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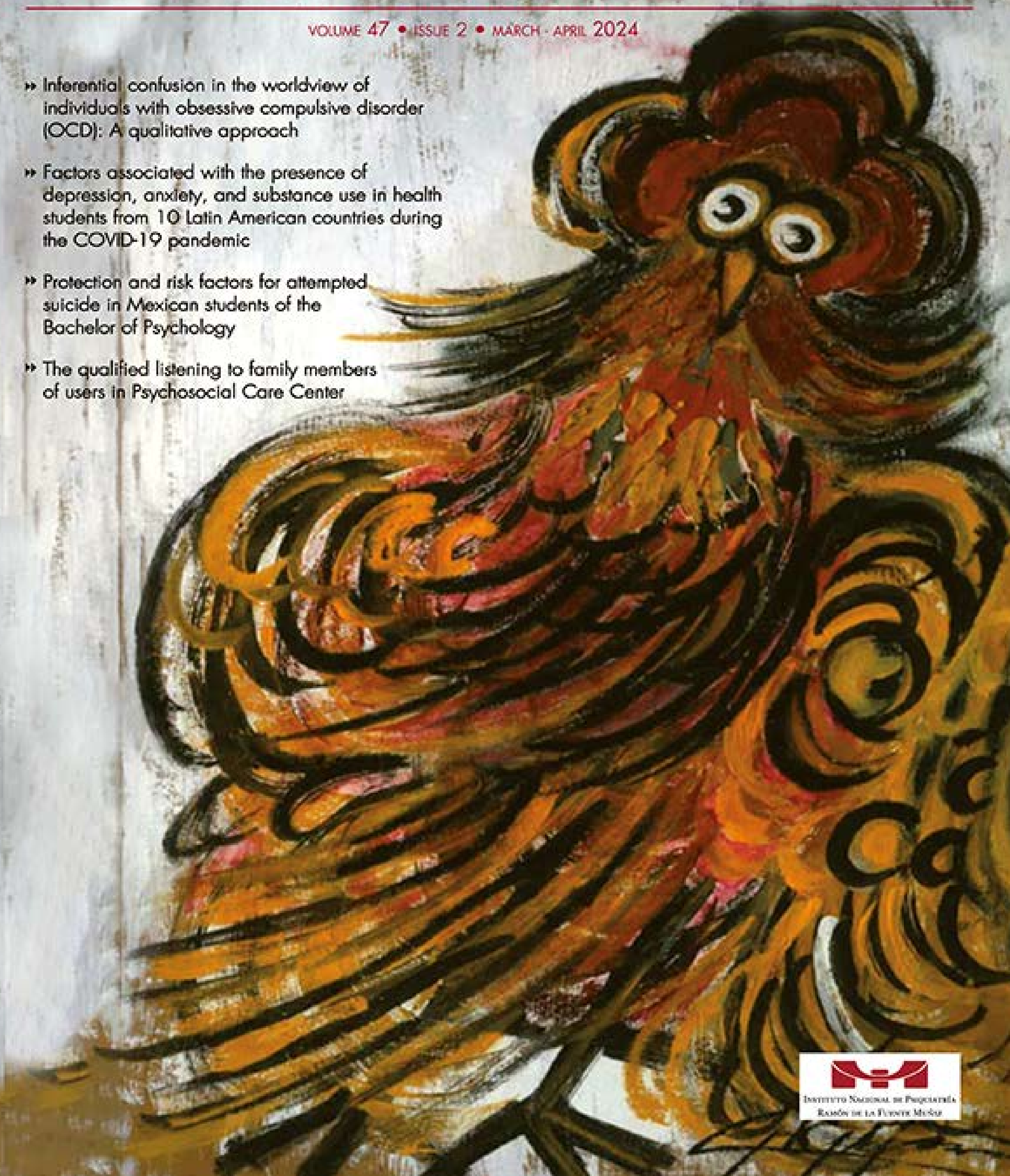
# salud mental



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# salud mental

Volume 47 Issue 2 March-April 2024

## CONTENT

### EDITORIAL

**The relevance of social analysis in mental health research** 55
*La relevancia del análisis social en la investigación en salud mental*
Ingrid Vargas-Huicochea

**ORIGINAL ARTICLES**

**Inferential confusion in the worldview of individuals with Obsessive Compulsive Disorder (OCD): a qualitative approach** 57
*Confusión inferencial en cosmovisión de individuos con Trastorno Obsesivo Compulsivo (TOC): un un acercamiento cualitativo*
Edward Jensen García, Guillermina Natera Rey

**Factors associated with the presence of depression, anxiety, and substance use in health students from 10 Latin American countries during the COVID-19 pandemic** 65
*Factores asociados a la presencia de depresión, de ansiedad y de consumo de sustancias en los estudiantes de la salud de 10 países latinoamericanos durante la pandemia por COVID-19*
Rosa Elena Ulloa Flores, Ricardo Díaz Sánchez, Helena Estephania Mora Noriega, Luisa Fernanda Sánchez Musi, Rogelio Apiquian Guitart, Daniela Michelle Olvera Green, Francisco R. de la Peña Olvera, Marcos Rosetti Sciutto, Lino Palacios Cruz, Pablo Mayer Villa, Juan David Palacio Ortíz

**Protection and Risk Factors for Attempted Suicide in Mexican Students Majoring in Psychology** 73
*Factores de protección y de riesgo para el intento de suicidio en estudiantes mexicanos de la licenciatura en psicología*
Marco Antonio Santana Campas, Karla Patricia Valdés García, Magda Lidiana Sánchez Aranda, Laura Elena de Luna Velasco, Oscar Ulises Reynoso González

**Predictive Factors for Suicidal Behaviors among University Students in the North-Central Region of Mexico** 81
*Factores predictores de conductas suicidas en estudiantes universitarios de la Región Norte-Centro de México*
Yolanda Bañuelos Barrera, Nancy Griselda Pérez Briones, Perla María Trejo Ortiz, Braulio Josué Lara Reyes, Eloína Ruiz Sánchez, Emiliano Javier Argüello

**Qualified Listening to Relatives of Users at a Psychosocial Care Center** 89
*La escucha calificada a familiares de usuarios en un Centro de Atención Psicosocial*
Willams Henrique da Costa Maynart, Maria Cicera dos Santos de Albuquerque, Mércia Zeviani Brêda, Darlan dos Santos Damásio Silva, Hiule Pereira de Santana, Larissa dos Santos Brandão

**On the cover**
*Gallo amarillo, S.XX*
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**EDITORIAL**
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salud mental

# The relevance of social analysis in mental health research

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The mind has always been an object of wonder and study. Over the years there have been great scientific advances to bring us closer to its understanding, but there is still much to investigate. It would be necessary to recognize that, in addition to the intricacies of the neuroanatomy and physiology of the brain, the mind manifests itself in the light of what each individual is, so that these expressions have particular tints derived from who each person is and the sociocultural scenario that underlies them.

It is said that we are our brain (Hachinski, 2022), but we can also say that the brain, particularly the mind, is a reflection of our biology and society.

The social determinants of health are a example of the aforementioned relationship. They are those circumstances in which people live and work and which influence their state of health (Marmot, 2005). Talking about mental health, they have even been extended to include elements such as traumas associated with migration and social systems of oppression (Alegría et al., 2023).

Today more than ever, after the global impact of the COVID-19 pandemic, it is recognized the relevance of identifying these determinants in decision making and implementation of interventions at the individual, community and geopolitical levels.

The articles included in this journal issue highlight some of the social elements involved at different moments of some mental disorders.

The article by Jensen García and Natera Rey, entitled *Inferential Confusion in the Worldview of Individuals with Obsessive Compulsive Disorder (OCD): a Qualitative Approach*, takes up the Inference-Based Model (O'Connor & Robillard, 1995), which proposes the existence of erroneous inductive reasoning (inferential confusión, IC) as a factor of origin and persistence of OCD. In the article, the authors analyze the potential effect of IC on non-obsessive constructs both in people with OCD and in comparative subjects, and how these influence the participants' cosmovision. A very interesting proposal since the concept of cosmovision by itself (Dilthey, 1954) is broad and complex, because it arises from life itself and from experience; moreover, being an group concept, it nurtures and is nurtured by the social context. They found the influence of IC on non-obsessive components of OCD and, as expected, on the cosmovision of OCD sufferers. It would be necessary to think about the implications of this finding for the psychotherapy process and for the community life of this population.

For a deep and detailed exploration of a study phenomena as complex as cosmovision, qualitative research methods or mixed methods are very useful since they allow an approach to the subjectivity of the participants.

This was the methodology chosen by da Costa Maynart and his team of collaborators in the article called *The qualified listening to family members of users in Psychosocial Care Center*. In this qualitative research, the authors evaluated a novel technique in a clinical setting that seeks a more humanized and closer approach to patients and family members. Through the testimonies, they were able to analyze the meanings and experiences of the family members with the qualified listening, which gives them tools to be able to evaluate whether or not the initially proposed objectives are met and thus strengthen not only the listening technique but the general proposal of the psychosocial care center which, as

postulated from its origins, aims to be a space for the production of new social practices to deal with mental illness (Amarante, 2003; 2007), a valuable initiative for the comprehensive approach to the patient with a mental disorder.

It is interesting to reflect on how knowledge of the above-mentioned social aspects in combination with the many other elements of a person can provide a broader and more integrative space for analysis. In the articles by Santana Campas and Bañuelos Barrera, the factors that influence the complex spectrum of suicidal behavior in university students are analyzed. On the one hand, Marco Antonio Santana and collaborators, in *Protection and risk factors for attempted suicide in Mexican students of the bachelor of psychology*, investigate those psychological variables related to suicide attempts; however, their discussion raises questions about those sociocultural elements that nuance the symptoms at the psychological level explored and which remain to be worked on. Yolanda Bañuelos and her group, in the study entitled *Predictive factors of suicidal behaviors among university students in the North-Central Region of Mexico*, carried out an exploration of sociodemographic and psychosocial components to identify which components could have a relationship with suicidal behavior, which provided the research team with a broader profile of variables that may be at play, allowing the recognition that points such as perceived stress and the absence of social support may imply a risk for the manifestation of such behaviors.

Finally, in a research that included students from several health care careers in different countries, Ulloa Flores and his team sought to identify the presence of disorders such as depression, anxiety and substance use in health care students, reviewing those factors potentially associated: *Factors associated with the presence of depression, anxiety, and substance use in health students from 10 Latin American countries during the COVID-19 pandemic*. The fact that the field of this research was conducted in the midst of a pandemic involves consideration of individual, community, biological, psychological, and social factors. As with studies working with mental health issues during COVID-19, it is evident how a humanitarian crisis brings into play all our different areas of function and action, and how the imbalance between them makes us more vulnerable to mental health conditions that compromise our well-being.

In these paragraphs, I sought to continue with the visibilization of our multifactoriality. We are independent individuals inserted in community contexts with important social ties, therefore, as has been reiterated in the previous lines, talking about mental health also implies talking about the economic, labor, academic, political, geographical, historical, cultural and social pieces that constitute us. As Lewis (1953) mentioned, mental health requires that the internal state of a person has a certain balance to be able to interact harmoniously with her/his environment and aspire to develop freely and effectively, which can eventually give her/him a sense of a valuable life.

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**ORIGINAL ARTICLE**
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# Inferential confusion in the worldview of individuals with Obsessive Compulsive Disorder (OCD): a qualitative approach

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## ABSTRACT

**Introduction.** The Inference-based Approach (IBA) is an etiologic, therapeutic research paradigm regarding inferential confusion (IC) as an exclusive metacognitive process of obsessive compulsive disorder (OCD). IC is the rational tendency of individuals with OCD to underrate abstract data and personal experiences and overrate hypothetical possibilities. IC therefore fosters uncertainty and facilitates the justification of obsessive constructs. IBA has noted that qualitative research on IC and the exploration of IC in non-OCD cognitive constructs are required to refine cognitive and therapeutic OCD models. This could help clarify whether OCD treatment by IBA is overlooking non-obsessive IC habits which, if left untreated, could compromise treatment success. **Objective.** To identify the possible influence of IC on non-obsessive, cognitive worldview constructs of individuals with OCD and to compare these constructs with those of individuals without OCD. **Method.** Twenty-five semi-structured, in-depth interviews were conducted, 15 with individuals with OCD and 10 with a comparison group without OCD or OCD symptoms. Data were collected and analyzed using Grounded Theory methodology. **Results.** IC was identified in the non-obsessive cognitive worldview constructs of every participant with OCD. IC was not identified in the comparative group. **Discussion and conclusion.** The results suggest that IC affects the rational composition of non-obsessive cognitive worldview constructs of individuals with OCD. The implications this could have for the cognitive and therapeutic models of OCD are discussed.

**Keywords:** Obsessive-compulsive disorder, inferential confusion, cognitive construct, metacognition.

## RESUMEN

**Introducción.** La Aproximación Basada en Inferencia (ABI) es un paradigma de investigación (etiológico-terapéutico) que considera a la confusión inferencial (CI) como un proceso metacognitivo exclusivo del TOC. La CI es la tendencia racional, de individuos con TOC, de infravalorar datos abstractos y experiencias personales, y sobrevalorar posibilidades hipotéticas. Por lo que la CI promueve incertidumbre y facilita la justificación de constructos obsesivos. La ABI señaló recientemente que, para refinar el modelo cognitivo-terapéutico del TOC, falta investigación cualitativa de CI y exploración de CI en constructos cognitivos no-obsesivos. Esto podría esclarecer si el tratamiento del TOC, de la ABI, descuida hábitos no-obsesivos de CI que, al no ser atendidos, comprometan el éxito terapéutico. **Objetivo.** Identificar la posible influencia de CI en constructos cognitivos no-obsesivos de cosmovisión (interpretación formal o informal del mundo) de individuos con TOC y comparar a dichos constructos con los de individuos sin TOC. **Método.** Se realizaron 25 entrevistas semiestructuradas a profundidad, 15 a participantes con TOC y 10 a un grupo comparativo sin TOC, ni sintomatología de TOC. Los datos se recolectaron y analizaron mediante la metodología Teoría Fundamentada. **Resultados.** Se identificó influencia de CI en constructos cognitivos no-obsesivos de cosmovisión de todos los participantes con TOC. No se identificó influencia de CI en el grupo comparativo. **Discusión y conclusión.** Los resultados permiten aportar que la CI influye en la composición racional de constructos cognitivos no-obsesivos de cosmovisión de individuos con TOC. Se discuten las implicaciones que esto puede tener en el modelo cognitivo-terapéutico del TOC.

**Palabras clave:** Trastorno obsesivo-compulsivo, confusión-inferencial, constructo cognitivo, metacognición.

## INTRODUCTION

Obsessive-compulsive disorder (OCD) is characterized by the occurrence of obsessions and compulsions (Stein et al., 2016). Obsessions are thoughts, ideas or beliefs experienced persistently and involuntarily (APA, 2013). Compulsions are repetitive behaviors or mental acts a person feels compelled to perform in response to obsessions (Stein et al., 2016). There are common thematic subtypes of obsessions and compulsions, usually classified into four groups: contamination/washing, symmetry/order, unacceptable taboo thoughts/checking, and doubt about accidental harm/checking (APA, 2013). There are also three types of symptomatological introspection: good, poor, and absent. It has been observed that the lower the degree of introspection, the greater the severity of the disorder (Tulacı et al., 2018).

OCD has an average prevalence and frequency rate of between 1% and 2% (Ruscio et al., 2010), with a lifetime prevalence of 2-3% (Sassano-Higgins & Pato, 2015), and is currently believed to affect 4% of the general population worldwide (Mathes et al., 2019). High comorbidity has been observed with the autism spectrum and attention deficit hyperactivity disorder (Anholt et al., 2010). Constant comorbidity with bipolarity, major depression and generalized anxiety has also been observed (Fontenelle & Hasler, 2008). In Mexico City, less than 10% of the population with OCD symptoms seeks help (Caraveo & Colmenares, 2004).

Popular psychodynamic treatments for OCD include Behavioral Therapy, Cognitive Therapy, and Cognitive-Behavioral Therapy (Steketee et al., 2019). The first of these usually relies on exposure with response time and achieves clinical improvement of 36%. The second focuses on cognitive restructuring and usually provides clinical improvement of 56%, while a combination of the two has shown clinical improvement of 48% (Steketee et al., 2019). It has been observed that only 20% of individuals who complete treatment maintain total symptom remission after five years (Steketee et al., 1999).

The cognitive paradigm argues that the etiology of OCD has its roots in the negative appraisal of intrusive ideas, a symptom that is considered central and has been widely observed (Olatunji et al., 2019). In general, the literature has recognized the intrinsic relationship between reasoning (thinking about thinking) or metacognition (cognition about cognition) and OCD (Vallejo & Berrios, 2006). But it is not known whether OCD impacts an individual's reasoning or vice versa (Vallejo & Berrios, 2006). In this regard, it has been observed that theory of mind skills (the understanding of one's own mental state) of individuals with OCD are lower than those of healthy controls (Tulacı et al., 2018). Dysfunctional metacognition has also been observed to be a constant in OCD (Sun et al., 2017).

Another paradigm seeking to contribute etiologically and therapeutically to the study of OCD is the Inference-Based Approach (IBA; O'Connor et al., 2005). IBA regards OCD as the result of a metacognitive process called inferential confusion (IC; Aardema et al., 2005), also known as reverse inference (Wong et al., 2019). IC is the rational tendency of individuals with OCD to reject abstract data and personal experiences in favor of hypothetical possibilities (Julien et al., 2016). IC therefore facilitates the rational justification of obsessive thoughts (Julien et al., 2016). Due to its results, IC is considered a dysfunctional metacognitive process (Aardema et al., 2005). It has been observed that if IC is induced in healthy individuals, they begin to display obsessive-compulsive symptoms (Wong & Grisham, 2016; 2017).

According to IBA, IC produces an inference called pathological doubt (PD), an intrusive uncertainty that is negatively appraised and leads to compulsion (O'Connor et al., 2005). PD has also been conceptualized as primary obsession or intrusive inference (Aardema & O'Connor, 2003; O'Connor et al., 2005). IC and PD can be exemplified by the following mental exercise: I remember washing my hands several times (personal experience), but my memory may be incorrect (hypothetical possibility). Is it incorrect? (PD). I must wash my hands (compulsion).

Inference-based therapy (IBT) is the therapeutic derivation of IBA and attempts to make an individual with OCD aware of IC and PD so that they can reverse IC and reconsider PD before the compulsion (Aardema et al., 2017). There is empirical evidence that IBT can achieve clinical improvement across OCD subtypes (Julien et al., 2016), and attempts are being made to include it in the psychodynamic treatments available for this disorder (Moritz et al., 2015). Note that IBA and IBT have developed measurement instruments for IC in relation to obsessions and compulsions, which can accurately predict the presence and severity of OCD (Aardema et al., 2009; Wu et al., 2009).

