A Study on Student Stress

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ABSTRACT

The present study is a primary initiative in the Peruvian literature for understanding the factors which influence Peruvian students' stress. A self-administered questionnaire and focus group discussions were used in order to collect data from 700 respondents. The analysis of the data collected was, furthermore, carried on through exploratory factor analysis. Results revealed that while some factors are consistent with previous studies, other factors are country-specific, unavailable in the existent literature until the moment. The paper also discusses the implications for academic administrators who are concerned with the holistic well-being of their students. Moreover, this study makes a modest attempt to develop an instrument to understand sources of stress in student life. The instrument is valid and reliable and can be used to determine student stress perceptions among students enrolled in academic institutions.

KEYWORDS: undergraduate education, student stress, exploratory factor analysis, Peru, emerging markets

INTRODUCTION

The increased complexity of today´s world context is demanding every time more well-prepared and highly-skilled students [1, 2]. Therefore, it is interesting to note that the emphasis on achievement in the classroom has been intensifying. In consequence, students encounter stress for a variety of academic reasons. The pressure of obtaining good grades [3], turning homework on time, passing every examination, competing with other students, and the need for perfection, among others, often leads to high stress. Students spend most of the time in a day at school, attending classes or studying, having to meet deadlines, being constantly tested and graded and given assignments and targets to be completed in a short period of time. Academic pressure is, therefore, a contemporary issue that students are facing on a daily basis.

Stress is both unavoidable and necessary [4], and although it is usually associated with negative feelings, a certain amount of stress is actually beneficial for survival; however, nervous breakdowns, panic attacks, burnouts, and depression, along with anxiety, apprehension, discomfort, and bewilderment, inter alia, are negative undesirable outputs [5]. These outputs represent consequences which can be identified in many students nowadays. In consequence, students are likely to perform below their real abilities, as the stressful academic situation will diminish the working-memory available to attend to a task's information processing requirements and to control its execution [6].

Students have different ways of coping with stress. Some know how to manage it and some others do not. While some engage and take charge, trying to change the circumstances of their situations, others try to escape, their response being usually an over-reliance on defense mechanisms. Some students even get to the point of trying to relieve stress with drinking alcohol or taking drugs. This second type of response is an undesired one, as it leads to increased low self-confidence and low self-esteem, low academic performance and drop-out, low personal development, and it can eventually, harm students´ health and happiness. An even bigger problem emerges when these mechanisms of defense fail to meet their objective, which leads towards an intensification in the pressure level felt by the students.

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Handling pressure should not be only the concern of the students, but also of the university management, as many times it has been noticed that the university contributes to the student`s stress through the conditions or resources it provides. Moreover, "given the importance of a productive […] student population in securing a strong and healthy culture and an intellectual competitive advantage for a university" [7] it becomes necessary to better understand the phenomenon of academic stress as perceived by the students themselves. Hence, universities should be looking for solutions to ease students` stress. The question is, therefore, what *can* and *should* universities do to address student stress?

The first step in tackling this current issue is to discover the factors which lay at the basis of students´ stress. The present study aims at identifying the academic stressors of the Peruvian undergraduate students, as the author noticed that no research has been dedicated to this issue in the Peruvian academic environment.

Traditionally and generally, stress research has been concerned with studies involving the body's reaction to stress and the cognitive processes that influence the perception of stress. However, from a socio-cultural perspective to stress research, it is to be noted that different people react to stress in different ways [8]. "Research into the societal and cultural influences of stress may make it necessary to re-examine how stress is defined and studied" [9].

LITERATURE REVIEW

The term *stress* first appeared in 1936, when it was introduced by Hans Selye, a Hungarian-born American, considered to be the first to demonstrate the existence of biological stress. He defined it as the "non-specific response of the body to any demand for change."

Stress is neither good nor bad, as its consequences are mixed, depending on the individual´s response towards it. [10] studied the phenomenon and made a contribution in this sense, stating that the response depends on whether the stress is evaluated as a danger or as an opportunity/challenge, and while the former might lead to higher motivation, the latter will rather lead to a depressed state. However, the true problem with stress is that it accumulates. First symptoms of stress might be weak, such as a slight headache, fatigue, or a sleepless night. However, if not dealt with in the right way, these symptoms could aggravate, igniting psychological disturbances, and lead, therefore, to bigger problems, such as hypertension, anxiety attacks, constant sleepless nights, and heart diseases, just to mention a few [10, 11]. Truly, the many consequences of a high level of stress are still being discovered, which leads to the conclusion that the topic needs more attention; hence, more research [12].

As [4] stated, stress has turned into a significant topic in academic circles. However, even though the topic has acquired an increased interest over the past years, much is yet to be done. Academic stress is a mental distress with respect to some presumed frustration associated with academic failure or even an awareness of the likelihood of such failure [13].

