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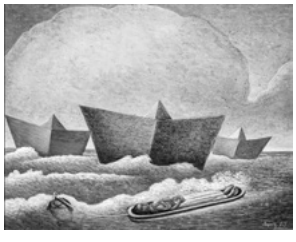
CONTENT



On the cover
Viaje al infinito. Hacia el mar (1955)
Tempera on panel,
295 × 394 mm

Antonio M. Ruíz, El Corcito (1892 - 1964)

Colección Manuel Reyero

Instituto Nacional de Psiquiatría
Ramón de la Fuente Muñiz

Salud Mental

Directorio

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EDITORIAL
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Postponing Death

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When is it time to let go? When does a person stop being a person? When does someone stop being themselves? As the end approaches, boundaries fade. Categorical systems collapse. We are left trying to make sense of vast amounts of continuous variables our brains find so hard to process (Kahneman, 2011). Wading through the mud, laboriously trudging forward, far away from safe, neat, controllable scenarios, we must, however, make decisions. We must face consequences; we must *explain* them.

How do you translate "an ejection fraction of 28%" to your non-medical sister? Do you take out your second-year physiology book and explain its meaning, and continue this route for all parameters (rising creatinine levels, fluctuating vital signs, altered mental state) or do you condense all the information into the statement "Mom is fragile"? Being the only doctor in the family can be (fill in the blank).

This manuscript is a reflection on this subject: what happens to the person, the caregivers, the family, and individual family members when death approaches. More specifically, what happens when death is so close it stops being a categorical variable and cannot be described as anything but dimensional. I can only tell this from my perspective: many aspects of my story shape my interpretation. I am a doctor, psychiatrist, daughter, mother, sister, and wife. I am all of these, and many more, and none of them at the same time. My category-loving brain struggles but manages to understand: there is something deeper to what makes me what I am. Human beings have spent centuries pondering the subject. We are formed by millions of cells, individually created and dying daily, yet the identity of Self lingers. Moreover, the concept of death, the moment when we no longer exist, seems unequivocal. But is it?

In 1981, the United States approved the Uniform Determination of Death Act, "*with the intent to provide a clear, consistent legal distinction between life and death*," which is, coincidentally, currently being revised (Lewis, 2022). Further evidence on the difficulty of drawing the line comes from research on postmortem genetic transcription, where the term thanatotranscriptome was coined. I cannot help but ponder the irony of studying processes intrinsic to life while calling them "after-death". How can something be dead if it still produces something? The issue is brilliantly explored by Addy Pross in his book *What is life? How chemistry becomes biology*. There is obviously a difference between the components of a cell (matter) and the interaction between them (life), but what kind of difference? (Pross, 2012). Javan et al. (2024) also explore the process of death and its complexity from a scientific perspective.

How does this expansion of death affect those experiencing the process? As knowledge and technology evolve, the ability to restore homeostasis increases, creating ever-expanding horizons until the point of no return. Yet one is forced to answer the following questions: "Return where? What was the last point one would come back to?" Is it when there was a heartbeat? Even if the body is now missing a part (a limb, an organ, a whole section)? Even if the personality has changed? Even if a machine is attached to the body? And what about when 20 medicines are needed for this homeostasis to exist? As technology evolves, it becomes clear to me: as doctors, we do not save lives, we postpone death. We expand death, transforming it and combining it with life.

What impact does this have on the person nearing death and those around her? My personal experience is that you are faced with "mourning by a thousand cuts": an un-

countable number of losses, all accompanied by the relief—albeit a slowly fading one—of retaining the core person with you.

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ORIGINAL ARTICLE
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Comparison of Smoking Cravings and Withdrawal Symptoms in Three Phases of the Menstrual Cycle

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ABSTRACT

Introduction. Women have more difficulty quitting smoking and a greater risk of relapse in stressful situations. Although the menstrual cycle influences smoking cravings and withdrawal symptoms, the phase in which participants show higher rates of the latter has yet to be identified. **Objective.** To evaluate whether there are significant differences between three groups at different phases of the menstrual cycle in smoking cravings and withdrawal symptoms, after a stress induction task. **Method.** A quasi-experimental transversal design with pre-test and post-test measurements was used, with female smokers aged between 18 and 40 years old as participants. Researchers monitored the duration of their menstrual cycles and tobacco use patterns for approximately two months. They were then divided into three groups based on the three menstrual cycle phases and given the induction stress task, after which pre-test and post-test stress, withdrawal symptom, and smoking craving scores were obtained. **Results.** No differences were observed in smoking cravings or withdrawal symptoms in the three phases of the cycle. Mean stress was significantly higher during the late luteal phase, during which there was also a moderate correlation between the stress score and withdrawal symptoms. Mean post-test stress predicted withdrawal symptoms in the early follicular and late luteal phase groups. **Discussion and conclusion.** Although smoking cravings and withdrawal symptoms did not differ among groups, stress scores were higher during the early follicular phase and luteal phase. It is recommended that stress-management strategies be implemented during these two phases.

Keywords: Smoking, women, menstrual cycle, stress, cravings, and withdrawal symptoms

RESUMEN

Introducción. Las mujeres tienen más dificultad para dejar de fumar ante situaciones estresantes, aunque el ciclo menstrual influye en los síntomas de abstinencia y la urgencia por fumar no es claro en qué fase del ciclo se experimentan síntomas más intensos. **Objetivo.** Evaluar si existen diferencias significativas entre tres grupos que se encuentran en diferentes fases del ciclo menstrual en la urgencia por fumar y los síntomas de abstinencia posterior a una tarea de inducción de estrés. **Método.** El estudio fue cuasi-experimental, transversal, pre-test/post-test, con mujeres fumadoras de tabaco quienes monitorearon la duración de su ciclo menstrual y su patrón de consumo durante aproximadamente dos meses. Se formaron tres grupos considerando tres fases del ciclo menstrual quienes participaron en una tarea de inducción de estrés, se realizó una evaluación pre-test/post-test del puntaje de estrés, los síntomas de abstinencia y la urgencia por fumar. **Resultados.** No hubo diferencias en la urgencia por fumar. La media de estrés fue significativamente mayor durante la fase lútea tardía, donde se observó una correlación moderada entre la media de estrés y los síntomas de abstinencia. La media de estrés post-test predijo los síntomas de abstinencia en el grupo de la fase folicular temprana y fase lútea tardía. **Discusión y conclusión.** La urgencia por fumar y los síntomas de abstinencia no difirieron entre los grupos, pero el estrés fue mayor en la fase folicular temprana y en la fase lútea, por lo que en estas fases se sugiere implementar estrategias para la gestión del estrés.

Palabras clave: Tabaquismo, mujeres, ciclo menstrual, estrés, urgencia y abstinencia.

INTRODUCTION

Tobacco use is the leading cause of preventable death (Organización Mundial de la Salud, 2019), with female smokers having a higher risk of breast cancer, cervical cancer, complications from carrying the human papillomavirus, alterations in the menstrual cycle and reproductive difficulties such as ectopic pregnancy and spontaneous abortion (Centers for Disease Control and Prevention, 2023).

In recent years, tobacco consumption in women has increased faster than in men. Moreover, treatment demand for tobacco use in women rose from 14.6% in 2001 to 30.1% in 2015 (Revuelta-Herrera et al., 2018; Reynales-Shigematsu et al., 2016). It is estimated that 9.2% (4,167,400) of female smokers in Mexico begin using tobacco at approximately 21 years of age and that they smoke an average of 6.3 cigarettes per day (Shamah-Levy et al., 2020).

The World Health Organization therefore states that governments should adopt effective measures to promote cessation and appropriate treatment for tobacco dependence (Organización Mundial de la Salud, 2005), coupled with the implementation of sex-specific control strategies.

For this reason, studies have compared the effectiveness of smoking cessation interventions in men and women. When using behavioral or cognitive-behavioral therapies combined with nicotinic and non-nicotinic therapies, women show lower rates of abstinence and, as a secondary consequence, more intense adverse symptoms than men such as nausea, vomiting, sleeping difficulties, headaches, and constipation (Castellani et al., 2020; Voci et al., 2021).

Smoking-cessation interventions designed for women have failed to achieve better results than standard interventions (Weng et al., 2021). Accordingly, variables related to the difficulty of achieving and maintaining abstinence in women have been identified, such as negative affect (Londoño et al., 2021), weight gain when quitting smoking (Kuo et al., 2022), stress (Kim et al., 2019; Martínez Leal et al., 2021) and the menstrual cycle (Wetherill et al., 2016; Zawertailo et al., 2023).

Variations in the ovarian hormones progesterone and estradiol during the stages of the menstrual cycle could have a potential effect on smoking. For example, estrogen and nicotine interact and allow an increase in the positive reinforcement obtained from smoking. Conversely, progesterone weakens the reinforcing effect of nicotine (McNulty et al., 2020; Torres & O'Dell, 2016).

In addition, in studies associating the phases of the menstrual cycle with stress in a stress-induction task, it has been observed that female smokers in the luteal phase (day 14 to 28 of the menstrual cycle) showed higher levels of cortisol than those in the follicular phase (day one to 14 of the menstrual cycle) before, during, and after the stress-induction task (Carlson et al., 2017; Montero-López et al., 2018).

In contrast, in another study by Nakajima & al'Absi, (2012), changes in stress, the desire to smoke, and withdrawal symptoms were evaluated in women who smoked tobacco and were given a stress induction task. They observed that after stress exposure, cortisol levels decreased in the luteal phase. However, no significant differences were found regarding perceived stress, the desire to smoke, or withdrawal symptoms between the luteal and follicular phases.

Ethier et al. (2023) evaluated the desire to smoke before and after an *in vivo* smoking session as well as the effect of a psychosocial stress task on the desire to smoke. The authors found that participants in the follicular phase had a greater desire to smoke before and after the stress induction task.

In addition, hormone levels are expected to have an effect on the tobacco-use pattern. Ethier et al. (2021) prospectively assessed the relationship between estradiol and progesterone levels and the number of cigarettes smoked. The authors evaluated smoking patterns and took urine samples from 21 women for approximately 28 days, observing more smoking when estradiol and progesterone decreased or increased together, regardless of the phase of the menstrual cycle.

To date, no consistent results have been obtained in regard to the phase of the menstrual cycle in which the most severe withdrawal symptoms and smoking cravings are experienced. The effect of withdrawal symptoms and smoking cravings on the maintenance of abstinence is therefore unclear. One limitation of the studies is that they only assessed two phases of the menstrual cycle. Other authors have recommended evaluating at least three phases of the menstrual cycle in which there are significant changes in hormone levels, which would influence smoking patterns in women (Allen et al., 2016; Schiller et al., 2014).

The objective of the present research was therefore to evaluate whether there were significant differences among the three groups at various phases of the menstrual cycle in smoking cravings and withdrawal symptoms after a stress induction task. The specific objectives were to a) evaluate whether there were significant differences in the pre- and post-test stress scores in the three phases of the menstrual cycle in regard to the base level of stress, b) assess the relationship between stress and smoking craving, symptoms of abstinence, and smoking patterns in both the pre- and post-test, and c) determine whether post-test stress predicts smoking cravings and withdrawal symptoms in the three phases of the cycle.

METHOD

Design

We used a quantitative, transversal, quasi-experimental study with pre- and post-test measurements.

Participants

A convenience probability sampling method was used. Participants were recruited from various schools and universities, as well as leading medical institutions and included 48 women aged 18 to 40 years old, resident in the State of Mexico and Mexico City. They were divided into three groups of at least 15, although seven were eliminated from the study due to their failure to complete the stress induction task, resulting in groups of 15, 14, and 12.

Inclusion criteria: women with a menstrual cycle lasting 24 to 35 days, with an average daily consumption of three cigarettes in the past 30 days, with a low risk of health complications due to tobacco use, who had at least completed elementary school.

Exclusion criteria: women who were pregnant, had recently been pregnant, used hormonal products, had a health risk associated with the use of other drugs, gynecological problems, as well as with a psychiatric disorder or premenstrual dysphoric disorder, or any other disorder related to the thyroid system, which could influence the intensity of menstruation or the presence of amenorrhea or dysmenorrhea.

Instruments and Scales

- Sociodemographic questionnaire (adapted from Lira-Mandujano et al., 2012).
- Fagerström Test for Nicotine Dependence (FTND) (alpha = .66) (Heatherton et al., 1991; translated and adapted by Lira-Mandujano, 2002).
- Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). Screening questionnaire identifying the health risks of drug use (alpha of the tobacco subscale = .83) (Tiburcio et al., 2016).
- Retrospective Baseline Consumption Questionnaire, making it possible to identify smoking patterns during the 30 days prior to the evaluation (Sobell & Sobell, 2000; adapted by Lira-Mandujano et al., 2012).
- Minnesota Nicotine Withdrawal Scale (MNWS), designed to assess withdrawal symptoms with eight Likert-like items (Abrams et al., 1999; adapted by Lira-Mandujano, 2009).
- Premenstrual Profile. Daily prospective self-record of the menstrual cycle. It registers the duration of the menstrual cycle and estimates the start of each phase of the menstrual cycle (Campagne & Campagne, 2007).
- Premenstrual Symptoms Screening Tool (PSST). This test assesses premenstrual syndrome and premenstrual disorder according to the criteria established in the DSM-IV (*alpha* = .91, test-retest reliability = .56) (Steiner et al., 2003).
- Questionnaire on Smoking Urges (QSU). The test assesses smoking craving through 10 items (*alpha* = .75) (Cox et al., 2001).
- Stress Visual Analogue Scale (SVAS). This scale measures stress after exposure to an event, on a scale from 0 to 10, based on the question *How much stress are you feeling right now?* This scale uses a graph in a 10-cm straight line (r = .66 regarding convergent validity) (Lesage et al., 2012).

Apparatus

A laptop with a mouse was used.

Procedure

Participants were recruited through posters and social media and evaluated by phone. The sociodemographic questionnaire, FTND, and ASSIST were administered, after which they were requested to sign informed consent forms for the research.

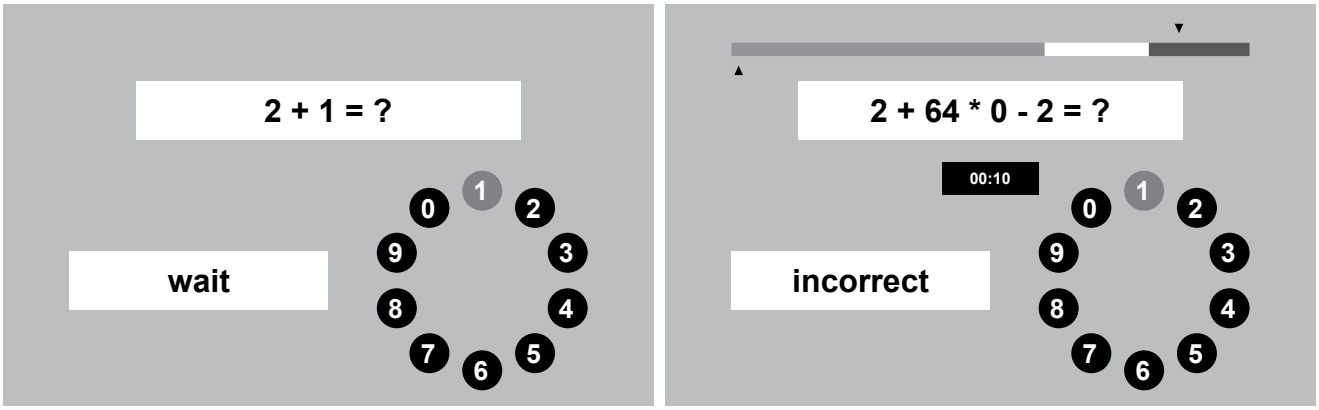
Participants recorded their tobacco use and menstrual cycle duration on a Google Forms questionnaire for two months to identify the moment when they transitioned to each cycle phase. They were subsequently assigned to one of three groups using a simple random procedure. The groups were early follicular phase (FP1;1-3 days after the beginning of their period), late follicular phase (FP2; 10-12 days after the beginning of their period), and mid-luteal phase (LP; 21-23 days after the beginning of their period). After this, the day for the stress induction task was set.

Before the assessment day, participants were asked to refrain from smoking for eight hours. The assessment was performed in person, in a classroom with a desk, computer, and two chairs. If participants met this criterion, the QSU, MNWS, and the SVAS were administered. They then completed the Montreal Imaging Stress Task (MIST; Dedovic et al., 2005), executed using InquisitLab 6 software. The QSU, MNWS, and the SVAS tests were also administered after the task.

The task consisted of a brief period of practice and three conditions: test, experimental, and control, in which participants were presented with arithmetic problems with varying degrees of difficulty. During completion of the task, the researcher sat next to the participant as an observer.

The experimental condition comprised four blocks of math exercises lasting approximately three minutes each. Participants were asked to attempt to perform better than the other participants and a time limit for answering was set. In every block, participants received negative feedback: "Your performance is below average, you are not doing as well as expected, do better in the next round" (Figure 1).

Figure 1. Screenshots of Experimental and Control Conditions.



Note. The left image corresponds to the control condition, and the right image to the experimental condition. The screen consisted of different sections: the area where the mathematical operations were shown; the feedback area with phrases such as "Correct," "Incorrect," and "Wait period," the answer area, where participants chose the correct answer by clicking digits from 0 to 9; the area where performance was indicated, with red for individual performance and green for the mean group performance; and the area indicating the time limit for each operation, represented by a blue bar.

Statistical analysis

We used IBM SPSS Statistics 23 for the descriptive statistical analyses. A Shapiro-Wilk normality test was undertaken in all groups ($p > .05$). In addition, a one-way ANOVA was carried out for the years of tobacco consumption, tobacco-use patterns, scores of risks associated with tobacco use, dependency, and premenstrual syndrome scores to determine the homogeneity of the groups.

For the main objective of this study, a one-way ANOVA was performed to compare smoking cravings and post-test withdrawal symptoms among the three groups in each phase of the menstrual cycle.

