Physical, psychological, academic, and sexual abuse of university students in five Latin American countries: characteristics and association with student satisfaction: a cross-sectional study [version 1; peer review: awaiting peer review]

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Abstract
Background: A high rate of student abuse has been reported in various studies; however, few studies substantiate the seriousness of the issue in Latin American contexts. This study aimed to characterize the abuse of university students in five Latin American countries and its association with student satisfaction.
Methods: An analytical transversal study was conducted, in which 2,141 undergraduate students from Paraguay, Ecuador, Colombia, Venezuela, and Panama were surveyed. A validated questionnaire was applied to evaluate four types of abuse (Cronbach’s Alpha: 0.90); psychological, physical, academic, and sexual. In addition, students’ perception of satisfaction of four items in the university environment (Cronbach’s Alpha: 0.85) was also analyzed.
Results: It was found that the older students were, the more dissatisfied they were with “logistics” (aPR: 1.02; 95% CI: 1.00-1.04; p-value: 0.014) and the top-third segment of those who perceived sexual abuse were more dissatisfied with the teaching provided by their universities (aPR: 1.23; 95% CI: 1.00-1.52; p-value: 0.048). Moreover, those who were most dissatisfied with the agreements were part of the top-third segment of those who perceived sexual abuse (aPR: 1.16; 95% CI: 1.03-1.32; p-value: 0.016) and those in the country of Panama were less dissatisfied with “agreements” (RPa:...
0.70; 95% CI: 0.66-0.073; p-value<0.001). The countries of Colombia (aPR: 0.08; IC95%: 0.01-0.59; p-value: 0.014) and Panama (aPR: 0.57; 95% CI: 0.52-0.64; p-value<0.001) were less dissatisfied with investigation programs.

Conclusions: The perception of 'sexual abuse' was the only risk factor statistically associated with dissatisfaction with teaching and agreements.

Keywords
Physical Abuse, Sex Offenses, Students, Latin America.

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Author roles: Mejia CR: Conceptualization, Data Curation, Formal Analysis, Methodology, Project Administration, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; Castro DJ: Methodology, Project Administration, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; Torrejon N: Data Curation, Supervision, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; Chacon JI: Data Curation, Methodology, Project Administration, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; Martinez-Cornejo I: Investigation, Methodology, Project Administration, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; Fernandez-Espindola L: Investigation, Methodology, Project Administration, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

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How to cite this article: Mejia CR, Castro DJ, Torrejon N et al. Physical, psychological, academic, and sexual abuse of university students in five Latin American countries: characteristics and association with student satisfaction: a cross-sectional study [version 1; peer review: awaiting peer review] F1000Research 2022, 11:884 https://doi.org/10.12688/f1000research.54274.1

First published: 02 Aug 2022, 11:884 https://doi.org/10.12688/f1000research.54274.1
Introduction

Studying in higher educational institutions is a rigorous and demanding process. During this period students face many challenges; however, they sometimes come across additional obstacles that they should not be facing. The most prevalent of these is abuse. Abuse impacts academic performance and the sense of satisfaction students feel towards their universities. Multiple studies have demonstrated this. In one such study that was conducted on medical students in Peru, it was concluded that abuse could have consequences for students, their academic performance and, even their future as professionals.1 However, these are not the only negative consequences, as other studies have shown that the abuse of university students is associated with Burnout syndrome,2 alcohol consumption,3 and post-traumatic stress.4

These consequences shed light on the importance of this issue, since university students are frequently subjected to various forms of psychological, physical, academic, and sexual abuse, as evidenced by a study conducted at the University of Manizales-Colombia, where 71% of the students faced at least one type of abuse.5 Another study conducted at the Universidad Nacional San Luis Gonzaga de Ica-Perú showed that the most frequent type of abuse was psychological (97%), followed by academic (87%), physical (63%), and sexual (21%).6 These types of abuse are also correlated with overall satisfaction with the university. In Mexico, teachers' treatment of their students is reported to be the most important factor in any evaluation of their work.7

The treatment of students seems to be more prevalent in developing countries. Reports from UK show that the quality of teaching, organization, and management are the most important factors in determining a student’s satisfaction.8 A study conducted in Spain showed that teaching, academic reputation, sports activities, and international programs are the most influential variables in student satisfaction.9 However, in Latin America the context is different from that of developed countries, which can influence students’ decision to stay in college.10 Therefore, the objective of this research is to characterize the types of abuse experienced among university students across five Latin American countries and its association with student satisfaction.