Different aspects of stress have been addressed in the existent literature, especially with respect to the impact of stress on students [see, for example 14, 15, 16, 17] and the following lines pretend to highlight the most relevant pieces of work, without representing an exhaustive literature survey. As previously mentioned, the academic arena is many times a source of student stress [18, 19]. In this sense, [20] stated that stress in academic institutions can be both beneficial and harmful at the same time, while [21] on the other hand, brought into attention that the causes of stress, among other elements, vary from a non-academic environment to an academic one. [22] was the one to highlight an interesting idea related to the students´ personal needs, stating that students´ values and objectives should be aligned with the values and objectives of the academic institution; only by this means, will the academic institution be able to create a pleasant learning environment, contributing to the reduction in the level of stress.

With regards to the various academic stressors, several studies have been found which revealed different factors of stress. For example, [23] encountered that the excessive amount of assignments/ homework [24], along with the grade competition, failures, and poor interrelationships with peers and faculty represent sources of stress. Similar results have been reported by [25], who added the uncomfortable classrooms to the list of factors. [26] added the time factor, stating that students perceive stress from not having enough time to finish their assignments. Another contribution revealed that students perceive stress at particular moments in the semester, especially during examination periods and assignments due times; as such, studying for an exam, sitting for an exam, turning in final assignments and reports creates a great amount of stress among students [27, 28]. Stress also comes from overcrowded lecture halls, semester system, and inadequate resources to perform the academic work [29], as well as from the pressure to perform well in the examinations [30]. [31] study revealed that course overload and academic evaluation procedures were stress-causing factors.

[32] found that many times students also feel they lack power over their lives as a consequence of the authority exercised by the faculty and university staff over them. [33] reported that the difficulty in achieving social intimacy and developing solid interpersonal relationships also represent a source of stress. Even the fear of academic failure represents a stressor [34]. [35] and [36], on the other hand, found that excessively high self-expectation was a major source of stress.

MATERIALS AND METHODS

The instrument

A survey research was undertaken in order to gather primary data information to measure the students' determinants of academic stress. The instrument of data collection, namely a structured questionnaire, was derived from both the literature review and focus group discussions.

The initial step of the research consisted in identifying the latest published findings regarding student's stressors in the academic environment. The focus group acted as a basis for the development of the questionnaire. Four focus groups of six members each were undertaken in order to collect valuable personal opinions and views, and generate the variables. And also to explore new aspects that are culturally and socially applicable to Peru.

These variables were afterwards included into a questionnaire in the form of 35 positively-worded statements to which the students had to respond by means of a seven-point Likert-type scale that varied from 1 - representing that the respondent strongly disagreed with the situation described - to 7 - representing that the respondent strongly agreed with the situation described.

The instrument included variables from previous studies, which were identified as important stressors for Peruvian students. However, there were other variables which were excluded from the present instrument due to lack of significance for the participants, detected during the focus groups, e.g., difficulty in achieving social intimacy [33] and fear of academic failure [34], among others. Also, the questionnaire was designed in Spanish so as to help respondents better understand the variables.

The instrument was divided into two well-defined sections. The first section included the 35 variables identified, and the second part sought information about the demographic profile of the participants, such as age, gender, educational qualification, university/ school, work experience (if any), and annual family income.

Pilot Study

Before the final instrument was ready to be self-administered among the final sample, the initial draft of the questionnaire was discussed with four subject experts and their suggestions were incorporated for the pre-test. Afterwards, a pilot study was undertaken with 79 students in order to test the instrument for face validity, ensuring that it would measure what it was supposed to measure. Subsequent to the pilot study, and according to the feedback received, few minor changes in wording and structure of the questions were made to the questionnaire, so as to assure that the ideas were sound.

Selection of the final sample

The revised questionnaire was personally hand-delivered in and around campus by the author to a number of undergraduate students who were selected based on probability and non-probability sampling from the 10 top universities in Lima, Peru.

A two-fold sampling procedure has been used for the present study, namely stratified random sampling and convenient sampling, where each stratum was represented by a university listed in the top 10 universities in Lima, as published by the America Economía in 2011. Out of these 10 universities, it was noticed that 3 are public and 7 are private. For each stratum, convenient sampling has been used to obtain the sought information.

For the given budget, it was only possible to collect 700 samples. The sample size in each stratum was allocated proportionally to the population size of the stratum, which is exhibited in Table 1. Of the questionnaires collected, only 641 were considered valid for analysis, which accounts for a response rate of about 92%. Table 1 provides detailed information with regard to the sampling plan.

