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Stress, coping strategies and academic experience in university students in the COVID-19 pandemic times. The experiences of Nicaragua and Chile

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ABSTRACT

urpose: The objective of this study is to analyze the stress, coping strategies, and the academic experience of students from the Universidad Nacional Autónoma de Nicaragua (UNAN-Managua) and students from the Pontificia Universidad Católica de Chile (UC) during the first semester of 2020 in the times of the COVID-19 pandemic. Method: The qualitative approach was used to carry out the study, which allowed to describe the personal experience of the participants; a phenomenological design was used, with a cross-sectional and descriptive scope. The sample consisted of 16 students between the ages of 18 and

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27, of whom 8 belong to UNAN-Managua and 8 to UC. A semi-structured interview was applied, which was prepared based on the objectives of the study and the analysis categories. Results: UC students exhibited more severe stress manifestations than UNAN-Managua students, like anxiety, depression, and ideas of death. The main pandemic coping strategies adopted by both groups of participants, at the individual and family level, were to follow the health measures recommended by the health authorities. In the case of Chile, a mandatory quarantine regime was established while no internal mobility restrictions were established in Nicaragua. Finally, the health contingencies of each country were reflected in the development of the first semester in the academic institutions to which the participants belonged, the UNAN-Managua students received classes under the modality by meeting, instead, UC students studied online.

INTRODUCTION

Since the beginning of 2020, the world has been shaken by COVID-19, a pandemic that has generated transformations in today's society. These transformations are related to the mechanisms adopted by each affected country, which range from strict confinement strategies, use of masks, physical distancing, closure of social and economic activities or border closures to more flexible strategies such as the promotion of prevention measures.

According to PAHO statistics (2020), in the middle of August, in the Region of the Americas, there are 11.8 million cases and 422.3 thousand deaths from COVID-19. In Nicaragua, 3,659 cases with 137 deaths have been reported (MINSA, 2020), while in Chile 402,365 cases and 10,990 deaths have been reported (MINSA, 2020). These data reflect the serious effects that this pandemic causes in people's lives, such as deterioration in health, increased levels of stress, loss of family and friends, loss of jobs, and businesses. Regarding the educational field, in some countries, the decision has been taken to close schools and universities and it has been decided to go from a face-to-face mode to an online mode, as is the case in Chile; Others such as Nicaragua have chosen to reduce face-to-face classes, implement mixed modalities (face-to-face and virtual), reduce class group sizes, promote physical distancing and use of masks within educational institutions. These changes involve efforts by both students and teachers to adapt to them.

The analysis of the effectiveness of the measures taken by each country to counteract the pandemic is a pending task for the future however, at present it is necessary to know the impact that COVID-19 is generating on people's lives, therefore that the present study aimed to analyze the stress and coping strategies of students of Universidad Nacional Autonoma de Nicaragua (UNAN-Managua) and students of the Pontificia Universidad Católica de Chile (UC) in the face of the COVID-19 pandemic. Likewise, describe the academic experience of students during the pandemic.

Lazarus (2000) refers that the term stress has become a word of daily use and we frequently receive information on how to prevent, eliminate, or manage it. The abundance of theory and research on stress is due to its importance in our social, physiological, and psychological health. On the origin of the concept stress, this author points out the following:

It can be said that the word "stress" was first used in a non-technical sense in the 14th century to refer to difficulties, struggles, adversity, or affliction (Lumsden, 1981). At the end of the 17th century, a prominent physicist-biologist, Robert Hooke (Hinkle, 1973) contributed significantly by formulating an engineering analysis of stress. He looked at the practical question of how man-made structures, such as bridges, should be designed to support heavy loads without collapsing. They must resist the blows of the wind, the earthquakes of the earth, and other natural forces capable of destroying them. (Lazarus, 2000, p. 43)

Hooke's analysis of the problem produced three basic concepts: load, stress, and tension. Load refers to external forces, such as weight; Stress is the area of the structure on which the load is applied and stress is the deformation of the structure, produced by the conjunction of load and stress. This analysis had a significant influence on the 20th-century stress models, which delved into the idea of the load as an external force exerted on the social, physiological, or psychological system. Therefore, the load is analogous to a stressful external stimulus and tension is analogous to a stress response or reaction.

