidance. Whilst approach

strategies (such as confronting or seeking support) are proactive (engaging) because they are oriented toward addressing the threat, avoidance strategies are oriented away from the threat (disengaging) and include actions such as ignoring the situation (Leaper & Brown, 2014). Interestingly, proactive strategies seem to be more effective than avoidance strategies in reducing the negative effects commonly associated with stress in general (Lazarus & Folkman, 1984) and with sexism in particular (Foster, 2000). For instance, an optimistic outlook on life was associated with more benign appraisals of confronting discrimination, which, in turn, were associated with greater confrontational responses (Kaiser & Miller, 2004).

Awareness of academic sexism seems to play a major role in girls' and boys' coping responses to discrimination (Leaper & Brown, 2014). However, adolescents are not always fully aware of being the target of this form of discrimination. For instance, a girl receiving discouraging comments about her math abilities may attribute them to her individual poor performance rather than to the stereotype endorsing girls' low math abilities (Leaper & Brown, 2014). In addition, people who lack confidence in their abilities to confront discrimination will be hesitant to confront perpetrators of sexism (Kaiser & Miller, 2004). More importantly, considering both individual (e.g., perceptions of discrimination) and situational factors (e.g., characteristics of a particular sexist event) seem to be crucial in assessing potential responses to sexism (Ayres et al., 2009).

Factors Shaping Young People's Responses to Academic Sexism

Little research has explored the influence of parental background (i.e., parental educational level and ethnic background) on how adolescents respond and cope with situations of academic sexism. According to research conducted in the United States (Leaper et al., 2013), students from ethnic-minority backgrounds may be less aware of sexism

because ethnicity is more central to their identity, given their frequent experiences with racism or ethnic prejudice. Moreover, North American adolescents from parents with lower socioeconomic statuses (especially girls) experienced more stress in their daily lives and were more likely to report avoidance coping in response to sexual harassment (Finkelstein, Kubzansky, Capitman, & Goodman, 2007). A similar pattern may be applicable to how girls cope with sexism. Inspired by the study of Leaper et al. (2013) on coping with sexual harassment, in the present study we consider the immigrant background of students and their parents' level of educational attainment (a proxy to socioeconomic status) as potentially relevant sociocultural predictors of their responses to academic sexism.

In addition, there is a lack of research on how young people react to situations of academic sexism in the context of Spain. Some of the existing research revolves around the study of ambivalent sexism among adolescents and is related to vocational goals and motivation as predictors of men's and women's career choices (Lameiras, Rodriguez, Calado, Foltz, & Gonzalez, 2006). The transmission of benevolent sexism from mothers to daughters and its connection with daughters' academic goals and performance has also been the subject of research conducted in Spain (Montañés et al., 2012).

The Present Study

In the present study, we attempt to fill these gaps in literature by analyzing adolescents' reactions to academic sexism. Moreover, most research on strategies for coping with academic sexism has been mainly conducted among girls (Ayres et al., 2009; Boysen, 2015), probably because girls are more frequently the target of this type of discrimination than their male counterparts. Accordingly, in the present research, we look at both boys' and girls' coping responses to academic sexism. We also examine the influence of some relevant

moderators (e.g., parental educational level and immigrant background) that may shape these gender inequalities in students' coping responses to academic sexism.

The hypotheses were therefore formulated as follows:

Hypothesis 1: The variables gender, parental educational attainment, and immigrant background are expected to have an effect on the deployment of coping responses. Thereby, girls (*vs*. boys), students from non-immigrant backgrounds (*vs*. those from immigrant backgrounds), as well as students with parents with high educational attainments (*vs*. those from intermediate and low educational backgrounds) are expected to deploy more pro-active coping responses towards academic sexism.

Hypothesis 2: Students who endorse sexist attitudes regarding boys' higher abilities in STEM subjects and girls' higher abilities in biology and languages are expected to deploy less proactive coping responses to academic sexism than students who do not endorse these sexist attitudes.