For the first specific objective, data were organized into three groups by stress level: low (0-3), medium (4-6), and high (7-10). Differences among groups were calculated using a one-way analysis of variance, as well as Sidak post hoc analyses to identify the differences within groups, using Graphpad Prisma 9.3.0 Software.

For the second specific objective, a Pearson correlation was used to assess the relationship between pre- and post-stress scores for smoking cravings, withdrawal symptoms, and smoking patterns in the 30 days prior to the assessment for each group.

Finally, for the last objective, the effect of stress on smoking cravings and withdrawal symptoms was assessed using a linear regression analysis.

Ethical considerations

This research project was reviewed and approved by the Ethics Committee of the Master's and Doctoral Program of Psychology of the Universidad Nacional Autónoma de México, EP/PMDPSIC/010/2023.

RESULTS

Participants had a mean age of 25.07 years (SD = 6.19), had been smoking for a mean length of 5.59 years (SD = 5.52), and 56.09% were students and 24.3% employees. The remainder were completing their courses, housewives, or unemployed. In addition, 82.9% were single, 7.3% lived with their partners, and the rest were married or widowed. Most participants (85.3%) did not have children.

Mean tobacco use in the past 30 days was 3.31 (SD = 1.89) cigarettes, the mean dependency level was 2.34 (SD = 1.31; low dependency level), and the mean score on the ASSIST scale was 20.71 (SD = 6.96; moderate risk), while 53.7% of participants presented severe levels of premenstrual syndrome. Since there were no statistically significant differences among the groups, homogeneity was assumed.

In regard to the main objective of the study, when the target variables in the three menstrual cycle phases were compared, it was found that the mean smoking cravings and withdrawal symptoms after the stress induction were higher in the LP group (Table 1). However, no significant differences were observed among the three groups (F (2,38) = 1.120, p= .353; Wilk's lambda = .889, partial eta squared = .057, Table 1).

Table 1
Variance Analysis of Smoking Craving and Withdrawal Symptoms.

	FP1	*FP2*	*LP*	*F (2,38)*	*p*	*η 2*	*β*
	M (SD)	*M (SD)*	*M (SD)*				
Craving	38.47 (16.71)	38.50 (16.52)	44.33 (15.36)	.549	.582	.028	.134
Withdrawal Symptoms	13.87 (7.22)	16.14 (7.14)	19.50 (6.85)	2.109	.135	.100	.406

Note. FP1: early follicular phase, FP2: late follicular phase, LP: luteal phase.

An analysis to determine whether there were significant differences in mean pre-and post-test stress levels in the three phases of the menstrual cycle with respect to the basal level of stress found that the LP group presented a higher mean stress score than the others both before (M = 8) and after the stress induction task (M = 9.3). In the low and moderate stress levels, group FP1 scored the highest averages in both the pre-test and the post-test. However, group LP scored the highest overall means in the high stress level in both the pre- and post-test.

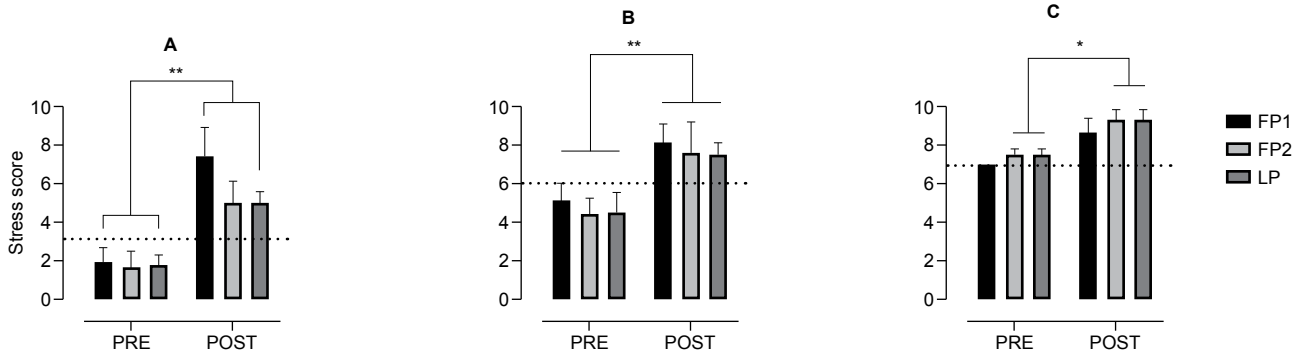
Significant differences were found among groups (Figure 2) in low (F (1, 15) = 34.74, p < .0001), medium (F (1, 15) = 75.85, p < .0001), and high stress levels (F (1, 8) = 31.38, p = .0005). Using Sidak's multiple comparisons, significant differences were observed in the low stress level between groups FP1 and LP [CI = 95%; -8.8, -2.1 and -5.2, -1.2 respectively], in the medium stress level among the three groups FP1, FP2, and LP [CI = 95%; -4.4, -1.5; -4.5, -1.6 and -4.9, -1.0 respectively], and in the high stress level between groups FP2 and LP [CI = 95%; -3.2, .0 and -3.2, -.2].

Table 2
Correlations between Smoking Cravings, Withdrawal Symptoms, and Baseline Consumption Patterns with Stress in the Three Groups.

	FP1		*FP2*		*LP*	
	Stress-Pre-test	*Stress-Post-test*	*Stress-Pre-test*	*Stress-Post-test*	*Stress-Pre-test*	*Stress-Post-test*
Urgency Pre-test	.429	-.006	.230	-.074	-.036	-.088
Urgency Post-test	.503	.141	.554*	.333	-.064	.082
Withdrawal Pre-test	.520*	.193	.212	.279	.413	452
Withdrawal Post-test	.457	.548*	.545*	.507	.599*	.670*
Consumption Pattern	.061	-.338	.058	-.203	.228	.230

*p < .05
Note. FP1: early follicular phase, FP2: late follicular phase, LP: luteal phase

Figure 2. Stress Score Means among the Three Phases Evaluated for Each Stress Level



Note. FP1: early follicular phase, FP2: late follicular phase, LP: luteal phase, A: Low stress, B: Medium stress, C: High stress
* p = .025 ** p = .0016, *** p = .000

In regard to the relationship between stress and withdrawal symptoms, as well as between stress and smoking cravings in the pre- and post-tests in the three menstrual cycle phases (Table 2), there was a moderate correlation between stress and smoking cravings in the pre-test with group FP2, with withdrawal symptoms in the pre-test scores of FP1, and withdrawal symptoms in the post-test scores in groups FP1 and LP. There was a significant correlation with withdrawal symptoms in the post-test scores for groups FP1 and LP (Table 3). Correlations between the consumption pattern in the baseline with pre- and post-test scores were also assessed, with no significant correlations being found in any group.

As for the third objective of this study, a simple linear regression model with the input method was calculated (Table 3) to predict the effect of post-test scores on post-test withdrawal symptoms in the three menstrual cycle phases. The regression equation was statistically significant for group FP1, F (1, 13) = 5.589, p < .005, with R^2 = .30, indicating that 30% of the change in withdrawal symptoms can be explained by the post-test stress scores. The regression equation was -.229 + 1.779 * (post-test stress score). A significant regression was also found for group LP, F (1,10) = 8.162, p < .001, R^2 = .44. The regression equation was 2.621 + 2.383 * (post-test stress score).

Table 3
Regression Model for the Effect of Post-test Stress Score on Withdrawal Symptoms for Each Menstrual Cycle Phase.

Post-test stress effect on	*F*	R^2	*β*	SE^b	*p*
Post-test Withdrawal Sx. on FP1	*F* (1,13) = 5.589	.301	.548	.752	.034*
Post-test Withdrawal Sx. on FP2	*F* (1,13) = 4.147	.257	.507	.846	.064
Post-test Withdrawal Sx. on LP	*F* (1,10) = 8.162	.449	.670	.834	.017*

Note. FP1: early follicular phase, FP2: late follicular phase, LP: luteal phase, Sx: Symptoms
p < .05

DISCUSSION AND CONCLUSION

The main objective of this study was to assess the differences between smoking craving and withdrawal symptoms in three groups at different phases of their menstrual cycle, after they had been given a stress induction task. The results showed no differences in the dependent variables of the study among groups.

The results of the present study are consistent with studies that have observed no differences in smoking cravings or withdrawal symptoms among the phases of the menstrual cycle (Allen et al., 2013; 2014), which have concluded that women experience symptoms that hamper the long-term maintenance of abstinence in all phases of the menstrual cycle.

Allen et al. (2014) found no significant differences in these variables. Conversely, they observed more withdrawal symptoms and perceived stress during the luteal phase in women in acute abstinence. Carlson et al. (2017) observed an increase in the desire to smoke during the luteal phase in women who had participated in a stress induction task.

For the first specific objective, it was found that in the low and medium stress levels, the FP1 group showed the significantly highest mean of stress, whereas in the high stress level, the LP group had a significantly higher mean. After a stress induction task during various phases of the menstrual cycle, Montero-López et al. (2018) found that there was more stress during the luteal phase, given that higher cortisol levels were observed after the stress induction task.

Several studies have shown a correlation between cortisol production and premenstrual symptoms, suggesting that increased activity in the hypothalamic-pituitary-adrenal axis predicts the severity of premenstrual syndrome (Huang et al., 2015). Valdez-Piña et al. (2024) demonstrated that perceived stress significantly predicts smoking patterns in women although not in men, concluding that smoking relapses in women are closely linked to mood variables.

In the second objective, an analysis of the relationship between stress and the urge to smoke as well as withdrawal symptoms in the pre-test and post-test showed that there was a correlation between withdrawal symptoms and stress during the pre-test or the post-test measurements in all groups. Nonetheless, in group LP, there was a correlation between withdrawal symptoms and pre- and post-test stress scores, with post-test scores showing a greater correlation.

In regard to the previous results, the original hypothesis was that withdrawal symptoms would only correlate with the stress scores in the LP group due to the presence of premenstrual syndrome. However, stress had a similar effect on the three groups, with a greater effect on the LP group, as borne out by the correlations observed in the pre- and post-test stress scores in this group. This result is consistent with other studies in which stress has correlated with tobacco withdrawal symptoms, suggesting that premenstrual syndrome can increase the intensity of withdrawal symptoms (Cross et al., 2017; Montero-López et al., 2018).

Thirdly, in the regression analysis, in the FP1 and LP groups, post-test stress scores significantly predicted post-test withdrawal symptoms. This may be due to women suffering from premenstrual syndrome in the LP and similar intensity symptoms experienced during the days associated with FP1, which could affect their smoking behavior (Lovick et al., 2017; Núñez-Lauriano et al., 2023).

Conversely, Saladin et al. (2015) showed that an increase in progesterone during the luteal phase has a protective effect on the desire to smoke. This has been taken as an indication of the importance of progesterone in the context of abstinence, despite it having less impact on emotional regulation during everyday tobacco consumption.

These results suggest that, in the context of smoking cessation interventions, during the LP and the FP1, women should implement coping and stress-management skills to facilitate the long-term maintenance of abstinence (Martínez Leal et al., 2021). Furthermore, since women experienced the lowest stress scores during FP2, stress-management training during this phase would presumably be more effective in creating significant changes.

Bearing this in mind, and in keeping with the goal of selecting a day to quit smoking (Organización Panamericana de la Salud [OPS], 2020), smoking cessation should commence before the luteal phase, when premenstrual syndrome occurs, after women have been taught stress-management techniques. This study also demonstrates the viability of the menstrual cycle record as an alternative for biological markers, which could make it easier for women to identify the duration of their cycles and the times when increased discomfort is most likely.

Limitations of this study include the fact that biological markers were not used to identify the menstrual cycle phase or cortisol levels. There was no restriction on the use of

painkillers, and the time when participants were given the stress induction task varied.

Moreover, according to the results of the ASSIST test, the sample had a moderate health risk regarding their tobacco consumption, which could have affected the intensity of their withdrawal symptoms, probably reducing their effect. Given this characteristic, it may only be possible to generalize these results to samples with these traits. In the case of Mexico, 82.3% of regular smokers smoke 7.4 cigarettes a day (Paz-Ballesteros, et al., 2019).

Furthermore, it is important to note that in this study, comparisons were made among groups to guarantee the homogeneity of tobacco consumption patterns, dependency levels, and premenstrual symptoms in each of the three menstrual cycle phases. With these variables in mind, a simple randomization of the groups was performed. Nevertheless, future research could explore block randomization or intragroup comparisons.

At the same time, given the possible effect of the sample size on the lack of significant differences in smoking patterns, dependency levels, and premenstrual syndrome symptoms among the three phases of the menstrual cycle, in further studies it could be useful to increase sample size and identify more of the characteristics of participants in the sampling methods used.

In future research, these results should be compared with those of women with high dependency levels, in the menopause or perimenopause, and to assess the relationship between stress and anxiety and depression at different phases of the menstrual cycle using a stress induction task. Moreover, in interventions designed to help women quit smoking (Allen et al., 2022; Nair et al., 2020), clearly defining the dates when an abstinence period started and assessing the effect of this on the various phases of the menstrual cycle phases could be valuable.

In conclusion, smoking cravings and withdrawal symptoms did not differ among the phases of the menstrual cycle. Nonetheless, the stress experienced by participants after a stress induction task was greater during the FP1 and LP, which had an effect on withdrawal symptoms, mainly in the LP group with women with high stress levels. Women would therefore benefit from implementing stress-management strategies during the FP1 and LP.

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Conflict of interest

The authors declare they have no conflicts of interest.

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Factors Associated with the Use of Psychoactive Drugs, Anxiety and Depression in University Students

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ABSTRACT

Introduction. University life entails several changes, contributing to the use of psychotropic drugs and mental disorders. **Objective.** To identify factors associated with psychoactive drug use and anxiety and depressive symptoms in university students. **Method.** Cross-sectional survey of 902 undergraduates, undertaken using sociodemographic data, with information on the use of psychotropic drugs, and the Mini International Neuropsychiatric Interview as a self-report. Chi-square and Fisher's exact were used for the hypothesis of association. Logistic regression was used to determine the effect of independent in relation to dependent variables. **Results.** Risk factors for the use of psychotropic drugs were having children, admission through a quota scheme, studying linguistics, literature and arts and agricultural sciences, not enrolling, emotional difficulties, using mood altering drugs, unpleasant reactions to the absence of a substance and continuing use despite these reactions. Specific risk factors for depressive symptoms included being in the first year of undergraduate studies, dropping out and continuing to use mood-altering drugs despite unpleasant reactions. Specific risk factors for anxiety symptoms included admission quotas, studying agricultural sciences, literature, arts and linguistics, evening courses and courses that were not students' first choice. **Discussion and conclusion.** The findings of this study provide a greater understanding of the phenomenon studied and can be used to develop health education strategies tailored for students.

Keywords: Students, anxiety, depression, psychotropics

RESUMEN

Introducción. La vida universitaria trae consigo diversos cambios, entre ellos el uso de psicofármacos y los trastornos mentales. **Objetivo.** Identificar factores asociados con el uso de psicofármacos y los síntomas de ansiedad y depresión en estudiantes universitarios. **Método.** Encuesta transversal con 902 estudiantes de pregrado, realizada utilizando datos sociodemográficos, el uso de psicofármacos y la Mini Entrevista Neuropsiquiátrica Internacional, como autoinforme. Para la hipótesis de asociación, se utilizó Chi-cuadrado y exacto de Fisher, la regresión logística para verificar el efecto de las variables independientes en relación con las dependientes. **Resultados.** Los factores de riesgo para el uso de psicofármacos fueron: tener hijos, admisión por cupo, estudiar Lingüística, Literatura y Artes y Ciencias Agrarias, no matricularse, dificultades emocionales, usar sustancias para modificar el estado de ánimo, reacciones desagradables en ausencia de la sustancia y continuar con el uso en presencia de estas reacciones. Los factores de riesgo específicos para síntomas depresivos fueron: primer año de estudios de pregrado, deserción y continuar con el uso de sustancias que alteran el estado de ánimo en presencia de reacciones desagradables y los factores de riesgo específicos para los síntomas de ansiedad: admisión por cupo, carreras de Ciencias Agrarias, Letras, Artes y Lingüística, carreras nocturnas y carreras que no corresponden a la primera opción. **Discusión y conclusión.** Los hallazgos de este estudio ofrecen una mayor comprensión del fenómeno estudiado y pueden ser utilizados para desarrollar estrategias de educación para la salud dirigidas a los estudiantes.

Palabras clave: Estudiantes, ansiedad, depresión, psicofármacos.

INTRODUCTION

University students are highly vulnerable to psychotropic drug use and mental disorders such as anxiety and depression (Amaral et al., 2021; Jenkins et al., 2020; Limone & Toto, 2022). Anxiety is a human characteristic designed to ensure self-preservation. However, in pathological anxiety, symptoms occur more intensely and frequently, causing enormous suffering and harm in everyday life, such as substance abuse and school dropout (Leão et al., 2018). Depression is a chronic, recurrent mood disorder, characterized by sadness, guilt, pessimism, loss of appetite, difficulty concentrating, decreased libido, and increased irritability, negatively affecting the personal lives and academic context of university students (Ribeiro et al., 2014).

University life entails changes in students' habits, the acquisition of new responsibilities, and exposure to risk factors, including alcohol and tobacco, increasing the likelihood of developing mental disorders in this population (Fauzi et al., 2021; Islam et al., 2022; Ramón-Arbués et al., 2020).

Studies have found a 30.6% prevalence of depression in this population, as opposed to 9% in non-university students (Demenech et al., 2021; Kang et al., 2021; Knapstad et al., 2021; Ibrahim et al., 2013). A systematic review of the global prevalence of anxiety among university students identified a prevalence of 33% in Asia, 51% in Europe and 56% in the United States (Liyanage et al., 2021).