A recent article on IBA declared the need to include qualitative research on IC and explorations of IC in non-obsessive cognitive constructs to refine cognitive and therapeutic OCD models (Aardema et al., 2018). This is because these objectives could help determine whether TBI is overlooking non-obsessive IC habits which, if left untreated, could be compromising the therapeutic success of this paradigm (Aardema et al., 2018). Given the above, the objective of the present research is to identify the possible influence of IC on non-obsessive cognitive worldview constructs (comprising the formal or informal interpretation of the world) of individuals with OCD and to compare them with those of individuals without OCD. The aim is to explore and potentially contribute to the refinement of etiological and therapeutic OCD models. It should be noted that we have chosen to explore the worldview or interpretation of the world of participants to work with the general, inevitable cognitive constructs in the minds of most human beings. Cognitive worldview constructs refer to the complex concepts formally or informally comprising the latter, such as reality or the universe.

# METHOD

## Design of the study

The method used in this research involved collecting data through in-depth, semi-structured interviews and analyzing them through basic Grounded Theory (GT) strategies. These strategies specifically refer to 1) encoding the data collected and the constant contrast of this encoding, 2) the inductive derivation of conceptual categories based on the resulting encoding and 3) the observation of qualitative constants emerging from conceptual categories (Charmaz, 2010; Timonen et al., 2018). It was decided to work with GT because of its methodological plasticity and inductive potential.

## Participants

Twenty-five participants were interviewed, 15 with a primary diagnosis of OCD and 10 from the general population, without a psychiatric diagnosis or OCD symptoms according to the evaluation instrument: The Obsessive-Compulsive Inventory (OCI-R), validated in Spanish (Malpica et al., 2009). The sociodemographic data of the comparison group (CG) were matched with those of the OCD group (OCDG). Academic levels and disciplines were also matched.

The inclusion criteria for OCD participants were as follows: being between 18 and 60 years old, of either sex/gender, literate (regardless of educational attainment), having a clinician's evaluation that they had no serious problems with their capacity for abstraction, having a primary OCD diagnosis, medium or high scores on the Yale Brown OCD Severity Scale –administered by the clinician during diagnosis–, having at least one of the four basic subtypes of OCD (contamination/washing, symmetry/order, unacceptable taboo thoughts/checking and doubt about accidental harm/checking), understanding and signing the informed consent form, and understanding and answering the in-depth interview. The exclusion criteria for participants diagnosed with OCD were as follows: comorbidity with a cognitive impairment and/or schizophrenia, having been diagnosed with OCD for more than ten years, or scoring low on the Yale Brown OCD Scale (administered by the clinician during diagnosis).

The inclusion criteria for CG participants were as follows: matching the sociodemographic data of the cases they were to be matched with, understanding and signing the informed consent form, and understanding and answering an in-depth interview. The exclusion criteria for CG participants were as follows: OCD diagnosis or obtaining a significant score on the Obsessive-Compulsive Inventory (OCI-R) validated in Spanish (Malpica et al., 2009), administered by the interviewer before conducting the interview.

## Procedure

The recruitment protocol for the population diagnosed with OCD was administered at an OCD and Obsessive Spectrum Disorders clinic. Treating physicians referred patients meeting the inclusion criteria for the study to the researcher. During the presentation, the researcher explained the purpose of the study and its ethical dimensions in person, subsequently inviting patients to participate. Those interested made an appointment for the interview with the researcher. Interviews with diagnosed participants were conducted in the meeting room of the clinic.

Several CG participants were university students interviewed in common areas (such as the cafeterias and halls) of their university. During the interviews, the researcher explained the purpose of the study and its ethical dimensions, subsequently inviting the students to participate. University students were chosen because the aim was to find people with similar sociodemographic features to those of the participants with a diagnosis, the majority of whom were young people with a university education. Those interested made appointments for the interview with the researcher. Interviews with the CG participants were conducted in the common areas mentioned earlier.

As a direct benefit, both groups of participants were given a brochure with a simple explanation of the types of reasoning that exist and their most common applications. All participants were told that the indirect benefit was their contribution to the study of the reasoning of individuals with OCD. Recruitment ceased when theoretical sufficiency (saturation) was achieved when new conceptual categories and theoretical-inductive explanations stopped emerging. Interviews were conducted in person, without the participation of third parties. None of the participants cancelled their interviews.

## Instruments

The in-depth semi-structured interview is divided into three central worldview topics and questions derived from the latter: 1) Identity and social circle. What can you tell me about yourself? Who do you usually spend the most time with? What can you tell me about them? 2) Ethics. Do you think there is something we should all do? Do you think there is something no-one should do? 3) Worldview. Do you profess any religion? or Do you believe in the supernatural? or Are you an atheist or an agnostic? What do you think about planet earth? What do you think about the universe? What do you think about reality? The instrument was tested in a pilot test. Data collection ended when the information gathered was saturated. The interviews took approximately 60 minutes to administer and were all recorded and transcribed.

Table 1
*Criteria for encoding inferential conclusions*

| | | |
|---|---|---|
| Deductive | Abstract P<br>Abstract and Necessary C | Blue |
| Inductive | Experiential P<br>Experiential and Probable C | Green |
| Abductive | Abstract or experiential P<br>Hypothetical C | Yellow |
| Unclassificable | Incomplete, repeated, vague, interrogative, argumentatively contradictory and jokes | Grey |

P = Premise or premises; C = Conclusion.
The assigned encoding is relative to the perspective of a third party;
The epistemological basis from which it is encoded is scientific-inductive.

## Analysis

The first procedure in the analysis was to encode the data that had been collected. The information collected was deconstructed into units to facilitate analysis. The encoding included the three categories that had been previously used to explain and deconstruct IC, namely 1) abstract data 2) personal experiences 3) hypothetical possibilities. Each of these three categories refers to the raw material in the three inferential processes: deduction (abstract data), induction (personal experiences or observations) and abduction (hypothetical possibilities; Peirce, 1998).

Contrasting encoding enabled it to be adapted to the needs of the data collected (Charmaz, 2010). This happened when attempts were made to delimit the location of inferential premises. Participants did not communicate these premises (as a logic teacher does in their class), merely their inferential conclusions. In general, the data collected made it possible to observe that: 1) the necessary conclusion of deduction is derived from and refers to abstract data, 2) the probable conclusion of induction is derived from and refers to personal experiences, and 3) the possible conclusion of abduction is derived from information considered or perceived as anomalous and refers to hypothetical possibilities.

Each type of inferential conclusion was underlined with a color and interpreted from the specific perspective of the encoder, in accordance with the encoding criteria shown in Table 1. Interpretative records were also made for each encoding, which contain clarifications or observations about them. Opinion verbs such as "I believe," "I think," and "I feel" are common filler words and were interpreted as such.

Another analytical procedure was the inductive derivation of conceptual categories based on the encoding, which creates the conceptual basis of all GT (Charmaz, 2010). The conceptual categories (CC) obtained reflect the metacognitive trends that constantly accompanied the three types of inferential conclusion. The CCs that are part of the resulting GT are those that achieved theoretical sufficiency. The CCs were closely linked to the type of conclusion and group, as can be seen in Table 2.

The CC of deductive conclusions was theoretical and conceptual derivation, in other words, a coherent or faithful derivation regarding the theory, concept or any other abstract data from which it was deduced. Common theoretical-conceptual sources of these deductions included humanistic principles, legal theories, religious theories, philosophical theories, scientific theories, and newspaper articles. This also included coherent conceptual management, such as coherent analogical management, coherent exemplification, accurate definition, conceptually faithful citation, and tautological derivation.

The CC of inductive conclusions was testimonial, such as conclusions that appear to be drawn from personal experiences or observations that cannot be contrasted by the encoder. The CC of abductive conclusions was hyperbolic, in other words, exaggerated hypothetical possibilities. The types observed were hyperbolic infallibility (exaggerated faith in a hypothetical possibility), hyperbolic association (exaggerated correlation), hyperbolic reduction (reductionist exaggeration), hyperbole about other people's behavior (exaggerations about others) and affective hyperbole (exaggeration due to emotional bias).

The fifth analytical procedure was the observation of qualitative constants emerging from conceptual categories, in other words, the location of general and subjective trends intrinsically related to the CC. Two qualitative constants were identified: 1) the absence of influence of IC on non-obsessive worldview constructs and 2) the presence of influence of IC on non-obsessive worldview constructs.

### Reliability and validity

Following Johansson (2019), the method used adhered to five GT reliability and validity standards: 1) the sample size made it possible to induce conceptual categories and qualitative constants and saturate them theoretically; 2) What was observed in the population of interest was triangulated

Table 2
*Conceptual categories by group and type of inferential conclusion*

| | *Deductive* | *Inductive* | *Abductive* |
|---|---|---|---|
| Comparison group | Theoretical deductive | Testimonial inductive | No conceptual category |
| OCD group | Theoretical deductive | Testimonial inductive | Hyperbolic abductive |

with a comparative group; 3) The results were relevant to the paradigms concerning the object of study; 4) Inductive correspondence with the object of study allowed theoretical grounding; and 5) Conceptual coherence existed between the study objective and the results. In Grounded Theory, the above translates into the potential to replicate the study or its results (using similar methodologies).

### Ethical considerations

This research project was reviewed and authorized by the Research Ethics Committee (CEI) of the Ramón de la Fuente Muñiz National Institute of Psychiatry (INPRFM) on August 14, 2018: CEI/C/049/2018. Before beginning the interviews, all participants were given and read the informed consent and participation agreement forms. Since the interviews did not discuss highly sensitive topics and were only administered to patients under treatment whose mental state was considered stable by the treating physician, the research involved minimal risk.

## RESULTS

### Presence and absence of IC by issue and group

The influence of IC on the non-obsessive cognitive worldview constructs of all OCDG participants was identified. This happened when they discussed the concepts in their worldview: religion, God, supernatural phenomena, atheism, and agnosticism and when they talked about planet Earth, the universe and reality. The influence of IC was also noted when certain OCDG participants discussed ethical concepts, although this was not observed in the majority of the OCDG. No influence of IC was identified when the OCDG reflected on their identity and social circle. No influence of IC was found on any of the cognitive constructs of the CG (Table 3).

### Absence of IC in the identity and social circle of both groups

When the identity and social circle of the participants were discussed, no IC was observed in either group. In their answers to the questions, both groups showed a tendency to use clusters of inductive-testimonial conclusions, in other words, theories derived from, referring to and comprising personal experiences or observations about themselves or members of their social circle:

> OCDG-AL19: *"I really enjoy life" "I mean recently or in the past three years" "since I met my partner" "we have traveled to different parts of the country" "we have camped" "and I liked that a lot" "We were on a beach in BCS" "where you can see part of the Milky Way" "and then it was great" "I felt part of the universe in the sea."*

> CG-AL19: *"Well, I'm about to finish my degree" "I'm already working in the field I did my degree in" "and I have two kittens."*

> OCDG-BL18: *"My father is one of the hardest working people I know" "I know that his childhood was hard financially" "he was one of 12 children and I feel this meant he had to work from the time he was a child" "I think I am proud of him."*

> CG-BL18: *"He is ten years older than me" "he works in a car dealership" "he is almost never there" "we support each other a lot."*

### Absence of IC in the Ethics of the CG and the majority of the OCDG

When the ethics of participants were discussed, no IC was observed in the CG, or in the majority of the OCDG. When they answered the questions, most participants tended to do so through clusters of deductive conclusions that they derived theoretically or conceptually, in other words, theories derived from and referring to pre-existing abstract information on the topic. Common deductive conclusions regarding this topic refer to norms or criteria derived from religious, legal, or humanistic theories. The following example shows how an OCD participant answers the question: Do you think there is anything no one should do? with a cluster of deductive conclusions that appear to derive from pacifism (no wars, no weapons):

> OCDG-OL18: *"wars, weapons" "because there is a lot of death" "many families are sad" "when they lose a loved one."*

In the following example, the first conclusion appears to be derived from a humanistic theory. In the second conclusion, the first one is compared with a specific humanist source from which the latest theoretical deductions are conceptually and coherently derived:

> CG-OL18: *"try to be good to others and yourself" "as Benito Juárez used to say (respect for the rights of others means peace)" "So do as you see fit, but without harming others" "I believe that this is a basis any society should have."*

Table 3
*Inferential confusion for each group and worldview topic*

| | *Identity and social* | *Ethical* | *Cosmological* |
|---|---|---|---|
| Comparison group | | | |
| OCD group | | Inferential confusion | Inferential confusion |

## Lack of IC in CG worldview

No IC was identified when the CG addressed the issue of worldview, since all the participants answered the questions with clusters of deductive and inductive conclusions. In other words, they expressed theories consisting of coherent theoretical-conceptual derivations and personal experiences. In the following example, a participant answers a follow-up question about her concept of God. Note how she alternates two inductive-testimonial conclusions and one deductive-conceptual one:

> CG-EL18: *"That's the way I was raised" "there are things that happen that I have learned to associate with God" "someone else might attribute that to luck or any other strange force of nature" [coherent exemplification].*

In this other example, the participant used two adjectives to describe the universe, and then referred to the source of information from which he had derived these descriptions, which he did through induction:

> CG-AL19: *"The universe is very big" [theoretical-conceptual derivation] "it is unknown" [theoretical-conceptual derivation] "I believe that from watching documentaries" [testimonial induction].*

## Presence of IC in the ethics of certain OCDG participants

When the topic of ethics was discussed, IC was identified in seven of the 15 OCDG participants. When answering questions on this topic, these participants showed a tendency to group together hyperbolic abductive conclusions. In other words, they expressed theories consisting (mainly) of hypothetical possibilities that tend to be exaggerated:

> OCDG-EL18: *"I am very attached to Vygotsky's theory [inductive-testimonial] which says that human beings learn through experience" [hyperbolic reduction]. "So you can't tell a person not to do something, because maybe that's what they learned" [hyperbolic association] "if a person was taught to kill as a child and kills, the fact that they learned to do so does not mean that it is right" [hypothetical example] "People just have to learn to live the way their nature tells them and not how they have learned or how they have been taught" [hyperbolic association].*

To clarify this point, consider the following points. In the second conclusion in the previous example, Vygotsky's theory is hyperbolically reduced to two elements (experience-learning). In the third conclusion, this reduction (experience-learning) is hyperbolically associated with the need not to repress behavioral aspects. In the fourth conclusion, a hypothetical example is provided (abductive conclusion by definition). And in the fifth conclusion, it is hyperbolically associated with the previous conclusions and the need to reject external influence (education in all its forms).

A similar metacognitive process can be observed in the following example:

> OCDG-UL18: *"Well, I say we shouldn't have a rule, because we are all different" [hyperbolic reduction] "No we shouldn't, because it depends on the person" [hyperbolic reduction] and "on what they feel" [hyperbolic reduction].*

The first conclusion fails to consider behavioral rules that prevent crimes or violations of rights, or ideas such as the law of the strongest or inequalities derived from the difference between human beings. The second overlooks individuals who may decide to harm others for numerous reasons. The third ignores negative feelings or dangerous individuals with emotions. Note the fallibility that accompanies hyperbolic abductive reasoning.

## Presence of IC in the OCDG worldview

Dealing the worldview topic, IC was identified in all OCDG participants. Well, all the OCDG participants answered questions on this topic by grouping together hyperbolic abductive conclusions, in other words, they expressed theories consisting of (mainly) hypothetical possibilities that were exaggerated. The following example shows one of these abductive concentrations. The participant was sharing his view on religions:

> OCDG-AL18: *"Well, they are all the same" [hyperbolic reduction] "but with different rules" [hyperbolic reduction] "they are all based on a religion" [hyperbolic reduction] "and divisions were made" [hyperbolic infallibility] "I imagine that they started off as friends and then they became enemies" [hyperbolic reduction] "and each one created their own religion based on their own point of view" [hyperbolic reduction].*

These abductive conclusions are extremely fallible because of their hyperbolic nature. For example, the idea that all religions are the same clashes with the counterarguments that can be deduced from broad historical, religious, and social-scientific literature (widely disseminated by different media) or induced from personal experiences or observations with religions or religious social circles.

The following example contains another abductive concentration. The participant began with this line of reasoning after being asked about her notion of reality:

> OCDG-EL18: *"In life there is something that warns you what is going to happen" [hyperbolic infallibility] "and it depends on you whether you pay attention to it or not" [hyperbolic infallibility] "I don't really know what it is" [infallibility hyperbolic] "I don't know if your life is already predetermined" [rhetorical abduction] "you have a slight possibility of changing it" [hyperbolic infallibility] "but you are almost always going to go down the same path" [hyperbolic infallibility].*

The theory can be summarized as follows: the future can be predicted by "something" that continuously conveys this predictability to us, and it is our choice whether we answer these messages. According to the participant, she is not talking about predestination, which in addition to its originality, confirms that these are not deductive conclusions derived from a pre-existing esotericism.

The following example shows another abductive cluster. The participant was answering the question: What do you think about the universe?

> OCDG-CL19: *"we are insignificant people (in the material sense)" [hyperbolic infallibility] "but spiritually, we can be one with the planet" [hyperbolic association]. "Be consistent with what you say, what you think, and what you do" [hyperbolic association].*

One can see that there was an abrupt conceptual association. Although it is common to hear that the vastness of the universe makes many people feel small, for this mental association, the concept of insignificant people is not commonly used (since it seems to imply significant people). Note that the hyperbolic associations are repeated from one conclusion to the next.

The following example contains another abductive cluster. In this case, the participant was answering the question: What do you think about planet Earth?

> OCDG-FL19: *"We don't deserve it" [hyperbolic infallibility] "because we have already damaged it too much" [hyperbolic infallibility] "I would be happy if humanity became extinct right now" [hyperbolic infallibility].*

It is possible to observe a hyperbolic association between the question and the answer, since rather than focusing on the concept of planet-Earth, the participant concentrated on an ontological, moral evaluation of the relationship between humanity and the Earth. The high abductive fallibility previously observed, due to the hyperbolization of each conclusion, is also repeated. For example, the idea of not deserving planet Earth at an individual and collective level is accompanied by multiple implications (ontological, epistemological, and bioethical).

In general, the results can be summarized as follows. For each worldview topic addressed, from the point of view of social identity, ethics or cosmogony, there was a higher concentration of abductive conclusions (Figure 1).

This concentration of abductive conclusions reflects the presence of inferential confusion in non-obsessive cognitive constructs of the OCDG.