Methods

Design and population

An analytical cross-sectional study was conducted, in which information was collected by surveying undergraduate university students from Paraguay, Ecuador, Colombia, Venezuela, and Panama during November 2017. The survey collected demographic data from the respondents, data regarding the different forms of abuse that they were subjected to, and data on the degree of general satisfaction they felt with their higher education institution. This survey used Likert - type responses and was available through Google Forms. Non-probability sampling was used to attain a minimum sample size of 2,029 (calculated from a previous pilot study, where the minimum difference was found to be 36% and 39%, a statistical power of 80%, and a confidence level of 95% for a single sample).

Selection of participants

Data collected from undergraduate students who were attending higher education institutions and agreed to voluntarily participate in the research from Paraguay, Ecuador, Colombia, Venezuela, and Panama were included in the study. Surveys that were duplicated or did not meet the study criteria were excluded (less than 3% exclusion). The survey was an open survey distributed via email, WhatsApp, and Facebook messenger.

Data collection

The present study was inspired from a test conducted in a Peruvian student population, in which the main study variables were the following four types of abuse: psychological, academic, physical, and sexual.6 The authors used a scale developed by Munayco-Guillen et al. called “Questionnaire of Perception of Mistreatment in the Medical Student” was composed of three sections; 1) Sociodemographic and educational characteristics; 2) Perception of mistreatment according to four components: (a) psychological mistreatment (8 items), (b) physical mistreatment (3 items), (c) academic mistreatment (4 items) and (d) sexual mistreatment (8 items); 3) Place where mistreatment had taken place, reporting the mistreatment and reasons for not reporting the mistreatment. For this study we also considered all the variables of the scale. The Cronbach’s alpha of the survey was 0.8.8 In addition, the different forms of satisfaction that students perceived in terms of university logistics, teacher training, university agreements, and activities related to undergraduate research were collected using the Likert Scale (very satisfied, satisfied, indifferent, dissatisfied, and very dissatisfied). The Likert type response was used because it was suggested by the authors of the instrument validation.

The reliability of all questions was corroborated by Cronbach's Alpha statistical test, which yielded a result of 0.89. The positive mistreatment was considered for university students who were part of the top-third segment in terms of the total score obtained in each of the four aspects (this was contrasted with those who fell under the remaining two thirds).
Finally, in addition to the variables already mentioned, we collected demographic information including age, gender (female or male), university (private or public), university career, year of study, and country of residence (according to the five already mentioned). A copy of the questionnaire can be found in the Extended data.

**Data analysis**
A database was created using the MS Excel program (Windows 2016 version), data was then reviewed, and cleaned before statistical analysis. Stata version 14 was used to analyze the data, and a descriptive analysis of the categorical variables was performed using absolute and relative frequencies. In addition, bivariate and multivariate regression analyses were performed to estimate the magnitude of association of the variables of interest. Graphics were used to show distribution (box and whiskers charts) (see Figure 2). Generalized linear models were used (with the Poisson family, log-link function, models for robust variances, and adjusting for the respondent's location) to obtain adjusted prevalence ratios, 95% confidence intervals, and p-values, which were statistically significant.

**Ethical considerations**
The study was approved by the ethics committee of the Hospital Nacional Docente Madre Niño San Bartolomé (Lima-Peru). Ethical approval number: [0665-2017-OADI-HONADOMANI-SB]. Anonymity of participants was respected throughout, and the survey didn’t request names, addresses, or any information that could be a source of identification. Furthermore, before statistical analysis, data was codified to be deidentified. Every participant was informed about study objectives, and they gave their written consent before take part of the study. Because the study was conducted virtually, written consent was requested as an option to check at the beginning of the survey. The participant could decide to take part or refuse to fill out the survey without having provided any prior information.

**Results**
3500 people were invited to take part in the project. Of these, 800 did not meet the inclusion criteria and were withdrawn during quality control. Of the remainder, 559 participants who met the inclusion criteria but did not complete the questionnaire were withdrawn. 2,141 students surveyed in Latin America, the highest percentages of dissatisfaction were found for the activities related to “undergraduate research” category of the survey: 12% very dissatisfied and 18% dissatisfied. Percentages of students who were dissatisfied with “agreements” were as follows: 10% very dissatisfied and 22% dissatisfied, and dissatisfaction with “logistics of their university” accounted for 9% (very dissatisfied) and 18% (dissatisfied) (Figure 1). The full results of the survey can be found under Underlying data.