Hypothesis 3. Students who have experienced sexism from significant people about their lack of abilities in gender stereotyped subjects are expected to develop more coping responses than those students who have not experienced that type of sexism.

Hypothesis 4. Beyond the expected overall effects specified in Hypothesis 1, moderation effects of parental educational attainment and immigrant background are expected. Girls from low parental educational attainments and girls with immigrant backgrounds are therefore expected to deploy more proactive coping responses than boys from higher parental educational attainments and boys from non-immigrant backgrounds.

Method

Sample

The sample consisted of a group of 954 secondary students (M = 17 years old; SD = 90), enrolled in the first course of high school (*Bachillerato*). A total of 57% of the participants were girls (407 boys and 547 girls). Ten schools located in the metropolitan areas of Madrid (6) and Barcelona (4) took part in the study. Most of the students reported that their parents had attained an intermediate educational level (60%); whereas 30% and 10% of the students reported that their parents had attained a high and low educational level, respectively. In addition, most of the students' parents were born in Spain (80%).

Procedure

The survey was collected during classroom hours after having obtained informed consent from the students' parents and school administrators. Students were informed that they could abandon the survey at any time, should they choose not to answer it. No rewards were given to the students for their participation in the study. All students had to answer the same questions, except for the scale 'self-experienced sexism with negative statements about boys' and girls' abilities' whose formulation required a slight variation in the version for girls and boys.

Measures

Family characteristics.

Place of origin of both parents: students were requested to write down both parents' countries and places of birth. Most participants had fathers (73%) and mothers (75%) born in Spain (1). From those with non-Spanish-born parents (2), most came from Latin America, China, and Morocco.

Educational level of both parents: a 4-point rank order scale allowed students to rate the highest educational level completed by their parents, choosing one out of the following four alternatives: 1. No studies, 2. Primary school, 3. Secondary education, and 4. University studies. Most of the parents had intermediate educational attainments (2): 53% of the fathers and 51% of the mothers had completed post-compulsory secondary education. Likewise, 46% of the fathers and 49% of the mothers had completed university studies, while only 19% of the fathers and 15% of the mothers had only completed primary school or had not even finished primary school.

Coping responses to academic sexism.

The items on the questionnaire were derived from Lazarus and Folkman's (1984) ways of coping questionnaire and adapted for use with an adolescent sample. The questionnaire contained ten responses that rated participants' agreement on a 4-point scale (from 1 = strongly disagree to 4 = strongly agree). The participants were asked what their responses were likely to be if they were to experience sexist comments about their academic abilities. A principal components analysis (PCA) was run, which resulted in a three-component structure that accounted for 61.92% of the variance, $KMO = 723$, $x^2(45, 893) = 2{,}267.647$, $p < .001$.

On the one hand, the confronting component (*Cronbach's alpha* = .66) included three items that accounted for 12.86% of the variance and referred to the confronting reaction that included: "Tell the person that I was angry" and "Tell the person that his/her behavior was offensive".

On the other hand, the help seeking component (*Cronbach's alpha* = .74) comprised four items, that accounted for 28.86% of the variance and measured cognitive appraisal of

seeking social support after experiencing academic sexism. The items were formulated as follows: “Ask someone that I respected for advice”, and “Report the person's behavior to an authority, such as an employer, teacher or parent”.

Finally, the avoidance component (*Cronbach’s alpha* = .75) consisted of three items that accounted for 20.20% of the variance and read as follows: “Refuse to get too serious about it” and “Don’t let it get to me”.

Sexist statements about boys’ and girls’ academic abilities.

Students had to rate their level of agreement with five sexist statements regarding boys’ and girls’ academic competence on a 4-point scale (from 1 = strongly disagree to 4 = strongly agree). A second PCA analysis was run and resulted in the following two-component structure, that accounted for 85.51% of the variance, KMO =.857, $x^2(10, 938) = 3{,}286.609$, p <.001.