A study conducted in Brazil of 476 freshmen found that 36.1% had anxiety and 28.6% depression (Leão et al., 2018). Other studies have observed a high prevalence of mental disorders during university education, including common mental disorders (CMD) (Gebreegziabher et al., 2019; Karyotaki et al., 2020; Sousa et al., 2021).

CMDs are classified as non-psychotic mental disorders, with symptoms such as insomnia, difficulty concentrating, forgetfulness, fatigue, irritability, feelings of worthlessness and somatic complaints (Gebreegziabher et al., 2019; Risal, 2012; Sousa et al., 2021). When CMD affects young adults such as university students, it can significantly interfere with their relationships, work, and performance of daily activities, compromising their social interactions with family and colleagues (Melese et al., 2016). In the university context, it has a major impact and can lead to students dropping out of courses with long-term social and financial consequences for employment and financial security (Leach & Butterworth, 2012).

These aspects can lead students to use psychotropic drugs to relieve the symptoms resulting from mental suffering. Psychotropic drugs are substances that act on the Central Nervous System (CNS) causing psychological changes that can affect behavior, mood and/or cognition. Due to these effects, psychotropic drugs are among the main means of treating psychiatric disorders (Reis et al., 2021).

The literature shows that university students not only use psychotropic prescription drugs but also self-medicate (Benson et al., 2015; Papazisis et al., 2017). Studies have found that the most used psychotropic drugs by this population are anxiolytics, antidepressants, and amphetamines (Balayssac et al., 2018; Fasanella et al., 2022; Maidana et al., 2020). Although psychotropic drugs are intended for those suffering from mental disorders such as anxiety and depression, some of these drugs can be addictive and should only be used when medically prescribed (Jha et al., 2018; Lerner & Klein, 2019).

These aspects underline the impact of anxiety, depression, and psychotropic drug use on university students. However, most studies address these variables in isolation and there are few studies designed to evaluate the mental health of university students in Brazil. This study therefore aims to identify the factors associated with and their correlation with psychotropic drug use, and anxiety and depressive symptoms in university students.

METHOD

Study design/Location

This is a cross-sectional, analytical study undertaken at a public federal university in Brazil. The university has 19 Academic Units and 51 in-person undergraduate courses, including bachelor's and master's degrees.

Participants

The population comprised undergraduate students enrolled in in-person courses. The inclusion criteria were being aged 18 or over, and being enrolled in classroom courses, regardless of the stage they were at in the latter. Students who failed to complete the questionnaire were excluded. We obtained a sample of 902 students who agreed to take part in the survey and completed the questionnaire in full.

Procedure/Measurements

Students were invited to take part in the survey through individual contact, through an invitation letter sent by the university under study, via the institutional e-mail, to all undergraduate students (n = 15.877). This invitation letter explained the title, objectives, and justification of the survey and at the end of the letter, there was a link to the SurveyMonkey® platform to access the data collection instruments. After the letter of invitation had been sent out, students had a total of 60 days to provide their answers. Initially, the emails were sent, and 30 days were allowed for feedback. After this period had elapsed, new emails were sent with an invitation letter and researchers waited another

ten days. After this new deadline, emails were sent weekly until 60 days had elapsed. The final deadline for participation in the survey was given in the last two emails. After this period, surveys were no longer allowed to be submitted.

Data collection took place between July and November 2020. An instrument was designed by the authors to collect sociodemographic, economic, medical history and academic life-related variables, considering general aspects to characterize participants. The question "Do you use psychotropic drugs?" was used to collect data on the outcome variable "use of psychotropic drugs," with dichotomous "yes" and "no" answers. Participants provided the names of the psychiatric drugs they used, which were subsequently classified by consulting the drug database available on the National Health Surveillance Agency website. The psychotropic drug classification was drawn up using a polytomous categorical variable based on the anatomical and therapeutic groups of the Anatomical Therapeutic Chemical (ATC) Classification. The outcome variables "anxiety symptoms" and "depressive symptoms" were collected using the Mini International Neuropsychiatric Interview (MINI), with dichotomous "yes" and "no" answers. This instrument is a diagnostic questionnaire, compatible with DSM-III-R/IV and ICD-10 criteria (Sheehan et al., 1998). Since the questionnaire is organized into independent diagnostic modules and given the objectives of this study, we used Module A "Major Depressive Episode" (MDE), comprising 12 questions. The answers consist of a dichotomous "yes" or "no" variable, while the questions assess current and past major depressive episodes. Module O "Generalized Anxiety Disorder," comprises ten questions, with answers in a dichotomous "yes" or "no" variable and questions assessing the current generalized anxiety disorder.

It is worth noting that in this study, the MINI instrument was sent to students together with the other data collection instruments and self-administered, although this is not how it is intended to be administered. The choice of procedure was due to the COVID-19 pandemic, which made it impossible for the researcher to collect data in person at the university.

Statistical analysis

Data were collected in Excel and transferred to the SAS/STAT® 9.4, where they were analyzed using descriptive statistics. The anxiety symptoms, depressive symptoms and use of psychiatric medication variables were considered dependent, while those related to sociodemographic and economic factors, medical history, and academic life were considered independent. The use of psychiatric medication was considered an independent variable when associated with outcomes including anxiety and depressive symptoms.

To verify the hypothesis of association between the variables, the data were submitted to Pearson's Chi-square test and Fisher's exact test. The hypothesis of association was considered significant when "p" was less than or equal to .05. Logistic regression was used to verify the effect of the independent variables in relation to the dependent ones. The strength of this association was measured using logistic regression models, with odds ratios being calculated with 95% confidence intervals. The logistic regression model used the following dependent variables: current depressive symptoms, anxiety symptoms and psychotropic drug use and independent variables showing a significant association with outcomes, using Pearson's chi-square test or Fischer's exact test. The choice of logistic regression is justified in this case is justified because the dependent variables are qualitative and categorical.

Ethical considerations

Data were collected after approval by the Research Ethics Committee of the proposing institution (CAAE 25989119.8.0000.5393), and the co-participating institution (CAAE 25989119.8.3016.5147). Participants signed a Free and Informed Consent Form (FICF), in accordance with Resolution 466/2012 of the National Health Code. The study was conducted in accordance with the World Medical Association International Code of Ethics (Declaration of Helsinki).

RESULTS

In this study, the variables related to sociodemographic profile, economic factors, medical history and academic life were independent, while psychotropic drug use and anxiety and depressive symptoms were dependent variables.

The sample consisted of 902 students. Most of the sample were female (66.4%), with an average age of 24.8 years (SD= 7.7), ranging from 18 to 69 years, white (63%), heterosexual (68.1%), single (88.4%), childless (92.6%), lived with their families (77.8%), did not earn an income (57.7%), full-time students (52.3%) and did not profess any religion (42.3%).

Two hundred and ten (23.3%) students declared that they were currently using psychotropic drugs. Of this group, 105 (50%) reported using at least one psychotropic drug while 70 (33.3%) used two (2). It was striking that 16.7% of participants mentioned using three (3) or more psychotropic drugs. Antidepressants were the most frequently mentioned psychotropic drugs used by the students, $n = 193$ (21.4%), followed by anticonvulsants/mood stabilizers $n = 71$ (7.8%). Forty-eight (5.3%) students mentioned using anxiolytics, $n = 22$ (2.4%) reported using antipsychotics, and 8 (.8%) reported using psychostimulants and nootropics. One hundred and twenty-two (35%) participants had been using psychotropic drugs for less

than a year. Most students had been using these drugs for one to two years while 79 (23%) mentioned having used psychotropic drugs for over two years. At the same time, 74% of psychotropic prescriptions were written by psychiatrists, and 6% by neurologists. However, 12% of participants did not inform the doctor prescribing the psychotropic drug that they were using it. One alarming result was that 13.3% of participants stated that they had been using psychiatric medication without a medical prescription. Of this group, 46.4% reported that they had purchased the drugs without a prescription from a pharmacy with 85.7% mentioning anxiety/depression/insomnia as the reason why they used these [SS1] non prescription drugs

In regard to the factors associated with the use of psychotropic drugs, it was found that students who had children were 2,206 times more likely to use psychiatric drugs than students who did not. Students admitted through the quota system were 1,865 times more likely to use psychiatric drugs than those who had entered through the open competition system. University students studying linguistics, literature, arts, and agricultural sciences were 2,186 times more likely to use psychiatric medication than those studying exact, human or biological sciences. Participants who had been forced to cancel their enrolment were 2,480 times more likely to use psychiatric medication. University students who had emotional difficulties that interfered with their academic life were 12,937 times more likely to use psychotropic medication. Students who reported using mood-altering substances (those with the potential to cause dependence) were 1,620 times more likely to use psychiatric drugs. Students who reported unpleasant reactions to the absence of a mood-altering substance were 2,097 times more likely to use psychiatric drugs, while those who continued using a mood-altering substance despite the unpleasant reactions were 1,862 times more likely to use psychiatric drugs than students who stopped using a mood-altering substance due to the unpleasant reactions they experienced. At the same time, students who attended university during the morning shift were .652 times less likely to use psychiatric drugs than those who attended university during the evening shift (Table 1).

Table 1
Logistic Regression Model for Predicting the Use of Psychotropic Drugs by Sociodemographic Characteristics and Students' Academic Profile, Brazil, 2020 (N=902)

Variables	*Psychoactive Drug Use [N (%)]*		*p-value*	*OR*	*CI 95%*	
					Below	*Above*
	Yes	No				
Children			.0043¥			
Yes	25 (12)	42 (6.1)		2.106	1.250	3.547
No	184 (88)	651 (93.9)				
Total	209	693				
University entrance			<.0001¥			
Open competition	97 (46.4)	428 (61.8)				
Quotas	112 (53.6)	265 (38.2)		1.865	1.365	2.548
Total	209	693				
Course area			.0044¥			
Exact (exact and earth sciences, engineering)	43 (20.6)	188 (27.1)				
Humanities (applied social sciences, humanities)	87 (41.6)	259 (37.4)		1.469	.974	2.215
Biological (biological sciences, health sciences)	37 (17.7)	162 (23.4)		.999	.613	1.625
Other (linguistics, literature and arts, agricultural sciences)	42 (20.1)	84 (12.1)		2.186	1.330	3.593
Total	209	693				
Course schedule			.0052¥			
Morning	22 (10.5)	118 (17)		.652	.396	1.073
Evening	68 (32.5)	159 (23)		1.495	1.054	2.121
Combined	119 (56.9)	416 (60)				
Total	209	693				

Table 1
Logistic Regression Model for Predicting the Use of Psychotropic Drugs by Sociodemographic Characteristics and Students' Academic Profile, Brazil, 2020 (N=902) (continued)

Variables	*Psychoactive Drug Use [N (%)]*		*p-value*	*OR*	*CI 95%*	
					Below	*Above*
Enrolment cancellation			<.0001¥			
Yes	35 (16.7)	52 (7.5)		2.48	1.565	3.928
No	174 (83.3)	641 (92.5)				
Total	209	693				
Has emotional difficulties that interfere with academic life			<.0001ǂ			
Yes	207 (99)	616 (88.9)		12.937	3.15	53.128
No	2 (1)	77 (11.1)				
Total	209	693				
Use of mood-altering substances			.0023¥			
Yes	107 (51.4)	274 (39.5)		1.62	1.186	2.212
No	101 (48.6)	419 (60.5)				
Total	208	693				
Unpleasant reactions to lack of substance			.0012¥			
Yes	56 (51.8)	95 (33.9)		2.097	1.336	3.293
No	52 (48.2)	185 (66.1)				
Total	108	280				
Continued use of substance despite unpleasant reactions			.0063¥			
Yes	61 (56.5)	115 (41.1)		1.862	1.189	2.917
No	47 (43.5)	165 (58.9)				
Total	108	280				

Source: Research data, 2020. Odds Ratio (OR). 95% confidence intervals. *p*-value < .05: ¥Pearson's chi-square test and ǂFisher's exact test.

An analysis of participants' responses to the MINI questionnaire showed that most students had depressive symptoms (n = 499) (55.3%), 52.2% of which reported current depressive symptoms and 36.2% of which reported previous depressive symptoms (Tables 2 and 3).

It was found that students enrolled in the first year of undergraduate courses were 1,319 times more likely to have depressive symptoms than those enrolled in the fifth to seventh semester of their respective undergraduate courses. Conversely, students enrolled in the second to fourth semester were .808 times less likely to have depression symptoms than those enrolled in the fifth to seventh semester of their undergraduate courses. University students who expressed an interest in changing their course were 1.928 times more likely to have depression symptoms while those who were forced to drop out of theirs were .0012 times more likely to have depression symptoms. University students with problems that interfered with their academic life were 3,459 times more likely to have depression symptoms. Students who had emotional difficulties interfering with their academic life were 15,959 times more likely to have depression symptoms. Students who used psychiatric medication were 2,193 times more likely to have depression symptoms, those who used anxiolytics were 2,606 times more likely to have depressive symptoms and those who used antidepressants were 1,785 times more likely to have depressive symptoms than those who did not. In turn, students who used anticonvulsants/mood stabilizers were 1,893 times more likely to have depressive symptoms than those who did not use this type of medication. Students who used mood-altering substances were 1,981 times more likely to have depression symptoms. Those who reported unpleasant reactions when they quit using a mood-altering substance or reduced the amount they took were 1,810 times more likely to have depression symptoms, while those who continued using a mood-altering substance despite the unpleasant reactions it elicited were 1,570 times more likely to have depression symptoms than those who stopped using the mood-altering substance due to the unpleasant reactions it caused (Table 2).

Table 2
Prevalence of Depressive Symptoms, according to the MINI (International Neuropsychiatric Interview) Score and Logistic Regression Model for Predicting Depressive Symptoms, by Academic Profile and Psychotropic Drug Use. Brazil, 2020 (N=902)

Variables	*Major Depressive Episode*	
Depressive Symptoms	*N*	*%*
Yes	499	55,3
No	403	44,7
Total	902	100
	Current *	
Yes	471	52,2
No	431	47,8
Total	902	100
	Past **	
Yes	327	36,2
No	575	63,8
Total	902	100

Variables	*Depressive Symptoms - current* [N (%)]*		*p-value*	*OR*	*IC 95%*	
	MINI				*Below*	*Higher*
	Positive	*Negative*				
Course period			.0053¥			
First year	176 (37.2)	119 (27.7)		1.319	.893	1.948
Second, third and fourth semester	214 (45.2)	236 (55)		.808	.562	1.163
Fifth, sixth and seventh semester	83 (17.6)	74 (17.3)				
Total	473	429				
I'd like to swap my course for another one			<.001¥			
Yes	138 (42.2)	89 (27.5)		1.928	1.389	2.677
No	189 (57.8)	235 (72.5)				
Total	327	324				
Enrollment cancellation			.0012¥			
Yes	60 (12.7)	27 (6.3)		2.162	1.345	3.475
No	413 (87.3)	402 (93.7)				
Total	473	429				
Failure			.0493¥			
Yes	208 (44)	161 (37.5)		1.307	1.001	1.706
No	265 (56)	268 (62.5)				
Total	473	429				
Has difficulties that interfere with life or the academic context			<.0001¥			
Do you have any difficulties?	456 (96.4)	380 (88.6)		3.459	1.959	6.105
No difficulties	17 (3.6)	49 (11.4)				
Total	473	429				

Table 2
Prevalence of Depressive Symptoms, according to the MINI (International Neuropsychiatric Interview) Score and Logistic Regression Model for Predicting Depressive Symptoms, by Academic Profile and Psychotropic Drug Use. Brazil, 2020 (N=902) (continued)

Variables	*Depressive Symptoms - current* [N (%)]*		*p-value*	*OR*	*IC 95%*	
	MINI				*Below*	*Higher*
	Positive	*Negative*				
Has emotional difficulties that interfere with academic life			<.0001¥			
Has any emotional difficulties	467 (98.7)	356 (83)		15.959	6.864	37.103
No emotional difficulties	6 (1.3)	73 (17)				
Total	473	429				
Psychotropic drug use			<.0001¥			
Yes	140 (29.6)	69 (16.1)		2.193	1.263	2.522
No	333 (70.4)	360 (83.9)				
Total	473	429				
Anxiolytics			.004¥			
Yes	33 (7)	12 (2.8)		2.606	1.328	5.114
No	440 (93)	417 (97.2)				
Total	473	429				
Antidepressants			.009¥			
Yes	108 (22.8)	61 (14.2)		1.785	1.263	2.522
No	365 (77.2)	368 (85.8)				
Total	473	429				
Anticonvulsant			.019¥			
Yes	42 (8.9)	21 (4.9)		1.893	1.102	3.252
No	431 (91.1)	408 (95.1)				
Total	473	429				
Use of mood-altering substances			<.0001¥			
Yes	237 (50.1)	144 (33.6)		1.981	1.513	2.593
No	237 (49.9)	284 (66.4)				
Total	473	428				
Unpleasant reactions to the absence of the substance			.0069¥			
Yes	106 (44.2)	45 (30.4)		1.81	1.174	2.792
No	134 (55.8)	103 (69.6)				
Total	240	148				
Continued substance use			.0334¥			
Yes	119 (49.6)	57 (38.5)		1.57	1.035	2.382
No	121 (50.4)	91 (61.5)				
Total	240	148				

Source: Survey data, 2020. Odds Ratio (OR): 95% Confidence Intervals
p-value < .05. ¥ Pearson's Chi-square test
Current: in the past two weeks. ** Past: lifetime use

Most students were found to have anxiety symptoms (n = 780) (86.5%). Students admitted to university through the quota system were 1,605 times more likely to have anxiety symptoms than those who entered through the open competition system. University students studying agricultural sciences, literature, art and linguistics were 2,963 times more likely to have anxiety symptoms than those studying exact and biological sciences, while those studying during the evening shift were 1,932 times more likely to have anxiety symptoms. Conversely, studying full-time was identified as a protective factor for anxiety symptoms, with full-time students being .974 times less likely to have anxiety symptoms than those who only studied during the morning or evening shifts. Students enrolled in courses that had not been their first choice were 2,320 times more likely to have anxiety symptoms while those who expressed an interest in changing their university course were 1,968 times more likely to have anxiety symptoms than those who did not. Students with emotional difficulties that interfered with their academic life were 34,402 times more likely to have anxiety symptoms, while those who used psychiatric medication were 14,525 times more likely to have anxiety symptoms. Conversely, students who specifically used antidepressant medication were 16,670 times more likely to display anxiety symptoms than those who did not. Students who reported using mood-altering substances were 2,818 times more likely to have anxiety symptoms while those who reported unpleasant reactions to the lack of these mood-altering substances were 3,289 times more likely to have anxiety symptoms than those who reported no unpleasant reactions to the reduction or lack of mood-altering substances (Table 3).