Table 1: Sampling Plan

S.No	Name of Stratum (University)	Population	Proportion	S1	S2	S3	S4
1	Pontificia Universidad Católica del Peru[1]	17,531	0.1311	92	82	33	49
2	Universidad Nacional Mayor de San Marcos[2]	28,645	0.2142	150	141	56	85
3	Universidad Peruana Cayetano Heredia[1]	3,536	0.0264	18	15	6	9
4	Universidad del Pacifico[1]	2,179	0.0163	11	11	4	7
5	Universidad de Lima[1]	14,109	0.1055	74	68	27	41
6	Universidad Nacional de Ingenieria[2]	11,034	0.0825	58	55	22	33
7	Universidad de Piura[1]	5,232	0.0391	27	24	10	14
8	Universidad Nacional Agraria La Molina[2]	4,903	0.0367	26	24	10	14
9	Universidad de San Martin de Porres[1]	31,046	0.2322	163	147	59	88
10	Universidad Peruana de Ciencias Aplicadas[1]	15,504	0.1159	81	74	30	44
		133,719	1	700	641	257	384

Note. 1 - Private university, 2 - Public university; S1 - Sample size in each stratum, S2 - Sample size in each stratum, after the removal of the invalid questionnaires, S3 - Sample size of each stratum, within the sample of 257 questionnaires, S4 - Sample size of each stratum, within the sample of 384 questionnaires.

It is to be noted that special attention has been given to the ethical dimension of the present research study. On one hand, the respondents were made aware of the purpose of the survey, and were, moreover, told that their participation was voluntary, and that their responses would be kept in strict confidentiality and anonymity, the data being used for academic research purposes only. And on the other hand, findings of the study were not biased in any way, ensuring that the results and conclusions were conveyed objectively.

The sample was representative of the population strata and had a strong representation of females. The sample consisted of 192 male respondents (representing 30% of the sample) and 449 female respondents (representing 70% of the sample). The majority of respondents (55.54 per cent) were between 18 and 20 years of age, about 39 per cent were between 21 and 23 years old and only 5.62 per cent were above 24 years of age. It was noted that the majority of respondents (65.68 per cent) were from private universities, and only 34.32 per cent were from public universities. The family income category for the respondents ranged between 10,000 Peruvian Nuevos Soles and 375,000 Peruvian Nuevos Soles per year, which indicates a high disparity in income. No significant work experience was found among the respondents.

For statistical purposes, the number of final questionnaires was considered adequate for further analysis of the data, which was then carried out using exploratory factor analysis, so as to identify the number of factors to be extracted from the given data. The very purpose of the factor analysis is to summarize data in a particular way by reducing the input around underlying dimensions or constructs. The subjective element of factor analysis was reduced by splitting the valid sample of questionnaires randomly into two, one sample of 257 and the other one of 384 questionnaires, based on the 40-60% rule of thumb. The last two columns of Table 1 represent the allocation of samples to the strata based on the said rule. Then, factors were extracted separately from both groups and it was noticed that identical factors resulted, which led to consider the analysis reliable.

RESULTS

The analysis made use of the *varimax* factor rotation procedure, which is an orthogonal rotation method that simplifies the interpretation of the factors by minimizing the number of variables that have high loadings on each factor. Moreover, orthogonal rotation of items also increases the generalizability of the research findings [37], which is believed to be important in an empirical study. The extraction method of *principal component analysis* was considered suitable in order to extract the factors, as it seeks to include as many factors as there are in the analysis. Essentially this technique obtains weights that will maximize the variance extracted by each factor in turn. This corresponds to the most efficient method of condensing the data, giving the advantage that the solution is unique and reproducible [38]. All items registered a factor loading above .40, which led to consider all items significant in interpreting the factors; hence, no item was eliminated.

The total number of factors extracted based on the Kaiser criterion of the eigenvalues of the correlation matrix that are greater than 1.0 was 10, with the cumulative percentage of variance explained being 72.527% in case of the 257 sample and 71.581% in the case of the 384 sample. However, even though one of the most common approaches in determining the number of factors is based on the eigenvalues, it is very clear that this criterion is arbitrary, and that there is no definitive way to determine the number of factors, in the end this being a subjective decision of the researcher. Hence, at a closer look, the interpretability of the resulted factors indicated that certain group factors would make more theoretical sense when combined together, thus reducing the factors from 10 to 7.

[39] suggests performing factor analysis with various values of the number of factors (an approach which was once impractical, but today is well within reach given the development of various statistical software), and then choose the one that gives the most appealing factor structure.

The same approach is also suggested by [40], who stated that multiple factor analyses should be run by setting the number of factors to retain manually: once at the number of factors suggested by the scree test or the number of eigenvalues greater than 1.0, again at the projected or expected number of factors based on the a priori factor structure, and then at numbers above and below those numbers.

Taking into consideration the above details, multiple factor analyses were then run again, constraining the variables to fit into 11, 10, 9, 8, 7, and 6 factors. After rotation, the item loading tables were compared, and the table with the "cleanest" factor structure (i.e., item loadings above .40, factors with at least three items, and few item cross-loadings) was the one that set the number of factors retained to 7; hence, the number of factors adopted as a final solution was 7.

Inference based on the 40% of the sample

Bartlett's test of sphericity was found to be highly significant with a p=.000, implicating correctness and suitability of factor analysis processes for testing multidimensionality [41]. Moreover, the Kaiser-Meyer-Olkin measure of sampling adequacy computed to quantify the degree of inter-correlations among the variables gave a satisfactory .647. This indicates that the factor analysis test has proceeded correctly and the sample used is adequate because the minimum acceptable value of KMO is 0.5 [41]. Therefore, it can be concluded that the matrix did not suffer from multicollinearity or singularity.