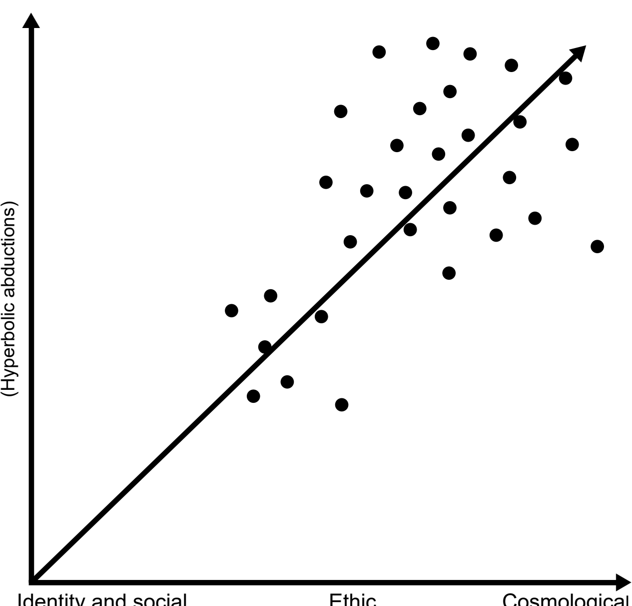


**Figure 1.** Hyperbolic abductions based on worldview themes in the OCD Group.

## DISCUSSION AND CONCLUSION

Each of the participants' answers categorized as an inductive-testimonial conclusion, from the perspective of a third party, concerns personal experiences or observations that cannot be corroborated. But based on the principle of charity (the best possible interpretation) and given that inductive conclusions are based on personal experiences or observations, the truth of this type of conclusions was deduced as probable. At the same time, each deductive conclusion refers to a necessary conclusion, but a deductive conclusion is not necessarily true. This is because deductive truth is as fallible as the theory or concept from which given abstract data are deduced (Negro, 2018).

Each answer categorized as hyperbolic abductive, despite being significantly fallible and following the principle of charity, must be deduced as possible. Regarding the clusters of hyperbolic abductive conclusions or IC, the following should be clarified: IC is the continuous tendency to abduce, even when it is better to deduce or induce. In other words, the problem is not abducing or doing so sometimes, but doing so constantly and indiscriminately.

The strengths of the study are the reliability and validity of the method. At the same time, one of its limitations is not having explored better internal triangulation through in-depth analysis of the interpretive records that justified the encoding. This triangulation would also have benefited from the collaboration of more researchers. The second limitation is the limited transferability of results since the answers were encoded by type of inferential conclusion rather than type of inferential process. The third limitation is the absence of a conceptual category referring to the abductive conclusion used by the CG. Future research should therefore increase the internal triangulation of the method by analyzing the interpretive records that justify the encoding and contrast the latter with more collaborators.

Finally, IBA has shown that IC facilitates the justification of obsessive-compulsive beliefs (Julien et al., 2016) and that it can induce OCD symptoms in healthy patients (Wong & Grisham, 2016; 2017). This led the paradigm to hypothesize that IC could be affecting non-obsessive constructs of individuals with OCD (Aardema et al., 2018). These results corroborate this concern, as they show that IC also affects non-obsessive constructs of people with OCD. It can therefore be concluded that the results confirm the

etiological model of IBA and warn of the impact of IC on non-obsessive constructs of individuals with OCD in the IBT therapeutic model.

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### Conflict of interests

The authors declare that they have no conflict of interest.

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salud mental

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# Factors associated with the presence of depression, anxiety, and substance use in health students from 10 Latin American countries during the COVID-19 pandemic

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## ABSTRACT

**Introduction.** Health science students represented a particularly vulnerable group during the pandemic. Studies in various regions have found a high prevalence of psychopathology, associated with the presence of stressors such as contact with patients, isolation, and financial difficulties. **Objective.** To determine the stressors for and frequency of depression, anxiety and substance use in Latin American health science students during the COVID-19 pandemic. **Method.** A questionnaire-based, cross-sectional study was conducted to measure the presence of stressors and determine anxiety and depression symptoms through the PHQ-9 and the GAD-7 scales, and substance use in 777 students from ten countries, from June 2020 to January 2021. **Results.** The most frequent stressors were having a loved one diagnosed with COVID-19 and being diagnosed with another illness. A total of 54.1% of the sample had depression, and 46.2% had anxiety according to the rating scales cut-off points, while 24.8% reported substance use. Reading or listening to news about the pandemic was the main stressor associated with the presence of psychopathology. **Discussion and conclusion.** Latin American health science students displayed high frequencies of psychopathology associated with various stressors. It is therefore important to monitor the mental health of this population to prevent low academic performance.

**Keywords:** Depression, anxiety, COVID-19, pandemic, health science students.

## RESUMEN

**Introducción.** Los estudiantes de ciencias de la salud constituyeron un grupo con especial vulnerabilidad durante la pandemia. Estudios en diferentes regiones han mostrado alta prevalencia de psicopatología, asociada con la presencia de estresores como el contacto con enfermos, el aislamiento y las dificultades económicas. **Objetivo.** Determinar los estresores y las frecuencias de depresión, ansiedad y uso de sustancias en estudiantes latinoamericanos de ciencias de la salud durante la pandemia de COVID-19. **Método.** Se realizó un estudio transversal a través de un cuestionario que incluía la presencia de estresores, la determinación de síntomas de depresión y ansiedad y depresión por medio de las escalas PHQ-9, GAD-7 y el uso de sustancias en 777 estudiantes de 10 países durante el periodo de junio 2020 a enero 2021. **Resultados.** Los estresores más frecuentes fueron el diagnóstico de COVID-19 en alguien cercano y presentar otra enfermedad. De acuerdo con los puntos de corte de las escalas, 54.1% presentaron depresión, 46.2% ansiedad y 24.8% uso de sustancias. El escuchar noticias sobre la pandemia fue el estresor más fuertemente asociado con la presencia de psicopatología. **Discusión y conclusión.** Los estudiantes de ciencias de la salud latinoamericanos presentaron frecuencias altas de psicopatología asociados con diversos estresores. Es importante hacer un seguimiento de la salud mental de esta población a fin de prevenir su disfunción académica y laboral.

**Palabras clave:** Depresión, ansiedad, COVID-19, pandemia, estudiantes ciencias de la salud.

## INTRODUCTION

The COVID-19 outbreak was declared a pandemic on March 11, 2020. Health science students often participated in groups of professionals involved in frontline healthcare, compounding other stressors such as isolation, fear of oneself or family members becoming infected, financial difficulties and the possibility of losing the school year (Guldager et al., 2021; Shankar et al., 2022).

Various studies have documented the impact of these stressors on the mental health of students from different majors. In the case of medical students, they include a meta-analysis examining the results of forty-one studies in different countries, showing a cumulative prevalence of depression and anxiety of 37.9% and 33.7% respectively, with variations by country (Jia et al., 2022). In Peru, a cross-sectional study was conducted of 248 students to determine the frequency of depression and anxiety and their associated factors through the Depression Anxiety Stress Scale-21 (DASS-21). The results showed that 24.3% and 28.5% of those surveyed presented depression and anxiety respectively. These students mentioned chronic illness, having been infected with COVID-19, and having a family member with the disease as the main factors associated with the presence of these psychopathologies (Sandoval et al., 2021). In Argentina, DASS-21 was administered to 263 students, finding depression and anxiety symptoms in 72% and 59.7% of the sample respectively (Agranatti et al., 2021). In Colombia, 295 students were evaluated with the Zung depression scale, yielding a prevalence of 53.2% (Guavita & Sanabria, 2006). In Mexico, the Goldberg General Health Questionnaire (GHQ-28) was used to evaluate 177 students, finding that 35.8% presented anxious and 8% depressive symptoms (Ruvalcaba et al., 2021).

Reports on the mental health of students from other majors include one conducted on nursing students in Colombia, which found depression and anxiety rates of 27% and 20% (Herrera, 2021) and another conducted on dentistry students in Cuba, which showed depression and anxiety rates of 74.16% and 63.22% respectively (Corrales-Reyes et al., 2022). Although these studies were conducted on populations of educational centers or specific localities, were based on self-administered instruments, and conducted at different times during the pandemic, they all showed a high prevalence of depression and anxiety symptoms.

In parallel, substance use increased during the pandemic. In Brazil, a cross-sectional study was conducted on 1,050 dentistry students. The results showed that 18.7% reported consuming alcohol during the pandemic and having increased their frequency of consumption over pre-pandemic levels (Fernandez et al., 2021). In Mexico, a study conducted on frontline healthcare workers providing care for infected patients (such as general practitioners, specialists, undergraduate students, psychologists, nurses, social workers and paramedics) found that 20.7% reported an increase in alcohol consumption and 3.6% in the use of other substances (Bryant-Genevier et al., 2021).

Given the dearth of studies conducted on health science students in Latin America, a region significantly impacted by the pandemic (International Monetary Fund, 2022; COVID-19 Mental Disorders Collaborators, 2021), this study aims to a) determine the frequency of depression and anxiety symptoms and substance use in health sciences students, b) evaluate whether there were differences in these symptoms according to the major studied and c) examine their correlation with the presence and intensity of stressors during the COVID-19 pandemic.

## METHOD

### Design of the study

A cross-sectional study was conducted to obtain information on anxiety and depression symptoms and substance use through a self-administered questionnaire that included stressors, the PHQ-9 and GAD-7 scales and a question on substance use.

### Participants

A total of 777 students participated in the study, most of whom were from Mexico (63.4%), Colombia (28.2%) and Argentina (5.1%), and the remainder from Bolivia, Chile, Ecuador, El Salvador, Honduras, Peru, and the Dominican Republic. They were majoring in medicine, dentistry, psychology, nutrition, biomedical engineering, clinical laboratory science, hospital support, nursing, and physiotherapy. The survey was sent in the form of a digital poster with an electronic address and QR code so that it could be scanned and sent via WhatsApp and email to key people for the students such as teachers and health professionals so that they could share the survey. Participants were asked to forward the survey to family and friends, using the snowball method (Dudovskiy, 2022).

### Measurements

The information was collected from June 2020 to January 2021. The data was collected through Google Forms, a survey management software included in the Docs Editors suite provided by Google (Google, 2021), which was used to design the questionnaire described below:

a. *Demographic data*: includes sex, major and country.
b. *Stressors*: assessed using a set of questions developed by researchers, such as being diagnosed

with COVID-19 or another illness, having a loved one diagnosed with COVID-19, and receiving treatment from a mental health professional. In addition, Likert-type questions were used to evaluate stress related to COVID-19 news, having a loved one diagnosed with COVID-19, isolation, losing touch with colleagues, the possibility of becoming sick, school problems, or financial impact. Response options were "not at all," "mild," "moderate," and "a lot" and coded with values from 0 to 3.

c. *Anxiety Symptoms*: evaluated using the General Anxiety Disorder 7-Item (GAD-7), a valid, effective screening tool for detecting generalized anxiety disorder and evaluating its severity. Developed and validated by Spitzer et al. (2006). A cut-off point of 10 was used to diagnose generalized anxiety disorder with a sensitivity of 89% and a specificity of 82%. This scale was validated in Spanish with a sample of adults in Spain (García-Campayo et al., 2010).

d. *Depression Symptoms*: evaluated using the depression subscale of the 9-item Patient Health Questionnaire (PHQ-9) developed by Spitzer et al. (1999) to assess the frequency of each symptom of major depressive disorder defined by the DSM. A cut-off point of 11 was used for suspected depression, with a sensitivity of 80% and 90% and a specificity of 92% and 86% in adults (Gilbody et al., 2007) and pediatric populations respectively (Allgaier et al., 2012). The Spanish version of the scale was validated with Latina women residing in the United States (Merz et al., 2011) and pediatric populations in Chile (Borghero et al., 2018).

e. *Substance use*: evaluated using the question "Did you smoke, drink or use any drugs to feel calmer?" with Yes/No response options.

Table 1
*Sample characteristics*

| | *Frequency* | |
|---|---|---|
| *Characteristic* | *n* | *%* |
| Female | 169 | (78.2%) |
| Average age | 21.38 | (1.71) |
| Diagnosed with COVID-19 | 33 | (4.2%) |
| Loved one diagnosed with COVID-19 | 336 | (43.2%) |
| Suffered another illness | 271 | (34.9%) |
| Received mental health treatment | 238 | (30.6%) |
| PHQ > 11 | 421 | (54.1%) |
| GAD > 10 | 359 | (46.2%) |
| Used substances to feel calmer | 193 | (24.8%) |

### Statistical analysis

Statistical analyses were performed using SPSS (version 21). Descriptive statistics were used, with differences being determined by major and the presence of psychopathology using chi-square and Student's t tests. A multiple linear regression analysis was used to determine the variables associated with an increase in the number of comorbidities, considering subjects who had a PQH-9 score > 11 as cases of probable depression, those with a GAD-7 score > 10 as cases of probable anxiety, and those who answered the respective question affirmatively as substance use cases. A value of $p < .05$ was considered statistically significant.

### Ethical considerations

The study was approved by the Ethics Committee of the Dr. Juan N. Navarro Children's Psychiatric Hospital, with registration no. II3/02/0420 on June 3, 2020.

## RESULTS

A total of 4.2% of the participants reported having been diagnosed with COVID-19, 43.2% reported that a loved one had been diagnosed with it, 34.9% presented with another illness apart from COVID-19 and 30.6% had been treated by a psychologist or psychiatrist in the past six months. Participants reported increased stress due to having a loved one with COVID-19, not seeing their friends, and financial problems in the family. The evaluation of psychopathology found that 421 subjects (54.1%) obtained a PHQ score ≥ 11, suggesting moderate to severe depression; 359 (46.2%) obtained a GAD score ≥ 10, suggesting generalized anxiety, while 193 subjects (24.8%) reported using substances to feel calmer. Table 1 shows the sample characteristics and the frequency of the stressors examined.

The frequency of symptoms in students in the different majors is shown in figure 1; no significant differences were found.

### Correlation of symptoms with the presence and intensity of stressors

Participants who obtained scores on the scales above their cut-off point and reported using substances to feel calmer reported having been treated by a mental health professional more frequently, as well as having experienced more stress (Table 2).

A total of 94 subjects (12.1%) presented with depression, anxiety, and substance use. An examination of the stressors that were significantly greater in these subjects found that the degree of stress due to pandemic news was the most powerful predictor of the number of disorders (Table 3).

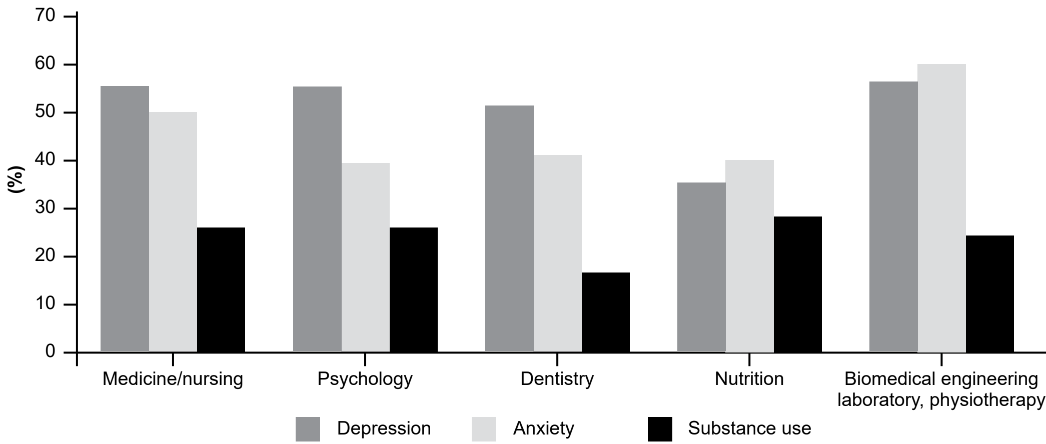


**Figure 1.** Distribution of symptoms of depression, anxiety and substance use in students in different majors.

Table 2
*Frequency and degree of stress in subjects with and without symptoms or substance use*

| *Stressor* | *GAD-7 > 10* | *PHQ > 11* | *Using substances to feel calmer* |
|---|---|---|---|
| Diagnosed with COVID-19 | 3.9% *vs.* 4.5%<br>x² = .19, df = 1 | 3.3% *vs.* 5.3%<br>x² = 1.91, df = 1 | 3.6% *vs.* 4.5%<br>x² = .24, df = 1 |
| Loved one diagnosed with COVID-19 | 47.9% *vs.* 39.2%<br>x² = 5.92, df = 1* | 45.6% *vs.* 40.4%<br>x² = 2.09, df = 1 | 51.8% *vs.* 40.4%<br>x² = 7.68%, df = 1** |
| Suffered from another illness | 39.8% *vs.* 30.6%<br>x² = 7.21%, df = 1** | 38.7% *vs.* 30.3%<br>x² = 5.96, df = 1* | 40.9% *vs.* 32.9%<br>x² = 4.14, df = 1* |
| Received mental health treatment | 37.9% *vs.* 24.4%<br>x² = 16.51, df = 1 | 37.3% *vs.* 22.8%<br>x² = 19.19, df = 1 | 41.5% *vs.* 27.1%<br>x² = 14.14, df = 1 |
| Stress about news | 2.25 (.72) *vs.* 1.62 (.74)<br>*t* = 12, df = 761*** | 2.13 (.72) *vs.* 1.66 (.80)<br>*t* = 8.57, df = 775*** | 2.07 (.77) *vs.* 1.86 (.80)<br>*t* = 3.18, df = 339*** |
| Stress about loved one diagnosed with COVID-19 | 3.25 (1.09) *vs.* 3.12 (1.31)<br>*t* = 1.52, df = 775 | 3.26 (1.12) *vs.* 3.08 (1.12)<br>*t* = 2.05, df = 775* | 3.20 (1.16) *vs.* 3.18 (1.23)<br>*t* = .20, df = 345 |
| Stress about staying at home | 2.38 (.78) *vs.* 1.75 (.91)<br>*t* = 10.37, df = 775*** | 2.28 (.84) *vs.* 1.76 (.91)<br>*t* = 8.32, df = 731*** | 2.20 (.88) *vs.* 1.99 (.91)<br>*t* = 2.88, df = 336** |
| Stress about no longer seeing their friends | 2.42 (.82) *vs.* 2.01 (.95)<br>*t* = 6.29, df = 775*** | 2.38 (.82) *vs.* 1.99 (.98)<br>*t* = 5.91, df = 775*** | 2.40 (.84) *vs.* 2.14 (.93)<br>*t* = 3.45, df = 775*** |
| Stress about the possibility of getting sick | 2.09 (93) *vs.* 1.53 (.93)<br>*t* = 8.3, df = 756*** | 1.96 (.94) *vs.* 1.60 (.97)<br>*t* = 5.24, df = 775*** | 1.83 (.99) *vs.* 1.78 (.96)<br>*t* = .60, df = 319 |
| Stress about the possibility of losing the school year | 2.25 (1) *vs.* 1.78 (1)<br>*t* = 6.38, df = 775*** | 2.22 (.98) *vs.*1.73 (1.09)<br>*t* = 6.6, df = 775*** | 2.20 (99) *vs.* 1.93 (1.08)<br>*t* = 3.01, df = 775*** |
| Stress about financial problems | 2.48 (.79) *vs.* 1.96 (.96)<br>*t* = 8.1, df = 775*** | 2.40 (.83) *vs.* 1.96 (.97)<br>*t* = 6.71, df = 775*** | 2.34 (.93) *vs.* 2.15 (.92)<br>*t* = 2.41, df = 324** |

$^*p < .05$, $^{**}p < .01$, $^{***}p < .001$
The degree of perceived stress was evaluated from 0 = Not at all to 3 = Very much.