The box and whiskers charts show that the median dissatisfaction score was higher than the satisfaction score in all four cases of type of abuse experienced: psychological (Figure 2A), physical (Figure 2B), academic (Figure 2C), and sexual (Figure 2D).

![Figure 1. Percentages of satisfaction of university students corresponding to the four aspects of the education they receive in five Latin American countries.](image-url)
Figure 2. Box and whiskers charts of university students' dissatisfaction with four aspects of the education they receive in five Latin American countries. Note: The higher the score, the more abuse.

Table 1. Multivariate analysis of the socio-academic factors associated with dissatisfaction in logistics and teaching among university students in five Latin American countries.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Logistical dissatisfaction</th>
<th>Dissatisfaction in teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upper tertile of those who perceived abuse</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological</td>
<td>1.05 (0.84-1.31) 0.659</td>
<td>0.93 (0.83-1.04) 0.182</td>
</tr>
<tr>
<td>Physical</td>
<td>1.11 (0.83-1.49) 0.481</td>
<td>1.03 (0.82-1.31) 0.781</td>
</tr>
<tr>
<td>Academic</td>
<td>1.12 (0.92-1.37) 0.254</td>
<td>1.22 (0.82-1.82) 0.332</td>
</tr>
<tr>
<td>Sexual</td>
<td>1.03 (0.79-1.35) 0.807</td>
<td>1.23 (1.00-1.52) 0.048</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td>1.02 (0.90-1.16) 0.732</td>
<td>1.09 (0.90-1.31) 0.370</td>
</tr>
<tr>
<td><strong>Age (years old)</strong></td>
<td>1.02 (1.00-1.04) 0.014</td>
<td>1.02 (0.99-1.06) 0.221</td>
</tr>
<tr>
<td>Private university</td>
<td>0.56 (0.06-4.83) 0.598</td>
<td>0.71 (0.09-5.39) 0.739</td>
</tr>
<tr>
<td><strong>Respondent's country</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paraguay</td>
<td>Country used for comparison with other nations</td>
<td></td>
</tr>
<tr>
<td>Colombia</td>
<td>0.25 (0.02-2.53) 0.241</td>
<td>0.13 (0.01-1.49) 0.100</td>
</tr>
<tr>
<td>Ecuador</td>
<td>1.58 (0.20-12.33) 0.660</td>
<td>4.12 (0.45-37.91) 0.211</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1.38 (0.19-9.71) 0.749</td>
<td>1.92 (0.30-12.05) 0.488</td>
</tr>
<tr>
<td>Panama</td>
<td>1.56 (0.79-3.09) 0.201</td>
<td>1.27 (0.33-4.91) 0.726</td>
</tr>
</tbody>
</table>

*This variable was analyzed in its quantitative format. Adjusted prevalence ratios (95% confidence intervals) and p-values were obtained using generalized linear models (with the Poisson family, log-link function, models for robust variances, and adjusting for the respondent's location).
Multivariate regression analysis showed that the older the person, the more dissatisfaction was felt with “logistics” (aPR: 1.02; 95% CI: 1.00-1.04; p-value: 0.014); moreover, those in the upper tertile level of the section of students who perceived sexual abuse were more dissatisfied with the “teaching provided by universities” (aPR: 1.23; 95% CI: 1.00-1.52; p-value: 0.048) (Table 1).

In another multivariate analysis, it was found that those who felt the greatest sense of dissatisfaction with the university agreements also belonged to the top-third segment of those who perceived sexual abuse (aPR: 1.16; 95% CI: 1.03-1.32; p-value: 0.016), and students in the country of Panama were less dissatisfied with “the agreements” (aPR: 0.70; 95% CI: 0.66-0.73; p-value <0.001). Students from Colombia (aPR: 0.08; 95% CI: 0.01-0.59; p-value: 0.014) and Panama (aPR: 0.57; 95% CI: 0.52-0.64; p-value <0.001) were least dissatisfied with “the research.” Both models were adjusted for other types of abuse, sex, age, type of university, and location of the respondent (Table 2).