On the one hand, the component including beliefs about boys’ better abilities in STEM subjects (Cronbach’s alpha = .90) consisted of three items, that accounted for 73.93% of the variance and referred to physical sciences, math, and technology. On the other hand, the component including beliefs about girls’ better abilities in biology and languages (*Cronbach’s alpha* = .85) consisted of two items, that accounted for 11.58% of the variance.

Self-experienced sexism with negative statements about boys’ and girls’ abilities.

A different version for boys and for girls was provided to evaluate students’ subjective experience of having received a negative appraisal of their abilities in subject areas congruent with gender stereotypes. Girls had to therefore read the following statement. “Some people think that girls are not as good as boys in certain areas. They may make sexist

statements that 'put down' girls in their abilities in areas like math, science, and Information Technologies (IT) where this might occur for girls". Similarly, boys had to read the following statement "Some people may make sexist statements that 'put down' boys in their abilities in areas like languages where this might occur for boys". Some girls (boys) think these things have happened to them. Other girls (boys) don't think these things have happened to them. We want to know about your own experience. Have you ever noticed any of the following people (mother and father; close male friends or brothers, close female friends, or sisters; and neighbors, other girls, and other boys) making a discouraging statement or expressing a negative view to you about your abilities in math, science, or IT just because you are female or in languages just because you are male? The participants had to respond using 1 (never), 2 (a few times), 3 (several times), or 4 (many times).

A third PCA analysis was run and resulted in the following three-component structure, that accounted for 74.57% of the variance, *KMO* =.695, $x^2(21, 894) = 2.028.354$, $p < .001$. The first component referred to both parents and accounted for 19.45% of the variance (*Cronbach's alpha* =.77) and consisted of two items. The second component referred to friends accounted for 43.57% of the variance (*Cronbach's alpha* = .72) and consisted of two items: 'same-sex friends and different-sex friends'. The third component referred to other peers and acquaintances that accounted for 11.56% of the variance (*Cronbach's alpha* = .75) and consisted of three items that made reference to 'other girls, other boys, and neighbors'.

Statistical Analysis

For the analysis to be conducted, indicators were constructed from the results obtained in the PCA analyses, adding the partial scores of the items and dividing the answer by the number of items.

Bivariate correlations and descriptive statistics among the measures and factors are presented in Table 1. Given the ordinal nature of the rating scales associated with coping strategies for dealing with academic sexism and sexist academic beliefs, together with the categorical nature of parental educational level, and the use of dichotomous dummy-coded variables (gender and non-immigrant background), Kendall's tau bivariate correlations were applied.

Hierarchical regression analyses.

A series of hierarchical regression analyses were performed with students' appraisals of the coping responses to academic sexism (see Tables 2, 3 and 4). We tested predictors of the three coping responses separately. As we wanted to analyze to what extend observed differences in each coping response as result of each sociodemographic feature remained or changed independently of the introduction of the theoretical factors in the models, four steps were tested for each hierarchical regression model. In Step 1, three socio-demographic background variables were entered: participants' gender, parents' educational level and non-immigrant background. We contrasted the responses for boys (1) and girls (0) and for students with parents with low (1 = primary education attained), intermediate (2 = secondary education attained) and high (3 = university education) educational levels, and for students with immigrant (0) and non-immigrant (1) backgrounds. In Step 2, the two factors for sexist academic beliefs were included in the model. In Step 3, the three variables related to experiences with negative statements from different significant people were introduced. In Step 4, the interactions between gender and parents' educational level and between gender and non-immigrant background were also incorporated into the regression model.

Moreover, the effective sample sizes for each coping response model were determined by the valid cases in the last step. In each model, changes in F tests and R^2 are provided.