## DISCUSSION AND CONCLUSION

The present study includes reports from students in nine majors in ten countries. To our knowledge, this is the first study to include such a broad range of majors within the area of health sciences in Latin American countries, since others focused on samples of medical, dentistry, and nursing students. The results show that depression and anxiety, assessed using self-administered scales, were found in half the participants, and the use of substances to feel calmer

Table 3
*Variables associated with the highest degree of comorbidity*

| *Variable* | *B coefficient* | *Standardized B coefficient* | *95% CI* | *p* |
|---|---|---|---|---|
| Stress about news | .302 | .233 | .214 - .389 | < .001 |
| Stress about staying at home | .215 | .189 | .139 - .291 | < .001 |
| Stress about financial problems | .177 | .159 | .103 - .252 | < .001 |
| Received mental health treatment | .341 | .152 | .201 - .480 | < .001 |
| Stress about the possibility of losing the school year | .09 | .093 | .025 - .155 | < .01 |

*Model:* $R^2 = .255$ sum of squares 211.8, df = 5; F = 52.78, $p < .001$.

in almost a quarter. Participants reported being affected by various stressors.

## Frequency of stressors

Regarding the stressors reported during the pandemic, it was found that health science students are exposed to some situations they share with the rest of the population and others specific to their profession. Previous studies have highlighted having a loved one who is sick, a lack of information regarding the virus, financial difficulties, and changes in teaching methods. Those directly exposed to the virus in clinical fields reported fear and uncertainty due to the risk of becoming infected (Alkureishi et al., 2022; Frank et al., 2022; Jia et al., 2022).

## Frequency of psychopathology and substance use

The frequency of probable cases of depression and anxiety (nearly half the sample) contrasts with the results of a systematic review and meta-analysis of the prevalence of anxiety in medical students during the pandemic published by Lasheras et al. (2020). This author, who reports a cumulative prevalence of 28%, mentions the methodological heterogeneity in the studies analyzed, which is a limitation.

The results of studies using the PQH and GAD scales also vary. A lower frequency was found in China (Cao et al., 2020; Liu et al., 2020); and a similar or greater frequency of depression and anxiety was found in the United States (Christophers et al., 2021; Halperin et al., 2021). It is, however, important to consider the broader timeframe and the inclusion of students from other majors in our study, which could affect the differences observed. The similarity with the Sartorao Filho et al. (2020) study could reflect the impact of the pandemic in this region, characterized by a lower availability of health professionals, which could, in turn, have required greater participation of undergraduate students in patient care.

The literature highlights the increase in prevalence of depression and anxiety during the pandemic (Duan et al., 2020; Racine et al., 2021; Ravens-Sieberer et al., 2021). Data on the mental health of university students prior to the pandemic in Latin America shows heterogeneous results. However, the present results reveal an increase in depression and anxiety over previous rates in Mexico (Granados-Cosme et al., 2020), Argentina (Czernik et al., 2006) and a multicenter study conducted on university students from twenty-one countries showing rates of 11.7% for anxiety and 4.5% for depression and substance use (Auerbach et al., 2016).

Conversely, the frequency of substance use was similar to that reported in studies evaluating the general population (Ekström et al., 2022) and health personnel in contact with infected patients (Bryant-Genevier et al., 2021). Although no significant differences were found in the frequency of depression, anxiety and substance use among students from different majors, the present results can be contrasted with those of studies and meta-analyses previously reported. For example, 40% of dentistry participants obtained GAD-7 scale scores over 10 points, higher than the figure reported in a meta-analysis showing a global prevalence of 35%. Moreover, figures were lower in studies conducted in European than Latin American countries (Lasheras et al., 2020). The present results contrast with those of the study conducted in Germany by Guse et al. (2021) comparing the frequency of stress, depression and anxiety among first-year medicine and dentistry students, showing that the latter had a higher frequency of stress, a difference they attributed to the curricula of each major.

## Factors associated with the presence of psychopathology

The results showed that stressors during the pandemic were associated with one or more of the symptom groups evaluated: staying at home (Rodrigues et al., 2022) having another disease (Sandoval et al., 2021), having a loved one with COVID-19, hearing pandemic news and being treated for mental health problems, have been associated with the presence of anxiety and depression symptoms (Ma et al., 2020).

Finally, although numerous stressors related to the presence of anxiety, depression and substance use were found, the factors associated with the presence of all three could be linked to the syllabuses of the students' majors. Students in the latter half of their degree programs may have been undertaking their clinical practices, which increases their risk to that of frontline healthcare workers. On the other hand, staying at home can be associated with stress due to losing the school year or the feeling of not acquiring the required skills (Abbasi et al., 2020; Natarajan & Joseph, 2022). Lastly, pandemic news would have included medical information received first-hand and scientific articles in addition to the news the general population received, which would have increased their degree of stress.

## Limitations

The present results should be examined considering the following limitations: 1) Although the questionnaire was designed for the entire Latin American region, since most of the respondents came from Mexico, the sample cannot be considered representative; 2) The cross-sectional design of the study and the use of self-administered scales; 3) Data was not gathered on other variables that could influence the degree of stress of the participants, for example if they were frontline health care workers or if they experienced symptoms of other psychopathologies; 4) No comparisons were made with students enrolled in other degree programs.

The population of health students from these Latin American countries showed high frequencies of depression, anxiety, and substance use, associated with stressors that could have increased as a result of the courses taken. Since depression and anxiety can become chronic (Conway et al. 2016; Weisberg, 2009), this study highlights the need to detect and intervene in risk factors among this population, to reduce the impact on the mental health of those who will be responsible for patient care.

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### Conflict of interest

The authors declare that they have no conflicts of interest.

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# Protection and Risk Factors for Attempted Suicide in Mexican Students Majoring in Psychology

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## ABSTRACT

**Introduction.** The prevalence of suicidal behavior in university students ranges from 14.1% to 27.9%, with suicide being the fourth leading cause of death among young people ages 15 to 29. Hopelessness, decreased self-efficacy, depression, anxiety, and emotional dysregulation are among the main risk factors. **Objective.** To determine the effect of hopelessness, depression, anxiety, stress, drug use, and self-efficacy on suicide attempts in Mexican psychology students. **Method.** A quantitative, cross-sectional study was undertaken with a sample of 3,438 students from sixty-two universities accredited by the National Council for Teaching and Research in Psychology (CNEIP) from six regions in Mexico. **Results.** A total of 19.9% reported attempted suicide (85.1% women and 14.9% men); 36.4% drug use; 40.2% moderate to extreme stress; 50.1% anxiety, and 40.7% depression; 74.1% medium to high emotional dysregulation; 30.2% moderate to high hopelessness, and 32.9% low self-efficacy. Drug use (OR 1.897), sex (OR 1.756), anxiety (OR 1.218), hopelessness (OR 1.209), depression (OR 1.756), and stress (OR 1.050) respectively account for 17.2% of the variability of suicide attempts. **Discussion and conclusion.** Confirmation of the effect of the variables analyzed on the suicide attempts of psychology students underlines the importance of incorporating actions that will contribute to controlling the incidence of suicide.

**Keywords:** Suicide attempts, hopelessness, anxiety, stress, depression, self-efficacy.

## RESUMEN

**Introducción.** La prevalencia de la conducta suicida en estudiantes universitarios se encuentra entre el 14.1 y 27.9%, es la cuarta causa de fallecimientos entre los jóvenes de 15 a 29 años. La pérdida de esperanza, disminución de autoeficacia, depresión, ansiedad y desregulación emocional se encuentran entre los principales factores asociados al suicidio. **Objetivo.** Determinar el efecto de la desesperanza, depresión, ansiedad, estrés, consumo de drogas y autoeficacia sobre el intento de suicidio en estudiantes mexicanos de la carrera de psicología. **Método.** Se realizó una investigación cuantitativa y transversal. Se conformó una muestra de 3438 estudiantes, pertenecientes a 62 Instituciones de Educación Superior (IES) acreditadas por el Consejo Nacional para la Enseñanza e Investigación en Psicología de seis distintas regiones del país. **Resultados.** El 19.9% reportó intento de suicidio (85.1% mujeres y 14.9% son hombres). El 36.4% reportó consumo de drogas, el 40.2% reportaron de moderado a estrés extremo, el 50.1% ansiedad y 40.7% depresión, el 74.1% de media a alta desregulación emocional, 30.2% de moderada a alta desesperanza y el 32.9% baja autoeficacia. El consumo de drogas (OR 1.897), sexo (OR 1.756), ansiedad (OR 1.218), desesperanza (OR 1.209), depresión (OR 1.756) y estrés (OR 1.050) respectivamente, explican el 17.2% de la variabilidad de los intentos de suicidio. **Discusión y conclusión.** Al confirmar el efecto de las variables analizadas en el intento de suicidio de los estudiantes de psicología, se recalca la importancia de integrar, dentro de las propuestas de intervención, acciones que abonen al control de su incidencia.

**Palabras clave:** Intento de suicidio, desesperanza, ansiedad, estrés, depresión, autoeficacia.

## INTRODUCTION

The mental health of students, particularly those training to care for the physical and psychological health of the population, is a matter of concern. One of the main risk factors for mental health is suicide, with a suicide risk prevalence of between 14.1% and 27.9% having been reported in university students (Corredor et al., 2019; Crispim et al., 2021; Granizo et al., 2021). The World Health Organization (WHO) reports that one in 100 deaths is due to suicide, the fourth leading cause of death among young people aged between 15 and 29, who constitute the bulk of the senior high school and university population (WHO, 2021).

Factors associated with suicide include academic stressors, hopelessness, a decreased perception of self-efficacy, pessimism, depression (with a prevalence of between 16% and 28.2%), anxiety (with a prevalence of 56.6%), and emotional difficulty or dysregulation (García et al., 2021; Landa-Blanco et al., 2022; Rábago et al., 2019). In regard to depression, significant differences have been found between women (Abdu et al., 2020; Benjet et al., 2019; Marraccini et al., 2019; Miranda-Mendizabal et al., 2019; Quarshie et al., 2022) and men (Benjet et al., 2019; Marraccini et al., 2019; Miranda-Mendizabal et al., 2019). Moreover, the prevalence of depression in women (16%-28.2%) is higher than in men (7.1%-20.5%). However, López (2018) did not find significant differences by sex. This is consistent with what was reported by García et al. (2021), namely that women (37.2%) have higher rates of depression than men (30.2%), while 34.8% of the students surveyed reported some degree of depression and 56.6% anxiety.

Another risk factor for mental health and suicide was stress. In this regard, Carbonell et al. (2019) reported that a 31.7% prevalence rate for depression, a 59.9% prevalence rate for anxiety was and a 37.3% prevalence rate for stress, while Santana Campas et al. (2022) found that women scored higher in stress (74.6%) than men (25.1%). However, women scored higher in coping strategies than men, with 63.2% *vs*. 36.8%. In addition to the above, self-esteem can serve as either a risk or a protective factor for mental health (Ceballos-Ospino et al., 2015; Domínguez-Mercado et al., 2016; Gómez Tabares et al., 2020). In this respect, self-efficacy has been reported as both a risk and a protective factor (Gómez-Acosta, 2018; Palacios Jimenez, 2018).

During the COVID-19 pandemic, mental health problems increased noticeably. For example, Winkler et al. (2020) reported that the prevalence of people experiencing at least one symptom of mental health problems increased from a baseline of 20.02 (95% CI = 18.64, 21.39) in 2017 to 29.63 (95% CI = [27.9, 31.37]) in 2020, while major depressive disorders (3.96, 95% CI = [3.28, 4.62 v. 11.77], 95% CI = [10.56, 12.99]) and suicide risk (3.88, 95% CI = [3.21, 4.52 v. 11.88]; 95% CI = [10.64, 13.07]) tripled and current anxiety disorders doubled (7.79, 95% CI = [6.87, 8.7 v. 12.84], 95% CI = [11.6, 14.05]).

It is therefore useful to study risk and protective factors in university students, specifically psychology students, since there is evidence of more health problems in those enrolled in medicine, nursing, and associated programs (Caro et al., 2019; Ochoa et al., 2021). Given the above, the objective of this study was as follows: to determine the effect of hopelessness, depression, anxiety, stress, drug use, and self-efficacy on suicide attempts in Mexican students majoring in psychology, under the hypothesis that there would be a link between the variables and suicide attempts.

## METHOD

### Study design

The research was observational, cross-sectional, descriptive, prospective, and quantitative.

### Participants

The sample comprised 3,438 psychology students from sixty-two universities offering a bachelor's program in psychology and accredited by the National Council for Teaching and Research in Psychology (Spanish acronym CNEIP). The universities are distributed throughout Mexico and grouped into six different regions: South Southeast 29.1% (*n* = 1002), Northwest 25.4% (*n* = 872), Central West 20.7% (*n* = 711), Northeast 12.8% (*n* = 441), Metropolitan 7.9% (*n* = 273) and Central South 4% (*n* = 139). Of the total, 77.6% were women and 22.4% men, with a mean age of 20 (SD = 3.06). In regard to marital status, 96.3% were single, followed by those who were living together (1.5%), married (1.3%), or other (.8%).

### Measurement instruments

The Beck Hopelessness Scale (Beck et al., 1974) with twenty items and a dichotomous response format (true or false), with a true assigned value of one, and a false value of 0, with a maximum score of twenty. The higher the score, the greater the degree of hopelessness. For this research, the validation for Mexico by Hermosillo-De la Torre et al. (2020) comprised 18 items. Both versions have adequate psychometric properties. Likewise, the present study reported good internal consistency (α = .804). Four cut-off points were established for the interpretation of the scores: without hopelessness [0-2], mild hopelessness [3-5], moderate hopelessness [6-10], and severe hopelessness [11-18].

The Depression, Anxiety Stress Scales ([DASS-21]; Lovibond & Lovibond, 1993). This study uses the version by Ruiz et al. (2017) with twenty-one items and answers consisting of four options: "It has not happened to me," "It has happened to me a bit," "It has happened to me a lot," and

"It has happened to me an enormous amount," scored on a scale of 0 to 3. It comprises three subscales: (1) Depression, (2) Anxiety, and (3) Stress; each with seven items. In the depression subscale, the categories are: (1) No depression [0-4], (2) Mild depression [5-6], (3) Moderate depression [7-10], (4) Severe depression [11-13] and (5) Extremely severe depression [14 or more]. For the Anxiety subscale, the cut-off points are (1) No anxiety [0-3], (2) Mild anxiety [4], (3) Moderate anxiety [5-7], (4) Severe anxiety [8-9] and (5) Extremely severe anxiety [10 or more]. Finally, for the Stress subscale, the cut-off points are (1) No stress [0-7], (2) Mild stress [8-9], (3) Moderate stress [10-12], (4) Severe stress [13-16] and (5) Extremely severe stress [17 or more]. In regard to its psychometric properties, the authors have confirmed adequate internal consistency values. These properties were confirmed in this study (α = .949).

The General Self-Efficacy Scale (Baessler & Schwarzer, 1996), using the review by Sanjuán-Suárez et al. (2000), with ten unidimensional items, has four response options: "Incorrect," "Barely true," "Quite true" and "True," scored from one to four. Satisfactory psychometric properties are reported in both the original version and this study (α = .91). The scale has three cut-off points: Low self-efficacy [10-28], Medium self-efficacy [29-35], and High self-efficacy [36-40].

The Difficulties in Emotional Dysregulation Scale ([DERS]; Gratz & Roemer, 2004), translated, adapted, and validated in Mexican students by Marín et al. (2012). The validated scale has twenty-four items and four factors: non-acceptance, goals, awareness, and clarity. It is answered with a Likert-type response format with five options.

The Drug Abuse Screen Test ([DAST-20]; Skinner, 1982; De las Fuentes & Villalpando, 2001). This test consists of twenty questions with a dichotomous response format; "true" is assigned a value of "1" and false is assigned a value of "0" such that the minimum score is "0" and the maximum score is "20." It has adequate internal consistency values (α = .98). Satisfactory values were found in the present study (α = .72). Five cut-off points were established for the interpretation: (1) No risk reported [0], (2) Low drug use [1-5], (3) Moderate drug use [6-10], (4) Substantial drug use [11-15] and (5) Heavy drug use [16-20].

Suicide risk was identified with a specially designed questionnaire based on the proposals of González-Forteza et al. (1998) and Hermosillo-De la Torre et al. (2020). For this study, only the following question was considered: Have you ever hurt yourself, cut yourself, intoxicated or hurt yourself on purpose to cause your death? The response format is dichotomous: Yes (1) and No (0).

### Procedure

An official letter inviting respondents to participate in the data collection was sent to the ninety-nine HEIs accredited by the CNEIP in the six regions. Sixty-two HEIs were located in the following regions: South Southeast (Veracruz, Puebla, Yucatán, Chiapas, Tabasco, Tlaxcala, Campeche and Quintana Roo), North-West (Chihuahua, Baja California, Sonora and Sinaloa), North-East (Tamaulipas, Durango, Coahuila, Nuevo León, San Luis Potosí and Zacatecas), Central-West (Guanajuato, Jalisco, Colima, Aguascalientes, Michoacán and Nayarit), Central-South (State of Mexico, Morelos, Querétaro and Hidalgo) and Metropolitan (State of Mexico and Mexico City). The link to these psychometric tests (comprising the instruments described in the corresponding section), contained in an online form, was sent out to be distributed by the CNEIP institutional representatives and answered electronically by the psychology students who gave their informed consent and voluntarily agreed to participate. The scales were administered from April to June 2021.

### Statistical analysis

Descriptive, frequency, and bivariate analyses were performed. For the latter, logistic regression was used with the INTRODUCE method, which involves incorporating both the dependent variable (suicide risk) and the independent ones (hopelessness, anxiety, stress, depression, drug use, gender, age, and region). Odds ratios with a 95% confidence interval (CI) were obtained. Hosmer-Lemeshow and Cox and Snell's $R^2$ and Nagelkerke's $R^2$ tests were used to fit the regression model. The reliability of the scales was calculated with Cronbach's alpha. SPSS version 24 software was used to conduct all the analyses (SPSS Inc., Chicago, IL, USA).

### Ethical considerations

This study has been endorsed by the Bioethics Committee of the University Center of Tonalá of the University of Guadalajara (folio CB-00002 and protocol: F-2021-004), which declares that human rights were respected, as provided by the General Health Act and the Helsinki principles.