Inference based on the 60% of the sample

Bartlett's test of sphericity was found to be significant with a p=.000 and the Kaiser-Meyer-Olkin measure of sampling adequacy gave a satisfactory .639. These two tests indicated the possibility to proceed a factor analysis of the data, as well.

Inference based on the overall sample

Bartlett's test of sphericity was found to be significant with a p=.000 and the Kaiser-Meyer-Olkin measure of sampling adequacy gave a satisfactory .650. These two tests indicated the possibility to proceed a factor analysis of the data, as well.

For both samples, out of the 35 items, seven factors were produced. The factors that emerged out of the study were given the appropriate names in accordance with the criteria, namely, Criollismo (Factor 1 – F1); Chronological constraints (Factor 2 –F2); Capital/Physical facilities (Factor 3 – F3); Cafeteria services (Factor 4 – F4); Course methodology (Factor 5 – F5); Classmates (Factor 6 – F6); Computing facilities (Factor 7 – F7).

The seven factors, when added together, accounted for 62.161% (for the 40% sample), 61.754% (for the 60% sample), and 61.257% (for the overall sample), respectively, of the variation in the data generated.

The results of the factor analysis in terms of the rotated factor loading matrices for the 40% sample, 60% sample, as well as for the 100% sample can be seen in Table 3. It is to be noted that factor loadings for the 60% and 100% sample have been reported in the table taking into consideration the structure of the 40% sample.

Table 3: Factor analysis - rotated component matrix

Factor	Variable Name (Variable #)	40%	60%	100%
F1	Service offered by the university (31)	0.7100	0.7100	0.7100
	Overall treatment of students (32)	0.7021	0.7021	0.7021
	Service provided by student associations (33)	0.7021	0.7021	0.7021
	Treatment received from the administrative staff (35)	0.6572	0.6572	0.6572
	Service offered by the library staff (18)	0.5934	0.5934	0.5934
	Number of student associations (30)	0.6125	0.6125	0.6125
	University management (34)	0.5633	0.5633	0.5633
	Bureaucracy (24)	0.5026	0.5026	0.5026
F2	Academic events (11)	0.7361	0.7361	0.7361
	Number of exams in a day (8)	0.7432	0.7432	0.7432
	Flexibility in the schedules (9)	0.7465	0.7465	0.7465
	Amount of time spent in obtaining official documents (7)	0.6408	0.6408	0.6408
	Week before the final examinations (4)	0.5396	0.5396	0.5396
	Amount of time to complete the assignments (10)	0.5480	0.5480	0.5480
	Classmates´ commitment to comply with work on time (5)	0.5465	0.5465	0.5465
F3	Number of green areas in the campus (25)	0.7744	0.7744	0.7744
	Size of the library (23)	0.6394	0.6394	0.6394
	Number of parking lots (26)	0.6231	0.6231	0.6231
	Number of study rooms (20)	0.6391	0.6391	0.6391
	Conditon of the restrooms (22)	0.5613	0.5613	0.5613
	Number of water dispensers (21)	0.4843	0.4775	0.4590
	Resources in the classroom (19)	0.4045	0.6191	0.5668
F4	Service offered in the cafeteria (13)	0.8311	0.7938	0.8086
	Capacity of the University cafeteria (12)	0.8311	0.8118	0.8209
	Number of food stands within the university (14)	0.6645	0.6891	0.6722
	Cafeteria menu (15)	0.6216	0.6407	0.6380
F5	Professors who make students memorize (29)	0.7587	0.8153	0.7984
	Courses which are more theoretical than practical (28)	0.6071	0.6597	0.6461
	Oral presentations in front of the class (17)	0.4908	0.4081	0.4550
F6	Classmates´ ethics (1)	0.7531	0.7061	0.7473
	Classmates´ commitment to the learning process (16)	0.6545	0.6537	0.6411
	Group mindset (27)	0.6420	0.4714	0.5722
F7	Number of computer labs (6)	0.7258	0.7687	0.7629
	Condition of the computers available (3)	0.6524	0.5299	0.5706
	Internet facility (2)	0.6146	0.5927	0.6206

Reliability Analysis

The internal consistency or the reliability of the items in the factorial groups was then tested by computing Cronbach's Alpha. The reliability test, which is based on the average inter-item correlation, was undertaken in order to check the consistency of the results in repeated incidents.