Given the observed correlations between the predictors included in the models (see Table 1), collinearity was a potential concern in the regression analyses. Therefore, collinearity statistics were performed to assess tolerance levels with each regression. Tolerance values — i.e., the proportion of variance associated with a particular predictor that cannot be accounted for by the other predictors — are generally considered adequate when they are above .10 (Chen, Ender, Mitchell, & Wells, 2003). There were no problematic collinearity patterns for our models, since the minimum tolerance value across all the regression steps, excluding the interaction estimates, was .43.

Results

Preliminary Analyses

The confronting responses correlated negatively with being a boy and with the two academic sexist beliefs (see Table 1). Confronting responses were also noticeably, but positively, correlated with parental educational level and immigrant background.

In addition, the confronting responses had an inverse correlation with having experienced negative opinions from parents, whereas the avoidance responses were negatively associated with having received negative opinions from other peers and neighbors. On the other hand, correlations between the different coping responses show that confronting and help-seeking responses had positive associations, whilst especially confronting responses were also negatively related to avoidance responses.

The two sexist academic beliefs were closely — but not completely — correlated. In addition, they were negatively associated with all socio-demographic variables, except for gender, which only correlated positively with the sexist belief that ‘boys are better at STEM subjects’. Finally, girls reported more experiences of ‘negative statements from other peers

and neighbors'. In addition, students with non-immigrant backgrounds showed lower values in 'negative opinions from parents'.

Hierarchical Regression Analyses

A set of hierarchical regression analyses were conducted in order to test the different hypotheses.

Confronting responses.

All socio-demographic factors were significant in Step 1 (Table 2): boys were less inclined to confront than girls, while students whose parents had university and non-immigrant backgrounds had a greater likelihood of confronting sexism. The second block of predictors that incorporated sexist academic beliefs about boys' and girls' abilities improved the goodness of fit of the model, but only the belief that 'boys are better at STEM subjects' had a significant negative main effect.

In contrast, the rest of the variables included in the two final steps did not significantly improve the model; however, the interactions introduced some interesting nuances: gender did not preserve its main effect, because significant differences between girls and boys were only found within the group whose parents had attained a university degree. On the other hand, the gaps associated with parental level of education were not significant, except for females whose parents had attained primary versus university education. Lastly, non-immigrant background retained its main effect across the gender categories, with a stronger result for girls. This latter model accounted for 10% of the variance, which is a medium effect size (Cohen, 1988).

Help-seeking responses.

Among the socio-demographic variables, only gender was significant, with boys being less likely to endorse this response (Table 3). The two academic sexist beliefs, entered in Step 2, were both significant but in opposite ways: whereas the belief that 'boys are better at STEM subjects' had a negative effect, the belief that 'girls are better at biology and languages' had a positive one.

Steps 3 and 4 did not increase the goodness of fit of the models. However, when the interactions were entered, gender remained a significant predictor for almost all the intersections, except for the cases where the parental educational attainment referred to primary school. On the other hand, the rest of factors and combinations showed non-significant effects. Finally, the last model accounted for 5% of the variance, which is a small effect size (Cohen, 1988).

Avoidance responses.

Gender was the only significant socio-demographic predictor, with boys being more inclined towards this type of coping response (Table 4). The inclusion of sexist academic beliefs in the second step confirmed that the belief that girls are better at biology and languages was positively associated with the endorsement of avoidance coping.

The third step was, again, not significant when entered into the regression model. However, the few interaction combinations did reach significant coefficients in Step 4. Boys whose parents had attained a university education opted more clearly for avoidance coping than their female counterparts, while boys whose parents had only attained primary education endorsed avoidance-coping responses less noticeably than their female counterparts and the rest of male students. The model after this last step accounted for 6% of the variance, which is a moderate effect size (Cohen, 1988).