## RESULTS

The results show that 19.9% of the sample reported attempting suicide, 85.1% (*n* = 582) of whom were women and 14.9% (*n* = 102) men. These differences were statistically significant ($p < .001$) in regard to lifetime suicide attempts. Self-efficacy was included as a protective factor, since men reported a higher proportion of high self-efficacy (29.8%) than women (24.9%), with these differences being significant ($p < .001$).

Of the total sample, 36.4% reported some level of drug use. Likewise, 40.2% reported moderate to extreme stress, 50.1% anxiety and 40.7% depression, 74.1% reported medium to high emotional dysregulation, 30.2% moderate to severe hopelessness and 32.9% low self-efficacy. Depres-

sion, anxiety, stress, hopelessness, emotional dysregulation, and drug use were included as risk factors for suicide attempts. Women scored higher than men on all risk factors, except hopelessness. All these differences are statistically significant (Table 1).

The region with the highest level of self-efficacy (the states comprising each region were described in the procedure) was the South-Central region (43.2%), followed by the Northeast (28.3%), South Southeast (25.3%), Central West (24.8%), Northwest (24.5%) and Metropolitan region (24%). In regard to suicide attempts, the region with the highest reported prevalence was the Metropolitan Region (28.5%), followed by the Central West (22.4%), Northwest (20.9%), Northeast (18%), South Southeast (16.7%), and Central South (14.4%) respectively. In both cases (self-efficacy and suicide attempts), the differences were statistically significant ($p < .001$). Conversely, the Metropolitan region scored higher in anxiety, depression, and emotional dysregulation (Table 2).

Table 1
*Prevalence of drug use, stress, depression, anxiety, emotional dysregulation, and hopelessness differentiated by sex (n = 3438)*

| | *Men* | | *Women* | | |
|---|---|---|---|---|---|
| | *N* | *%* | *N* | *%* | *p value* |
| Drug use | | | | | |
| Did not report drug use | 439 | 56.9 | 1747 | 65.6 | < .001 |
| Low drug use | 307 | 39.8 | 882 | 33.1 | |
| Moderate drug use | 18 | 2.3 | 33 | 1.2 | |
| Substantial drug use | 6 | 0.8 | 1 | 0.0 | |
| Heavy drug use | 1 | 0.1 | 2 | 0.1 | |
| Stress | | | | | |
| No stress | 434 | 56.3 | 1236 | 46.3 | < .001 |
| Mild stress | 89 | 11.5 | 297 | 11.1 | |
| Moderate stress | 115 | 14.9 | 455 | 17.1 | |
| Severe stress | 100 | 13.0 | 447 | 16.8 | |
| Extreme stress | 33 | 4.3 | 232 | 8.7 | |
| Anxiety | | | | | |
| No anxiety | 396 | 51.4 | 1027 | 38.5 | < .001 |
| Mild anxiety | 67 | 8.7 | 225 | 8.4 | |
| Moderate anxiety | 130 | 16.9 | 485 | 18.2 | |
| Severe anxiety | 73 | 9.5 | 213 | 8.0 | |
| Extreme anxiety | 105 | 13.6 | 717 | 26.9 | |
| Depression | | | | | |
| No depression | 388 | 50.3 | 1262 | 47.3 | < .001 |
| Mild depression | 108 | 14.0 | 282 | 10.6 | |
| Moderate depression | 130 | 16.9 | 519 | 19.5 | |
| Severe depression | 71 | 9.2 | 242 | 9.1 | |
| Extreme depression | 74 | 9.6 | 362 | 13.6 | |
| Emotional dysregulation | | | | | |
| Low dysregulation | 239 | 31.0 | 652 | 24.4 | < .001 |
| Moderate dysregulation | 396 | 51.4 | 1284 | 48.1 | |
| High dysregulation | 136 | 17.6 | 731 | 27.4 | |
| Hopelessness | | | | | |
| No hopelessness | 184 | 23.9 | 822 | 30.8 | < .001 |
| Low hopelessness | 314 | 40.7 | 1078 | 40.4 | |
| Moderate hopelessness | 213 | 27.6 | 568 | 21.3 | |
| High hopelessness | 60 | 7.8 | 199 | 7.5 | |

Table 3 shows that sex, hopelessness, depression, anxiety, stress, and drug use influence suicide attempts. One unexpected result was that in this sample, self-efficacy was not a protective factor. The same was true of marital status and region, because of which these variables were excluded from the final model.

The best-fit logistic regression model (Table 3) shows that the variables with the greatest effect on suicide attempts were drug use (95% CI, OR 1.897 LI 1.619 – LS 2.222), sex (95% CI, OR 1,756 LI 1,374 – LS 2,244), anxiety (95% CI, OR 1,218 LI 1,121 – LS 1,323), hopelessness (95% CI, OR 1,209 LI 1,070 – LS 1,365), depression (95% CI, OR 1,756 LI 1,180 – LS 1,298) and stress (95% CI, OR 1.050 LI .950 – LS 1.161). The variables with the lowest effect were age and self-efficacy, which were not eliminated from the model because the goodness of fit decreased. This model explains 17.2% of the variability of suicide attempts.

## DISCUSSION AND CONCLUSION

The objective of the study was to determine the effect of hopelessness, depression, anxiety, stress, drug use, and self-efficacy on suicide attempts in Mexican psychology students. This objective assumed that during lockdown and social isolation, mental health problems, particularly depression, anxiety, and suicide risk, increased (Winkler et al., 2020). In this study, there was no benchmark to be able

Table 2
*Prevalence of drug use, stress, anxiety, depression, and emotional dysregulation by CNEIP region*

| | Central West | | Northeast | | South-Central | | Northwest | | South Southeast | | Metropolitan | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *N* | *%* | *N* | *%* | *N* | *%* | *N* | *%* | *N* | *%* | *N* | *%* | *p value* |
| Drug use | | | | | | | | | | | | | |
| Did not report use | 448 | 63.0 | 267 | 60.5 | 100 | 71.9 | 539 | 61.8 | 667 | 66.6 | 165 | 60.9 | .064 |
| Low drug use | 245 | 34.5 | 170 | 38.5 | 39 | 28.1 | 319 | 36.6 | 319 | 31.8 | 97 | 25.8 | |
| Moderate drug use | 13 | 1.8 | 4 | .9 | 0 | .0 | 12 | 1.4 | 13 | 1.3 | 9 | 3.3 | |
| Substantial drug use | 3 | 0.4 | 0 | .0 | 0 | .0 | 1 | .1 | 3 | .3 | 0 | .0 | |
| Heavy drug use | 2 | 0.3 | 0 | .0 | 0 | .0 | 1 | .1 | 0 | .0 | 0 | .0 | |
| Stress | | | | | | | | | | | | | |
| No stress | 350 | 49.2 | 227 | 51.5 | 87 | 62.6 | 422 | 48.4 | 474 | 47.3 | 110 | 40.3 | .022 |
| Mild stress | 83 | 11.7 | 43 | 9.8 | 12 | 8.6 | 97 | 11.1 | 118 | 11.8 | 33 | 12.1 | |
| Moderate stress | 113 | 15.9 | 80 | 18.1 | 17 | 12.2 | 130 | 14.9 | 178 | 17.8 | 52 | 19.0 | |
| Severe stress | 103 | 14.5 | 65 | 14.7 | 14 | 10.1 | 147 | 16.9 | 158 | 15.8 | 60 | 22.0 | |
| Extreme stress | 62 | 8.7 | 26 | 5.9 | 9 | 6.5 | 76 | 8.7 | 74 | 7.4 | 18 | 6.6 | |
| Anxiety | | | | | | | | | | | | | |
| No anxiety | 285 | 40.1 | 195 | 44.2 | 77 | 55.4 | 324 | 37.2 | 444 | 44.3 | 98 | 35.9 | .004 |
| Mild anxiety | 69 | 9.7 | 33 | 7.5 | 10 | 7.2 | 71 | 8.1 | 82 | 8.2 | 27 | 9.9 | |
| Moderate anxiety | 139 | 19.5 | 83 | 18.8 | 19 | 13.7 | 160 | 18.3 | 170 | 17.0 | 44 | 16.1 | |
| Severe anxiety | 52 | 7.3 | 29 | 6.6 | 6 | 4.3 | 78 | 8.9 | 89 | 8.9 | 32 | 11.7 | |
| Extreme anxiety | 166 | 23.3 | 101 | 22.9 | 27 | 19.4 | 239 | 27.4 | 217 | 21.7 | 72 | 26.4 | |
| Depression | | | | | | | | | | | | | |
| No depression | 349 | 49.1 | 230 | 52.2 | 88 | 63.3 | 386 | 44.3 | 482 | 48.1 | 115 | 42.1 | < .001 |
| Mild depression | 85 | 12.0 | 37 | 8.4 | 14 | 10.1 | 89 | 10.2 | 122 | 12.2 | 43 | 15.8 | |
| Moderate depression | 129 | 18.1 | 82 | 18.6 | 18 | 12.9 | 198 | 22.7 | 176 | 17.6 | 46 | 16.8 | |
| Severe depression | 69 | 9.7 | 43 | 9.8 | 5 | 3.6 | 77 | 8.8 | 92 | 9.2 | 27 | 9.9 | |
| Extreme depression | 79 | 11.1 | 49 | 11.1 | 14 | 10.1 | 122 | 14.0 | 130 | 13.0 | 42 | 15.4 | |
| Emotional dysregulation | | | | | | | | | | | | | |
| Low dysregulation | 184 | 25.9 | 130 | 29.5 | 50 | 36.0 | 198 | 22.7 | 275 | 27.4 | 54 | 19.8 | < .001 |
| Moderate dysregulation | 359 | 50.5 | 206 | 46.7 | 70 | 50.4 | 429 | 49.2 | 488 | 48.7 | 128 | 46.9 | |
| High dysregulation | 168 | 23.6 | 105 | 23.8 | 19 | 13.7 | 245 | 28.1 | 239 | 23.9 | 91 | 33.3 | |

*Note*: *p*-value was obtained using Chi square.

Table 3
*Logistic regression model for sex, age, hopelessness, depression, anxiety, stress, self-efficacy, and drug use with respect to suicide attempts*

| | *B* | *Standard error* | *Wald* | *gl* | *Sig.* | *OR* | *95% CI* | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | *Lower* | *Higher* |
| Sex | .563 | .125 | 20.223 | 1 | < .001 | 1.756 | 1.374 | 2.244 |
| Age | -.053 | .021 | 6.318 | 1 | .012 | .948 | .910 | .988 |
| Hopelessness | .190 | .062 | 9.321 | 1 | .002 | 1.209 | 1.070 | 1.365 |
| Depression | .166 | .049 | 11.506 | 1 | .001 | 1.180 | 1.072 | 1.298 |
| Anxiety | .197 | .042 | 21.825 | 1 | < .000 | 1.218 | 1.121 | 1.323 |
| Stress | .049 | .051 | .924 | 1 | .336 | 1.050 | .950 | 1.161 |
| Self-efficacy | -.110 | .070 | 2.473 | 1 | .116 | .896 | .782 | 1.027 |
| Drug use | .640 | .081 | 62.892 | 1 | < .001 | 1.897 | 1.619 | 2.222 |
| Constant | -3.193 | .552 | 33.490 | 1 | < .001 | .041 | | |

*Note*: OR = *odds ratio*; CI = confidence interval at 95%; *Hosmer-Lemeshow*: $X^2$ 16.5 and *p* = .036. $R^2$ of Cox & Snell.108 $R^2$ of Nagelkerke .172.

to calculate the increase or decrease in mental health problems in psychology students. Nevertheless, high levels of emotional dysregulation, anxiety, depression, stress, hopelessness, and low self-efficacy were found.

A total of 74.1% reported medium to high emotional dysregulation, which could be a risk factor for suicide attempts, anxiety, depression, stress, and hopelessness (Landa-Blanco et al., 2022; García et al., 2021; Rábago et al., 2019). It is therefore essential to consider emotional dysregulation when designing interventions to reduce suicide risk since these factors have been found to directly influence suicide attempts. The research results are consistent with others reporting a high prevalence of anxiety, depression, stress, and hopelessness (Carbonell et al., 2019; García et al., 2021; Landa-Blanco et al., 2022; Rábago et al., 2019; Santana Campas et al., 2022).

The results of this research showed that sex influences the development of mental health problems such as stress, anxiety, depression, drug use, and emotional dysregulation, which are more common in women than in men (only in hopelessness did men show higher values). Although López (2018) and García et al. (2021) found no differences in the analysis of prevalence by sex, other researcher has found differences between men and women (Abdu et al., 2020; Benjet et al., 2019; Marraccini et al., 2019; Miranda-Mendizabal et al., 2019; Santana Campas et al., 2022; Quarshie et al., 2022), consistent with the findings of this study. Although these differences between the sexes had already been identified prior to COVID-19 and attributed, among other factors, to sociocultural issues, they may have been accentuated during the pandemic. It would be worth inquiring about the specific repercussions of lockdown on women.

Some research has reported that self-efficacy is a protective factor against suicide risk (Ceballos-Ospino et al., 2015; Domínguez-Mercado et al., 2016; Gómez-Acosta, 2018; Gómez Tabares et al., 2020; Palacios Jimenez, 2018). An unexpected result of this research was that it did not prove to be a protective factor, even though only 32.9% of the respondents presented low self-efficacy. Of the participants who mentioned previous suicide attempts, 47.1% scored low on self-efficacy and 16.1% high, which is significant. Likewise, stress proved not to be a significant risk factor for suicide attempts.

The results show that in the woman the risk of attempting suicide increases by a factor of up to 2,244, drug use increases it by up to 2,222, followed by hopelessness (which increases the risk of suicide attempts 1,365-fold), anxiety (which increases the risk of attempting suicide by a factor of 1,323), and depression (which increases the risk of suicide attempts by a factor of 1,298). Although a higher prevalence of anxiety, stress, and emotional dysregulation was found in the metropolitan region (State of Mexico and Mexico City), it was not very different from the prevalence observed in the remaining regions. Mental health problems in psychology students in Mexico can therefore be considered as similar across the country regardless of the area or cultural and social factors.

One of the limitations of the study is the non-probabilistic sample affecting the generalizability of results and the fact that the questionnaire was administered electronically, making it impossible to resolve doubts or questions from the participants. Contextual factors such as the emotional effects of the pandemic could have biased the results obtained. In addition, other contextual variables in Mexico that may influence suicidal behavior, such as violence, financial difficulties, or the use of social networks by young people, were not considered and would be relevant in future studies. Higher Education Institutions should support mental health programs for students in general, particularly those enrolled in health areas, including psychology. In addition to need-

ing support, these students will one day be responsible for providing mental health care for society.

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## Conflict of interest

The authors declare they have no conflicts of interest.

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# Predictive Factors for Suicidal Behaviors among University Students in the North-Central Region of Mexico

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## ABSTRACT

**Introduction.** Suicide is a public health problem with multifactorial etiology affecting all age groups. In Mexico, the suicide rate was 6.5 suicides per 100,000 population in 2021. **Objective.** To determine the predictive factors for suicidal behaviors (SB) in college students in the north-central region of Mexico. **Method.** A descriptive, comparative, analytical study was conducted of 1,147 randomly selected college students. Sociodemographic data, alcohol consumption (AC), perceived stress (PS), social support (SS) and suicidal behavior (SB), suicidal ideation (SI), suicide attempt (SA) and suicide risk (SR) were measured. Data analysis in SPSS included descriptive and inferential statistics. **Results.** The mean age of study participants was 20.2 years, with a female predominance (82.2%). Prevalence rates for SB were 62% for SI, 14.9% for SA, and 18.3% for SR. In regard to predictive factors for SB, risky, harmful, or dependent AC increased SR 1.7-fold [1.071-2.926]. At the same time, not having SS increased the risk of SI, SA, and SR by a factor of 2.4 [1.843-3.246], 2.7 [1.890-4.123], and 3.6 respectively. Higher PS increased the risk of SI, SA, and SR by a factor of 5.6 [4.209-7.538], 3.1[2.103-4.663] and 6.4 [4.184-9.826] respectively. PS and lack of SS predict SB in both sexes and across all states. **Discussion and Conclusion.** The results show the importance of mental health care, in both epidemiologically risky situations and everyday life, together with the early identification, and timely, effective treatment of suicide risk factors in university students.

**Keywords:** University students, alcohol consumption, perceived stress, social support, suicidal behaviors.

## RESUMEN

**Introducción.** El suicidio, problema de salud pública de etiología multifactorial que afecta a todos grupos de edad. En México, la tasa en 2021 fue de 6.5 suicidios por cada 100,000 habitantes. **Objetivo.** Determinar factores predictores de conductas suicidas (CS) en estudiantes universitarios de la Región Norte-Centro de México. **Método.** Estudio descriptivo, comparativo y analítico, realizado en 1147 estudiantes universitarios, seleccionados aleatoriamente. Se midieron datos sociodemográficos, consumo de alcohol (CA), estrés percibido (EP), apoyo social (AS) y CS (ideación suicida [IS], intento suicida [SA] y riesgo suicida [RS]). Análisis de datos en SPSS, incluyó estadística descriptiva e inferencial. **Resultados.** Edad promedio 20.2 años, género femenino 82.2%. En la prevalencia de CS, el 62% mostró IdS, 14.9% con InS, y 18.3% con RS. Respecto a los factores predictores de CS, el CA de riesgo, perjudicial o dependiente aumentó 1.7 [1.071-2.926] veces el RS. Por otra parte, el no contar con AS aumentó 2.4 [1.843-3.246], 2.7 [1.890-4.123], y 3.6 veces el riesgo de IdS, InS y RS respectivamente; a mayor EP, aumentó 5.6 [4.209-7.538], 3.1 [2.103-4.663] y 6.4 [4.184-9.826] veces el riesgo de IdS, InS y RS respectivamente. El EP y la falta AS predicen las CS en ambos géneros y en todos los estados. **Discusión y conclusión.** Los resultados evidencian la importancia del cuidado de la salud mental de manera cotidiana, así como la identificación temprana, tratamiento oportuno y efectivo de factores de riesgo de suicidio en universitarios.

**Palabras clave:** Estudiantes universitarios, consumo de alcohol, estrés percibido, apoyo social, conductas suicidas.

## INTRODUCTION

According to the World Health Organization (WHO), mental health conditions constitute a worldwide public health problem, as they can affect all age groups at any stage of life, increasing susceptibility to other mental disorders such as anxiety, depression, and suicide (WHO, 2022). According to WHO, suicide represents the fourth leading cause of overall mortality in young people ages 15-29, affecting males and populations with low to middle socioeconomic status to a greater extent (WHO, 2021a). Studies analyzing suicide mortality trends in different world regions have found that suicide rates in the Americas have increased by 17% over the past two decades (WHO, 2021b).