The Alpha values for the seven dimensions are 0.8665 (factor group *criollismo*), 0.8066 (factor group chronological constraints), 0.8147 (factor group capital), 0.7867 (factor group cafeteria services), 0.6388 (factor group course methodology), 0.6350 (factor group classmates), and 0.5388 (factor group computing facilities), respectively, and the combined Alpha value for all the items is 0.9000. Table 4 presents the results from the internal reliability analysis not just for the overall sample, but also for the 40% and 60% of the samples. Since Alpha values are exceeding the obligatory requirement of 0.50, this indicates that all items and factorial groups are sufficient reliable measures [42]. It is to be noted that generally an issue is how large the Cronbach´s Alpha should be. Some authors suggest a value of Alpha of 0.70 as an acceptable threshold [43]; however, it is relative and referential [44, 45, 46], and should be analyzed in the context of the problem and by discipline, as a high coefficient Alpha does not always mean a high degree of internal consistency. For example, if the questionnaire is short, as in the present study, this will, in turn, give a relatively reduced Alpha value [47, 48]. Moreover, the Alpha value is affected by the number of items in each factor: the lower the number of items, the lower the Alpha value for the particular factor.

Table 4: Reliability Analysis Results

40% of the sample	Cronbach's Alpha	Mean	Variance	Hotelling's T-Squared	F	Sig.
F1	0.8728	4.9512	2.4129	178.8855	24.9490	0.0000
F2	0.7688	5.5467	1.9649	144.1848	23.5577	0.0000
F3	0.8318	4.7686	2.8720	92.4867	15.1110	0.0000
F4	0.8007	3.9594	3.0670	85.5346	28.2852	0.0000
F5	0.6595	4.6614	2.6525	66.1945	32.9679	0.0000
F6	0.6676	4.5976	3.5817	134.8233	67.1473	0.0000
F7	0.5672	4.5846	3.0867	265.7212	132.3396	0.0000
Overall	0.8992	4.8324	2.6680	1466.0831	37.2642	0.0000
60% of the sample	**Cronbach's Alpha**	**Mean**	**Variance**	**Hotelling's T-Squared**	**F**	**Sig.**
F1	0.8624	4.9361	2.5581	285.1406	40.0962	0.0000
F2	0.8272	5.6023	2.0350	179.1894	29.4750	0.0000
F3	0.8030	4.7131	2.8761	134.2904	22.0895	0.0000
F4	0.7784	4.0533	3.3200	120.1932	39.8551	0.0000
F5	0.6268	4.6085	2.7496	54.9909	27.4237	0.0000
F6	0.6110	4.6510	3.4284	177.3840	88.4604	0.0000
F7	0.5177	4.6822	3.0554	353.5736	176.3252	0.0000
Overall	0.9007	4.8496	2.7378	1820.4284	48.9287	0.0000
Full Sample	**Cronbach's Alpha**	**Mean**	**Variance**	**Hotelling's T-Squared**	**F**	**Sig.**
F1	0.8665	4.9422	2.4967	459.1089	64.9692	0.0000
F2	0.8066	5.5801	2.0051	319.7514	52.8742	0.0000
F3	0.8147	4.7353	2.8746	217.0515	35.8917	0.0000
F4	0.7867	4.0160	3.2204	197.1458	65.5086	0.0000

F5	0.6388	4.6297	2.7110	114.6981	57.2594	0.0000
F6	0.6350	4.6296	3.4858	309.7777	154.6465	0.0000
F7	0.5388	4.6432	3.0656	617.5246	308.2791	0.0000
Overall	0.9000	4.8429	2.7093	2988.3894	83.2678	0.0000

The Hotelling's T-squared test was used as a multivariate analysis tool to evaluate the null hypothesis that all of the items on the scale would have the same mean. As expected, the null hypothesis was deemed invalid according to Hotelling's T-squared test for all the three groups of samples, 40%, 60% and overall sample. Results in Table 4 evidently indicate that the outcomes for each item had a different mean.

The following Figure 1 depicts the coefficient of variations (CV) and the mean scores of the factors for the split samples versus overall sample. It can be observed that factors 1 and 2 have relatively higher items consistency, while factors 4 and 6 have relatively low items consistency.
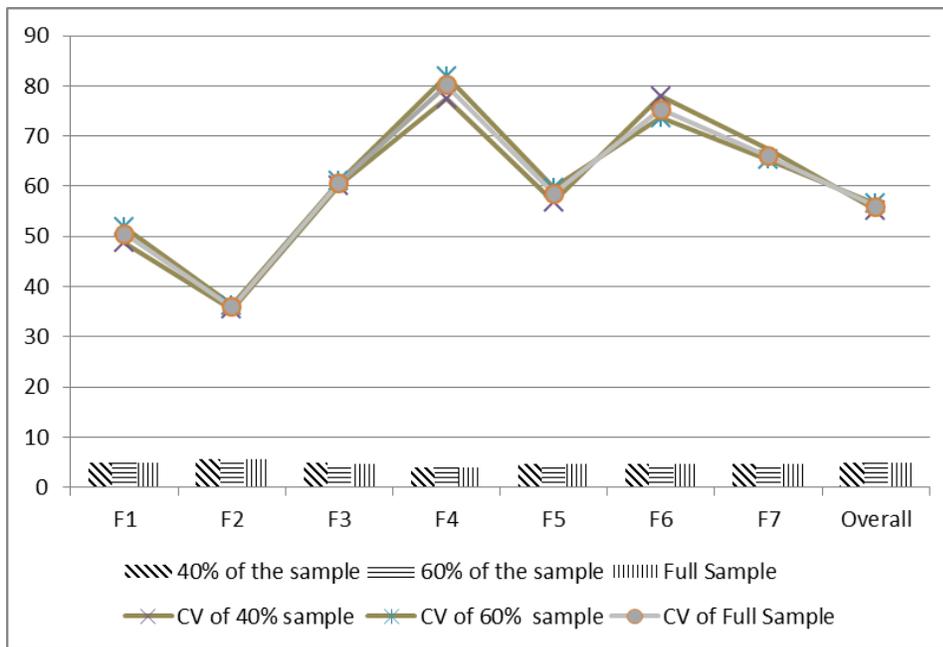