Table 3
Prevalence of Anxiety Symptoms, according to MINI (International Neuropsychiatric Interview) Score and Logistic Regression Model for Predicting Anxiety Symptoms, by Academic Profile and Use of Psychotropic Drugs. Brazil, 2020 (N=902)

Variables	*Generalized Anxiety Disorder*					
Anxiety Symptoms	*N*			*%*		
Yes	780			86.5		
No	122			13.5		
Total	902			100		
Variables	*Anxiety Symptoms [N (%)]*		*p-value*	*OR*	*IC 95%*	
	MINI				*Below*	*Above*
	Positive	*Negative*				
University Admission			.0204¥			
Open competition	441 (56.7)	84 (67.7)				
Quotas	337 (43.3)	40 (32.3)		1.605	1.073	2.4
Total	778	124				
Course area			.0012¥			
Exact (exact and earth sciences, engineering)	184 (23.6)	47 (37.9)				
Humanities (applied social sciences, humanities)	310 (39.9)	36 (29)		2.2	1.374	3.522
Biological (biological sciences, health sciences)	168 (21.6)	31 (25)		1.384	.84	2.281
Other (linguistics, literature and arts, agricultural sciences)	116 (14.9)	10 (8.1)		2.963	1.441	6.093
Total	778	124				
Course schedule			.0242¥			
Morning	119 (15.3)	21 (16.9)				
Evening	208 (26.7)	19 (15.3)		1.932	.998	3.739
Combined	451 (58)	84 (67.8)		.947	.564	1.592
Total	778	124				

Table 3
Prevalence of Anxiety Symptoms, according to MINI (International Neuropsychiatric Interview) Score and Logistic Regression Model for Predicting Anxiety Symptoms, by Academic Profile and Use of Psychotropic Drugs. Brazil, 2020 (N=902) (continued)

Variables	*Anxiety Symptoms [N (%)]*		*p-value*	*OR*	*IC 95%*	
	MINI				*Below*	*Above*
	Positive	*Negative*				
Enrolled in first-choice course			.0021¥			
Yes	579 (74.4)	108 (87.1)				
No	199 (25.6)	16 (12.9)		2.32	1.34	4.018
Total	778	124				
I'd swap the course for another one			.0068¥			
Yes	204 (37)	23 (23)		1.968	1.198	3.235
No	347 (63)	77 (77)				
Total	551	100				
Has difficulties that interfere with life or the academic context			<.0001¥			
Yes	746 (95.9)	90 (72.6)		8.807	5.184	14.962
No	32 (4.1)	34 (27.4)				
Total	778	124				
Has emotional difficulties that interfere with academic life			<.0001¥			
Yes	758 (97.4)	65 (52.4)		34.402	19.516	60.641
No	20 (2.6)	59 (47.6)				
Total	778	124				
Use of psychotropic drugs			<.0001‡			
Yes	206 (26.5)	3 (2.4)		14.525	4.569	46.174
No	572 (73.5)	121 (97.6)				
Total	778	124				
Antidepressants			<.0001‡			
Yes	167 (21.5)	2 (1.6)		16.67	4.08	68.114
No	611 (78.5)	122 (98.4)				
Total	778	124				
Use of mood-altering substances			<.0001¥			
Yes	353 (45.4)	28 (22.8)		2.818	1.807	4.395
No	425 (54.6)	95 (77.2)				
Total	778	123				
Unpleasant reactions to the absence of the substance			.0128¥			
Yes	146 (40.7)	5 (17.2)				
No	213 (59.3)	24 (82.8)		3.289	1.227	8.817
Total	359	29				

Source: Research data, 2020. Odds Ratio (OR). 95% confidence intervals.
p-value < .05. ¥Pearson's chi-square test and ‡Fisher's exact test.

DISCUSSION AND CONCLUSION

It was striking that nearly a quarter of students used psychotropic drugs. The use of medication in an academic environment, including psychotropic drugs, has become increasingly common, as it is a place with a heavy workload and studies, with the potential for students and teachers to become ill. The rates observed in our study are higher than those identified in the literature, indicating a prevalence of between 10% and 19.7% of psychotropic drug use in this population (Naser et al., 2021).

Most of the participants who used psychotropic drugs had been using them for a year or more. The length of time psychotropic drugs have been used is a significant aspect, especially in the case of benzodiazepines. In this study, 5.3% of psychotropic drug users used benzodiazepines. A study on the risks associated with the abuse of benzodiazepines concluded that continuous, heavy use of these drugs can affect both the health and everyday lives of users. It found that using them for over 26 days exposes users to the risks of withdrawal, tolerance or dependence (Silva et al., 2022), and there is a need for the health team to inform users of the effects of prolonged use, when a prescription is required.

It is worth noting that 13% of students using psychotropic drugs reported using them without a medical prescription, meaning that they self-medicate. Self-medication is understood as the act of ingesting medication on one's own, without any indication and/or monitoring by a qualified healthcare professional. A meta-analysis review with studies of several countries, including Brazil, showed an overall prevalence of self-medication of 70.1% among university students (Behzadifar et al., 020). In regard to the means of acquiring psychotropic drugs without a medical prescription, even though this medication is intended for controlled use, with prescriptions being retained by pharmacies at the moment of purchase, there was a high frequency of students who purchased them over the counter at pharmacies (46.4%), highlighting the weaknesses in the system for dispensing this type of medication. Most students sought psychotropic drugs without a medical prescription to relieve their anxiety/depression/insomnia symptoms (24) (85.7%). These findings are corroborated by the literature, as research reports that the main reasons leading students to seek psychotropic drugs are recreational use, self-medication (for stress relief and relaxation), pain management, and enhancing academic performance (Naser et al., 2021). At the same time, there is a surprisingly low use of psychostimulants (.8%). This finding can be justified and should be viewed with caution since participants may not have recognized substances such as caffeine, cocaine, and ecstasy as stimulants.

In this study, although 74% of psychotropic prescriptions were written by psychiatrists, 12% of participants failed to inform the professional responsible for the prescription that they would be using them. This finding deserves to be highlighted, because although the benefits of correctly using psychiatric medication are indisputable, treatment and solving the problem should not focus solely on medication. Treatment should be linked to drug therapy and psychotherapy. Furthermore, knowledge about the prescribed medication is essential, as it increases the confidence, safety, and effectiveness of the therapy, as well as reducing side effects and drug interactions (Reis et al., 2021).

Students with children were more likely to take psychotropic drugs. One possible explanation for this finding could be the potential overload resulting from simultaneous activities, such as academic life and child-raising. In this respect, it is worth remembering that most participants in this study were female. A study shows that being a mother and a student requires performing multiple tasks with a direct and indirect influence, both positive and negative, on social, emotional, family, and educational life. Reconciling the roles of mother and student entails difficulties than can lead to absence from classes, withdrawing from courses and even dropping out (Santos, et al., 2021).

Students who entered through the quota system were more likely to use psychotropic drugs as were full-time students. For both quota and full-time students, seeking psychotropic drugs may be associated with financial conditions. The literature shows that low family income can trigger concerns in students, hindering academic performance and creating mental suffering, which can result in the use of psychotropic drugs. It is worth noting that full-time students have greater difficulty securing extra-academic work, limiting their ability to earn an income, resulting in financial difficulty for certain students (Santana et al., 2018).

Dropping out of a course was associated with psychotropic drug use. One study found that psychological distress was the most common reason university students gave for failing to complete a course (Ribeiro et al., 2016). Likewise,, another study found that one of the strategies used by students to cope with suffering and psychological illness was the use of psychotropic drugs (Reis et al., 2021).

There was a greater likelihood of psychotropic drug use among students who reported using mood-altering substances, had unpleasant reactions to quitting and mentioned continuing to use a substance despite the reactions it caused. Starting university can be a period of great vulnerability for the onset and maintenance of use of psychoactive substances (PAS), such as alcohol and tobacco (Barros & Costa, 2019). A study assessing substance use by students found excessive use of alcohol, illicit drugs, stimulants and over-the-counter medication (Boulton & O'Connell, 017). These findings reflect the high levels of use and abuse of licit and illicit psychoactive substances among Brazilian university students, possibly reflecting the teaching model followed and university life (Batista et al., 2022).

Unpleasant reactions to quitting drug use are to be expected following the abuse of dependence-producing substances. Studies show that the use of alcohol, tobacco, drugs and non-prescription medicine among students can damage their health and interfere with their academic performance (Batista et al., 2022; Benson et al., 2015), particularly in situations where students already shows signs and symptoms of withdrawal and dependence.

The prevalence of depression and anxiety symptoms among undergraduate students was 55.3% and 86.5% respectively. In regard to depression symptoms, the result lies within the prevalence range of findings in the literature, which varied from 22.3% to 58.5%. The prevalence of anxiety symptoms was higher than in previous studies, where it varied from 15.8% to 62.9%, depending on the type of instrument used (Naser et al., 2021; Shao et al., 2020). A possible explanation for the high prevalence of anxiety symptoms in participants could be that data were collected during the COVID-19 pandemic. During this period, students were forced to adapt to a new way of learning through virtual platforms, and there was isolation and social distancing, which, according to the literature, contributed to increased screen time, and changes in eating habits and physical activity levels (Barros et al., 2021), as well as anxiety, depression and stress levels (Silva et al., 2021).

In this study, 44% of students failed their exams, and were 1.3 times more likely to have depressive symptoms. Similar results were observed in a study in which just over half the students failed their exams and were 2.6 times more likely to have depressive symptoms than those who regularly passed them (Paudel et al., 2020). The presence of mental disorders among university students interferes with their psychosocial well-being and interpersonal relationships, directly influencing their academic and professional performance (Conceição et al., 2019). In this study, dropping out was associated with the presence of depressive symptoms.

Dissatisfaction with a course was another factor associated with anxiety and depressive symptoms. Research has shown that students' greatest dissatisfaction with the course they were enrolled in was due to the teaching staff and curriculum structure (Souza & Reinert, 2010). In this respect, one study identified the following as predictors of student satisfaction with the course: teacher training, use of appropriate methodologies, up-to-date teaching methods, coherence, and organization of subject content (Hirsch et al., 2015).

Dissatisfaction can result in emotional imbalance, including nervousness, irritability, impatience, withdrawn behavior, apathy, demotivation, and stress (Hirsch et al., 2015). These aspects should be considered by the management of higher education institutions to prevent mental health problems among undergraduates and improve the teaching-learning process.

This study found that emotional and general difficulties interfered with students' academic life and context and were related to the presence of depression and anxiety symptoms. A study shows that when students are admitted to higher education institutions, they require emotional and cognitive resources to adapt to the university environment (Padovani et al., 2014). Other studies also note that the stress, mood swings and conflicts experienced during undergraduate studies can interfere with academic performance and even lead to psychological disorders such as anxiety and depression (Santos et al., 2021).

This study found an association between depressive symptoms and the use of psychotropic drugs and mood-altering substances. In this respect, a study has shown that due to attention-related difficulties, dissatisfied academics may experience depressive symptoms and therefore seek an immediate solution through stimulant medication (Benson et al., 2015).The use of psychotropic drugs and substances to feel better or improve one's mood has also been associated with anxiety symptoms. The literature indicates that tranquilizer and sedative use and abuse is associated with attempts by students to reduce the anxiety caused by academic life and improve sleep quality (Bennett & Holloway, 2017).

An association was found between having unpleasant reactions to the absence of a mood-altering substance and having anxiety symptoms. This aspect can partly be explained by the use of psychoactive substances that cause dependence and tolerance, and anxiety symptoms can occur when use is abruptly interrupted (Prince et al., 2013).

A significant association was also observed between anxiety symptoms and admission through quotas. One possible explanation could be the financial difficulties experienced by these students during their undergraduate studies. A study revealed that students with a significant financial burden had more anxiety symptoms (Shao et al., 2020). Another explanation could be the difficulty of social inclusion experienced by quota students (Santos et al., 2023).

Students enrolled in their second-choice course who were intending to change courses were more likely to display anxiety symptoms. A possible explanation for this finding could be the dissatisfaction of studying a course to pursue an unwanted profession. A study exploring the association between students' mental health and dissatisfaction with their courses showed that nearly half the students investigated were not studying their degree course of choice. Students' reports reflected enormous dissatisfaction with their degree courses, the most frequent complaints being anxiety, depression, discouragement about their studies and apathy, risk factors for their health and continuing their studies (Garbin et al., 2020).

The results of this study must be interpreted considering its limitations. A key aspect is that the data were drawn from non-probabilistic sampling. Aspects related to the abuse of psychotropic drugs and the risk of dependence on the latter were not assessed, an issue which future studies could address. Another relevant aspect is that the MINI is

designed to be administered by a trained professional, but since data collection was undertaken during the pandemic, it was used as a self-report instrument.

It is essential to recognize that the impact on the mental health of undergraduates can last beyond the pandemic period. Previous studies have shown that crises such as pandemics have lasting effects on the psychological health of the populations affected (Galea et al., 2020; Ornell et al., 2020). Continuing research into the long-term effects on undergraduate mental health, even after the pandemic has ended, is crucial to fully understanding the impact of these events and informing preventive and interventional mental health policies to mitigate future negative impacts.

This study highlights the need for more in-depth assessment of these mental disorders, the use of over-the-counter psychotropic drugs, and other aspects related to academic life, to help students. Higher education institutions currently have departments responsible for the psycho-pedagogical monitoring of students to improve their academic performance, and identify cases in which referrals to specialized professionals are required. However, it is essential to develop interventions such as monitoring and support for students, student counseling, and anxiety management workshops, to detect, manage, monitor, and refer at-risk students at higher education institutions.

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Conflict of interest

The authors declare they have no conflicts of interest.

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Cognitive Decline and Food Insecurity in Older Brazilian Adults Registered with Primary Health Care: A Cross-sectional Study

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ABSTRACT

Introduction: Cognitive decline (CD) is the deterioration of intellectual abilities, damaging areas such as memory, language, and learning. An insufficient diet, common among those facing food insecurity (FI), can contribute to CD in older adults by affecting nutrient intake, and the maintenance of nutritional and health status. **Objective:** To determine the association between FI and CD in older adults enrolled in Primary Health Care (PHC). **Method:** This is a cross-sectional study of older people aged 60 or over living in private households in a municipality in the Northeast of Brazil, and registered with the Family Health Strategy (FHS). The dependent variable (CD) was assessed using the Mini Mental State Examination (MMSE). FI was evaluated using the Brazilian Food Insecurity Scale (EBIA). Descriptive analysis, Pearson's chi-squared test, and logistic regression were used to analyze the data. **Results:** Three hundred and sixteen older adults were assessed, 63.3% of whom faced FI and 59.8% of whom presented with CD. Bivariate analysis revealed an association between CD and FI (*p*-value = .026). The results of the logistic regression only showed a statistically significant association between moderate/severe FI and CD (OR = 1.878; 95% CI: 1.002 - 3.521). There was no association between mild FI and CD (OR = 1.529; 95% CI: 0.888 - 2.634). **Discussion and conclusion:** This study revealed an association between moderate/severe FI and CD in older PHC patients. Restricted dietary habits in regard to both quantity and quality may make this population more susceptible to CD.

Keywords: Food security, mental health, aging, primary health care

RESUMEN

Introducción: El Deterioro Cognitivo (DC) se caracteriza por una decadencia de las habilidades intelectuales, con daños en las áreas como memoria, lenguaje y aprendizaje. Una alimentación irregular e insuficiente, condición común en los individuos en Inseguridad Alimentaria (IA), puede colaborar para el DC en ancianos, puesto que afecta la ingestión de nutrientes, la manutención del estado nutricional y la condición de salud. **Objetivo:** Evaluar la asociación entre IA y DC en ancianos de la Atención Primaria a la Salud (APS). **Método:** Se trata de un estudio transversal, realizado con individuos ancianos de 60 años o más que viven en casas particulares en una ciudad del nordeste de Brasil, registrados en la Estrategia Salud de la Familia (ESF). Se evaluó la variable dependiente (DC) mediante el Mini Examen del Estado Mental (MEEM). La IA se evaluó por medio de la Escala Brasileña de la Inseguridad Alimentaria (EBIA). Para el análisis de los datos se utilizó el análisis descriptivo, el test chi-quadrado de Pearson y regresión logística. **Resultados:** Se evaluaron 316 ancianos, en los que 63.3% se encontraban en IA y 59.8% presentaban DC. En los análisis bivariados hubo asociación entre DC e IA (*p*-valor = .026). Los resultados de la regresión logística apuntaron a una asociación estadísticamente significativa solamente entre IA moderada/grave y DC (OR = 1.878; IC95%: 1.002 – 3.521). No hubo asociación entre IA leve y DC (OR 1.529; IC95%: 0.888 – 2.634). **Discusión y conclusión:** Este trabajo reveló una asociación entre IA moderada/grave y DC en los ancianos de la APS. Posiblemente, los hábitos alimentarios más restrictivos, tanto en cantidad, como en calidad; pueden convertir a esa población más vulnerable al DC.

Palabras clave: Seguridad Alimentaria, salud mental, envejecimiento, atención primaria de salud.