In Mexico, statistics published by the Instituto Nacional de Estadística, Geografía e Informática (INEGI, 2022) show that the general suicide rate was 6.5 suicides per 100,000 population in 2021. These rates have increased in recent years since suicide mortality for the 15-29 age group was 12.4 in 2015, rising to 16.2 in 2021. Likewise, in 2015, the suicide rate for women in this age group was 3.9, increasing to 4.8 per 100,000 population in 2021. Suicide remains one of the leading causes of mortality in the group ages 15-24. In 2022, it ranked as the third leading cause of overall mortality in this age group. When analyzed by sex, it was the third highest cause of death in men and the fourth highest in women (INEGI, 2023).

Prior to death by suicide, young people go through various stages, in which they display suicidal behaviors, suicidal ideas are already present, and a considerable percentage already have plans for how to commit suicide and even attempt it (Voss et al., 2019). High prevalences of suicidal behaviors have been reported among the adolescent population, including both SI and SA, which fluctuate between 9% and 77% (Hernández-Bello et al., 2020).

The multifactorial origin of SB is well documented. Associated variables include personal, familial, and psychological characteristics, such as AC, SS, and stress (Camargo et al., 2021; Hirsch et al., 2019).

Among personal characteristics, AC has gained prominence given its easy availability, prompting the early onset of consumption at increasingly young ages, which in turn predicts greater vulnerability to harmful consumption (WHO, 2022). Likewise, AC is one of the main risk factors for developing SB such as SI and SA, since it has been reported that with AC, the probability of presenting SI increases 2.6 times (Asfaw et al., 2020), raising the probability of developing suicidal behavior to 30% (Hernández-Bello et al., 2020).

In regard to family factors, the literature reports that family function can either serve as a protective or a risk factor for several unhealthy behaviors, and a determinant of suicidal behaviors. Some authors have reported that a high prevalence of severe dysfunctionality, a poor relationship with one's parents and a perceived lack of family support, increases the risk of suicidal behavior in adolescents up to tenfold (Hernández-Bello et al., 2020). Likewise, young people with poor SS have up to 2.57 times the risk of SI (Asfaw et al., 2020). Poor communication with parents and in family life increases suicide risk up to 3.9 times (Hidalgo-Rasmussen et al., 2019). Conversely, having SS, good family relationships, positive communication with one's parents and the support of friends, has proved to be associated with a lower risk of suicide (Camargo et al., 2021).

One psychological characteristic, which is a significant risk factor associated with SB, is stress levels. Stress levels tends to be higher in the case of college students since some are still teenagers, yet have to cope with the complexity and responsibility of their university studies, including an excessive number of assignments. Several authors have reported high stress levels in this population, including the association existing between stress levels and SB (Lew et al., 2019; López-García et al., 2016; Restrepo et al., 2018).

There is compelling evidence that in college students. the combination of various factors such as AC, high stress levels, and some degree of family dysfunction predicts a higher percentage of SB (suicidal thoughts, SI, SA), which could lead to suicide. It is therefore essential for public health to examine the prevalence of these mental health problems in this population (Camargo et al., 2021; González Sancho & Picado, 2020; Hernández-Bello et al., 2020; Louzán & López, 2021; Soto et al., 2020). Accordingly, the purpose of this study was to determine predictive factors (AC, SS, PS) for SB in college students in the north-central region of Mexico.

## METHOD

### Study design and sample description

This was a descriptive, comparative and analytical study. The study population comprised 4,167 undergraduate nursing students from four states in the north-central zone of Mexico (Nuevo León, Durango, Zacatecas, and Coahuila). The final sample consisted of 1147 university students, (Nuevo León = 282; Durango = 210, Zacatecas = 399, Coahuila = 256) selected using a systematic random sample, considering the lists of enrolled students with institutional emails provided by the Registrar's Office as the sampling frame. The calculation considered an estimation error of .05, a confidence interval of 95% and a non-response rate of 9%.

Eligibility criteria were being apparently healthy students, identified by answering a filter question in which they stated that they did not have a medically diagnosed disease, being enrolled in the first to the eighth semester of their undergraduate program, and being at least 18 years old.

### Measurements

To measure the variables of interest, the following instruments were applied and transcribed into a Microsoft Forms form:

- *Data questionnaire*. This contains information on the state of residence, university, sex, age, marital status, number of children, semester, occupation, whether they worked as well as studied, the number of working hours per week; people whom they were living with at the time of the survey, main form of financial support, as well as the availability of internet and electronic devices to work from home.
- *Okasha's Suicidality Scale (OSS)*. This scale for measuring SB comprises four items covering the past twelve months. The first three items assess SI scored from zero to three (0 = never to 3 = often). The fourth item assesses SA: (no attempt = 0, one attempt = 1, two attempts = 2, three or more attempts = 3). The total scale score ranges from zero to 12, with higher scores indicating greater severity. Values above the 50th percentile were considered to indicate SR. The reliability obtained was .90 (Campo-Arias et al., 2019).
- *CAGE Questionnaire*. This scale detects alcohol dependence through four items with dichotomous yes/no responses. Answers are scored from zero to one = social drinker, two = risky consumption, three = harmful consumption and four = alcohol dependence. The scale has a reliability of .65 (Campo-Arias et al., 2009).
- *Perceived Stress Scale (EPP-10)*. This scale consists of ten items exploring the stress levels experienced in the past month. Response options range from zero = never to four = very often. The higher the score, the greater the stress. Scores above the 50th percentile were regarded as indicators of stress. Reliability was .83 (Campo-Arias et al., 2014).
- *Family and Friends Social Support Scale (AFA-R)*. This scale consists of fifteen items, divided into two subdimensions. The first one measures family support with eight questions (1, 3, 5, 7, 9, 11, 13 and 14) while the second measures friends with seven items (2, 4, 6, 8, 10, 12 and 15). The response option is a Likert-type scale with five options ranging from one = never to five = always. The higher the score, the greater the social support. Values above the 50th percentile were regarded as indicators of social support. The Cronbach's alpha was .94 (González & Landero, 2014).

### Procedure

Data collection began with, authorization was requested from each of the directors of the selected schools. The lists of students enrolled in the August-December 2021 semester were subsequently requested to select the participants. These students were contacted by one of their professors, who also explained the purpose of the study and sent them an email with a link where they could sign the informed consent form electronically and then answer the questionnaires.

### Statistical analysis

The data was captured and analyzed in the SPSS version 25 statistical package. Descriptive statistics were used to characterize the population. The Kolmogorov Smirnov test was used to identify the data distribution. The Mann Whitney U and Kruskal Wallis tests were used to compare suicidal behaviors by gender and state. A forward stepwise logistic regression was used to identify predictive factors for SB (SI, SA, and SR). For all analyses, the statistical significance level adopted was equal to or less than .05.

### Ethical considerations

The study adhered to the guidelines established in the Helsinki Code. It was approved by the Research Committee (FAENUS-CI-EX-2021-07) and Research Ethics Committee (FAENUS-CEI-EXT-2021-01) of the Nursing Faculty, Saltillo Campus of the Autonomous University of Coahuila, and it was also valid for the rest of the universities included in the study. All students received informed consent forms explaining that their participation was voluntary and confidential, and that they could withdraw from the study whenever they wished.

## RESULTS

The final sample consisted of 1,147 undergraduate nursing students from five universities in the north-central zone of Mexico (Coahuila, Durango, Nuevo Leon, and Zacatecas) with an average age of 20.2 (SD = 2.4), 82.2% of whom were female and the rest male.

In regard to predictive factors for SB, 51.9% reported having SS from family and friends, while 48.4% perceived themselves as being stressed. As for alcohol consumption, 91.1% self-identified as social drinkers, 5.7% as having risky consumption, 2.9% as having harmful consumption and .3% as having alcohol dependence. Conversely, in regard to SB, 37.4% reported that they had never had suicidal thoughts; 57.3% had at some time thought that life was not worth it, 47.6% had at some time wished they were dead, while 33.8% had at some time thought of ending their lives. Prevalence rates were 62% for SI, 14.9% for SA, and 18.3% for SR. A comparison by sex showed that women obtained higher SI scores (U = 84.627; $p < .05$) and SR (U = 85.365; $p < .05$).

Table 1
*Comparison of Suicidal Behaviors among University Students by State*

| | *Mdn* | | | | | | |
|---|---|---|---|---|---|---|---|
| *Suicidal behavior* | *Coahuila N = 256* | *Durango N = 210* | *Nuevo León N = 299* | *Zacatecas N = 399* | $\chi^2$ | *df* | *p* |
| Suicidal ideation | 66.66 | 22.22 | 11.11 | 11.11 | 9.22 | 3 | .026 |
| Suicide attempt (%) | 19.9% | 12.4% | 15.2% | 12.8% | 7.57 | 3 | .052 |
| Suicide Risk | 16.66 | 16.66 | 24.83 | 8.33 | 9.34 | 3 | .025 |

*Note*: Mdn = Median; $\chi^2$ = Chi–square; df = degrees of freedom; Statistically significant at $p < .05$.

Table 2
*Logistic Regression of the Association between Alcohol Consumption, Social Support, Perceived Stress and Suicidal Behavior at Universities (N = 1147)*

| | *Suicidal behaviors* | | |
|---|---|---|---|
| *Variables* | *Suicidal ideation OR [95% CI]* | *Suicide attempts OR [95% CI]* | *Suicide risk OR [95% CI]* |
| Risky or dependent alcohol consumption | 1.664 [.985-2.813] | 1.583 [.947-2.648] | 1.770 [1.071-2.926]* |
| Lack of Social Support | 2.446 [1.843-3.246]** | 2.792 [1.890-4.123]** | 3.684 [2.505-5.418]** |
| Perceived Stress | 5.633 [4.209-7.538]** | 3.132 [2.103-4.663]** | 6.412 [4.184-9.826]** |

*Note*: OR: odds ratio; 95% CI: 95% Confidence interval for each OR. * Statistically significant at the < .05 level. ** Statistically significant at the < .001 level.

The Kruskall Wallis test was administered to compare SB by state. It found that university students from Coahuila obtained higher SI and SA scores, whereas those from Nuevo León showed higher levels of risk of suicide (Table 1).

When applying logistic regression to identify SB predictors, (SI, SA, and SR), it was found that risky, harmful or dependent AC, not having SS from family and friends, and a greater perception of stress are SR predictive factors with an explained variance of 27.7%; whereas for SI and SA, only the lack of SS and PS were significant, with an explained variance of 28.4% and 14.5% respectively (Table 2).

When analyzing the behavior of SB predictors by gender, it was found that the three predictive factors considered (AC, SS, and PS) were significant in women. In contrast, in men only the lack of SS as well as the highest PS were predictors of SB (Table 3).

Likewise, when assessing whether the predictors behaved the same by state, it was found that the SS of relatives and friends as well as PS continued to be predictors. However, risky or dependent AC was significant for SR in Nuevo León and for SI in Zacatecas (Table 4).

Table 3
*Logistic Regression of the Association between Alcohol Consumption, Social Support, Perceived Stress and Suicidal Behavior by Gender (N = 1147)*

| | *Suicidal behaviors* | | | | | |
|---|---|---|---|---|---|---|
| | *Suicidal ideation OR [95% CI]* | | *Suicide attempts OR [95% CI]* | | *Suicide risk OR [95% CI]* | |
| *Variables* | *Men* | *Women* | *Men* | *Women* | *Men* | *Women* |
| Risky or dependent alcohol consumption | .599 [.507 - 3.244] | 1.977 [1.028 - 3.804]* | 1.640 [.524 - 5.132] | 1.581 [.886 - 2.820] | 1.866 [.602 - 5.789] | 1.759 [1.002 - .089]* |
| Lack of social support | 1.993 [1.061 - 3.743]* | 2.608 [1.896 - 3.587]** | 3.214 [1.368 - 8.594]* | 2.721 [1.781 - 4.159]** | 3.654 [1.343 - 9.941]* | 3.702 [2.436 - 5.626]** |
| Perceived stress | 5.128 [2.595 - 10.132]** | 5.599 [4.051 - 7.738]** | 3.424 [1.186 - 8.711]** | 3.138 [2.017 - 4.884]** | 6.677 [2.515 - 17.725]** | 6.298 [3.911 - .142]** |

*Note*: OR: odds ratio; 95% CI: 95% Confidence interval for each OR. * Statistically significant at the < .05 level. ** Statistically significant at the < .001 level.

## DISCUSSION AND CONCLUSION

The objective of the study was to determine predictive factors for SB in college students in the north-central region of Mexico. In regard to SB, high prevalences were found, in both SI (62%), SA (14.9%) and SR (18.3%). As in other studies, when participants were compared by sex, women obtained higher scores. These data matches with what was reported in the review by Hernández-Bello et al. (2020), which states that, in studies conducted with the OSS, SA oscillated between 9% and 19.1%, and suicidal ideation between 45% and 77.2%. Likewise, 39% of the articles reviewed reported that being a woman is a risk factor related to SB, which coincides with the results shown in the systematic review by Zamorano-Espero et al. (2022) who report that in 33.3% of the studies analyzed, suicidal ideation is more frequently expressed in women than men.

In relation to the presence of suicidal behaviors by state, this study found that the states of Coahuila and Nuevo León have the greatest presence of SI and SA. This differs from the results of Rivera-Rivera et al. (2020) who, using a cross-sectional study and taking the 2018 National Health and Nutrition Survey as a reference, reported higher prevalences of SI in adolescents ages 10-19 in Zacatecas and Durango, as well as higher percentages of SA in Zacatecas. This is probably due to the ages of those in the group surveyed, which, in the aforementioned research, comprised those under 19. Conversely, the proximity of these states to the United States, a country in a region with high suicide rates (Cuesta-Revé, 2017), may have changed certain cultural beliefs regarding this issue in young people. However, follow-up studies should be conducted to assess changes in SB over time.

In regard to predictive factors, in this study population it was found that risky or dependent AC increased SI and SR in women in Zacatecas and Nuevo León, which is similar to what was reported by Machado et al. (2020) and Santos et al. (2017) who showed that AC is a risk factor for presenting SB. However, this differs from Aiartzaguena and Morentin (2022) who showed in a retrospective study that alcohol was more prevalent in men according to post-suicide autopsies. This difference in the findings may be due to the various metabolic factors that explain why the side effects of alcohol intake are more harmful in women.

Similarly, in the systematic reviews by Hernández-Bello et al. (2020) and Zamorano-Espero et al. (2022), the authors note that those with AC, especially those with health risks, are more likely to engage in SB. This matches with Andrade (2012), who notes that people who consume alcohol are more likely to present conditions that affect mental health and precipitate suicidal ideation and attempts. This association could be explained by the fact that when young people consume alcohol, it has a depressant

Table 4
*Logistic Regression of the Association between Alcohol Consumption, Social Support, Perceived Stress and Suicidal Behavior by State (N = 1147)*

| | *Suicidal behaviors* | | |
|---|---|---|---|
| *Variables* | *Suicidal ideation OR [95% CI]* | *Suicide attempts OR [95% CI]* | *Suicide risk OR [95% CI]* |
| Coahuila | | | |
| Risky or dependent alcohol consumption | .662 [.264-1.657] | 1.230 [.466-3.247] | 1.419 [.562-3.581] |
| Lack of social support | 3.154 [1.711-5.812]** | 3.769 [1.626-6.792]** | 3.392 [1.563-7.358]** |
| Perceived stress | 4.522 [2.444-8.368]** | 3.017 [1.340-6.792]** | 5.075 [2.221-11.598]** |
| Durango | | | |
| Risky or dependent alcohol consumption | .692 [.204-2.347] | .846 [.177-4.046] | .772 [.155-3.843] |
| Lack of social support | 3.823 [1.846-7.919]** | 1.961 [.807-4.765] | 4.310 [1.596-11.642]** |
| Perceived stress | 5.035 [2.545-9.962]** | 2.57 [.985-6.702] | 4.936 [1.578-15.437]** |
| Nuevo León | | | |
| Risky or dependent alcohol consumption | 3.850 [.921-16.085] | 3.158 [.977-10.211] | 3.838 [1.032-14.269]* |
| Lack of social support | 2.24 [1.254-4.004]** | 2.029 [.965-4.264] | 2.659 [1.270-5.569]** |
| Perceived stress | 9.038 [4.749-17.202]** | 3.444 [1.743-6.806]** | 10.370 [4.477-24.020]** |
| Zacatecas | | | |
| Risky or dependent alcohol consumption | 3.881 [1.502-10.028]** | 1.752 [.737-4.167] | 2.189 [.969-4.943] |
| Lack of social support | 1.949 [1.220-3.116]** | 3.621 [1.660-7.896]** | 6.820 [3.206-14.511]** |
| Perceived stress | 5.115 [3.154-8.296]** | 4.955 [2.207-11.126]** | 4.395 [2.161-8.939]** |

*Note*: OR: odds ratio; 95% CI: 95% Confidence interval for each OR. * Statistically significant at the < .05 level. ** Statistically significant at the < .001 level.

effect after ingestion that can exacerbate mood disorders such as anxiety and/or depression and therefore lead to the presence of SB (Rodríguez et al., 2014).

Consistent with previous studies, lack of SS was found to be a risk factor for SI, SA, and SR (Hernández-Bello et al., 2020; Hidalgo-Rasmussen et al., 2019; Núñez-Ariza et al., 2020; Torres Torija et al., 2022), in both sexes and across all states. In general, college students who perceived themselves as lacking SS had a 3.6 times higher risk of SR and a nearly threefold risk of SI or SA. This is probably associated with what was mentioned by Morales et al. (2017), in relation to the fact that perceiving that one has an integrated family group and having the support of family and friends is beneficial for the emotional health of adolescents. Social support can therefore serve as a mechanism that provides strategies and coping skills against SR (Viera Viera & Romero Serrano, 2022).

Conversely, stress levels have been associated with the prevalence of SB, such SI and SA (Hernández-Bello et al., 2020; Morales et al., 2021; Gómez et al., 2020). In this study, perceiving oneself as stressed increased the risk of SI, SA, and SR 5.6, 3.12, and 6.41 times, respectively. In agreement with what has been cited in other studies (López-García et al., 2016; Morales et al., 2021; Redhead, 2022; Sánchez-Villena, 2018), this study shows the impact of the prevalence of stress on SB, perhaps due to the hectic globalized society of immediacy and chaotic disposability. Due to the environment of stigmatization mental health in which young university students were born and developed, it is considered a weakness to externalize feelings associated with ineffective stress management, or to seek timely assistance for deteriorating mental health, which, in turn, increases the vulnerability to developing SB.

The statistics on the predictive factors for SB present in this population and the need to be able to use the admission profile to detect the psychosocial context in which students develop and to implement specific strategies to prevent suicide are obtained through the detection, monitoring and timely evaluation of people with risk behaviors. This points to the need for intervention programs within university tutorials that encourage the effective management of stress levels, harmful AC and SB.