Consequently, Lazarus (2000) states stress is conceptualized as a relational process between the individual and his environment, in which the particular characteristics of the individual and the nature and demands of the environment are considered. For this author, cognitive assessment and coping constitute the two essential aspects of this conceptualization of stress. Also, in stress analysis there is almost always a stimulus, that is, an external event or stressor, a response or reaction, however, much more is needed than input or output to fully understand the stress process.

The considerations studied by Lazarus about stress are based primarily on differentiating three types of psychological stress: damage/loss, threat, and challenge. Damage/loss is linked to damage or loss that has already occurred. The threat relates to damage or loss that has not yet occurred but is possible soon. The challenge is the awareness that, although difficulties get in the way of achievement, they can be overcome with enthusiasm, persistence, and self-confidence. Another contribution of this author is based on conceiving the unity of stress and emotion, if there is stress the emotions are also present and although not in all cases, many times there is also that relationship in reverse. That is when emotions are present, even those with a positive tone, stress often occurs as well.

On the other hand, for Selye (1936) cited by Castillo and González (2010) "stress is a nonspecific response pattern of the organism to any demand, regardless of its nature, which

raises the need for adaptation or adjustment due to the alteration it causes. in the homeostatic system" (p. 3). The most important modern theory of physiological stress was formulated by Selye since his research and theoretical formulations describe how the organism responds when it must be mobilized to handle the dangers and threats to its integrity.

This author described the General Adjustment Syndrome (GAS) which is composed of three stages. The first stage is the *alarm reaction*, a harmful agent initiates its neurohumoral process elaborated in defense of the living body. If stress persists, the second stage comes into play, *resistance*, in which the body mobilizes to defend itself. The third stage is that of *exhaustion*, if the stress is severe enough or continues for long enough, the organic resources begin to not respond.

Vázquez (2012) points out that this concept aims to characterize the psychophysiological changes that occur in the body in response to a situation of excess demand. This author mentions that there are a series of disorders potentially associated with stress such as alopecia, anxiety, tension headache, insomnia, migraines, nightmares, vomiting, diabetes, hypertension, among others. Besides, stress can have effects on people's lifestyle such as increased consumption of tobacco, alcohol, and drugs.

Lazarus and Folkman (1986) refer to an important factor such as the ability or inability to cope with a stressful situation. This capacity is the constant change of cognitive and behavioral efforts to respond to specific external and/or internal demands that are valued as elements that exceed a person's resources and this is what has been called coping. This term, then, refers to the combat or management of stressful life situations (Rodríguez et al., 2009).

The COVID-19 pandemic has generated various reactions in people and in particular in students, due to the changes implemented in educational institutions. Therefore, it is important to know the main manifestations of stress and the strategies adopted by students to face the new academic and social situations generated by the pandemic. For this reason, the following research questions were posed: What are the manifestations of stress experienced by UNAN-Managua students and UC students? What coping strategies did they adopt? What has their academic experience been like?

METHOD

Design

A qualitative approach was used in the study, which allowed describing the personal experience of the participants; A phenomenological design was used (Hernández et al., 2014), whose main objective is to investigate, relate and understand the experiences of individuals concerning an event and express the common aspects of these experiences. It is a cross-sectional

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study (Hernández et al., 2014) since these data were collected in a single period, in an exclusive time. Finally, the study has a descriptive exploratory scope (Hernández et al., 2014), since it seeks to detail phenomena, situations, contexts, and events for which there is little theoretical and investigative background.

Participants

The study participants were 16 students between the ages of 18 and 27 years, 8 students belong to the careers of Geological Engineering, Industrial Engineering, Electronic Engineering and Psychology of Universidad Nacional Autonoma de Nicaragua (UNAN-Managua), who attended the first semester 2020 in person, while 8 students belong to the career of Psychology at the Pontificia Universidad Católica de Chile (UC) who carried out the first semester virtually exclusively, in addition to having complied with the mandatory quarantine regime since March to date. The sampling was non-probabilistic (Hernández et al., 2014), based on a criterion sampling to select the participants in which subjects with previous medical or psychological pathologies were excluded.