INTRODUCTION

Cognition is the mental capacity of an individual to understand and solve everyday problems based on perception, language, reasoning, and sensory abilities (Moraes et al., 2010). Conversely, cognitive decline (CD) is a decline in intellectual abilities, affecting key areas such as memory, language, learning, and the performance of everyday tasks and behavior (De Ronchi et al., 2005; Machado et al., 2011). This condition has an impact in terms of reduced functional capacity, independence, and autonomy, affecting the quality of life and causing psychosocial damage (Machado et al., 2011; Pavel et al., 2023).

CD derives from the normal process of aging or the transition to dementia, a chronic condition characterized by the presence of CD affecting a significant portion of the older population (Machado et al., 2011; Trindade et al., 2013). As a result of the aging process, the number of individuals exposed to CD gradually increases, significantly impacting public health (Lira & Santos, 2012; Rosa et al., 2018). The global prevalence of CD in community-dwelling older adults ranges from 5.1% to 41% (Pais et al., 2020). In Brazil, however, this prevalence exceeds 50% in older adults treated in Primary Health Care (PHC) (Pereira et al., 2020).

CD can manifest itself during aging and is proportional to advancing age, causing a decline in the structures responsible for the normal functioning of brain systems (De Ronchi et al., 2005). In addition to age, other determinants of CD include educational attainment, sex, social support, lifestyle, and marital status (Wu et al., 2011; Pereira et al., 2020; Horacio et al., 2021). Moreover, this situation can be exacerbated by food insecurity (FI), a condition that can be acute or chronic, and results from a lack of regular, sufficient access to food in terms of quantity and quality.

FI is a shortage of the food and nutrients (protein with high biological value, vitamins, minerals, and fiber) essential to maintaining health, which can lead to poor nutritional status and mental health (Martin et al., 2007; Frongillo et al., 2017; Koyanagi et al., 2019). In addition, FI may lead to stress, which can trigger the onset of CD (Smith et al., 2021). Food insecurity (FI) is believed to cause multisystemic physiological dysregulation (an increase in allostatic load), caused by nutrient deficit and chronic stress. The immune and metabolic systems are most severely affected, causing inflammatory and neuroendocrine damage that disrupts homeostasis and may impair cognition (Pak & Kim, 2021; Wilbrecht et al., 2024). Conversely, an adequate diet is a protective factor for the preservation of cognitive functions, enhancing the ability to perform daily activities (Martin et al., 2007).

Despite scientific evidence demonstrating the relationship between FI and CD, there is a dearth of studies analyzing this phenomenon across the levels of FI (mild, moderate, and severe). Moreover, as most research is conducted in high-income (developed) countries, it is essential to understand this situation in settings such as northeastern Brazil, where older adults have higher rates of FI due to vulnerabilities associated with low income and poor education, exacerbated by the shortage of social and health public policies (Geib et al., 2012; Royer et al., 2021).

Given the rapid aging of the population and the lack of evidence on this issue in Latin America, it is necessary to determine the impact of FI, associated with inadequate, irregular dietary habits, on CD. This study therefore sought to understand the association between FI and CD in older adults treated in Primary Health Care in a municipality in the Northeast Region of Brazil.

METHOD

Study Type, Location and Population

This is a cross-sectional study conducted among older adults (aged 60 years and older) living in private households and registered with the Family Health Strategy (FHS), a program linked to PHC in Brazil. The study is part of a larger research project entitled "Health Assessment of Older Adults Living in the Municipality of Barreiras/BA." The study location was the municipality of Barreiras, located in the Oeste region of the state of Bahia, in the Northeast of Brazil. This article was written in accordance with the guidelines of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist (Vandenbroucke et al., 2007).

Sample

The study population comprised older adults cared for by 23 FHS teams in the municipality. To calculate the sample size of the matrix project, an overall prevalence of 50%, a margin of error of 5% and a confidence level of 95% were obtained, yielding a total sample of 356 participants. The power of the study was calculated using OpenEpi software (OpenEpi, Atlanta, Georgia). Considering a test power of 67% and a significance level of 5%, the sample of older adults made it possible to identify an odds ratio (OR) of 1.2, with a prevalence of 64% among those exposed and 52% among those not exposed.

Sampling was carried out in two stages: 1) random and stratified with proportional allocation and 2) simple random. In the first stage, a calculation was made according to the number of older adults in the strata (23 territories covered by the FHS teams), which, in addition to proportionality, ensured the representativeness of the territories; 2) in the second, the sampling was simple random. Based on the number in each stratum, the older adults in each FHS team were chosen by lot and a nominal list of the interview candidates obtained.

Inclusion and exclusion criteria

Eligible participants were older adults aged 60 years and over, of either sex, living in the urban area, registered with the FHS and chosen by lot, who agreed to participate by signing an informed consent form (ICF). Older adults with health conditions that prevented them from traveling to the data collection site were excluded, as were those with severe cognitive impairment, as identified by the FHS teams. In addition, older adults living in long-term care institutions for the elderly or who were hospitalized during the data collection period did not participate.

Data collection

Data were collected from February 2017 to August 2018 at the Family Health Units (FHUs) where the older adults were registered. To make the data collection feasible, prior meetings were held with professionals from each health unit, where details of the survey were presented, such as the equipment, forms, and spaces required. In addition, a list of the older adults selected for the study was given to the Community Health Agents (CHAs). The CHAs were responsible for distributing invitations with basic information on the study, the date and time of attendance, and technical guidelines for conducting the data collection to the older adults

Data collection was undertaken directly with the selected older adults by a standardized, trained team of researchers, comprising university health students. To this end, a previously tested, coded questionnaire was used to obtain general information on the older adults, making it possible to characterize the population in terms of social, economic, demographic, lifestyle, nutritional, and health status variables. In addition, specific scales were used to assess FI and CD.

Outcome

CD was assessed using the Mini Mental State Examination (MMSE), one of the most widely used tools for assessing cognitive function (Folstein et al., 1975). The MMSE assesses dimensions such as language, memory, attention, orientation, and concentration (Bertolucci et al., 1994). In this study, the cut-off points used to classify the absence or presence of CD were defined on the basis of educational attainment. Thus, older adults with MMSE scores < 25 points for literate and < 20 points for non-literate older adults were considered as having CD, since educational attainment is a key determinant influencing cognitive ability. Older adults with MMSE scores ≥ 25 for literate and ≥ 20 points for non-literate older adults were classified as not having CD (Brucki et al., 2003).

Although the MMSE is one of the most widely used instruments for researching CD, it has limitations, particularly because of the social context of older adults. It can also be affected by factors such as educational attainment, income, sex, and age. The evaluative parameters therefore require adjustment for these scenarios, as was done in the study. The lack of a standardized cutoff point is also a significant obstacle, potentially yielding divergent results in similar populations and complicating comparability between studies (Ismail et al., 2010).

Exposure

FI was assessed using the Brazilian Food Insecurity Scale (EBIA), a psychometric scale with 14 dichotomous questions translated, adapted and validated for use in the Brazilian population (Segall-Corrêa et al., 2014; Segall-Corrêa & Marin-Leon, 2015). After the scale had been administered, households with older adults were classified into the following four levels: food security (FS), mild FI, moderate FI, and severe FI, with reference values considering the presence or absence of children under 18 years of age. In other words, in situations without an individual < 18, a household with an older adult was classified as FS (0 points), mild FI (1-4 points), moderate FI (5-6 points) or severe FI (7-8 points); whereas in those with individuals < 18 years, they were classified as FS (0 points), mild FI (1-5 points), moderate FI (6-9 points) or severe FI (10-14 points) (Sardinh et al., 2014).

Covariates

For this study, the demographic and social covariates were as follows: age (60 to 69 years, 70 to 79 years, or 80 years or older), sex (male or female), schooling (< 4 years or ≥ 4 years of study), marital status (partnered or unpartnered), living alone (yes or no), and race/color (white, Asian, Black or people of color). Lifestyle covariates included alcohol consumption (yes or no), smoking (yes or no), and physical activity (yes or no). Participants in physical activity were considered elderly individuals who self-reported (yes) engaging in any level or type of activity. Health and nutritional status covariates included body mass index (BMI) (underweight, normal, or overweight), according to the Pan American Health Organization classification (OPAS, 2002); hospitalization in the past year (yes or no); systemic arterial hypertension (SAH) (yes or no); diabetes mellitus (DM) (yes or no); and dyslipidemia (yes or no). These chronic diseases were self-reported based on medical diagnoses.

Data analysis

SPSS was used to tabulate and analyze the data. To characterize the population studied, the variables were presented using descriptive analyses with frequency distribution (absolute and relative). Data normality was checked using the

Kolmogorov-Smirnov test for all the variables analyzed. Pearson's chi-squared test was also used to check for associations between categorical variables. At this point, the outcome was categorized as with or without CD. Exposure (FI) was categorized as FS or FI. Variables showing statistical significance of less than .20 in the bivariate analysis were included in the multivariate model, together with other adjustment variables (sex and age).

Binomial logistic regression was used to assess the association between CD (with and without) and FI levels (FS, mild FI, and moderate/severe FI). Crude and adjusted odds ratios (ORs) with their respective 95% confidence intervals (95% CIs) were obtained as measures of association. In all the analyses, $\alpha = .05$ was used to determine statistical significance.

Ethical considerations

The study was approved by the Research Ethics Committee (Verdict No. 1.447.361/2016), in accordance with the rules established by Resolution No. 466/12 of the National Health Council of the Brazilian Ministry of Health. Participation in the study was voluntary and confirmed by participants' signature or fingerprint on the ICF.

RESULTS

Of the 316 individuals assessed (11.2% losses), 61.7% were female, 54.4% were aged 60 to 69, and 51.9% were Black or people of color. It was also found that 72.8% of the older adults had had fewer than four years of schooling, 51.6% were partnered and 16.1% lived alone. Regarding their health status, 69.9% had been diagnosed with SAH and 34.2% were classified as underweight according to BMI. The prevalence of FI was 63.3% among older adults, with 25.6% experiencing moderate or severe FI. The prevalence of CD was 59.8% (Table 1).

In the bivariate analysis, a statistically significant association was found between FI and CD ($p = .026$). In addition to FI, CD was also associated with schooling ($p = .001$) (Table 1). In the logistic regression analysis, after adjustments, a statistically significant association was only observed between households with older adults with moderate/severe FI and CD (OR 1.878; 95%CI 1.002 - 3.521). There was no association between mild FI and CD (OR 1.529; 95% CI 0.888 - 2.634). In the final model, in addition to FI, there was also a statistically significant association between CD and < 4 years of schooling (OR 2.454; 95% CI 1.445 - 4.167) (Table 2). The final model fit was observed through the value obtained in the Hosmer-Lemeshow test ($p = .911$) and Nagelkerke R square = .088.

Table 1
Sample Characterization by Cognitive Decline in Older Brazilians Enrolled in Primary Health Care

	Total		*Cognitive Decline*				
			With CD		Without CD		
Variables	*N*	%	*n*	%	*N*	%	*p* - valor
Food insecurity							
Yes	200	63.3	129	64.5	71	35.5	.026*
No	116	36.7	60	51.7	56	48.3	
Age (years)							
60-69	172	54.4	96	55.8	76	44.2	.271
70-79	102	32.3	65	63.7	37	36.3	
80 or older	42	13.3	28	66.7	14	33.3	
Sex							
Male	121	38.3	70	57.9	51	42.1	.576
Female	195	61.7	119	61.0	76	39.0	
Schooling							
< 4 years	230	72.8	153	66.5	77	33.5	<.001*
≥ 4 years	86	27.2	36	41.9	50	58.1	
Marital status							
Partnered	163	51.6	94	57.7	69	42.3	.423
Unpartnered	153	48.4	95	62.1	58	37.9	
Living alone							
Yes	51	16.1	28	54.9	23	45.1	.435
No	265	83.9	161	69.8	104	32.2	
Race/color							
White and Asian	152	48.1	95	62.5	57	37.5	.348
Black/person of color	164	51.9	94	57.3	70	42.7	
Alcohol consumption							
Yes	44	13.9	26	59.1	18	40.9	
No	272	86.1	163	59.9	109	40.1	.916
Smoking							
Yes	34	10.8	22	64.7	12	35.3	.538
No	282	89.2	167	59.2	115	40.0	
Physical activity							
Yes	128	40.5	74	57.8	54	42.2	.550
No	188	59.5	115	61.2	73	38.8	

Table 1
Sample Characterization by Cognitive Decline in Older Brazilians Enrolled in Primary Health Care (continued)

	Total		Cognitive Decline				
			With CD		Without CD		
Variables	*N*	*%*	*w*	*%*	*N*	*%*	*p - valor*
Hospitalization (12 months)							
Yes	31	9.8	18	56.1	13	41.9	.835
No	285	90.2	171	60.0	114	40.0	
SAH							
Yes	221	69.9	137	62.0	84	38.0	.228
No	95	30.1	52	54.7	43	45.3	
DM							
Yes	76	24.1	44	57.9	32	42.1	.696
No	240	75.9	145	60.4	95	30.6	
Dyslipidemia							
No	219	69.3	130	59.4	89	40.6	.807
Yes	97	30.7	59	60.8	38	39.2	
BMI							
Low weight	108	34.2	69	63.9	39	36.1	.528
Normal	126	39.9	74	58.7	52	41.3	
Overweight	82	25.9	46	56.1	36	43.9	

Notes: SAH = Systemic arterial hypertension; DM = Diabetes mellitus; BMI = body mass index; *n* = absolute frequency, % = relative frequency, *p < .20

Supplementary Table
Mini-Mental State Examination Scores, by Sex and Age Group in Older Adults Enrolled in Primary Health Care

Variables	*Average*	*Standard deviation*	*p-value*
Sex			
Male	21.91	4.820	.579
Female	21.62	4.411	
Age (years)			
60-74	22.36	4.269	<.001*
75 or older	20.08	4.914	

Notes: Student's t-test was used to compare the means of the Mini Mental State Examination (MEEN) by sex (Male and female) and age (60-74 and 75 or older). A statistically significant difference was observed between the means of the MEEN values by age.

*Significance level (p < .05)

Table 2
Binomial Logistic Regression Model Predicting the Association between Cognitive Decline and Food Insecurity in Older Brazilians Enrolled in Primary Health Care

	Cognitive Decline	
Variables	*Model 1 OR (IC95%)*	*Model 2 OR (IC 95%)*
Food insecurity		
FS	1	1
Mild FI	1.481 (0.882 – 2.487)	1.529 (0.888 – 2.634)
Moderate and severe FI	2.091 (1.152 – 3.793)*	1.878 (1.002 – 3.521)*
Age (years)		
60-69	-	1
70-79	-	1.171 (0.691 – 1.986)
80 or older	-	1.600 (0.754 – 3.395)
Sex		
Male	-	1
Female	-	1.163 (0.717 – 1.887)
Schooling		
≥ 4 years	-	1
< 4 years	-	2.454 (1.445 – 4.167)*

Notes: FS = Food security; FI = Food insecurity; OR = odds ratio; CI = Confidence interval; *Significance level (p < .05).

DISCUSSION AND CONCLUSION

This study found a statistically significant association between moderate/severe FI and CD in community-dwelling older adults treated in PHC in a municipality in the Northeast of Brazil. It was observed that households with older adults experiencing moderate/severe FI were almost twice as likely to have CD. In other words, more severe FI conditions, characterized by severe limitations on both the quantity and quality of the diet, may be associated with cognitive impairment in community-dwelling older adults.

A systematic review study by Royer et al. (2021)found that FI status is associated with a decline in cognitive function across the lifespan. A similar result was found in a study of older American adults showing an inverse association between FI and cognitive ability (Frith et al., 2018). It is therefore possible to observe a strong relationship between FI and CD in older adults, as cognitive functions such as memory, language, attention, and mathematical problem-solving have been shown to be more impaired in older adults with FI. At the same time, older adults with FS may have a lower risk of CD. A longitudinal study conducted in

India with a representative sample assessing various cognitive aspects found that older people with FS were less likely to have word recall problems or computational problems compared to those with FI (Kumar et al., 2021).

This study found that only more severe cases of FI (moderate/severe) were associated with CD. Similar results were observed in a study conducted by Koyanagi et al. (2019) of adult and older adult South Africans, showing that FI, especially in its more severe forms (moderate and severe), is associated with cognitive impairment. Older people with moderate and severe FI were about four times more likely to have CD. A study of adult and older adult Puerto Ricans found an association between more severe levels of FI and lower cognition and a greater likelihood of CD, particularly among the older population (Gao et al., 2009).

FI can contribute to the development of CD through a number of mechanisms, including inadequate food intake and poor diet quality. This is because, in the context of FI, the diet comprises fewer foods with higher nutritional value and greater consumption of ultra-processed foods, leading to nutrient deficiencies (Frongillo et al., 2017; Hutchinson & Tarasuk, 2021). There is a decrease in the consumption of vegetables, fruits, and dairy products, as well as foods that are sources of vitamins A and B-6, calcium, magnesium and zinc (Hanson & Connor, 2014). A study of older adults in Singapore showed that compromised nutritional status, such as malnutrition, is associated with CD, probably due to the lack of nutrients required for brain function and cognition (Chye et al., 2018).

The literature contains evidence of this association between micronutrient deficiencies and CD (Mustafa et al., 2022). Another study of community-dwelling older Brazilian adults found a strong association between CD and zinc deficiency (Marchetti et al., 2022). An integrative literature review indicated that vitamin B12 and folic acid deficiencies are associated with the risk of CD in older adults, due to increases in the concentration of homocysteine and methylmalonic acid, which cause changes in the central nervous system and affect cognition (Sousa et al., 2020). Conversely, an adequate diet, which is usually the case for older adults in a FS situation, consisting of foods such as fruits and vegetables, which are sources of antioxidant micronutrients and anti-inflammatory agents, has been shown to preserve cognition and therefore delay the onset of CD (Gardener & Rainey-Smith, 2018).