Limitations of this study include the fact that data was collected at one point in time. It is therefore suggested that long-term studies and follow-up be conducted, and that educational or behavioral interventions be implemented to reduce the predictive factors for SB.

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### Conflict of interest

The authors declare they have no conflicts of interest.

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# Qualified Listening to Relatives of Users at a Psychosocial Care Center

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## ABSTRACT

**Introduction.** The Psychiatric Reform introduced a new people-centered care model to replace psychiatric hospitals: the Psychosocial Care Center. Qualified listening can be used to achieve the integrality and humanization of the health care provided. It allows for the appreciation of content, the respect of its uniqueness, empathy, and the promotion of a space in which freedom of expression is provided. **Objective.** To identify the understanding of qualified listening from the perspective of the relative of a person with a mental disorder at a Psychosocial Care Center. **Method.** Qualitative, descriptive, exploratory study. Ten relatives over the age of 18 participated, contributing to the production of information. Data was obtained through the triangulation method, through semi-structured individual and collective interviews, observation, and field diary records. **Results.** For relatives, qualified listening translates into clarifying the illness, understanding the family's painful situation and providing help and support during the psychosocial rehabilitation process. **Discussion and conclusion.** Listening constitutes a means of consolidating care networks, through the strengthening of bonds and co-responsibility, in a centered and expanded family-user logic model.

**Keywords:** Qualified listening, family, mental health, interpersonal relations.

## RESUMEN

**Introducción.** La Reforma Psiquiátrica introdujo un nuevo modelo de atención, reemplazando a los hospitales psiquiátricos y centrado en la persona, el Centro de Atención Psicosocial. Para lograr la integralidad y humanización del servicio de salud brindado, se puede utilizar la escucha calificada. Permite la valorización del contenido dicho, el respeto a su singularidad, la empatía y la promoción de un espacio en el que se brinda la libertad de expresión. **Objetivo.** Identificar la comprensión de la escucha calificada desde la perspectiva del familiar de una persona con trastorno mental en un Centro de Atención Psicosocial. **Método.** Estudio cualitativo, descriptivo y exploratorio. Participaron 10 familiares mayores de 18 años, aptos para contribuir a la producción de información. Datos obtenidos a través del método de triangulación, a través de entrevistas individuales y colectivas semiestructuradas, observación y registro en diario de campo. **Resultados.** Para el familiar, la escucha calificada se traduce en brindar aclaraciones sobre la enfermedad, comprender la situación de dolor de la familia y brindar ayuda y apoyo durante el proceso de rehabilitación psicosocial. **Discusión y conclusión.** El dispositivo de escucha constituye una forma de consolidación de las redes de cuidado, a través de la afirmación de los vínculos y la corresponsabilidad, en una lógica familia-usuario centrada y ampliada.

**Palabras clave:** Escucha cualificada, familia, salud mental, relaciones interpersonales.

## INTRODUCTION

The weakening of the care model centered on the psychiatric hospital in the political context of social struggles in the late 1970s contributed to the Brazilian Psychiatric Reform. This movement reframed mental health care through changes in government policies, health services and the enactment of laws (Alves et al., 2020).

The Psychiatric Reform introduced a new people-centered care model to replace psychiatric hospitals: the Psychosocial Care Center ((PCC) Portuguese acronym CAPS). PCCs and Mental Health Service are considered equivalent terms in the text of this article. The Psychosocial Care Network includes PCCs, defined in ascending order of size/complexity and population coverage (Ministério da Saúde, 2011; 2017).

This model seeks to go beyond the hospital-centered logic and create a care system focusing on welcoming and caring for people with mental disorders, considering (inter) subjective conditions, and life histories (Barbosa et al., 2020).

Under its anti-asylum perspective, mental healthcare involves the possibility of existing with difference, breaking away from practices of exclusion; and the search for the singularization of individual and collective life. Listening to others without judging them is one of the tools for achieving this (Almeida & Merhy, 2020).

The soft technology of qualified or sensitive listening can provide a metaphysical environment that goes beyond the physical body, with access to human subjectivity to achieve internal change. This is attained by listening to feelings of happiness, sadness, euphoria, pain, and anguish, with full respect for the person speaking and valuing every word spoken.

This soft technology, used to enhance encounters with the other, involves empathy, recognition and knowledge drawn from experience and managed through the encounter (Merhy et al., 2019).

Qualified listening comprises moments when one person listens to another and as a result, the latter listens to themself, creating further reflection and awareness (Dell'Olio et al., 2023).

Listening to patient preferences when making health care decisions is increasingly regarded as an essential element of evidence-based practice (Swift et al., 2021).

Qualified listening occurs when certain steps are followed. It involves listening carefully without interrupting the speaker, observing their verbal and nonverbal language, and focusing on their ideas, concerns, and expectations, so that the listener is better equipped to answer questions and identify techniques and technologies that will meet speaker's demands (Santos, 2019).

In this context, professional support for the relative of a person with a mental disorder should prioritize qualified listening because this makes it possible to evaluate spoken content, respect its uniqueness, empathize and provide a space guaranteeing freedom of expression. Thus, as the relative organizes their feelings and expresses them in discourse, the perception that they are with someone who is willing to listen to their story usually enables them to deal with the conflicts and difficulties experienced.

Given that the discourse of the relative who directly experiences the drawbacks of a family-user-service relationship has the potential to contribute to the improvement of health actions, this study is useful for encouraging the use of listening in Mental Health Services. The aim would be to provide subsidies for professionals to utilize this interpersonal relationship technology in the field of psychosocial care. The purpose of the research was to identify the understanding of qualified listening from the perspective of the relative of a person with a mental disorder, in other words, the relative's perception of qualified listening.

## METHOD

### Study design

Qualitative research, with a phenomenological, descriptive, and exploratory approach, making it possible to understand the meanings of qualified listening arising from the experiences of relatives, in the context of PCCs. The National Humanization Policy (NHP) of the Unified Health System of Brazil was used as a theoretical framework. The NHP recognizes that communication, empathy and listening strategies provide decent, humanized care (Santos et al., 2018).

The study has adopted the Consolidated Criteria for Reporting Qualitative Research (COREQ), a 32-item checklist for interviews and focus groups (Tong et al., 2007).

### Subjects/ sample description

Ten relatives over 18 contributed to the production of information for this research, in which their loved one had been using PCCs for over three months. This period provided scope for the experiences of a relative that permitted a sustained analysis of their understanding of qualified listening.

Although the relationship between a relative and users is common among families, ways of reacting to the exacerbation of an illness can vary. The participation of the family in PCCs enhances care, strengthening the bond with the user and the trust between them, enabling greater psychosocial rehabilitation. In addition, relatives are more likely to continue to use health services to obtain support and solution.

### Places

This study was conducted at a Psychosocial Care Center II, designed for young people and adults. These centers operate in municipalities with over 70,000 inhabitants, serving

people with severe, persistent mental disorders and those with needs due to the use of crack, alcohol and other substances, according to the organization of the local health network (Ministério da Saúde, 2011; 2017).

This PCC offers activities such as therapeutic workshops, family meetings, group care, individual care, management council meetings, home visits, active community searches, drug counseling and dispensing, referral to other services, awareness and training about the network. It is visited on a daily basis by professionals, users and relatives, and occasionally by professors and students in the field of health.

### Measurement instruments

The information was produced through the triangulation of individual in-depth interviews, direct observation, and field diaries. The individual interview technique was used with the research participants, guaranteeing them more privacy so they could comfortably express their experiences, emotions, and feelings.

This semi-structured interview was based on a script and designed to identify the point of view of participants, which allowed greater freedom of expression and more openness to interact with them. It made it easier for researchers to obtain the results required for their study. The interview was held at the PCC, in a cozy, private area, according to the availability of participants, and was scheduled ahead of time. The interview script was structured around guiding questions such as the following: what do you understand by qualified listening? how do you feel about being heard or not heard? and what effect does listening produce in you?

Interviews were recorded and filmed using a portable recorder and video camera, with the prior consent of the interviewees, and subsequently analyzed. Recording and filming ensured more reliable transcriptions and the observation of both verbal and non-verbal expressions (such as gesture, gaze, and facial expression). The content of the discourse was transcribed in full and subjected to further analysis.

The observation in this research was direct, structured, and systematized, with detailed notes, enhanced by filming and photographs. To achieve this, the following details were recorded: physical posture (way of looking, talking, walking, acting, body language), description of the scene (contribution, where you spend most of your time), description of the activities taking place at the time; relationship between user-family, professional-family, family-family; reflective analysis of listening by the observer; response to demands and needs.

### Procedure

Sampling was based on multiple cases, in the subclassification of the sample by contrast-saturation, according to the depth of the information collected and analyzed, which refers more to interview-based studies that can incorporate several cases, as these are analyzed in less detail (Poupart et al., 2008).

As the data was collected, and the recorded and filmed material of the interviews was explored, the theoretical saturation of the data was identified. This ensured that new elements or information were not added. This was also confirmed during a detailed reading of the data at the pre-analysis stage, as well as when the thematic categories were defined.

Data collection is considered saturated when no new elements are found and the addition of new information is not required, as it does not change the understanding of the phenomenon under study (Thiry-Cherques, 2009).

The semi-structured, face-to-face interviews were only administered by the nursing team of researchers, with no time limits. Each participant was interviewed once, according to the aims of the research. During the interviews, only the researchers and the participants were present. Neither the professional team nor the user were there, to ensure the privacy of the relative.

### Statistical analyses

The information was drawn from the experience of the relatives of PCC users. An analysis of this data was undertaken to identify the socio-demographic profile of the participants interviewed, essential to understanding the reality of the population studied.

The data was organized and systematized through content analysis and divided into categories that emerged from the discourse of interviewees, and convergent with the objective proposed in this research. It was analyzed in keeping with the Bardin (2016) method, involving three stages, namely pre-analysis, material exploration, and obtained results treatment and interpretation:

- *Pre-Analysis*: data organization stage, which involves systematizing the initial ideas, to create an accurate scheme of successive operations by arranging and organizing the data. The hypothesis and initial objectives of the research are recapitulated, creating indicators to guide the final interpretation. It will involve the following tasks: exhaustive readings of the content transcribed from the interviews, the creation of a corpus corresponding to norms of validity and the determination of the clippings, form of categorization and more general concepts that will guide the analysis.
- *Material exploration*: coding operations and compliance, according to previously established criteria. This stage involves classifying the data, and establishing the central ideas and empirical categories of the study.

- *Obtained results treatment and interpretation*: results are treated in a way that ensures they are significant and relevant. Inferences and interpretations are suggested, and a final analysis proposed of the theoretical and empirical material of the research, which is in keeping with the stated objectives. Results were discussed on the basis of the knowledge produced in the area.

Categories are rubrics or classes, bringing together a group of elements (or registration units, in the case of content analysis), under a generic title, based on the common characteristics of these elements (Bardin, 2016).

Five categories were found by regrouping meaning units, with themes that converged with qualified listening and divergent themes, identified as unqualified listening, associated with the proposed objective and interview script.

### Ethical considerations

The study adhered to the required ethical standards and was approved by the Research Ethics Committee of the Federal University of Alagoas, with process number 23065.010756/2009-54. Study participants received a Free, Prior and Informed Consent (FPIC) form detailing the objective of the research and the procedures and providing contact details of the researchers. The FPIC forms contained participants' signatures or fingerprints showing that they had had the purpose of the research explained to them and agreed to participate.

## RESULTS

Most of the relatives had used the service for three months to three years, were female, aged over 42, Christian, and single or in a stable relationship. They had an incomplete elementary education and earned one to two minimum wages.

Users had used the service for over three months, although most of them did not specify for how long. Most of the users were male, aged between 18 and 42, Evangelical, single or in a stable relationship, with an incomplete elementary education, and earned between half and one minimum wages.

Since this was qualitative research, no time limit was set for the interviews. Once the answers to the questions had been obtained, the interviews ended. The average length of the session time was approximately one hour, and no more than one hour and 30 minutes.

Among the testimonials of the relatives interviewed (identified in the statements as Relative, followed by a number), the following thematic categories were established for data organization: 1) How relatives understand qualified listening; 2) Suggestions of relatives for qualifying listening; 3) Why relatives feel they have not been listened to; 4) What happens to relatives when they feel listened to; 5) What happens to relatives when they do not feel listened to.

### Category 1 - How relatives understand qualified listening:

The professional's support serves as a help parameter for relatives.

> *"They are understanding, you know they support you when you need it, they talk. Sometimes they have more patience than people who are family" (Relative1).*

> *"I think it's very good (...) they have a lot of patience with her" (Relative 2).*

It seems that the paths to this listening foster sharing, exchange, and mutual commitment.

> *"They share a lot with us [...]. Because this is a family, you have to be with the doctors, the psychologists, the parents, the wives, the husbands. The children are together, they must always be together. So they listen to me and I try to take on board all the suggestions they make I also try to remember these and learn from them" (Relative 3).*

### Category 2 - Suggestions from a relative to qualify listening:

Families realize that a large number of professionals, as well as encouragement and mutual support, could qualify listening.

> *"Organize more, hire more people, to work, to help. It would be nice to have more people here, I would like to see more people here giving encouragement [...], coming here and talking to them, that's a beautiful thing, one thing supports the other. I think that is beautiful"* (Relative 4).

For the relative,

> *"That moment is a unique moment in our lives. [...] it's very important. Suddenly, it can be both the patient's improvement and ours as well"* (Relative 5).

As a relative notes in the following statement, the professional should offer them help and support.

> *"Every relative who comes to the PCC is suffering, so we need attention, and this exchange with the professional, because I think we come here, it is worth getting commitment like that. This exchange of experience encourages both the professional and the family to look after patients at home, you know?"* (Relative 6).

The relative still views therapeutic communication as providing more activities for the user.

> *"He's here doing something, something for him to learn, develop, for him to do. Professionals don't look at this, they must be with them twenty-four hours a day, providing attention, encouraging, playing, but this is missing a lot for them. There are times when they are idle, doing nothing, just sleeping, and wanting to eat"* (Relative 4).

The importance of more active participation of relative in PCCs.

> *"I see many people come in, and talk to the doctor; the family should be together. If there are two places here, it is to so they can have their mother or their father or their brother, but no, they come in alone. So, this is wrong, this I think is wrong, I don't agree with it; the family should be present here 24 hours a day"* (Relative 4).

### Category 3 - How relatives feel they have not been listened to:

The relative describes the sharing of information among professionals, the breach of ethical confidentiality, as a way of not feeling heard.

> *"I only talked to professional L once, I don't even remember her name now and she disappointed me[..] Isaid I was very agitated about professional L and she called me and I came here to tell a story that the woman already knew and I felt strange about that [...] I liked talking to her, I felt relieved"* (Relative 7).

### Category 4 - What happens to relatives when they feel listened to:

Sharing these moments of listening lifts a burden and makes people feel they are contributing to the treatment of their relative.

> *"When we go home, we feel lighter because we did something good for someone"* (Relative 5).

> *"When he is very sick, he only gets better if he comes here to talk to the psychologist [...] he becomes a different person"* (Relative 8).

Families are extremely grateful to the staff for their attitudes, unlike what happens when they are hospitalized.

> *"In '87 she had a crisis, and since then she has been hospitalized about eight times. Every time she comes here, she recovers at CAPS. I thank the staff and the team very much. I take care of her on my own I thank CAPS employees in general"* (Relative 9).

### Category 5 - What happens to relatives when they do not feel listened to:

Likewise, group therapy can create barriers for some, hampering free expression, requesting the guarantee of specifics.

> *"In the case of my son, he only feels good when it is him and the doctor. As a group, after this change* (individual appointments were replaced by group therapy) *he started to complain a lot saying that he didn't want to come here anymore"* (Relative 1).

The discourse of s relative shows concern about the lack of attention paid by some people towards their relative.

> *"I don't think I know, then I can't even ... There's no way to say ... There are times when I hear a lot of complaints ... even if it is hard for them to get her, you have to say how it is, look, today you will have this for you. So, there are times when they get upset, they criticize people a lot when they don't pay much attention to them"* (Relative 4).

The relative highlights the lack of listening by the other person, which constitutes another type of non-therapeutic listening, but if it happens. it can minimize the consequences on the relative caregiver's life.

> *"He's not 100% because I don't have support from my family. It's me, God, and him. The family doesn't want to help me, everyone says, 'Oh, I don't have time, I have work, I don't know what'Nobody really wants to help. So, it's just me, if it were like that, more family helping me would be better because he would have more support, he would spend more time with other people, he would be able to leave the room, I would take him for a walk, but nobody does that. He is just locked up at home."* (Relative 10).

The difficulty of accepting the relationship between a person without a mental disorder and a user of the Service.

> *"People ignored me, there were people who didn't support me, I found that very upsetting. They didn't support me, some were against me, it was very hurtful(...). A lot of people ignored me, didn't accept it, after they found out I was with her. So, this ... I felt bad. She felt bad too, she even talked and talked (...) it hurt her a lot. She felt bad too. To this day I'm a little ... hurt"* (Relative 4).

## DISCUSSION AND CONCLUSION

Data analysis has identified the Psychosocial Care Center as an environment that restores human lives and should adopt innovative care technologies (Clementino et al., 2017; Maynart et al., 2014). Qualified listening is considered a soft technology, which uses tools that value interpersonal relationships, a welcoming attitude and bonding.

Listening is regarded as an essential tool in mental health work. It is considered therapeutic as a health intervention strategy, providing guidance for professionals as regards the care provided. This listening allow an interpersonal relationship, through the availability of the professional to help, to be at the user's side at the moment when they need to express themselves (Santos et al., 2018).

Relatives understand qualified listening as support from a professional. Listening is portrayed as a way for the professional to deal with and understand that it translates into an apparent patience with the service user's family. In addition, it is associated with providing clarification about the illness, understanding the family's painful situation, and offering help and support during the psychosocial rehabilitation process.

The professional needs to be able to act with posture, and to be open to perform it, and it is used for the purpose of providing relief or solution to the health needs of the people involved in the process (Santos, 2019).

Furthermore, for the relative, it would appear that this type of listening prompts sharing, exchange, and mutual commitments. Living with and taking care of a relative with

a mental disorder is not easy, with tension increasing during times of crisis. Despite this difficulty, the relative makes an effort todeal with the issue. Thus, coexistence, constant observation, patience, love, the promotion of a peaceful environment and the way PCC professionals act are contributing to the family's ways of looking after the person who experiences mental suffering.

In the context of Psychosocial Care, a listening space should be provided in the PCC routine to support the relative, individually, to welcome them and as an instrument for seeking information and planning mental health care interventions (Rodovalho & Pegoraro, 2020).