Discussion

The present study contributes to literature about secondary school students' coping responses when faced with sexist academic beliefs. For this purpose, both boys' and girls' predisposition to using different coping responses to fight against academic sexism have been analyzed. In this regard, both adaptive coping strategies are closely related to each other but not to avoidance responses. These findings are congruent with research on strategies for coping with stress (Kaiser & Miller, 2004; Lazarus & Folkman, 1983) and sexual harassment (Leaper et al., 2013). In light of the theoretical background of coping with different stressful events (Boysen, 2013; Leaper et al., 2013), adolescents — and more specifically girls — using positive coping strategies against academic sexism are also less likely to use negative coping strategies. It is thereby crucial to train young people (especially boys and students with low social capital who might be the target of academic discrimination) to develop and put into practice positive strategies for coping with any type of academic discrimination.

On the other hand, the associations between background variables and the three coping responses show how confronting was higher when parental educational level was high and when parents had a non-immigrant background. This may suggest that families with less social capital tend to be more likely to endorse traditional views about the role that men and women play in our society; for this reason, they do not get involved in proactive coping strategies for dealing with sexism (Finkelstein et al., 2007). Consequently, interventions need to be designed that target families with a low socioeconomic level so that they can activate their coping responses to any type of academic sexism.

Prediction of the Endorsement of Coping against Academic Sexism

With regards to the best predictors of coping responses against academic sexism and referred to Hypotheses 1 and 2, the socio-demographic variables, together with the specific sexist beliefs that boys and girls have higher levels of competence in different subjects,

increased the likelihood of boys and girls deploying the different coping responses. In this regard, girls and students with non-immigrant backgrounds whose parents had high educational attainments were more likely to confront situations and experiences of academic sexism. These results are in line with Hypothesis 1 and confirm the findings of other studies conducted in the United States (Ayres et al., 2009; Leaper et al., 2013). Similarly and congruently with Hypothesis 2, students who believed that boys are better at STEM subjects than girls were less likely to endorse the confronting coping responses. This last finding may be related to the fact that people (particularly boys) who embrace the stereotypical portrayal of boys being better at STEM subjects may not see themselves as targets of academic sexism and do not perceive the need to use this type of proactive coping response.

Interestingly, when considering the interaction between gender and parental educational level, significant intra- and inter-gender differences emerged. That is, girls whose parents had high and intermediate educational attainments were more likely to confront sexist experiences. Conversely and in line with predictions of Hypothesis 4, girls whose parents had low educational attainments were the group with the lowest predisposition to confronting academic sexism. Moreover, girls whose parents had no immigrant background were more likely to confront academic sexism than boys of this group and boys and girls whose parents had an immigrant background. In this regard, girls and students from families with immigrant backgrounds may not be fully aware of the influence of sexist beliefs, given that their cultural identity is more salient in this context than their gender identity (Brown & Leaper, 2010).

Similarly, and with regards to the prediction of help-seeking coping responses, boys were less likely than girls to endorse this coping response. This finding partly corroborates Hypothesis 1. On the other hand and congruently with Hypothesis 2, students embracing the stereotype that boys are better at STEM subjects than girls were less likely to endorse this coping response in the face of experiences of academic sexism. However, students believing

that girls are better at biology and languages were more likely to endorse these coping responses. These findings partly corroborate Hypothesis 2 and could be associated with the fact that boys and students in general may be more tolerant to the traditional stereotype about girls' lower abilities in STEM subjects; for this reason, they do not endorse the help-seeking coping responses when facing academic sexism. However and contrary to predictions of Hypothesis 3, the experiences with negative statements about boys' and girls' abilities in stereotyped subject areas did not contribute to explain the help-seeking coping response.

In addition to these previous aspects, the inclusion of the interaction of gender with immigrant background and with levels of parental educational attainment did not add much to the help-seeking response model. This finding does not confirm our predictions in Hypothesis 4 and shows the significant influence of gender on the way students endorse help-seeking coping responses.