Older adults with FI, especially at moderate and severe levels, experience a decrease in the number of meals, the amount of food per meal and therefore a lower intake of macro- and micronutrients (Pereira et al., 2022). In the study conducted by Cardozo et al., (2020), families with moderate and severe FI were 55% and 57% respectively more likely to adhere to a restricted diet, characterized by a lower frequency of consumption of most food groups, including fruits and vegetables. Moreover, families with FI were 41% less likely to adopt healthy eating habits. If a healthy diet is unattainable for those with FI, nutrient deficiencies that fail to protect cognitive function become more likely. This dietary scenario contributes to the development of CD in older adults.

In addition, the experience of FI can lead to mental health damage due to the stress caused by not knowing where their next meal is coming from, mainly due to low socioeconomic status (Pereira et al., 2023). Studies have shown that the experience of FI can cause psychological distress and stress, which, in turn, can lead to changes in brain structures and functions, resulting in the onset or worsening of cognitive impairment (Vilela et al., 2014; Smith et al., 2021). As observed in a longitudinal analysis of adult and older adult Puerto Ricans, FI was significantly associated with higher cortisol levels, hypothalamic-pituitary-adrenal (HPA) axis dysregulation, and sympathetic nervous system markers (Gao et al., 2009).

Repeated stressful situations due to FI increase allostatic load, which causes wear and tear to the body, leading to brain changes that culminate in CD (McClain et al., 2018). The increase in cortisol levels due to stress may increase the desire for more palatable foods, such as foods with a high sugar and fat content, to reduce stress levels, acting as a reward system (Adam & Epel, 2007). There may therefore be a greater tendency to make less healthy food choices as a result of the stress caused by FI. Dietary insufficiency associated with higher levels of FI and the negative effects of this stressful experience may exacerbate CD and the health of older adults with this status.

Despite the methodological rigor of this cross-sectional study, and the results showing an association between CD and FI, it is not possible to make statements about the causality between exposure and outcome. Longitudinal studies on this issue, which are as yet limited, would therefore be required to show the direction of causality between FI and CD. Another aspect to consider was the use of the MMSE, which, although it is the most widely used tool for measuring CD, lacks a standardized cut-off point. Nevertheless, reference values were chosen that were appropriate for the characteristics of the population. Furthermore, it was necessary to exclude older adults with a high degree of CD, since it was impossible to administer the MMSE correctly. Another limitation was the sample size, which probably influenced the power value of the study, calculated post hoc (67%). Although losses in the sample certainly contributed to this condition, they did not affect the representativeness of the sample, since the distribution of losses was not concentrated in specific strata.Moreover, nutritional covariates were not used in this study. This aspect can be considered a limitation in the adjustment of statistical models.

In terms of contributions, it should be noted that this is the first study to address this issue in older Brazilian adults. Another key aspect is the fact that the study focused on

community-dwelling older adults treated in PHC. It is also worth noting that FI was analyzed in terms of its different levels, mild and moderate/severe, with the understanding that eating patterns and strategies differ in the various categories of this status.

This study showed that the experience of moderate/severe FI in households with older adults registered with PHC in Brazil may be associated with the presence of CD. In other words, unhealthy dietary patterns, with restricted quantity and quality of food and nutrients, can result in cognitive impairment in older adults. Nutritional deficiencies and mental health effects caused by stress and psychological distress may explain this association. In this respect, given the characteristics of aging and their impact on the health of individuals, FI must be addressed with public policies that facilitate access to sufficient healthy food.

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Conflicts of interests

The authors declare that they have no conflicts of interest.

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Adaptation and Validation of an Instrument for Measuring Stigma towards Mental Health Problems in Children among Health Professionals

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ABSTRACT

Introduction. One of the main barriers to receiving care faced by children and adolescents is stigma. **Objective.** Evaluate the reliability and construct validity of the Health Personnel Questionnaire and determine the efficiency indicators of the clinical vignettes comprising it. Method. The Health Personnel Questionnaire (HPQ), a self-administered instrument with 20 clinical vignettes and 37 items, was administered to a sample of 2,477 health professionals, evaluating knowledge, prejudice and discriminatory intent as components of stigma. Efficiency values were calculated for the clinical vignettes provided, using assessments by child psychiatrists as the gold standard. An internal consistency analysis was conducted for construct validity. The sample was randomly divided into two groups, with exploratory factor analysis (EFA) being conducted with the first group (n=1250), and confirmatory factor analysis (CFA) with the second (n=1227). **Results.** The efficiency of the clinical vignettes obtained an overall agreement rate among child psychiatrists of 97%. Exploratory factor analysis identified six dimensions related to prejudice and one related to discriminatory intent. In the confirmatory factor analysis, factors behaved in the same way with factor loadings for the items and similar alphas. **Discussion and conclusion.** Research on stigma towards children's mental health by health personnel is scant, partly due to the lack of valid, reliable instruments. The Health Personnel Questionnaire effectively explored attitude problems (prejudice) and discriminatory intent as aspects of stigma towards mental illness in children and adolescents. The analysis of these components among health professionals has significant implications for the mental health care of children and adolescents.

Keywords: Stigma, mental health, children and adolescents, reliability, validity, health personnel

RESUMEN

Introducción. Una de las principales barreras que enfrentan los niños y adolescentes para recibir atención es el estigma. **Objetivo.** Evaluar la confiabilidad y validez de constructo del Cuestionario para Personal de Salud, así como determinar los indicadores de eficiencia de las viñetas clínicas que lo componen. Método. El Cuestionario para Personal de Salud (CPS), es un instrumento auto-administrado con 20 viñetas clínicas y 37 ítems, se aplicó a 2,477 profesionales de la salud, evaluando conocimiento, prejuicio e intenciones de discriminación como componentes del estigma. Se calcularon los valores de eficiencia para las viñetas clínicas presentadas, utilizando las evaluaciones de psiquiatras infantiles como estándar de oro. Se realizó un análisis de consistencia interna para determinar la validez de constructo. La muestra se dividió aleatoriamente en dos grupos. Se realizó un Análisis Factorial Exploratorio (AFE) con el primer grupo (n=1250) y un Análisis Factorial Confirmatorio (AFC) con el segundo (n=1227). **Resultados.** La eficiencia de las viñetas clínicas obtuvo una tasa de acuerdo global entre los psiquiatras infantiles del 97%. El análisis factorial exploratorio identificó seis dimensiones para prejuicio y una para intenciones de discriminación. En el AFC, los factores se comportaron de la misma manera, con cargas factoriales para los ítems y alfas similares. **Discusión y conclusión.** La investigación sobre el estigma hacia la salud mental infantil en personal sanitario es escasa, en parte por falta de instrumentos válidos y confiables. El CPS exploró eficazmente problemas de actitud (prejuicio) e intenciones de discriminación como aspectos del estigma hacia las enfermedades mentales en niños y adolescentes. El análisis de estos componentes en profesionales de la salud tiene implicaciones significativas en la atención de salud mental de los niños y adolescentes.

Palabras clave: Estigma, salud mental, niños y adolescentes, confiabilidad, validez, personal de salud

INTRODUCTION

Both retrospective and prospective research has shown that most adult mental disorders begin in childhood and adolescence (Freţian et al., 2021; Radez et al., 2021; Whitney & Peterson, 2019; Medina-Mora et al., 2003). Untreated mental health problems at these stages of life are strong predictors of higher rates of low occupational attainment, difficulties in interpersonal and family relationships, as well as a reduction in life expectancy and quality of life due to associated medical conditions (Kessler et al., 1995; Singh & Winsper, 2017). Despite this evidence, research shows that between 40% and 80% of adolescents and young people worldwide fail to receive mental health care (WHO, 2006; Thornicroft, 2007; Zwaanswijk et al., 2005). In Mexico, the percentage is above 86%, which is alarming (Kohn et al., 2018).

One of the main barriers to receiving care faced by children and adolescents is stigma (Radez et al., 2021; Thornicroft et al., 2022; Hatzenbuehler et al., 2013; Gulliver et al., 2010; Pescosolido et al., 2007). Stigma is the labeling, stereotyping, rejection, or social discrimination of people with a characteristic regarded as undesirable (Corrigan & Wassel, 2008). It has been conceptualized in terms of knowledge (ignorance or misinformation), attitude (prejudice or stereotyped beliefs that predispose people to express a certain emotional response) and behavior (discrimination or rejection and social actions involving the marginalization and/or exclusion of those with mental health problems) (Thornicroft, 2007; Graham et al., 2003; WHO, 2002).

These stereotypes have a range of adverse effects, compromising care quality and creating care gaps (Corrigan & Wassel, 2008; Henderson et al., 2014). A systematic review revealed stigmatizing beliefs, discriminatory attitudes, and behaviors among health professionals in both primary and specialized care, and in high- as well as low- and middle-income countries (Henderson et al., 2014). Even if people with mental illnesses overcome barriers and seek help, they are likely to encounter stigmatizing beliefs, negative attitudes, and discrimination, which hinder their care. Understanding stigma towards mental illness from the perspective of healthcare professionals is therefore a critical step towards reducing its impact on care gaps.

However, stigma towards mental health is poorly understood and research on stigma towards children's mental health by health personnel is scant, partly due to the lack of valid, reliable instruments. A systematic review showed that although a number of instruments have been developed to assess mental health-related stigma among health professionals, there has been a lack of evaluation of certain measurement properties, with most studies focusing on the mental health of adults (Cardoso et al., 2020; Őri et al., 2023; Sastre-Rus et al., 2019). Likewise, although instruments have been developed and validated to measure stigma towards mental health in children, they have mainly focused on self-stigma (Kaushik et al., 2017), stigma in parents (Williams & Polaha, 2014), and peers (Nearchou et al., 2021), overlooking stigma in health personnel, with few exceptions (Davis et al., 2007).

Given the above, it is essential to have a valid, reliable instrument to identify the knowledge of doctors and health workers and their attitudes and discriminatory intent when they encounter these problems. The aim of this article is as follows:

1. Evaluate the reliability and construct validity of the Health Personnel Questionnaire
2. Determine the efficiency indicators of clinical vignettes of the Health Personnel Questionnaire in child psychiatrists and other groups of health professionals

METHOD

Study design and population

A cross-sectional, analytical study was conducted with purposive sampling. The sample comprised 2,477 health professionals, attached to 144 primary-level care centers in the 16 boroughs of Mexico City.

Instruments

Questions were included on demographic data such as sex, age, marital status, number of children, occupation, years of practicing the profession, education, main activity at the health center, and mental health training.

To measure stigma, the self-administered instrument developed by Berenice Pescosolido for the National Stigma Study–Children (NSS-C) was used. This study was part of an ongoing series of stigma-related modules within the 2002 General Social Survey (GSS) in the United States (Pescosolido, 2007; Pescosolido et al., 2008). The instrument was further refined, and in 2006, the GSS incorporated the Stigma in Global Context–Mental Health Study (SGC-MHS) component in a subsequent sample (Pescosolido et al., 2008).

The NSS-C is divided into three sections. The first section evaluates *knowledge* regarding mental illness in children and adolescents through a vignette technique originally developed in stigma research by the GSS. This technique includes vignettes depicting diagnoses such as depression and attention deficit hyperactivity disorder (ADHD), as well as control vignettes illustrating other conditions such as asthma and routine, subclinical issues (everyday discomfort). These vignettes were created by the team's psychiatrist and subsequently reviewed by the team's survey

methodologist to ensure their suitability for survey use. The purpose of the vignettes was to determine whether respondents could identify cases of mental health disorders based on DSM-IV criteria.

The second and third sections are what we have called the Health Personnel Questionnaire. The second section examines *attitude problems* (prejudice) by exploring general opinions about children with mental health conditions, including perceptions of dangerousness, beliefs about the origins of these conditions, and views on available treatments, with particular attention being paid to the use of medication. The third section explores *discrimination* (discriminatory intent) by posing questions regarding the level of rejection respondents feel toward children with mental illnesses and their likely responses to hypothetical social interaction scenarios (Davis et al., 2007; Pescosolido, 2007; Pescosolido et al., 2007; 2008).

Based on a review of GSS studies and the extensive body of innovative and rigorous research derived from these findings (Pescosolido, Fettes et al., 2007; Pescosolido, Perry et al., 2007; McLeod et al., 2007; Perry et al., 2007), it was decided to adapt the vignette method and the Health Personnel Questionnaire (HPQ) for this study.

In accordance with the methodological framework of the NSS-C, 20 clinical vignettes were developed by a psychiatry professional, based on the results and experiences of a study conducted of a primary care population in Mexico City (Caraveo, 2016; Caraveo et al., 2011). Of the 20 vignettes, ten correspond to "cases" with sufficiently significant symptoms to indicate the presence of ADD, anxiety or depression and ten to "non-cases" with isolated symptoms, which were neither significant nor indicative of psychopathological problems (Caraveo, 2016).

The vignettes were subsequently reviewed by a psychiatrist and a child psychiatrist, who were asked to determine whether any elements or concepts should be added or eliminated to clarify the case presented in the vignette. The final vignettes were the result of agreement between the two specialists and a review by the research team comprising two psychologists and a psychiatrist. Finally, the vignettes underwent a blind review by seven expert child psychiatrists. Table 1 provides examples of vignettes categorized as "case" for mental health disorders and "non-case" vignettes. The full set of vignettes can be reviewed in Caraveo, (2016).

To measure prejudice and discriminatory intent, the HPQ was translated by an expert translator and reviewed by another three subject matter experts, who were asked to rate each item regarding its applicability to health providers, making suggestions if they thought any of the questions required modification. They reviewed the instructions for administering the adapted version, making the corresponding adjustments.

Table 1
Example of a case and non-case vignette

Case vignette: boy aged between three and five
A 30-year-old woman came in for an appointment, accompanied by her four children. She had made an appointment to see a family physician because her five-year-old son (Juan) had gastroenteritis that had continued for four days. As part of his medical history, the boy has a background of frequently throwing tantrums and does not obey. Five days ago, the mother told him not to eat mangoes with chili outside, and in response, her son reacted explosively, throwing his toys into the street. She also reported that his siblings had noticed he had been more irritable and short-tempered in the past month.
Both at school and at home, they have observed that he stares into space, as though unaware of his surroundings. His classmates' mothers often tell her that her son tells lies.
The kindergarten teachers report that Juan performs poorly compared to other children, is distracted and fails to complete his work. The mother remarked that she found this strange because when he sits in front of the television, he is always attentive.
Non-Case vignette: girl aged between six and eight
An 8-year-old girl (María) came in for consultation due to acute gastroenteritis, accompanied by her mother. During the complementary history taking, the mother remarked that she had been struck by the fact that lately her daughter had seemed worried when she had to hand in an assignment at school. María is currently in the third year of elementary school and has good grades, with an average of 9 out of 10. She has a good relationship with her classmates and several friends. However, the teacher has told the patient's mother that she sometimes appears rather restless and distracted.

Finally, a group of 15 primary care physicians with similar characteristics to the final sample evaluated the clarity and understandability of the instructions, questions, and response options of the previously revised version. The questionnaire comprised 37 Likert-type items with five response options (from 0 not at all to 4 very much), distributed in two dimensions: prejudice (32 items) and discriminatory intent (five items). Examples of items include the following: "Medication for children with behavioral problems makes them act automatically (without thinking about what they are doing)," "How much of J/M's situation is due to their lack of discipline at home?" "How likely do you think it is that J/M would commit a violent act toward themself?" "How likely would you be to spend an afternoon socializing with J/M's family if they were your neighbors?"

Procedure

The study was conducted from August 1 to October 30, 2009. Thirty-one interviewers were trained in the objectives, structure and contents of the instrument, as well as the way to administer it. The authors worked with professionals who agreed to participate in the study. Each professional was given a questionnaire and a vignette, with care being taken to ensure that the 20 vignettes were uniformly dis-

tributed among the personnel surveyed. The questionnaire took 60 minutes to complete.

The research was conducted with the approval of the Research Ethics Committee of the Ramón de la Fuente Muñiz National Institute of Psychiatry, the directors of the participating primary health care centers and the informed consent of the professionals surveyed.

Statistical analysis

Frequency analyses and X^2 and Mann-Whitney U tests were performed to describe the sample. Efficiency values (sensitivity, specificity, and positive and negative predictive value) were calculated for the clinical vignettes presented, with the assessment of the child psychiatrists being the gold standard.

An internal consistency analysis (Cronbach's α) was conducted for construct validity, and the sample was randomly divided into two groups. Exploratory factor analysis (EFA) was conducted with the first group (n=1250) and confirmatory factor analysis (CFA) with the second (n=1227). The principal components method with oblique rotation method was used (Schermelleh-Engel et al., 2003) for exploratory factor analysis (EFA), showing that the Kaiser-Meyer-Olkin (KMO) sampling adequacy index was > .80 while Bartlett's tests of sphericity had p <.05 (Hair et al., 2014).

The following indicators of goodness of fit were considered (Hu et al., 1999) for confirmatory factor analysis (CFA): 1) chi-square divided by degrees of freedom (quotients < 2 indicated good fit); 2) χ^2/df: good fit is indicated by values of less than 2; 3) Comparative fit index (CFI): acceptable fit is given by values ≥ .90; 4) Root mean square error of approximation (RMSEA): acceptable fit is indicated by values ≤ .08 (90% CI ≤ .10) and good fit by values ≤ .05 (90% CI ≤ .08).

Analyses were conducted using SPSS Statistics 25 and Amos 24.0.

RESULTS

Sample characteristics

2,477 health professionals, the majority of whom were women (72.1). A total of 50.5% were ages 21 to 40 ($\bar{X}$=39.8 SD=12.2), half were partnered, most were doctors or nurses (70.2%), 54.3 % had had 15 years or fewer of service, the majority had children (62.5%), and nearly a third reported having received mental health training. No significant differences were found between the groups used for EFA and CFA.