Instruments

To collect the information, a semi-structured interview was used (Corbetta, 2003), which was written based on the objectives of the study and the corresponding categories of analysis to explore the manifestations of stress, coping with the pandemic, and the academic experience of each group of participants. The instrument was piloted with two students from both contexts similar to those of the study participants to ensure the relevance of the questions to the objectives and characteristics of the sample.

Analysis of data

To carry out the study, the information was collected through the application of interviews, the data was processed through an axial coding process through the Atlas. ti program. Initially, the units of meaning were identified and coded to group them into first and second-order categories according to the objectives of the research, to later look for the relationships and interconnections between the categories involved in the problem through semantic maps and to be able to generate hypotheses that they can be confirmed in further studies.

RESULTS

Manifestations of stress in students

Stress is conceived as the reaction of an individual to internal or external situations that demand greater demand on the person's resources (Vázquez, 2012) and can manifest itself in

various areas or dimensions, it can present with physical, affective, cognitive, behavioral, and social symptoms.

Figures 1 and 2 show the main stress manifestations of the UNAN-Managua students and UC students, experienced during the first academic semester of 2020. It is worth mentioning that at UNAN-Managua the classes were held face-to-face (modality by meeting) while at the UC they complied with a mandatory quarantine regime and the classes were held virtually.



Figure 1. Manifestations of stress in times of COVID-19-UNAN-Managua

According to Naranjo (2009), when facing a demanding event, the person secretes hormones that allow the body to enter a state of alert, for which certain physical responses

characteristic of that state are activated. In this domain, in times of the pandemic, the participants of the UNAN-Managua did not report notable physical manifestations of stress except the lack of energy. On the contrary, during the quarantine period and virtual classes, the UC participants experienced physical manifestations such as body posture problems, pain in the back and neck, headaches, physical exhaustion, weight gain, and gastrointestinal problems, which are not related to a particular medical history.

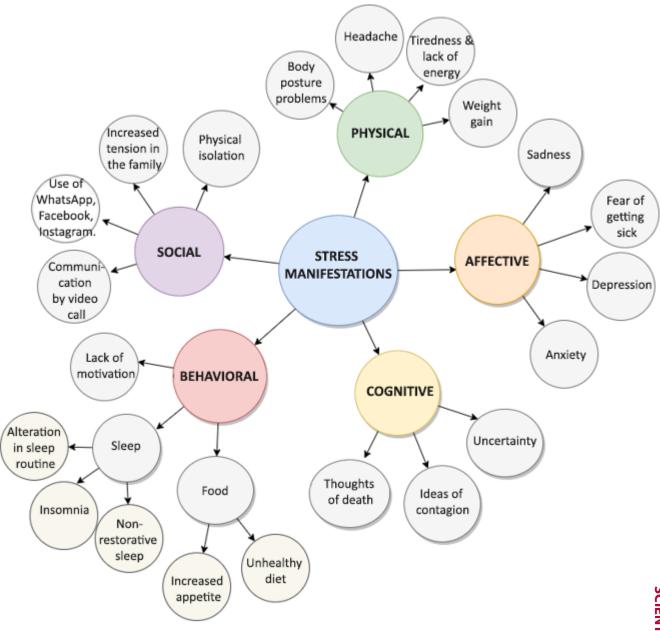


Figure 2. Manifestations of stress in times of COVID-19-UC

UNAN-Managua participants experienced a fear of contagion, sadness, fear of the future, and mixed feelings. Also, at the beginning of the pandemic, they expressed a feeling of

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uneasiness, despair, and a sense of panic. However, they later reported feeling calmer, trying to remain calm and adapt to changes. However, UC participants experienced a fear of contagion and death for themselves and their family members, sadness over the death of family or friends, anxiety and despair (especially after seeing the news regarding COVID-19 and the advance of the pandemic in Chile), depressed mood with sudden changes, feeling of isolation and loneliness, anger, rage and frustration due to the prolonged confinement.