With regards to the prediction of avoidance responses and in line with some predictions of Hypothesis 1 and Hypothesis 2, boys and students believing that girls are better at biology and languages were more likely to use this coping approach. These results are congruent with the idea that boys use less adaptive coping strategies when facing discrimination or sexist beliefs about their competence (Farkas & Leaper, 2016). Strikingly, and in comparison to boys whose parents had low educational attainment, boys whose parents had completed intermediate and university studies were more likely to endorse this avoidance response when experiencing situations of academic sexism. This finding does not corroborate our predictions of Hypothesis 4 and suggests that boys with parents who have attained a high educational level may not consider the stereotype that girls are better than boys in these subjects a threat to the appraisal of their academic competence. For this reason, and assuming that biology and languages are not considered by students and their families to be as academically prestigious as subjects such as math or physical science (Brown & Leaper,

2010; Sáinz et al., 2019), the members of this group do not react actively when facing discrimination regarding their perceived lower level of competence in biology and languages.

Similarly, the present research has corroborated that in line with predictions of Hypothesis 1, whereas girls were more likely to use positive coping strategies (such as confronting and help-seeking), boys were more likely to deploy non-adaptive coping strategies, such as avoidance. These findings could be partly associated with the fact that girls may face sexist discrimination more frequently than their male counterparts and, for this reason, they adopt more proactive behaviors in fighting different types of sexist academic experiences (Brown & Leaper, 2010; Leaper & Brown, 2014). In addition, these findings may also be associated with how prestigious — intellectually speaking — STEM subjects such as math, science and technology are socially appraised (Meyers et al. 2015; Leslie et al., 2015). Contrary to non-STEM subjects (such as languages) and in line with research conducted in North America (e.g., Bian et al., 2017; Leaper & Brown, 2014), STEM subjects are more frequently associated in Spain with difficulty and high intellectual ability (Sáinz et al., 2019).

Unsurprisingly, boys believe that boys are better at STEM subjects than their female counterparts. This may be linked to the fact that boys generally tend to adhere to the stereotypical portrayal that they are better at STEM subjects than their female counterparts (Sáinz & Eccles, 2012; Leaper & Brown, 2014). As a result, many girls tend to underestimate their level of competence in STEM subjects, despite achieving higher scores than their male counterparts in these subject areas. Conversely, many boys tend to overestimate their level of competence in STEM subjects.

Limitations and Future Research

The present research has some limitations. One of these is the use of self-reported retrospective questions and another is the fact that the questions about coping responses do not refer to specific situations, but rather to the extent to which students would have reacted to hypothetical experiences of academic sexism. In addition, the exploratory nature of the present study could also be mentioned as another limitation. Another limitation to be mentioned could be associated with the fact that boys are less likely than girls to experience sexism. This could make the questions related to coping responses irrelevant to them and for this reason they do not react proactively to sexist scenarios.

In addition, the finding that sexist beliefs about boys' higher level of competence in STEM subjects negatively affect the deployment of positive coping strategies against sexism, such as confronting or help-seeking, requires further research. It is therefore critical to develop interventions targeting boys' attitudes towards academic sexism. They should learn — and we should provide them with opportunities to do so — how to develop more active coping strategies and react against any type of sexist experiences, regardless of whether or not they are the intended target of any type of discrimination, be it general or academic.

Moreover, the fact that negative experiences with significant people do not enable us to predict any particular type of coping response may suggest that these experiences were not specifically articulated in the context of academic sexism. That is, future research should formulate more specific situational questions about this aspect.

Schools should promote different interventions involving the whole educational community in order to avoid and reduce any sign of academic sexism. Initiatives to raise awareness among the educational community about the impact of sexist beliefs about girls' and boys' academic competence on students' career decisions would be crucial. Research shows that schools might be effective at reducing academic sexism if they conducted a clear

school policy against it and promoted specific teacher training on how to cope with sexist beliefs and situations in the school context. These teachers should actively work with their students to encourage them to deploy positive and adaptive coping strategies against sexist beliefs.