**Table 2. Multivariate analysis of socio-academic factors associated with dissatisfaction with agreements and research at universities in five Latin American countries.**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Dissatisfaction with agreements</th>
<th>Research dissatisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upper tertile of those who perceived abuse</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological</td>
<td>1.16 (0.89-1.52) 0.270</td>
<td>0.94 (0.69-1.28) 0.702</td>
</tr>
<tr>
<td>Physical</td>
<td>1.10 (0.65-1.85) 0.727</td>
<td>0.89 (0.56-1.40) 0.616</td>
</tr>
<tr>
<td>Academic</td>
<td>1.06 (0.86-1.31) 0.596</td>
<td>1.13 (0.80-1.59) 0.493</td>
</tr>
<tr>
<td>Sexual</td>
<td>1.16 (1.03-1.32) 0.016</td>
<td>1.28 (0.83-1.98) 0.259</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td>1.00 (0.89-1.12) 0.962</td>
<td>1.08 (0.93-1.25) 0.329</td>
</tr>
<tr>
<td><strong>Age (years old)</strong></td>
<td>1.01 (1.00-1.03) 0.060</td>
<td>1.00 (0.99-1.02) 0.793</td>
</tr>
<tr>
<td><strong>Private university</strong></td>
<td>0.56 (0.07-4.50) 0.587</td>
<td>0.64 (0.08-4.97) 0.674</td>
</tr>
<tr>
<td><strong>Respondent’s country</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paraguay</td>
<td>Country used for comparison with other nations</td>
<td></td>
</tr>
<tr>
<td>Colombia</td>
<td>0.14 (0.02-1.12) 0.064</td>
<td>0.08 (0.01-0.59) 0.014</td>
</tr>
<tr>
<td>Ecuador</td>
<td>0.88 (0.14-5.49) 0.892</td>
<td>0.88 (0.15-5.04) 0.886</td>
</tr>
<tr>
<td>Venezuela</td>
<td>0.69 (0.12-3.91) 0.671</td>
<td>0.56 (0.12-2.62) 0.464</td>
</tr>
<tr>
<td>Panama</td>
<td>0.70 (0.66-0.73) &lt;0.001</td>
<td>0.57 (0.52-0.64) &lt;0.001</td>
</tr>
</tbody>
</table>

*This variable was analyzed in its quantitative format. Adjusted prevalence ratios (95% confidence intervals) and p-values were obtained using generalized linear models (with the Poisson family, log-link function, models for robust variances, and adjusting for the respondent’s location).

Multivariate regression analysis showed that the older the person, the more dissatisfaction was felt with “logistics” (aPR: 1.02; 95% CI: 1.00-1.04; p-value: 0.014); moreover, those in the upper tertile level of the section of students who perceived sexual abuse were more dissatisfied with the “teaching provided by universities” (aPR: 1.23; 95% CI: 1.00-1.52; p-value: 0.048) (Table 1).

In another multivariate analysis, it was found that those who felt the greatest sense of dissatisfaction with the university agreements also belonged to the top-third segment of those who perceived sexual abuse (aPR: 1.16; 95% CI: 1.03-1.32; p-value: 0.016), and students in the country of Panama were less dissatisfied with “the agreements” (aPR: 0.70; 95% CI: 0.66-0.73; p-value <0.001). Students from Colombia (aPR: 0.08; 95% CI: 0.01-0.59; p-value: 0.014) and Panama (aPR: 0.57; 95% CI: 0.52-0.64; p-value <0.001) were least dissatisfied with “the research.” Both models were adjusted for other types of abuse, sex, age, type of university, and location of the respondent (Table 2).

**Discussion**

The abuse faced by university students is an alarming issue worldwide. Its high prevalence is recorded by many studies. One study, which was conducted among university students across three medical schools in Thailand, found that 63% of students reported they had experienced some form of abuse at university.11 The issue has gained greater importance following the increased media exposure of gender-based discrimination.12 It must be remembered that abuse has different devastating consequences on students’ lives such as, hampered academic performance,1,13 the consumption of harmful substances,3 affects on health,2,4 and affects on their decisions regarding their future professional training.14

The present study reveals that the various types of abuse (physical, psychological, academic, and sexual) are directly related to the degree of satisfaction perceived by university students in their higher education centers. These findings have been corroborated by similar studies and suggest a growing issue that cannot go unnoticed.15–19 This leads us to believe that interventions are needed to mitigate abuse and its consequences, so that student welfare can be improved, and students can get the most out of the learning process.