Figure 1. Coefficient of variations and the mean scores of the factors for the split samples versus overall sample.

Thus, the statistical and factor analysis tests have resulted that the proposed items and dimensions of the instrument of the study are sound enough to measure the perceptions of the undergraduate students regarding the factors influencing their academic stress, and hence can be used for further analysis.

DISCUSSION AND IMPLICATIONS

Since the results for the 40% and 60% samples are very similar with the overall sample and do not bias the analysis, the main focus of the further discussion will be based on the overall sample.

Factor 1: Criollismo

Table 3 shows that the following items loaded on Factor 1: service offered by the university, overall treatment of students, service provided by student associations, treatment received from the university staff, number of student associations, university management, and bureaucracy, with factor loadings that ranged between 0.7100

and 0.5026. Based on the mentioned aspects, Factor 1 was labeled as *criollismo* (a term chosen from the students´ responses during the focus groups), and the following lines attempt to provide a brief discussion of it, as this finding in particular clearly exhibits the social setting prevailing in the country and which influences students´ perception of stress in the academic environment.

According to the dictionary, *criollismo* is a literary movement, also called *costumbrismo*, which emerged at the end of the 19th century in Latin America, and is considered the equivalent to the American literary regionalism, being strongly influenced by the wars of independence from Spain. It is based on realism to describe the scenes, customs, and manners of the country the writer was from.

However, criollismo has also acquired a second meaning and represents a very serious problem that the Peruvian society in general is facing. Criollismo as mentioned in the present research paper has a negative connotation, referring to a mixture of facileness, cynicism, and craftiness, being also called "viveza criolla" and "picardía criolla". It is characterized by the facileness and excessive exercise of cunningness in the process of achieving an objective, though it may present positive traits: the ability to improvise and wittiness in general. This behavior, generated most probably by a lack of national identity [49] is rooted and learned throughout life as a way of survival and of obtaining better benefits, based on the lack of morality, and can be shortly described as the end justifies the means.

This particular factor seems to cause a lot of emotional stress to students, as this phenomenon leads to the academic society generating norms and laws which do not allow a healthy and transparent coexistence. In general, students perceive a lot of discrimination in all treatments and services they receive, as they themselves expressed during the focus group discussions. Hence, academic administrators might want to look into the possibility of fostering a common identity within the university setting, based on the university´s values.

In brief, this particular finding supports the study of [50], according to which there is a need to recognize cultural differences in stress management.

Factor 2: Chronological constraints (Time)

Handling the amount of materials to study, and studying for tests and exams, writing assignments and projects, all within a much reduced flexibility in the schedules, are all associated with a time factor, which led to name the group as *Chronological constraints* (time constraints). This finding is consistent with the results reported by [51]. Students reported feeling a lot of stress particularly the week before the final examinations and this is mainly because of the amount of final projects which they must turn in for every course; as a consequence, they feel that instead of focusing on studying for the final exams, they spend too much time on the final works. Stress is also fostered whenever students have to sit for more than one exam in a day and when they must attend academic events (as per the university´s regulation) whose schedules sometimes happen to cross with the courses, in which case they feel they are missing important classes. Finally, the high amount of time spent in obtaining official documents and classmates` lack of commitment to comply with group work on time are also important stressors mentioned by the respondents. Universities might want to consider the possibility of creating time management workshops [52], support groups, mediation/yoga, as well as other self-help resources (such as workshops on self-discovery, as suggested by [53]), in order to help students in their learning process.

Factor 3: Capital/Physical facilities

The lack of sufficient green areas in the universities´ campus, the small size of the library, as well as insufficient parking lots, study rooms, and water dispensers, along with a poor condition of the restrooms and insufficient resources in the classroom, compose Factor 3, which was labeled *Capital/Physical facilities*. It is important to highlight the fact that when talking about green areas, students perceive that they are overwhelmed by the amount of students in the campus, so when they want to go relax and just clear their minds around the campus, they find it impossible. Also, as students spend most of their day in the university campus, they would like to have a place where to study, but even though universities count with study rooms, these are extremely few in number when compared to the student population. Universities might want to consider the possibility of building new study rooms, improve the condition of the existent facilities, and increase the size of their libraries, as well as check the possibility of increasing the number of green areas and/or relaxation techniques.