More interventions addressed to secondary school students, and particularly to parents with low educational attainments, should be implemented in order to show them how to develop positive coping strategies against academic sexism. In addition, secondary teachers should also receive specific training on how to avoid and combat sexist beliefs regarding boys' and girls' academic competence. All these training sessions should incorporate the voices of young people who are working or enrolled on higher education courses, so that they can explain how they managed to overcome the discouraging comments made by significant people about their level of competence in either STEM or non-STEM subjects.

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Table 1. Bivariate Kendall's tau correlations and descriptive statistics.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
(1) Confronting	-										
(1) Seeking help	.18***	-									
(1) Avoidance	−.23***	−.10***	-								
(1) Gender	−.13***	−.15***	.09**	-							
(1) Parents' educational attainment	.10***	−.02	−.04	.01	-						
(1) Non-immigrant background	.17***	.01	−.06*	−.02	.21***	-					
(1) Boys better at physical science, maths and technology	−.16***	−.05*	.11***	.11***	−.14***	−.14*	-				
(1) Girls better at biology and languages	−.10***	.01	.13***	−.03	−.15***	−.10***	.68***	-			
(1) Self-experienced sexism with negative statements from parents	−.08**	.02	−.03	.02	−.07*	−.11***	.06†	.06*	-		
(1) Self-experienced sexism with negative statements from friends	−.05†	−.01	−.03	−.06*	−.08*	−.07*	.10***	.09***	.35***	-	
(1) Self-experienced with negative statements from other girls/boys and neighbours	.02	.01	−.06*	−.11***	−.02	−.05	.03	.05†	.18***	.45	-
N	945	944	944	954	952	954	941	941	944	945	944
M	2.89	2.60	2.55	0.43	2.50	0.80	1.81	1.81	1.16	1.28	1.33
SD	0.78	0.74	0.87	0.49	0.66	0.40	0.84	0.85	0.44	0.52	0.52
Cronbach's α (based on standardized items)	.66	.74	.75				.90	.85	.77	.72	.75

Note: Gender: 0 = *girl*, 1 = *boy*. Parents' education was an ordinal measure ranging from 1 = *primary education or less*, 2 = *secondary education*, 3 = *university education*. Non-immigrant background: 0 = *no*, 1 = *yes*.

The remaining scale items were rated on a four-point scale and then averaged for each measure. When appropriate, alpha coefficients of scale reliability are indicated.

*$p < .05$; **$p < .01$; ***$p < .001$; †$p < .10$

Table 2. Regression for confronting in response to academic sexism.

	Step 1	Step 2	Step 3	Step 4
Type of Predictor	B	β	β	β
1. Sociodemographic variables				
Gender (boy)	−.24***	−.20***	−.19***	.18
Parents' educational attainment (secondary)	.15	.14	.14	.26*
Parents' educational attainment (university)	.20*	.17*	.17	.31**
Background (non-immigrant)	.36***	.32***	.30***	.36***
2. Sexist attitudes regarding academic competences				
Boys better at physical science, mathematics and technology		−.17***	−.17***	−.17***
Girls better at biology and languages		.05	.06	.05
3. Self-experienced sexism with negative statements about girls' and boys' abilities				
Negative statements from parents			−.11	−.10
Negative statements from friends			−.07	−.07
Negative statements from other girls/boys and neighbours			.04	.04
4. Sociodemographic interactions				
Gender (boy)*Parents' educational attainment (secondary)				−.27
Gender (boy)*Parents' educational attainment (university)				−.33
Gender (boy)*Background (non-immigrant)				−.12
Constant	2.54***	2.79***	2.95***	2.77***
F model	16.86***	14.86***	10.70***	8.48***
R^2	.07	.09	.10	.10
R^2 adjusted	.06	.08	.09	.09
F change		10.18***	2.27	1.73
N	923	923	923	923

Note: Gender: 0 = *girl* (reference), 1 = *boy*. Parents' education: 1 = *primary education or less* (reference), 2 = *secondary education*, 3 = *university education*. Background: 0 = *immigrant* (reference), 1 = *non-immigrant*.
The remaining scale items were rated on a four-point scale and then averaged for each measure.
*$p < .05$; **$p < .01$; ***$p < .001$; †$p < .10$

Table 3. Regression for seeking help in response to academic sexism.