Another important component in the experience of stress is cognition, this type of stress manifestations are linked to ideas and thoughts, the subject can be valued as incapable of facing the stressful situation, and from this, other alterations are developed (Naranjo, 2009). In the case of the UNAN-Managua participants, at the beginning of the pandemic, especially since the first case of COVID-19 was reported in Nicaragua, they expressed concern about getting sick or making their relatives sick, wondering when the pandemic will be over, they have contagion ideas and some thought at some point of stopping attending classes at the university. In the case of the UC participants, during the quarantine period, they express having had thoughts such as uncertainty about what may happen in the future with the spread of the pandemic and how long the quarantine may last, believing that they can be infected at any time, having thoughts related to death, concern for the health of family members, concern about the economic consequences and the job offer after confinement.

Affection and cognitions are expressed through behavior, behavioral manifestations are defined as those various visible expressions, which expose behavioral and attitudinal traits, which can be observed by the subject and by other people (Naranjo, 2009), in a way specifically, sleeping behavior and eating behavior are two of the behavioral elements that can be altered in prolonged stressful situations. Regarding sleep, UNAN-Managua students did not show difficulties in this area, however, the UC subjects expressed having conciliation insomnia, non-restorative sleep, sleep interruption in the early morning and difficulties to go back to sleep, alteration in sleep routine. Regarding food, some of the participants of UNAN-Managua express that they have had an increase in appetite and anxiety to eat, others express that they have not had changes in their eating habits. On the other hand, the UC participants mention that they have neglected their eating habits by eating fatty foods in greater quantities so that together with little physical activity, they lead to weight gain. However, probably due to the confinement and reduction of social activities, the consumption of alcohol and other drugs has decreased. Also, some express a lack of motivation and low energy to carry out academic and work activities, exercise, and housework.

Finally, stressful situations or experiences also have effects on people's social life, changes may occur in the way of interacting or the quality of social interactions. About the students of UNAN-Managua, they expressed that they have been affected by the physical distance they have

had from some family and friends. They have little communication with their friends and this is mostly via mobile phone. Some feel distrust in people for fear of contagion and the social networks that they use most frequently to stay informed and communicate with their family and friends are Facebook and WhatsApp. During the quarantine, the UC students expressed having had a decrease in social activities due to the quarantine regime and mandatory confinement, which is why they have spent more time with their family. Social contact with friends or family outside the home has been made through digital social networks (such as WhatsApp, Facebook, Instagram) and video calling platforms (Zoom, Skype, GoogleMet). In the prolonged time of confinement, there have been higher levels of tension in family relationships that are evidenced in a greater frequency of discussions between family members.

Coping with the pandemic

To face the pandemic, the participants from UNAN-Managua and UC carried out various strategies to avoid contagion, these were applied individually and in families, which can be seen in figures 3 and 4.