Factor 4: Cafeteria services

The *Cafeteria* also represents an important stressor in students´ life. Students spend most of their day inside the university campus; hence, they have breakfast, lunch or dinner and snacks at the existent food services within the campus. It was detected that students are stressed because of the poor service offered by the cafeteria staff, along

with a poor menu list. Moreover, the capacity of the cafeterias is generally too small, most of the students not being able to eat on time, as they have to stay in line, waiting for their turn. Most of them simply prefer to grab a burger and eat it while walking back to the classroom, which makes them feel highly uncomfortable and stressed. Also, the rest of the food stands within the universities campuses seem not to be sufficient to fulfill students` expectations. Academic administrators might want to consider the implementation of healthful university foodservice changes in the cafeterias and snack bars.

Factor 5: Course methodology

Factor 5 is composed of the following items: professors who make students memorize, courses which are more theoretical than practical, and oral presentations in front of the class, which led to assign it the name of *Course methodology*. Students perceive that memorizing the information for an exam is a totally ineffective way of proving that they understood the course material. Moreover, during the focus groups discussions, they reported preferring alternative graded activities, such as hands-on activities throughout the semester and informal discussions with the professors, among others. Also, students tend to feel stressed when it comes to formal activities, such as oral presentations in front of the class. At the same time, it is interesting to note that the great majority of students feel that courses which are more theoretical than practical will not help them after graduating. All these findings suggest that academic administrators and faculty should focus on the methodology used to convey the information to the students, making sure that the latter are aware of the importance and effectiveness of the different types of teaching methods employed and type of information disseminated.

Factor 6: Classmates

The perceived classmates´ lack of ethics in doing a group assignment, their lack of commitment to the learning process and the group mindset compose Factor 6. It is important to highlight that during the focus group discussions, a great number of students expressed their stress associated with the fact that classmates who are not committed to the learning process in general are slowing down the class discussion, as most of the times they dedicate themselves to a non-academic activity during the class, such as talking to their neighbors, texting messages from their cellphones, or chatting on messenger, which distracts the students who do pay attention. Also, many times groups are being formed by the professor, without taking into consideration their preferences, values, or individual likes or dislikes. This leads to putting together students who have different mindsets and who do not identify one with each other. This leads to a difficulty in adjusting with the group mindset when making joint assignments and also to a very poor communication. Overall, this finding indicates that faculty and academic administrators should focus on fostering group skills so as to help students to better cope with their peers, in a context of perceived cultural diversity. Moreover, literature suggests that fostering the student`s spiritual well-being (by increasing self-awareness and building relationships and bonding with others, inter alia) is effective in promoting the mental and physical health of students, and reduces its related disorders [54].

Factor 7: Computing facilities

Table 3 shows that the following items loaded on Factor 7: number of computer labs, condition of the computers available, and internet facility, which led to name the factor as *computing facilities*. Most of the students complain about the insufficient number of computer labs available in the campus, the poor condition of the computers which do are available, but which do not count with the adequate software, and the poor internet facility provided. Academic administrators might want to look into the possibility of upgrading the above-mentioned elements in order to improve the computing experience for students through better performance and reliability.

Figure 2 depicts the general findings of the present study, i.e., the factors which are responsible for students´ academic stress, along with the process of stress formation, coping strategies, contextual elements, and subsequent consequences. The model represents the result of the analysis of the data compiled from the students, and includes the author´s self-reflections. It is to be highlighted that the model portrays issues related to stress in an academic context only, the author being aware of the existence of other types on non-academic stressors, coping strategies, among others.
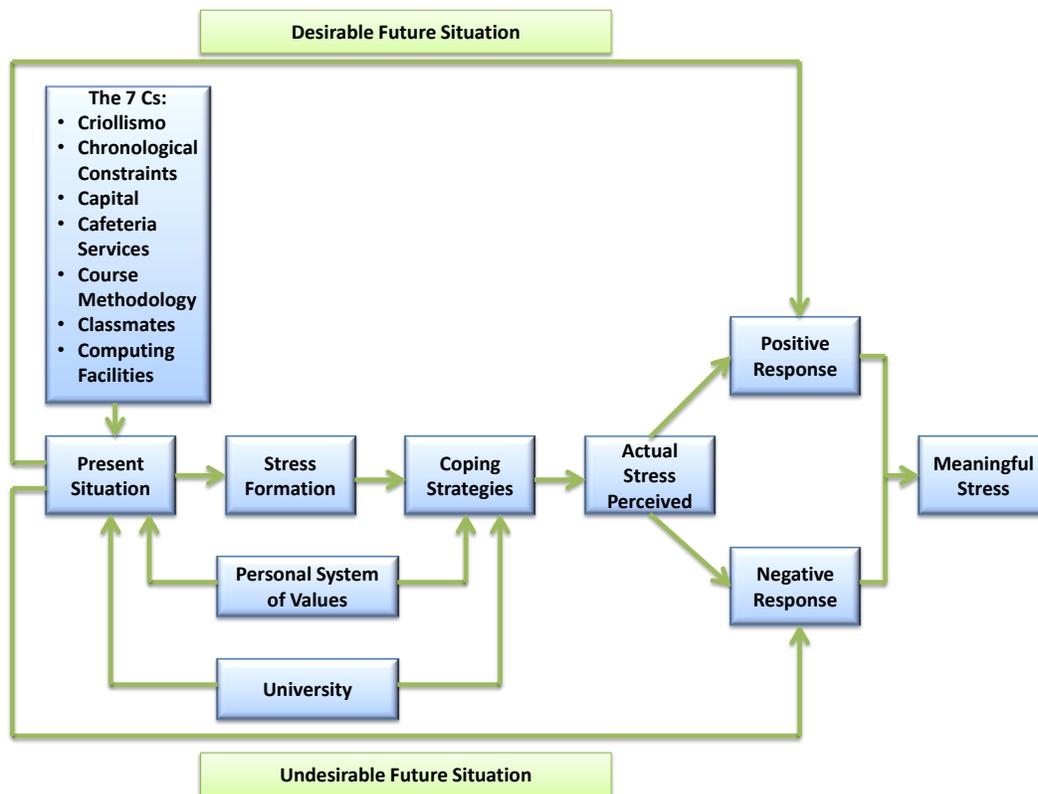
Figure 2. Undergraduate student stress model