The relative still regards therapeutic communication as providing more activities for the user. The professional should pay more attention to the user, so that they can develop, as relatives identify moments when they are idle and have no therapeutic activities.

The importance of more active participation by relatives in PCCs is highlighted by the relatives themselves. It is therefore necessary to support and include them in the caring process, to improve coexistence in society and in the mental health service itself, and to enable them to cope with the burden and feelings caused by looking after their loved ones (Ferreira et al., 2019).

In this context, relatives provide essential support as caregivers and do so willingly. At the same time, it is also seen as a responsibility with a potential impact on their everyday lives, such as stress symptoms, worry, anxiety and depression (Martins & Guanaes-Lorenzi, 2016; Kar, 2021).

The participation of relatives in PCCs is regarded as enhancing individual care, with emphasis being placed on the role of listening. Conversely, sharing information about the user among professionals can be considered a negative point. In qualified listening, there is an expectation of confidentiality. If this fails to occur, it creates a feeling of not being respected or listened to.

In this context, without qualified listening and sensitivity to the demands of the care-seekers, the forces that control users' ways of living predominate, and the choices of care projects, which mediate the capture of the live work and decrease porosity for the encounter (Merhy et al., 2019).

Many services are not responsible for the sequence of care, making it difficult to listen and contributing to poor service quality. This creates a sense of discomfort, suffering, insecurity, and a feeling of abandonment (Albuquerque et al., 2015).

Conversely, when relatives feel listened to, this relieves the burden on them and gives them the sense that they are contributing to the treatment of their relatives. Moreover, listening creates a sense of gratitude in family members.

Knowing how to listen is an important skill for a good understanding of the care and response to the underlying reasons leading a person to seek health service, especially if the listening is qualified. By listening to the other person, the professional shows they value them, and they will feel safe and respected (Albuquerque et al., 2015).

Effective listening creates new perspectives and alternatives for assisting a person, so that when a professional listens, they are also welcoming. This can help the person feel that they are capable of looking after their own health, both physical and mental. Although qualified listening may not obtain immediate answers, it can help the participant find pathways of possibility and resolution (Albuquerque et al., 2015).

This type of listening is different from the concept of hearing. When they engage in qualified listening, professionals uses instruments to perceive the emotions and feelings expressed, rather than just the words said. This listening considers discourse in context, understanding and respecting the person who uttered it (Pessoa et al., 2018).

Relatives also describe what happens when they do not feel listened to. They understand that changes in the way therapy is provided interfere with listening. For example, the individual therapy that was replaced with group therapy is mentioned. According to the relative, this change should not have occurred. They believe that it is better to guarantee individual therapy, because there are certain personal experiences the user does not feel comfortable sharing with other members of the group.

Furthermore, the lack of attention to users by professionals translates into unqualified listening or not listening, which can hamper the patient's recovery. The concentration of care in a single relative is also cited as a problem. The relative states that if the other members of the family group actively participated, as they do, the user would achieve a significant improvements in their treatment, as this would increase the possibility of socializing with other people.

The family is a crucial factor in the recovery of an individual with a mental disorder. It follows the moments of therapeutic evolution, crises at home and suffers together with the user. Thus, the same degree of attention and support given to the user should also be provided for the relative so that the latter becomes stronger and better equipped to help the service user.

The discourse of relatives shows that not having their choices or preferences accepted is associated with not feeling listened to. Listening to the preferences of the person and taking steps to accommodate them when making mental health care decisions can enhance treatment experiences and improve treatment outcomes. It should, therefore, become part of routine clinical practice (Swift et al., 2021).

Limitations of this study include the small sample of relatives of users of a mental health service, although the content has been analyzed in detail. It is worth considering that this is only part of the understanding of how qualified listening happens and how it is perceived, since this study only explores the perspective of relatives. Further studies on the subject will undoubtedly contribute to the consolidation of better quality, more extensive mental health care. In regard to

nursing, it raises the question about the use of qualified listening during nursing care practices in mental health services.

The idea of examining the concept of welcoming in PCCs through the qualitative understanding of qualified listening was prompted by the desire to understand its dynamics, the way the actors interact and the senses/meanings they construct in relation to their practice in this field of knowledge.

At the same time, the qualitative study is also a research method, which enabled those researched to participate in the study methodology procedures, and made it possible to explore the subjective experience. Oliveira (2007) conceptualizes qualitative research as a process of reflection and analysis of reality through the use of methods and techniques for a detailed understanding of the object of study in its historical context and/or according to its structure.

In conclusion, this type of listening provides access to the subjective human field, from the moment the professional engages in professional listening, as it produces a feeling of appreciation, understanding, trust and respect in the other person. When this type of listening fails to occur, when it is not qualified, it has the potential to create frustration and negative feelings, such as sadness, anguish, and a lack of confidence, weakening the psychosocial rehabilitation process. The remarks of relatives show a clear correlation between qualified listening and clarifications about illness, understanding the family's painful situation and offering help and support during the psychosocial rehabilitation process.

Qualified listening constitutes a means of consolidating care networks, through the strengthening of bonds and co-responsibility following the centered and expanded family-user logic. Through this subjective tool, it is possible to guarantee the bond required for the psychosocial rehabilitation of those comprising the family unit.

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### Conflict of interest

The authors declare that they have no conflicts of interest.

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# GUÍA PARA LOS AUTORES

La revista Salud Mental publica artículos originales sobre psiquiatría, psicología, neurociencias y disciplinas afines de acuerdo con los siguientes formatos:

1. **Editoriales**
   Se escriben por invitación del Director-Editor de la revista. Deben expresar opiniones autorizadas sobre temas específicos de interés para la comunidad científica y para el área de la salud mental. Su objetivo es estimular el debate y promover nuevas líneas de investigación. *Extensión máxima: 1000 palabras*.
2. **Artículos originales (sección revisada por pares)**
   Presentan resultados de investigaciones no publicados en otras revistas. Pueden desarrollarse a partir de las siguientes metodologías:
   - **Metodología cuantitativa:** Incluye resultados primarios y secundarios de estudios transversales, ensayos clínicos, casos y controles, cohortes y estudios cuasi experimentales. *Extensión máxima: 3500 palabras*.
     De acuerdo con el tipo de estudio, los manuscritos deben cumplir con las guías:
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     • Los estudios con diseños no experimentales, a las guías *TREND* (http://www.trend-statement.org).
     • Los estudios transversales, de cohorte, y de casos y controles, a la guía *STROBE* (http://www.strobe-statement.org).
   - **Metodología cualitativa:** Incluye reportes de grupos focales, entrevistas a profundidad, redes semánticas y análisis de contenido. *Extensión máxima: 5000 palabras*.
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   Deben cumplir con la guía *CASE REPORT* (https://www.care-statement.org/checklist)

*Nota*: El conteo de palabras para cada una de estas secciones excluye el título, los resúmenes y las palabras clave, así como los apartados de financiamiento, conflictos de interés y agradecimientos; tampoco se consideran las palabras incluidas en tablas, figuras y referencias.

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El número de autores dependerá del tipo de manuscrito enviado. Para artículos originales y artículos de revisión el número máximo de autores será de ocho. Solo cuando se trate de estudios multicéntricos el número máximo de autores será de doce, siempre y cuando se justifique de acuerdo con el alcance del estudio.

En caso de autoría colectiva, se incluirá el nombre de los redactores o responsables del trabajo seguido de «*y el grupo...*» cuando todos los miembros del grupo se consideren coautores del trabajo. Si se desea incluir el nombre del grupo, aunque no todos sus miembros sean considerados coautores, se mencionarán a los autores responsables seguido de *«en nombre del grupo...»* o *«por el grupo...»*. En cualquier caso, los nombres e instituciones de los miembros del grupo se incluirán en un anexo al final del manuscrito.

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Es muy importante que los autores consideren los siguientes puntos antes de enviar sus manuscritos:

1. Los manuscritos deben redactarse de forma clara y concisa, sin errores de ortografía ni de sintaxis.
2. El texto debe estar escrito en formato Word, en fuente Times New Roman de 12 puntos, a doble espacio, con márgenes de 2.5 cm. y en tamaño carta.
3. Las páginas se numeran consecutivamente, empezando por la página del título y con el número escrito en la esquina superior derecha.
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     Ejemplo:
     Juan José García-Urbina,[1]
     Héctor Valentín Esquivias Zavala[2]
     [1] Dirección de Investigaciones Epidemiológicas y Psicosociales, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México.
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- Al final de la primera página, en el apartado ***"Correspondencia"***, se proporcionarán los datos de contacto del autor corresponsal (dirección postal completa, teléfono, correo electrónico). Es con quien Salud Mental se comunicará durante todo el proceso editorial.

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  Tel: 55 4152-3624
  E-mail: jurb@imp.edu.mx

5. La segunda página debe contener los resúmenes del trabajo presentado en inglés y español. *Extensión máxima: 250 palabras.*
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   - ***Palabras clave.*** Al final de cada resumen se incluirá un mínimo de cuatro y un máximo de seis palabras clave, separadas por comas y en minúsculas. Las palabras clave deben ser las mismas en inglés y en español. Éstas suelen emplearse para la indexación de los artículos, por lo cual tres de ellas deben encontrarse en el MeSH (*Medical Subject Headings*) que se puede consultar en: *http://www.nlm.nih.gov/mesh/MBrowser.html*.
6. A partir de la tercera página comienza el cuerpo del manuscrito, el cual deberá conservar la estructura señalada en el resumen.
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     • Diseño del estudio
     • Participantes/descripción de la muestra
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     • Mediciones
     • Procedimientos
     • Análisis estadísticos
     • Lineamientos éticos.

*Nota*: En caso de los artículos de revisión y casos clínicos, estas secciones pueden ser modificadas de acuerdo con la guía PRISMA (revisiones sistemáticas o la guía CASE REPORT (casos clínicos).

   - **Resultados.** Se presentarán en una secuencia lógica dentro del texto. Pueden apoyarse con tablas, gráficas y figuras.
   - **Discusión y conclusión.** En esta sección se destacarán los aspectos nuevos e importantes del estudio y las conclusiones que derivan del mismo, así como las posibles implicaciones de sus hallazgos y sus limitaciones.
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     Ninguno.
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   - Las figuras deben enviarse en un formato de alta resolución (mínimo 300 dpi).
   - Los títulos de las tablas y los pies de las figuras deben ser claros, breves y llevar siempre el número correspondiente que los identifique. Dentro del texto, el autor debe indicar entre paréntesis y con mayúsculas en qué parte del texto sugiere insertar los elementos gráficos.

     Ejemplo:

     Se cambiaron las definiciones de algunos patrones conductuales (Tabla 3) de manera que fueran más comprensibles en el idioma español y se redefinieron las categorías que agrupan dichos patrones con base en la literatura especializada. (INSERTAR AQUÍ TABLA 3)

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1. Es importante que los manuscritos eviten en general las notas a pie de página, aunque se pueden considerar si son claramente necesarias.
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Para presentar los resultados se deben considerar las siguientes indicaciones:

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2. Utilizar números cuando se trate de fechas, muestras, etcétera.
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5. Expresar la probabilidad exacta con dos o tres decimales (por ejemplo, $p$ = .04; $p$ = .002) sin el cero adelante del punto decimal. En caso de ser menor a .001 indicarlo con un < .001.
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In the event of collective authorship, the name of the editors or those responsible for the article will be included followed by “and the group...” when all members of the group consider themselves co-authors of the work. If the name of the group is to be included, even if not all its members are considered co-authors, the authors responsible will be mentioned followed by “on behalf of the ...group or “by the...group.” In any case, the names and institutions to which members of the group are affiliated should be included in an appendix at the end of the manuscript.

## EDITORIAL GUIDELINES

It is of the utmost importance for authors to consider the following before sending their manuscript:

1. Manuscripts should be written clearly and concisely, with no spelling or grammatical errors.
2. The text should be written in Word format, Times New Roman font, size 12, with double-spacing and 2.5 cm margins on letter size sheets.
3. Pages should be numbered consecutively, beginning with the title page, with the number written in the upper right corner.
4. The first page (showing the title) should contain the following sections in the order mentioned here:
   - *Title of article in Spanish and English*. The title should be descriptive and indicate the main results of the study. *Maximum extension: 25 words.*
   - *Short title in Spanish and English*. *Maximum extension: 6 words.*
   - *Full name of author and co-authors*. The authors must be listed and then an Arabic number must be placed in superscript, indicating the institution to which they are affiliated.
   - *Author ORCID number.* It is a requirement that all authors have their ORCID identification number, which can be obtained at https://orcid.org/register
   - *Author affiliation*. This should be indicated with Arabic numerals and in superscript. Affiliations should be placed immediately after authors’ names (not as footnotes). Affiliations should specify the department, area, institution, city, and country of each author. It is not necessary to indicate the postal address. Institutions must be written in their original language, without translation. If the authors add acronyms, these must be included in the official name. No positions or degrees of the authors (such as doctor, resident, or researcher) should be written.

   . For example:

   Juan José García-Urbina,[1] Héctor Valentín Esquivias Zavala[2]

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- The **“Correspondence”** section should be placed at the end of the first page, indicating the corresponding author with their postal address, phone and email address. This will be the only author Salud Mental will contact during the process.

  For example:

  **Correspondence:**
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  Phone: 55 4152-3624
  E-mail: jurb@imp.edu.mx

5. The second page should contain abstracts of the article in English and Spanish. Each abstract should contain a maximum of 250 words.
   - **Abstracts of original articles and systematic reviews** should comprise the following: Introduction, Objective, Method, Results, and Discussion and Conclusion.
   - **Abstracts of Clinical Cases** should comprise Introduction, Objective, Main findings, Interventions, Results, and Discussion and Conclusion.
   - **Keywords.** At the end of each abstract, a minimum of four and a maximum of six keywords should be included, separated by commas and in lower case. Keywords must be the same in English and Spanish. These are used for indexing articles, which is why three of them must be found in the *MeSH (Medical Subject Headings)* (http://www.nlm.nih.gov/mesh/MBrowser.html).
6. The body of the manuscript begins on the third page, which should follow the structure indicated in the abstract:
   - **Introduction (or Background for Narrative Reviews)**. The last paragraph of this section should clearly include the objectives of the review and, if necessary, the hypotheses.
   - **Method.** This should contain the following sections:
     - Study design
     - Subjects/sample description
     - Sites
     - Measurements
     - Procedure
     - Statistical analysis
     - Ethical considerations (See ethical guidelines for publication. Add link)

     In the case of review articles and clinical cases, these sections may be modified in keeping with the PRISMA guideline (systematic reviews) or the CASE REPORT guideline (clinical cases).
   - **Results.** These should be presented in a logical sequence within the text. They can be supported with tables, graphs, and figures.
   - **Discussion and Conclusion**. This section will highlight new and relevant aspects of the study and the conclusions derived from it, as well as the possible implications of its findings and its limitations.
7. After the Discussion and Conclusion section, author statements should be added in the following order:
   - **Funding**. In this section, authors should declare whether the study or the preparation of the manuscript received any type of funding, indicating the name of the entity that provided the funds.

     For example:

     This study was partially funded by CONSEJO NACIONAL DE CIENCIA Y TECNOLOGÍA (No. XXXXXXX).

     If no financial support was received, authors must state it was well.

     For example:

     None.
   - **Conflict of interest.** In this section, authors must declare whether they have conflicts of interest related to their scientific activity. Having a conflict of interest will not necessarily prevent publication of the manuscript. If there is no conflict of interest, the following phrase must be inserted: “The authors declare that they have no conflicts of interest.”
   - **Acknowledgments**. If deemed necessary, acknowledgment of the people, centers or entities that have collaborated or supported the research will be mentioned after the previous statements.
8. **References.** Are placed after the authors’ declarations (Funding, Conflicts of interest, and Acknowledgements), and must adhere to the ***Publication Guidelines of the American Psychological Association (APA), last edition*** (https://normas-apa.org).
9. **Tables and figures.** *Salud Mental* establishes a maximum total of five graphic elements. The standard requested for tables and figures adheres to the ***Guidelines of the American Psychological Association (APA), last edition*** (https://normas-apa.org). These will be placed in the same document as the manuscript after the references.
   - Tables must contain a title and a note with an explanation of the acronyms used at the bottom.
   - Figures must be submitted in a high resolution format (minimum image size 300 dpi).
   - Titles of the tables and figure captions must be clear, brief, and always have an identifying number. Within the text, the author must indicate in parentheses and capital letters where the graphic elements should be inserted.

     For example:

     The definition of some behavioral patterns was changed (Table 3) so that they were more comprehensible in Spanish and the categories that group such patterns were redefined based on specialized literature.
     (INSERT TABLE 3 HERE)

**COMPLEMENTARY FILES**

1. **Authorization letter for Publication**. This should be signed by all the authors and submitted in PDF format. Download the form at http://revistasaludmental.mx/public/Authorization-letter-for-publication.pdf.
2. **Cover letter**. The author should describe the strengths of their scientific contribution, highlighting the scope, originality, and importance of their contribution to the field of mental health. *It is mandatory to mention three national or international reviewers in the field of knowledge of the submitted manuscript, please indicate the full name and email address of each of the reviewers.* This must be uploaded in PDF.

## EMPHASIS AND PUNCTUATION

1. Manuscripts should generally avoid footnotes, although they may be considered if essential.
2. Italics should be used to:
   - Highlight foreign words
   - Emphasize popular expressions
   - Mention titles of books, published documents and periodicals
3. Italics can be used to:
   - Highlight significant or important terms when they are first mentioned
   - Highlight a word or sentence within a quote
4. Double quotes should only be used for:
   - Citing paragraphs from other authors within the text
   - Quoting verbatim fragments of the study subjects' words
5. Avoid using double parentheses, in other words, one parenthesis inside another, and use square brackets instead.
6. Long dashes can be used to indicate parenthetical sentences.
7. All punctuation marks must be used correctly. For example, if question marks are used in a Spanish text, the corresponding opening and closing signs must be included together with quotation marks.

## MATHEMATICAL AND STATISTICAL FORMULAE

The following points must be considered when results are presented:

1. Write figures from zero to nine in letters and use numbers for figures from 10 onwards.
2. Use numbers with dates and samples, etc.
3. Include confidence intervals in statistical data.
4. Statistical symbols are written in italics (M, SD).
5. Express exact probability to two or three decimal places (for example, $p = 0.04$; $p = 0.002$), *with no zero in front of the decimal point.* If it is less than .001, it should be written as follows $< 0.001$.
6. Leave a space before and after each sign ($a + b = c$ instead of a+b=c).
7. Use periods instead of commas to indicate decimals.

## PLEASE CHECK THE FOLLOWING BEFORE SUBMITTING YOUR MANUSCRIPT

Before submitting your manuscript, be sure to attach the requested documentation. Submissions failing to comply with the editorial guidelines will be returned to authors.

1. Manuscript in WORD format
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3. Letter authorizing the use of the article