Efficiency of clinical vignettes

A high degree of agreement (97%) was found among child psychiatrists, who showed the highest sensitivity and the

Table 2
Demographics

Demographic Variables	*Sample 1 (EFA) n = 1,250*		*Sample 2 (CFA) n = 1,227*		*Total n = 2,477*		*Statistics*
	N	*%*	*N*	*%*	*N*	*%*	
Sex							
Male	347	27.8	345	28.1	692	27.9	X^2=.035
Female	902	72.2	882	71.9	1784	72.1	
Age*:							
17-20 years	20	1.6	31	2.5	51	2.1	
21-30 years	379	30.4	352	28.8	731	29.6	
31-40 years	269	21.6	246	20.2	515	20.9	
41-50 years	263	21.1	287	23.5	550	22.3	z= - .452
51-60 years	290	23.3	270	22.1	560	22.7	
61 and over	25	2.0	35	2.9	60	2.4	
	$\bar{X}$=39.7 SD=12.3		$\bar{X}$=39.9 SD=12.2		$\bar{X}$=39.8 SD=12.2		
Marital status*							
Single	507	40.6	468	38.2	975	39.4	
Married	614	49.2	648	52.9	1262	51.0	X^2 = 3.628
Divorced/Separated	104	8.3	89	7.2	193	7.8	
Widowed	24	1.9	21	1.7	45	1.8	
Occupation*							
Doctor	443	35.5	431	35.1	874	35.3	
Medical intern	36	2.9	28	2.3	64	2.6	
Nurse	450	36.0	414	33.7	864	34.9	
Social worker	159	12.7	147	12.0	306	12.4	
Non-medical intern	10	.8	17	1.4	27	1.1	
Health promoter	2	.2	5	.4	7	.3	X^2=14.507
Psychiatrist	3	.3	3	.3	6	.2	
Psychologist	24	1.9	41	3.3	65	2.6	
Odontologist	94	7.5	102	8.3	196	7.9	
Nutritionist	19	1.5	20	1.6	39	1.6	
Other professional	1	.1	3	.3	4	.2	
Administrative staff	8	.6	16	1.3	24	1.0	
Years of service*							
0-5 years	435	34.9	413	33.8	848	34.3	
6-15 years	252	20.2	242	19.8	494	20.0	
16-25 years	275	22.0	302	24.7	577	23.4	z= - .338
26-35 years	259	20.8	238	19.4	497	20.1	
36-49 years	27	2.1	28	2.3	55	2.2	
	$\bar{X}$=14.5 SD=11.4		$\bar{X}$=14.4 SD=11.2		$\bar{X}$=14.5 SD=11.3		
Mental Health Training*							
Yes	348	28.2	382	31.3	730	29.7	X^2 = 2.929
No	887	71.8	837	68.7	1724	70.3	
Children*							
Yes	756	60.7	787	64.5	1543	62.5	X^2 = 3.764
No	490	39.3	434	35.5	924	37.5	

*Not all subjects provided information, EFA = Exploratory Factor Analysis, CFA = Confirmatory Factor Analysis

lowest rate of false negatives. All other groups of professionals were characterized by having more specificity than sensitivity. However, the highest sensitivity was found among mental health specialists, which was also the group with the highest positive predictive value (PPV). Total agreement of 34% was obtained overall (Table 3).

Exploratory Factor Analysis (EFA)

Five dimensions related to prejudice and one for discriminatory intent were identified. Together, all the dimensions explained 55.047% of variance.

The first factor, associated with prejudice, and reflecting subjects' view of psychiatric medications, which were mostly adverse (seven items), was called Supply and Effect of Psychoactive Drugs (SEP).

The second factor, comprising opinions on the way children and adolescents are raised, including lack of discipline, poor education, exposure to violence in the media and games, as well as having a bad temper (five items), was called Type of Upbringing (TU).

The third factor, consisting of serious behaviors with the potential to harm, such as violence towards oneself and others (three items), was called Disruptive Behavior (DB).

Opinions on mental health problems such as social rejection and parental burden were grouped into the fourth factor (four items), called Treatment for Mental Health Problems (TMHP).

The fifth factor comprises opinions on the origin of mental illness, such as hereditary factors, chemical alterations, and their management through drugs (three items), in other words, Biological Causes (BC).

Finally, the sixth factor, consisting of statements about rejection and avoidance related to intent to discriminate (four items), was called Avoidance (A).

Alphas per factor ranged from α=.636 to α=.856 while that of the total scale was α=.783, as can be seen from Table 4.

Table 3
Efficiency of Clinical Vignettes

Groups of Health Professionals	*Sensitivity*	*Specificity*	*False+ Rate*	*False- Rate*	*PPV*	*NPV*	*% Total agreement*	*P*	*1- p*
Child psychiatrists[a]	98%	78%	22%	2%	81%	87%	97%	50%	50%
First-contact doctors[b]	29%	39%	60%	70%	35%	32%	34%	53%	47%
First-contact health professionals [c]	21%	48%	51%	78%	29%	38%	35%	50%	50%
Second-contact health professionals [d]	16%	56%	43%	83%	27%	40%	36%	49%	51%
Mental health specialists[e]	33%	48%	51%	66%	48%	33%	39%	59%	41%
Health administrators[f]	25%	25%	75%	75%	40%	14%	25%	67%	33%
General	24%	45%	54%	75%	32%	36%	34%	52%	48%

[a]Gold standard; [b]doctors and medical interns; [c]nurses, social workers, health promoters, other interns; [d]nutritionists, dentists, other specialists; [e]psychiatrists, psychologists; [f]managers, epidemiologists/statisticians; PPV: positive predictive value; NPV: Negative predictive value; P: Prevalence.

Table 4
Exploratory Factor Analysis, Reliability Indices and Descriptive Measures

Items	*Prejudice*					*Discriminatory intent*
	SEP	*TU*	*DB*	*TMHP*	*BC*	*A*
43. Medication for children with behavioral problems makes them act automatically (without thinking about what they are doing)	**.709**	.088	-.071	.100	.113	.108
41. Giving medication to children or adolescents with mental health problems only masks the underlying causes	**.708**	.058	-.012	.106	-.133	.069
40. Giving children or adolescents medication for mental health problems negatively affects their development	**.692**	-.003	-.044	.109	-.081	.016
47. Taking psychotropic drugs is a sign of weakness	**.647**	.161	-.140	.039	.148	.055

Table 4
Exploratory Factor Analysis, Reliability Indices and Descriptive Measures (continued)

Items	*Prejudice*					*Discriminatory intent*
	SEP	*TU*	*DB*	*TMHP*	*BC*	*A*
46. Psychotropic drugs are addictive	**.603**	.080	.077	-.047	-.107	.077
44. The use of medication for behavioral problems in children causes the family not to address the situations causing them	**.594**	.055	.076	.236	-.105	-.014
48. Psychotropic drugs always have undesirable adverse effects	**.488**	.020	.098	.090	-.122	-.043
15. How much of J/M's situation is due to their lack of discipline at home?	.079	**.768**	.214	-.051	-.011	.128
14. How much is J/M's situation due to external stimuli such as watching violent shows on TV or playing violent video games?	.024	**.688**	.239	.090	.015	.022
13. How much of J/M's situation is due to how they were raised?	-.006	**.649**	.116	.128	-.285	-.003
17. How likely do you think it is that J/M's situation could be solved by a strict upbringing?	.197	**.598**	-.151	-.031	.117	.040
9. To what extent do you think that J/M's problems could be caused by their bad temper?	.145	**.563**	.080	.033	.272	.090
20. How likely do you think it is that J/M would commit a violent act toward themself?	.008	.164	**.821**	.067	.125	.095
19. How likely do you think J/M would commit a violent act toward another person?	.015	.229	**.760**	.007	.181	.173
7. How serious do you think J/M's problem is?	.052	.082	**.712**	-.026	.177	.130
36. An adult could experience negative consequences if others found out that they had received treatment for a mental health problem as a child	.061	.081	-.029	**.747**	.059	.019
37. Even though medical confidentiality exists, most people find out when children receive mental health treatment	.097	.023	.041	**.655**	.023	.042
35. A child who receives treatment for a mental health problem will be rejected at school	.114	.008	-.064	**.645**	.096	.050
38. When a child receives mental health care, parents feel they have failed	.187	.006	.124	**.623**	-.006	-.028
10. How much do you think J/M's situation is due to a chemical imbalance in the brain?	-.134	-.009	.302	.071	**.762**	-.015
12. To what extent do you consider J/M's situation to be a hereditary or genetic situation?	-.091	.116	.105	.073	**.732**	.037
21. How likely do you think J/M's situation would be improved through pharmacological treatment?	-.212	-.056	.428	.119	**.539**	-.025
24. Would you be willing to let your children become friends with J/M?	.073	.104	.188	.030	.021	**.856**
25. Would you be willing to have J/M be your children's schoolmate?	.111	.105	.181	-.031	.021	**.824**
23. How likely would you be to spend an afternoon socializing with J/M's family if they were your neighbors?	-.003	-.035	.002	.104	-.074	**.816**

Table 4
Exploratory Factor Analysis, Reliability Indices and Descriptive Measures (continued)

Items	*Prejudice*					*Discriminatory intent*
	SEP	*TU*	*DB*	*TMHP*	*BC*	*A*
22. Would you be willing to be J/M's neighbor?	.049	.085	.027	-.003	.067	**.788**
% explained variance	55.047					
Alpha by factor	*α*=.774	*α*=.700	*α*=.784	*α*=.636	*α*=.694	*α*=.856
Full alpha						*α*=.783

SEP = Supply and Effect of Psychotropic Drugs; TU = Type of Upbringing; DB = Disruptive Behavior; MHPT = Mental Health Problem Treatment; BC = Biological Causes; A = Avoidance; EFA = Exploratory Factor Analysis. The value of the Kaiser Meyer-Olkin (KMO) sample adequacy measure for the 26 items on the scale was .817. The significance of the Barlett sphericity test was less than p< .001. The analysis yielded six dimensions, which together explained 55.0% of total variance.

Total-Element Statistics

Table 5
Total-Element Statistics

Items	$\bar{X}$	*SD*	*Corrected total-element correlation*	*Cronbach's alpha if element is removed*
Prejudice				
43. Medication for children with behavioral problems makes them act automatically (without thinking about what they are doing)	2.26	.991	.355	.775
41. Giving medication to children or adolescents with mental health problems only masks the underlying causes	2.56	1.152	.295	.777
40. Giving children or adolescents medication for mental health problems produces negative effects on their development.	2.46	1.054	.247	.779
47. Taking psychotropic drugs is a sign of weakness	1.92	.983	.302	.777
46. Psychotropic drugs are addictive	3.16	1.132	.265	.778
44. The use of medication for behavioral problems in children causes the family not to address the situations causing them	2.85	1.209	.295	.777
48. Psychotropic drugs always have undesirable adverse effects	3.01	1.114	.202	.781
15. How much of J/M's situation is due to their lack of discipline at home?	3.41	1.449	.428	.769
14. How much is J/M's situation due to external stimuli such as watching violent shows on TV or playing violent video games?	3.65	1.349	.389	.772
13. How much of J/M's situation is due to how they were raised?	4.09	1.203	.257	.779
17. How likely do you think it is that J/M's situation could be solved by a strict upbringing?	2.24	1.194	.261	.779
9. To what extent do you think that J/M's problems could be caused by their bad temper?	2.87	1.467	.383	.772
20. How likely do you think it is that J/M would commit a violent act toward themself?	3.26	1.356	.435	.769
19. How likely do you think J/M would commit a violent act toward another person?	3.32	1.341	.471	.767
7. How serious do you think J/M's problem is?	3.04	1.096	.373	.773

Table 5
Total-Element Statistics (continued)

Items	$\bar{X}$	*SD*	*Corrected total-element correlation*	*Cronbach's alpha if element is removed*
Prejudice				
36. An adult could experience negative consequences if others found out that they had received treatment for a mental health problem as a child.	2.79	1.236	.263	.778
37. Even though medical confidentiality exists, most people find out when children receive mental health treatment	3.25	1.222	.254	.779
35. A child who receives treatment for a mental health problem will be rejected at school	2.39	1.256	.223	.781
38. When a child receives mental health care, parents feel they have failed.	3.07	1.240	.265	.778
10. How much do you think J/M's situation is due to a chemical imbalance in the brain?	2.66	1.453	.202	.783
12. To what extent do you consider J/M's situation is hereditary or genetic?	2.51	1.380	.211	.782
21. How likely do you think J/M's situation could be improved through pharmacological treatment?	2.99	1.389	.163	.783
Discriminatory Intent				
24. Would you be willing to let your children become friends with J/M?	2.88	1.243	.455	.768
25. Would you be willing to have J/M be your children's schoolmate?	2.65	1.215	.433	.770
23. How likely would you be to spend an afternoon socializing with J/M's family if they were your neighbors?	2.56	1.181	.268	.778
22. Would you be willing to be J/M's neighbor?	2.51	1.268	.338	.775

Confirmatory Factor Analysis (CFA)

CFA was conducted for the model obtained in the EFA in half the sample (n=1227). The six-factor structure identified through the EFA (one factor for discriminatory intent and five for prejudice) was corroborated by the CFA, with similar item factor loadings and alphas. No items were eliminated. Figure 1 shows the standardized factor coefficients, and the fit indices of the model with 26 items. All factor loadings were significant, ranging from .44 to .88. The model fit was adequate, with values within the recommended standards (X^2=860.555, df=284, p<=.000, CFI=.919, RMSEA=.041, 90% CI= .038-.044).

DISCUSSION AND CONCLUSION

This research sought to evaluate the reliability and construct validity of the health personnel questionnaire (HPQ) in a sample of primary health care professionals in Mexico City, and to determine the efficiency indicators of the clinical vignettes it contains to obtain a useful tool for examining problems of knowledge, attitude and behavior as the constituent features of stigma towards mental health problems in children and adolescents (Caraveo, 2016).

A PPV of 35% was obtained in first-contact doctors, above the rate found in other studies (WHO, 2006; Zwaanswijk et al., 2005). The efficiency of the clinical vignettes, based on the assessment of the group of child psychiatrist experts, was highly satisfactory, validating the contents presented. Assessments were more specific than sensitive for the study population in general as well as for the groups of professionals. This result is expected in diagnostic tests (Shreffler & Huecker, 2023).

The results of the validity and reliability analysis applied to the Health Personnel Questionnaire showed that the scale proved effective in exploring problems of attitude (prejudice) and discriminatory intent as elements of

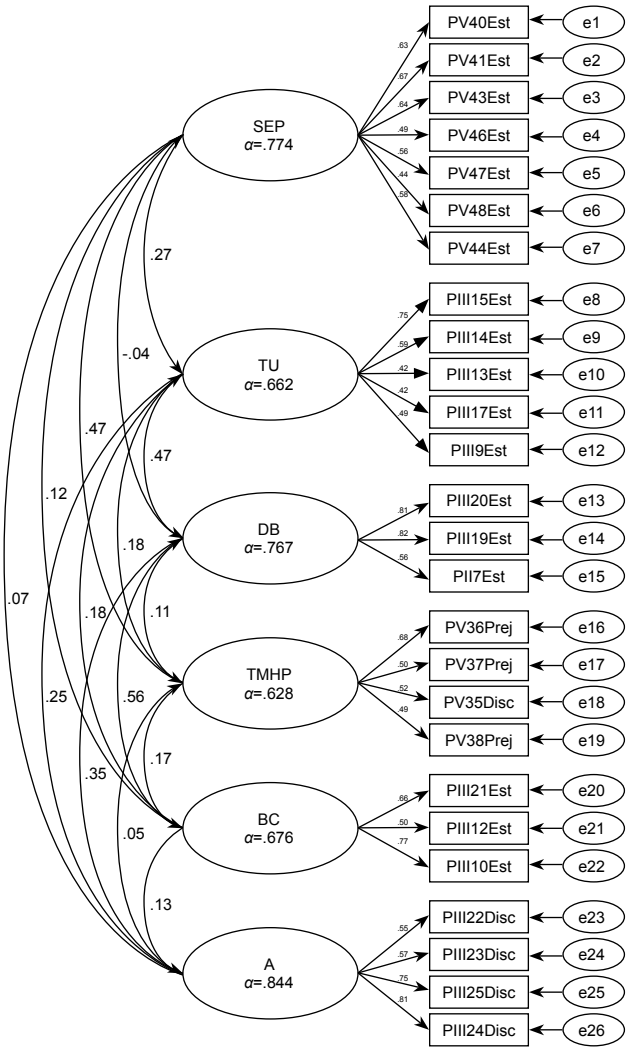

Figure 1. Confirmatory Factor Analysis

stigma towards mental illness in children and adolescents. The internal consistency of the global scale obtained a Cronbach's alpha of .8 and factor/dimension values between .63 and .85, considered adequate. Regarding the dimensions obtained, attitudes towards the supply and effect of psychotropic drugs, type of upbringing, disruptive behavior, psychiatric treatment, biological causes, and discriminatory intent are all indicators commonly used in research on stigma towards mental illness in minors (Thornicroft, 2007; Graham et al., 2003; WHO, 2002). The results obtained are consistent with the stigma literature on prevailing attitudes towards mental health problems (Thornicroft et al., 2016).

Identifying these dimensions is valuable, since they have the potential to be key discriminating elements in stigma towards mental illness in children, adolescents, and adults. Significant differences exist between adults and children that probably contribute to the differing perceptions of their mental health among health personnel. These include the importance placed on child-raising styles in the configuration of mental illness in children, as well as disruptive behavior. Since mental illness stigma has not been studied as extensively in children and adolescents as it has been in adults (Cardoso et al., 2020), having a valid instrument will facilitate its evaluation.