Results revealed seven categories of student stress. It is undeniable that the personal system of values of the student (in which we consider included the influence of the personality traits; see, for example, [55]) influences the ability to withstand stress by shaping the coping strategies. This would be an intrinsic element that influences the student´s response to stress. However, the university also plays a key role, as an extrinsic element with the power to influence both stress formation and the coping strategies. University administrators, responsible for the scholarly academic productivity of their students, have the possibility and responsibility to develop strategies aimed at leveraging student stress, not only after it occurs, but also and most importantly, before it occurs. The purpose of the university interfering into the issue of student stress is to contribute to its diminishing [56]. By identifying the stressors in students´ academic life, both the students and the university can influence the stress formation and can, furthermore, help design better coping strategies. As such, the level of actual stress perceived would not only be held under control, but the strategies could actually contribute to increase the positive response (e.g., satisfaction, success, realization, among others) and decrease the negative one (e.g., mental and physical burn out, depression, anxiety, guilt, among others) [57]. In consequence, the outcome would be a meaningful stress for students. It becomes therefore, clear, that universities should revise and improve their efforts in analyzing student´s needs and sources of stress, in order to foster a supportive academic atmosphere that could nurture students´ academic life.

In short, this study has implications for practice, as by knowing the academic stressors, universities may better understand how to give guidance to students on handling the stress and can, furthermore, plan counseling measures and programs for them that can prevent or reduce the negative consequences of stress.

CONCLUSIONS

The interest in developing the present research study was born based on the author´s experience in the classroom. After many years of teaching experience, the author has encountered that students´ level of stress is constantly increasing from generation to generation. A review of the literature revealed the existence of various

factors causing stress among students; however, none of these studies have been developed in the Peruvian academic institutions, which raised the question of whether the same factors would arise or not. Hence, the present study is a quite new approach in the Peruvian education sector.

As [58] stated, "stressors often affect the quality of life and quite naturally lead to student life imbalance." The author hopes that through the present exploratory research study students will be able to better understand the academic factors which produce stress and deal with them better. Moreover, knowing the academic-related factors which cause stress among students is of great importance, as academic institutions have a responsibility to observe and detect the stress factors, and, moreover, have a responsibility to reduce and even eliminate them, whenever possible and to the extent possible, by means of improvement of the services provided.

The sample consisted of 700 undergraduate students who were selected based on probability and non-probability sampling from the 10 top universities in Lima, Peru. Results revealed seven underlying factors which affect student stress in the Peruvian context: (a) criollismo, (b) chronological constraints, (c) capital & physical facilities, (d) cafeteria services, (e) course methodology, (f) classmates, and (g) computing facilities. These factors could account for 61.257% of the observed variance.

Even though Peruvian students share some of the academic stressors found in the literature, such as those generally related to time constraints or course methodology, perception of academic stress differs according to the Peruvian culture. As such, it is to be highlighted that the first factor titled *criollismo* is a country-specific stressor, unavailable in the existent literature review until the moment. Therefore, the present research study is helpful in understanding not only the educational environment in Peru, but also the social setting prevailing in the country, which strongly influences the students´ perception of stress. The author hopes that this finding in particular will help academic administrators and faculty in general to better understand the phenomenon within the academic setting and to design better strategies to help students deal with it.

In conclusion, the present research study adds to the body of knowledge concerning students' academic stressors with information from the Peruvian academic arena.

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