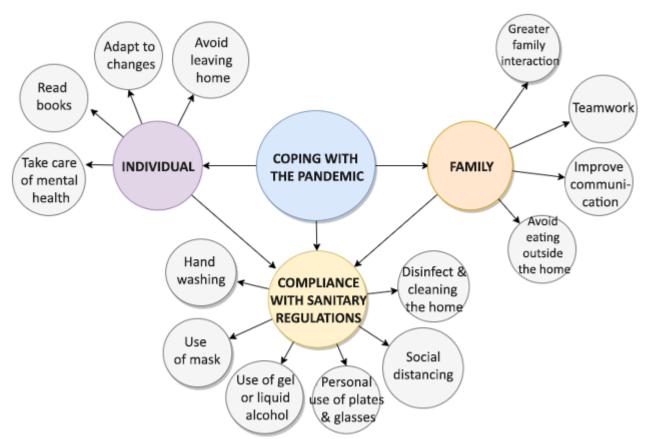


Figure 3. Coping strategies in the face of the COVID-19-UNAN-Managua pandemic

UNAN-Managua students reported that they have adopted various individual strategies such as; take care of their mental health, adapt to changes, maintain a good diet and keep their mind busy, avoid going out to restaurants, cinemas, supermarkets, and any type of place that involves crowds of people. Also, the strategies implemented at the family level are; avoid eating out and taking vitamins. The students stated that spending more time at home has improved communication and coexistence among family members, improved family interaction (by doing more activities together) and they feel that they have the support of their family (mainly mothers, parents, brothers and sisters, and grandparents) to face the pandemic. On the other hand, both at the individual and family level they have complied with the sanitary standards established by the Health authorities such as frequent hand washing, use of a mask, use of a gel or liquid alcohol, use dishes and glasses personally, disinfect and cleaning the home, disinfecting shoe soles with the use of rugs and social distancing.

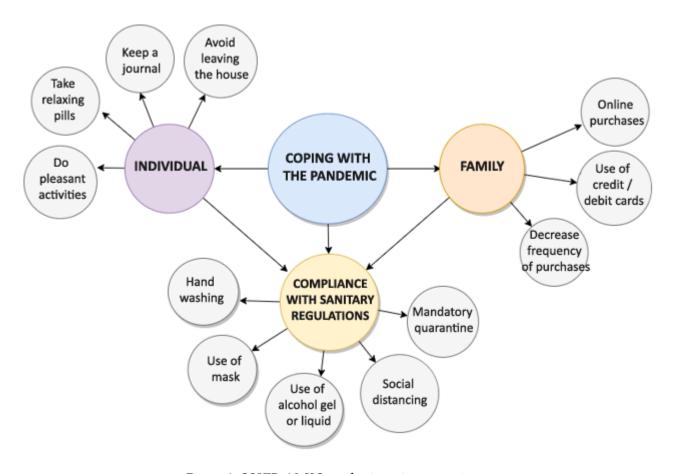


Figure 4. COVID-19-UC pandemic coping strategies

In the case of UC students, the predominant strategies are compliance with the mandatory quarantine and confinement regime from March through July, it should be noted that this measure continues to be in force during August, another measure has been the mandatory use of masks in public places, constant handwashing with soap and water, use of alcohol gel to disinfect

hands, leaving home only to perform essential activities such as buying food or medicine, changing clothes when coming home from the market or other busy places, and disinfecting items from outside the home, in addition to increased online shopping. Besides, to cope with the stress they have tried to establish and follow a routine to stay active and have a structure in their daily lives, as well as doing distracting activities such as watching movies, playing video games or cooking, and keeping in touch with family and friends through the internet and social networks.

Academic Experience

The first academic semester 2020 in both Nicaragua and Chile had to be carried out in response to the health contingency of COVID-19, which implied a series of changes that affected the academic experience of students in one way or another, which can be seen in Figures 5 and 6.

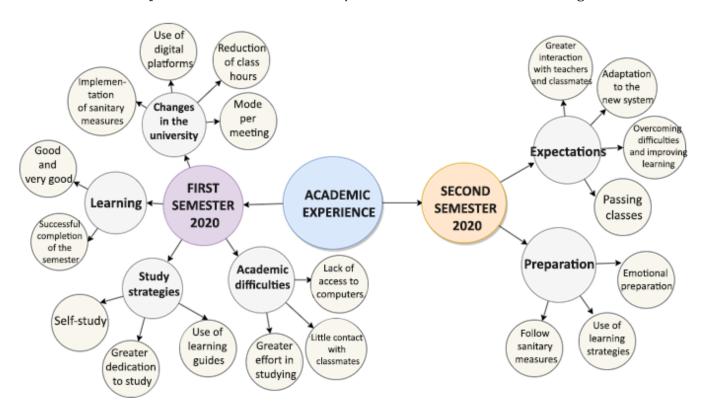


Figure 5. Academic experience in the times of COVID-19-UNAN-Managua

In Nicaragua, a regime of quarantine and compulsory confinement has not been established, so there was no suspension of classes in public education. However, the students of UNAN-Managua pointed out some changes implemented by the University, such as a change from a face-to-face to an encounter mode, a reduction in the hours of face-to-face classes, the use of digital platforms to support the teaching-learning process, and the following health measures were taken: temperature measurements were taken at the entrance gates to the University, alcohol gel was applied to students, workers and visitors, shoes were disinfected and hand washing facilities were installed in the main access areas to the campus. In addition

to that, the use of masks and physical distancing within the classrooms and different spaces of the University is promoted. The students appreciate that these changes implemented by the University were necessary to avoid the spread of the virus, to protect themselves, and to prevent contagion, besides these measures allowed them to continue with their studies.