	Step 1	Step 2	Step 3	Step 4
Type of Predictor	β	β	β	β
1. Sociodemographic variables				
Gender (boy)	−.27***	−.24***	−.24***	−.16
Parents' educational attainment (secondary)	−.11	−.10	−.10	.02
Parents' educational attainment (university)	−.12	−.11	−.11	−.05
Background (non-immigrant)	.05	.03	.03	−.01
2. Sexist attitudes regarding academic competences				
Boys better at physical science, maths and technology		−.13**	−.12**	−.12**
Girls better at biology and languages		.10*	.10*	.10*
3. Self-experienced sexism with negative statements about girls' and boys' abilities				
Negative statements from parents			.06	.06
Negative statements from friends			−.06	−.06
Negative statements from other girls/boys and neighbours			.03	.03
4. Sociodemographic interactions				
Gender (boy)*Parents' educational attainment (secondary)				−.28
Gender (boy)*Parents' educational attainment (university)				−.14
Gender (boy)*Background (non-immigrant)				.10
Constant	2.77***	2.81***	2.76***	2.72***
F model	8.44***	7.11***	4.92***	4.01***
R^2	.04	.04	.05	.05
R^2 adjusted	.03	.04	.04	.04
F change		4.33*	0.57	1.27
N	922	922	922	922

Note: Gender: 0 = *girl* (reference), 1 = *boy*. Parents' education: 1 = *primary education or less* (reference), 2 = *secondary education*, 3 = *university education*. Background: 0 = *immigrant* (reference), 1 = *non-immigrant*.
The remaining scale items were rated on a four-point scale and then averaged for each measure.
*$p < .05$; **$p < .01$; ***$p < .001$; †$p < .10$

Table 4. Regression for avoidance in response to academic sexism.

	Step 1	Step 2	Step 3	Step 4
Type of Predictor	β	β	β	β
1. Sociodemographic variables				
Gender (boy)	−.27***	−.24***	−.24***	−.16
Parents' educational attainment (secondary)	−.11	−.10	−.10	.02
Parents' educational attainment (university)	−.12	−.11	−.11	−.05
Background (non-immigrant)	.05	.03	.03	−.01
2. Sexist attitudes regarding academic competences				
Boys better at technology, mathematics and IT		−.13**	−.12**	−.12**
Girls better at biology and languages		.10*	.10*	.10*
3. Self-experienced sexism with negative statements about girls' and boys' abilities				
Negative statements from parents			.06	.06
Negative statements from friends			−.06	−.06
Negative statements from other girls/boys and neighbours			.03	.03
4. Sociodemographic interactions				
Gender (boy)*Parents' educational attainment (secondary)				−.28
Gender (boy)*Parents' educational attainment (university)				−.14
Gender (boy)*Background (non-immigrant)				.10
Constant	2.77***	2.81***	2.76***	2.72***
F model	8.44***	7.11***	4.92***	4.01***
R^2	.04	.04	.05	.05
R^2 adjusted	.03	.04	.04	.04
F change		4.33*	0.57	1.27
N	922	922	922	922

Gender: 0 = *girl* (reference), 1 = *boy*. Parents' education: 1 = *primary education or less* (reference), 2 = *secondary education*, 3 = *university education*. Background: 0 = *immigrant* (reference), 1 = *non-immigrant*.
The remaining scale items were rated on a four-point scale and then averaged for each measure.
*$p < .05$; **$p < .01$; ***$p < .001$; †$p < .10$