On the other hand, this research found that a higher degree of dissatisfaction was associated with the agreements that each university offers to their students to improve their education as well as the opportunities in terms of undergraduate research. This corroborates a study conducted in higher education institutions across the Toluca Valley, which found that students in public universities show less satisfaction with the university agreements offered to them by their universities in terms of job opportunities or educational institutions, as opposed to students in private higher education institutions.20
Another study conducted at the University of Castile in Spain showed that student satisfaction was related to “the agreements” that provided opportunities for student exchange programs in order to strengthen their university experience. In other studies, it was not uncommon for universities in Latin American countries to account for low scientific production by medical students due to the lack of specific strategies to promote undergraduate research. This is important because university quality is reduced when they do not offer agreements with other universities, and there are few opportunities to carry out research training activities.

In addition, students who were dissatisfied with “teaching” and with “the agreements” also had a greater perception of sexual abuse. This is a serious issue; at the University of Manizales-Colombia, 29% of all medical students reported at least one perceived event of sexual abuse. Similar results were observed in studies conducted on medical interns at the National Polytechnic Institute in Mexico, and on students in other medical and dental schools. However, these are not the only studies that highlight the importance of the topic; a study on nursing students also corroborated this with similar results. Thus, it can be concluded that the perception of sexual abuse is directly proportional to dissatisfaction, suggesting that this is a topic that should be given more attention in future studies. This is a problem that has not been explored in a large population, and it is therefore recommended that university authorities and rectors in each country take preventive and remedial measures to tackle it.

Further, our study found that the older the student, the more dissatisfaction there was with the logistics of their university. This result corroborates two studies: one included undergraduate students from five private universities in Bangladesh and the other included graduate students from China, India, Indonesia, and Thailand. Both studies correlated age with degree of satisfaction, including logistical satisfaction. Conversely, there are studies that conclude that although dissatisfaction is linked to the logistical services offered by the university, student age is not considered a relevant factor. These results were reproduced in two more studies, one of which was conducted at the Universidad Autónoma de Tamaulipas, where 27% of all students were dissatisfied with university logistics. The other study was conducted at the Universidad Autónoma de Nayarit, where 41% of students were satisfied with the logistical services provided by their university. Similar results were also found among university students in Chile, Mexico, and Colombia. A study conducted on psychology graduates from three universities in Chile found a high degree of satisfaction with university logistics. These results highlight that more research is required on this issue, since the factors that directly intervene in logistical satisfaction are not clear. This is important because university welfare is related to the quality of logistics implemented by each university, which in turn influences academic satisfaction and performance (confirmed by a study conducted at the Universidad Autónoma de San Luis Potosí).

Despite what has been described above, the present study found that Panamanian university students were less satisfied with “the agreements” offered by their universities. This could be related to their multiple links with universities and other first-world institutions, which other higher education centers do not have, as shown by a study conducted in higher education institutions in the Toluca Valley. In addition, students from countries such as Colombia and Panama have shown less dissatisfaction with the research conducted at their campuses, which could be related to the greater support provided to students in their institutions to encourage undergraduate publication.

It is important to mention that this study has certain limitations. The results cannot be extrapolated to all students in the countries mentioned in this study as no random sampling and/or multiple levels of stratification were undertaken. However, the results are nonetheless very valuable since for the first time, they shed light on the abuse faced by students and the association with their level of perceived satisfaction, in a wide and diverse Latin American student population. It has already been established that this research is contextual in nature; therefore, university institutions should carry out longitudinal research to measure the causality of the different aspects of satisfaction.

Based on the results, it is concluded that there is a relationship between some aspects of student satisfaction and the abuse that they may have received. The older the student, the more they were dissatisfied with the logistics. Those who were in the upper third percentile of those who perceived sexual abuse had greater dissatisfaction with the teaching given by the universities, and were most dissatisfied with university agreements. The country that was most satisfied with the “agreements” of its institution was Panama. In turn, Panama and Colombia were satisfied with the research conducted at their universities.

Data availability

Underlying data
This project contains the following underlying data:

- Base_Satisf-y-maltrato-en-est_Diego-Naysha.xlsx (full results from survey)

Extended data
This project contains the following extended data:

- Survey.pdf

Data are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

Acknowledgments
To the student Franco Rodríguez, for the assistance he provided in the writing of the manuscript.

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