In Chile, a regime of quarantine, compulsory confinement, and a night-time curfew was established. Because of the new health contingency, the UC made adjustments to be able to carry out the academic semester. According to the students who participated in the study, the main changes were the cancellation of face-to-face classes and the implementation of the virtual modality for all courses, both for the teaching courses, tutorials, and some practical activities. The communication with the teachers was done through e-mail and the virtual platform of the university. In addition to that, they indicate that computers and internet packages were provided to students who did not have these resources; however, the scope of this type of support is not known.

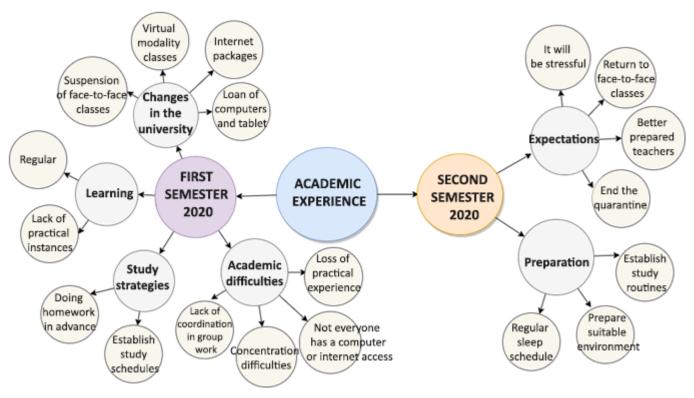


Figure 6. The academic experience at the time of COVID-19-UC

Among the main academic difficulties related to the new measures that were implemented, the students of UNAN-Managua pointed out that the meeting mode implies making a greater effort since they must dedicate more time to the hours of self-study, it is difficult for them to carry out group work with their classmates because they have less contact with them or the communication is via cell phone, some students do not have access to computers to carry out

the assigned tasks and they manifested that they had less contact with the teacher due to the reduction of time in the classroom.

Meanwhile, UC participants mentioned the short time to adapt to the new modality, since it was suddenly announced and the virtual classes were adopted immediately. Taking classes online meant spending many hours in front of a computer or tablet, which made students tired, and they were dependent on the internet service to attend classes, which in some cases was an obstacle to having difficulty with the service providers. Another difficulty was doing group work, as it was difficult to coordinate with classmates since they only communicated through the Internet and not all students had access to the Internet, a computer, or adequate space to take classes online.

To face the new modality and the different related difficulties, the students of UNAN-Managua carried out the following strategies: carry out self-study practices (such as the use of learning guides), dedicate more time to study, avoid the accumulation of homework and during the class sessions clarify as many doubts as possible with the teacher. These study strategies allowed them to pass the first academic semester.

The UC students resorted to strategies such as planning and organizing time, finding quiet and adequate spaces to take virtual classes, distributing readings and assignments throughout the week, and providing sufficient rest time. While these strategies did not prevent stress levels from rising, students say they helped them to pass the courses.

In the case of the students of UNAN-Managua, they value that learning was very good due to the effort made by both them and the teachers. As a result of the strategies used and the efforts made by the UC, the participants consider that they had satisfactory learning and most of them fulfilled the objectives of the subjects, however, the lack of practical instances was one of the main limitations presented.

As for the second academic semester 2020, the participants of UNAN-Managua report that they hope to pass all the subjects they take, adapt to the new system that will be implemented, have more interaction with their teachers and classmates, and improve their learning, as well as hope to overcome the difficulties that may arise and maintain a positive attitude. On the other hand, the UC participants say they feel anxious and stressed by the uncertainty of what may happen with the health situation and the effects it may have on the study modality, indicating that at least until October the classes will continue online. They expect to be able to learn and carry out some practical activities online, besides, they have more confidence in the teachers since they had more time to prepare themselves to face the virtual modality and improve the experience. However, they continue with the desire to return to face-to-face classes very soon.

Finally, the students from UNAN-Managua consider that preparing for the second semester of 2020, implies continuing to comply with health standards, reading about the subjects they are about to take, using strategies that allow them to achieve better learning, be self-taught and prepare themselves emotionally. To face the second semester with the health and academic conditions similar to those of the first part of the year, the UC participants comment that they will put into practice similar strategies to those of the first semester since they allowed them to learn and pass the classes. Among these are the organization and structuring of the time to study and rest during the week, establishing and following a routine, looking for a quiet place to receive the classes online without distractions, and trying to have a positive attitude.

DISCUSSION

The information collected suggests that the UC students, who were subjected to a mandatory quarantine regime due to the high level of COVID-19 spread in Chile, have presented more serious stress manifestations (body aches, sleep problems, depressive mood, feelings of loneliness, thoughts of death) than the group of participants at UNAN-Managua, who have had less impact from the pandemic on daily life compared to the South American countries, so it could be suggested that the experience has been more traumatic for the UC group since clinical manifestations of stress described by Lazarus (2000) are observed and it is likely that some of the participants are in the exhaustion phase of the General Adaptation Syndrome (GAS) (Selye, 1936, cited by Castillo and González, 2010).

Concerning dealing with the pandemic, Lazarus and Folkman (1986) note that it is important to have the ability to deal with a stressful situation such as the COVID-19 pandemic, in this case, UC students implemented mandatory measures such as quarantine, confinement, and curfew, with enforcement measures for those who did not comply. In contrast, students at UNAN-Managua had greater freedom of movement during the period; limitations on this aspect were taken voluntarily, which could be a factor in lessening the effects of the stressful situation; it is also likely that they had a locus of internal control in making personal and family decisions to deal with the pandemic.

When talking about the academic experience in times of pandemic, the UNAN-Managua opted for the classes to be held in a pre-meeting modality, which required academic activities to be carried out in person. Concerning the UC, the changes were drastic since the semester was carried out in an online modality, in which the students expressed that the main difficulties were related to the availability of resources (computer and internet). These differences in the way the semester was developed were due to the health and social context of each country, which required a relevant response from the corresponding academic institution. In general, both strategies were adequate for each specific situation, which is reflected in the evaluation

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that students make of the learning obtained. However, the online experience suffers from a lack of practical experience, which can influence students' assessment of their teaching-learning process.

With the arrival of the second semester, it can be observed that both groups have high expectations and are preparing to face it in a better way, taking into account the previous experience in the first semester and with the hope of attending the classrooms again, which could constitute a marker of overcoming the current pandemic.

CONCLUSIONS

UC students presented the main manifestations of stress among which are body aches, gastrointestinal problems, anxiety and depressive mood, ideas of death, sleep difficulties, and alterations in eating behavior. On the other hand, the group from UNAN-Managua presented manifestations of clinical importance mainly in the affective area, with anxiety, sadness, fear, and concern about contagion.

The main coping strategies adopted for individuals and families were to comply with the sanitary measures recommended and/or imposed by the health authorities, in the case of Chile, compulsory quarantine, curfew, confinement, in addition to hygiene measures that were also practiced in Nicaragua, such as handwashing and use of masks. It should be noted that in the case of Nicaragua no restrictions on internal mobility were established, so this is one of the main differences in the way the two countries approach the situation.

Finally, the health contingencies of each country were reflected in the development of the first semester in the academic institutions to which the participants belonged, the students of the UNAN-Managua received the classes in the modality mode, which allowed them to carry out presential classes and to carry out practical instances, on the other hand, the students of UC studied the semester online, which limited the practical experiences of some courses.

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