Primary care health personnel are often the first point of contact for families seeking help with children's mental health problems. If these professionals hold stigmatizing perceptions, they may underestimate or dismiss symptoms, potentially delaying diagnosis and access to appropriate, quality treatment (Mkubwa et al., 2024). Having this measurement tool meets the need for a clearer understanding of the stigmatization processes children and young people are subjected to by health personnel. It makes it possible to propose specific, effective interventions targeting this population, since stigma can be modified and there are reports of its reduction and management through training programs for health personnel (Vila-Badia et al., 2016; Villamil-Salcedo et al., 2017).

Scope and limitations. It was not possible to evaluate the criterion validity of the HPQ due to the lack of a gold standard to assess mental health-related stigma in this population. However, it was possible to calculate the efficiency values for the clinical vignettes presented, through the evaluations of child psychiatrists serving as the gold standard. Nevertheless, more psychometric studies on measurement error and responsiveness parameters are still required. Another limitation of this study is that it did not include vignettes covering all the possible mental disorders children may experience, and the fact that the scale does not directly measure stigmatizing behaviors. Moreover, stigma is a complex, evolving concept, with new terms and strategies emerging for its measurement (Porfyri et al., 2022; Mora-Ríos et al., 2013; Mkubwa et al., 2024; Thornicroft et al., 2016). Nevertheless, the HPQ represents an important step towards advancing the evaluation of this construct and enhancing its administration across diverse contexts and populations.

Implications for mental health programs and actions. Stigma associated with mental health disorders in children and adolescents cannot be directly extrapolated from studies on adults, nor inferred from research on the stigma related to physical illnesses and developmental disabilities in children. Having a validated instrument to address this issue is a crucial step toward enhancing the understanding of mental health stigma in this population, particularly in Spanish-speaking countries such as Mexico. Moreover, it enables the evaluation of the way stigma among health professionals influences the facilitation or hindrance of access to care and recovery for children with mental disorders, as well as the design of targeted actions for their care. In future work, we will present an analysis of the interrelation among the three components of perceived stigma across groups of

health professionals, which will provide further insights into their perceptions of mental illness.

In conclusion, this questionnaire has the potential to assess stigma towards child and adolescent mental health among healthcare professionals, constituting a promising tool for evaluating the resulting barriers to care.

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Originality

The content of this scientific article is original and has not been published in whole or in part elsewhere.

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Conflict of interest

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Intimate Partner Violence: The Perspective of Men Living in Two Municipalities in Valle del Cauca, Colombia

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ABSTRACT

Introduction Intimate partner violence (IPV) is one of the most common types of violence women experience. The WHO defines IPV as behavior by a current or former intimate partner causing physical, sexual or psychological harm, including physical aggression, sexual coercion, psychological abuse, and controlling behaviors. **Objective:** The purpose of this study was to understand the perspectives of men from two municipalities in Valle del Cauca on IVP **Method:** A socioecological approach was used to understand men's perspectives. Six focus groups were conducted with male inhabitants from the cities of Cali and Tuluá, Valle del Cauca, Colombia. Thirty-three men aged over 18 participated. Interviewers followed a guide with open questions based on various hypothetical scenarios involving couples. **Results:** Participants recognized situations with examples of the different forms of IPV, whether psychological, social, physical, or sexual. Economic domination strategies were associated with these forms of IPV, as both a causative factor and a consequence. In the accounts of the participants, vulnerability was a pervasive factor across all levels of analysis. Participants questioned overt scenarios of violence yet failed to identify the influence of the power imbalance between sexes as underlying IPV. **Discussion and conclusion:** Although there is no conscious attempt by men to reaffirm their power, men and women are conditioned by their gender in societies where the structural inequity of a patriarchal society exerts an influence at both the individual and societal level.

Key words: Intimate partner violence, men, behavior, attitude, socioecological perspective

RESUMEN

Introducción: La violencia de pareja (VP) es uno de los tipos más comunes de violencia que experimentan las mujeres. La OMS define la VP como el comportamiento de una pareja o expareja que causa daño físico, sexual o psicológico, incluidas la agresión física, la coacción sexual, el maltrato psicológico y los comportamientos controladores. **Objetivo:** El propósito de este estudio fue comprender la perspectiva que tienen hombres que habitan en dos territorios del Valle del Cauca acerca de la VP. **Método:** Se utilizó como marco de referencia la perspectiva socioecológica. Se realizaron seis grupos focales con hombres habitantes de las ciudades de Cali y Tuluá, Valle del Cauca, Colombia. Participaron 33 hombres mayores de 18 años. Se utilizó una guía de preguntas abiertas a partir de la lectura de escenarios hipotéticos. **Resultados:** Los participantes reconocían situaciones que podía nominarse como VP en todas las expresiones, psicológica, social, física, sexual, en la mayoría de éstas, las estrategias de dominación económica como medio y como consecuencia, resultaban evidentes de principio a fin. Se evidenció una posición general de vulnerabilidad que atraviesa todos los niveles de análisis. Los hombres cuestionan desde la racionalidad las expresiones evidentes de la violencia, pero no perciben el vínculo con el ejercicio de poder que subyace a las mismas. **Discusión y Conclusión:** Si bien no hay una intención consciente de reafirmar un poder masculino, hombres y mujeres se encuentran determinados desde su condición de género, en territorios donde la inequidad estructural de una sociedad patriarcal influencia el nivel individual.

Palabras clave: Violencia de pareja, hombres, comportamiento, actitudes, perspectiva socioecológica

INTRODUCTION

Intimate partner violence (IPV) is one of the most common types of violence experienced by women. Globally, according to the World Health Organization (WHO), between 30% and 38% of women have experienced IPV in their lifetime (García-Moreno et al., 2013). According to the 2018 FORENSIS report on Colombia, there were 49,669 recorded episodes of IPV in which a man was reported as the principal aggressor. The main reasons reported for these acts were intolerance in relationships (21,942 cases); jealousy, distrust and infidelity (16,419 cases), and alcoholism (6,162 cases) (Instituto Nacional de Medicina Legal y Ciencias Forenses, Grupo Centro de Referencia Nacional sobre Violencia, 2018). In the Gender Observatory 2019, 7,380 cases of IPV against women were recorded in Valle de Cauca, a 21% increase over the previous two years. One hundred and twelve feminicides were also reported during the same period (OGEN (Observatorio de Género), 2019).

The WHO defines IPV as behavior by a current or former intimate partner that causes physical, sexual or psychological harm, including physical aggression, sexual coercion, psychological abuse, and controlling behaviours (World Health Organization, 2019). The notion of violence is influenced by the beliefs, values, and behaviours shared by a social group in their social context. Individually, it is expressed through language, attitudes, and a propensity towards violence. At a collective and organizational level, it is expressed through the community and the way it organizes its response to violence. A person`s mindset is the result of the internalization of their needs in their social environment and the cumulative exposure to their social conditions. This leads to the creation of propensities influenced by a person`s unique experiences, which subsequently, through symbolic production, become instruments of domination and power expressed through categories embedded in consciousness and language (Hanks, 2005). Part of what it means to be a man or a woman in a specific context is therefore related to the expression of violence, the right to exert power and its violent consequences (Pineda Duque & Otero Peña, 2004).

Violence, a multilevel problem

Every relationship is assumed to have a power dynamic. In this respect, Eric Dunning considers power to be a fundamental aspect of all human relationships (Dunning, 1999). Power is exercised dynamically and can be observed through discourse, propensities, and the way everyday circumstances are perceived. The effectiveness of power depends on whether it is legitimized by others, meaning that external coercion become internal coercion (Dunning & Maguire, 1996). Within families, strategies for the production and reproduction of power are not based on conscious or rational intentions, but rather on everyday practices and representations regarded as natural (Chevallier & Chauviré, 2010).

According to Muehlenhard & Kimes (1999), IPV is a reflection of the positions and propensities of subjects in terms of power, enabling the power holder to discredit certain acts (their own and others) and ignore or even absolve others (Muehlenhard & Kimes, 1999). In a review of the history of the social construction of sexual and domestic violence, these authors describe how IPV was invisible in the United States three decades before the publication of their article. They explain how IPV was supported by laws that validated the "disciplining" of wives by their husbands. A review of IPV in the past decade by Hardesty & Ogolsky (2020) found that although the number of reports of victimization by men had significantly increased, all the studies reviewed reported that the majority of victims were women (Hardesty & Ogolsky, 2020). IPV events reported by men mainly involved physical violence, whereas for women, they were primarily of a physical or sexual nature.

It is usually difficult for people to recognize themselves as violent and their own behaviours as violent. In practice, in IPV it is often difficult to categorize acts of violence into one type. For example, sexual abuse can include physical violence (such as hitting, suffocating, or threatening with weapons) and emotional violence (such as humiliation or making someone feel guilty). These behaviors, in turn, are facilitated and permitted by other mechanisms that may go unnoticed such as economic violence (not allowing a person to have a job or autonomy handling money) or social violence (limiting a person's contact with their family, friends, and health networks) (Bergen & Bukovec, 2006).

Hardesty and Ogolsky quote M.P. Johnson, who identifies two main types of IPV that exists at the relationship level: coercive control (intimate terrorism) and situational partner violence. The first type consists of domination, isolation, and denigration while the second relates to specific situations (such as lashing out after verbal insults or discovering infidelity) in which conflicts and emotions intensify in one or both partners who engage in violence. According to the authors, coercive controlling behavior was mainly found to be exercised by men.

At the relationship level, one of the strongest intergenerational predictors of IPV is a history of abuse between one's parents or child abuse by one's parents. At a community and sociocultural level, the literature reviewed shows higher levels of violence in environments where gender asymmetry is overt, patriarchal norms prevail, socioeconomic conditions cause high unemployment rates and low average incomes, and violent behavior is tolerated (which discourages intervention) (Hardesty & Ogolsky, 2020). However, factors such as gender inequalities and patriarchal structures of domination alone have proven insufficient to explain IPV, particularly in social contexts where

such differences are less evident. In such contexts, male backlash can occur, often as a means of preserving their dominant role. This can result in an increase of violent behaviours (Bourdieu, 2001; Guzmán Ordaz & Jiménez Rodrigo, 2014).

Study sites

This study is part of a preliminary qualitative phase of a more comprehensive study (Evaluation of a Cognitive-Behavioral Intervention for Victims of Domestic Violence in Cali and Tuluá, Valle de Cauca) designed to understand the situations, signs, and behaviors people identify as being associated with IPV. It was conducted in two municipalities in Valle de Cauca, a province in southwestern Colombia with a population of approximately 4.6 million inhabitants. Despite the abundance of natural resources in this area, high levels of socioeconomic inequality exist, resulting in widespread violence, informal employment, and unemployment. Cali is the capital of the province, with approximately 2.2 million inhabitants and a homicide rate of 44.77 per 100,000 population in 2022. One of the two study sites, Comuna 20, is a particularly impoverished, violent neighborhood in the west of the city. The other one, Tuluá, is a medium-sized city close to Cali with approximately 200,000 inhabitants and a homicide rate of 68.45 per 100,000 population in 2022 (Forensis, 2022; Lennon et al., 2021). Both territories are ethnically diverse, with most inhabitants failing to identify with a particular ethnic group. Both territories have a strong Andean influence, which has a highly patriarchal social structure. A significant proportion of this population were from Andean agricultural regions and displaced by the internal armed conflict (Centro Nacional de Memoria Histórica, 2020).

The purpose of this study was to analyze the attitudes towards IPV of heterosexual men from two different areas of Valle de Cauca province: Comuna 20 in Cali and Tuluá. The study was undertaken to contribute to the design of educational and therapeutic interventions tailored to the local context. The interventions will not be described here.

METHOD

This exploratory qualitative study used focus group discussions to collect data.

Participants/Sample description

Approximately six men were included per focus group discussion and recruited using the following inclusion criteria: adults aged over 18 years old and residents of Comuna 20, Cali or Tuluá. Men were invited through local community leaders. This was followed by snowball sampling to recruit other men who were contacted by telephone to confirm their participation; the sample included local community leaders. A total of six focus groups were conducted: three in Cali and three in Tuluá. Volunteers were invited to participate in a group interview on the topic of "couple situations/dynamics." A total of 33 men from the two municipalities participated. Despite the small number of participants, we decided not to conduct more focus groups due to the saturation of responses.

Data Collection

Sociodemographic data on participants was collected through a questionnaire conducted during the first focus group discussion. Trained facilitators (psychiatrists and social workers) conducted all focus groups. Written consent was obtained from all participants and permission requested to audio-record the sessions so that they could be transcribed for analysis. Groups were conducted between June 2017 and October 2018, with sessions lasting from 60 to 90 minutes. Facilitators used a discussion guide based on hypothetical scenarios adapted from the *WHO Multi-Country Study of Women's Health and Domestic Violence against Women* (García-Moreno et al., 2005). The scenarios were used to encourage discussion and allow facilitators to focus on male beliefs and attitudes towards IPV. Specific attention was given to understanding the nuances of their relationships and the factors contributing to conflict. Questions such as How would you describe your relationship with your partner? And What factors do you believe contribute to conflicts in your relationship? were included. These open-ended questions allowed participants to provide rich, detailed accounts of their experiences, capturing the complexity of IPV within their specific socio-cultural contexts.

Analysis

A qualitative thematic analysis was conducted on the focus group transcripts. The unit of analysis was the transcribed texts. Information from the interviews and focus groups was transcribed in Microsoft Word® and subsequently exported and analyzed with Atlas.ti® software version 8.4.5.

The analysis was conducted in two separate hermeneutic units, one for participants from Cali and another for those from Tuluá. Open coding and In-Vivo techniques were initially used on the transcripts. The codes were then grouped into categories according to the socioecological model. For this purpose, we referred to the article by Hardesty & Ogolsky, (2020). From this perspective, we analyzed the individual, relational and community levels, subsumed into the socio-cultural level. This permitted a comparison of the two groups of men to establish similarities and differences (see Table 1).

Table 1
Categories and codes

Cali	*Tuluá*
Individual Level	
○Low self-esteem ○ Mistrust ○ She allows him the behavior ○ She makes herself respected ○ She was with the other man still ○ She is empowered ○ She is like a man ○ She is submissive and likes it ○ He is abusive ○ He is a boor, macho ○ Lack of male responsibilities ○ Brute force ○ To make her a rebel ○ It is her fault ○ Victimization	○ Mistrust ○ To confront the problem ○ To empower ○ She does not cooperate ○ They do it out of necessity ○ They betray us ○ It is her fault ○ My daughter is a tomboy ○ Victimization.
Intimate Partner Level	
○ To give her freedom ○ Letting her go to school ○ Letting her go to work ○ Economic dependence ○ She disobeys ○ I am the one in charge ○ They cheat on us ○ Economic independence ○ Not letting her go out ○ Prohibiting things to her ○ Taking her children away ○ Reaction to their emotional response ○ Support by the family ○ She let me submit her ○ Having her submitted	○ Let her go to work ○ Let her go to school ○ Economic dependence ○ She being in charge ○ She can serve him ○ She is not allowed to do what she wants ○ Reaction to emotional response from them ○ They may be given the opportunity.
Community Level	
○ Unemployment ○ Education ○ Community intervention ○ Risk in helping ○ Problem with alcohol abuse.	○ Help as a community leader ○ Education ○ Community intervention ○ Drugs and Alcohol ○ To prevent ○ Response as a neighbor ○ Problem with alcohol abuse ○ We live in a community.
Socio-cultural Level	
○ From the door inwards ○ Inequality ○ Disobedience ○ Lack of institutional response ○ Idiosyncrasy ○ Women as caregivers ○ Government responsibility ○ An institutional problem.	○ Counseling and guidance in family police stations ○ Inequality ○ The government is weak ○ The Government is the manager of violence ○ Idiosyncrasy ○ The law protects women ○ Women as caregivers of children ○ Women as sexual objects ○ The institutions work only for media coverage ○ The institutions do not work as they should ○ Violence is not brutal ○ The space was given to her ○ Without participant´s consent ○ A property

Ethical considerations

The study was approved by the Institutional Human Ethics Review Committee (Spanish acronym CIREH) at the Universidad del Valle, Cali (internal registration code 043-017).

RESULTS

The average age of the participants was 46 years. The most prevalent sociodemographic characteristics included mestizo ethnicity (being of European and Indigenous descent), common-law marriage, having completed secondary school and being a retiree.

Although socioeconomic status was not obtained for participants, 83% of residents from Comuna 20 are in the two lowest socioeconomic groups (groups one and two out of six in Colombia) whereas in Tuluá, 75% of residents belong to groups two and three. At the end of the sessions, participants were asked if they thought they had ever been perpetrators, with 64% answering affirmatively.

Recognizing Violence

The study participants recognized a wide range of situations that could be described as violence towards women, whether psychological, social, physical, or sexual. In most of these situations, economic domination was a strategy that both caused other types of IPV: *"Psychological violence, mostly…because of the financial aspect, the financial threat"* (GFC1. 1:28), *"...she has four children, but she does not leave him, and she puts up with it because he feeds the children even though they are not his…"* (GFT3, 3:12).

Individual Level

In the statements made by the group of men from Cali, low self-esteem was a key factor in IPV in both men and women. The men explained that this permitted men's aggressive attitudes and made the women submissive. *"... women have lost their self-esteem and have made us aware of that, so that we men… I don't know, so that we don't re-*

Table 2
Sociodemographic characteristics of men participating in the focus groups

Characteristic	*Total*
Age [Mean (SD)]*	45.6 (11.3)
Ethnicity [n (%)]	
Black	7 (26.92)
White	3 (11.54)
Mestizo**	15 (57.59)
Other	1 (3.85)
Occupation [n (%)]	
Professional career	1 (4.55)
Technician	3 (13.64)
Merchant	1 (4.55)
Construction worker	4 (18.18)
Domestic worker	3 (13.64)
Pensioner	6 (27.27)
Other	4 (18.18)
Hometown [n (%)]	
Cali	11 (45.83)
Tuluá	9 (37.50)
Other city	4 (16.68)
Children at home [n (%)]	
No	9 (40.91)
Yes	13 (59.09)
Marital status [n (%)]	
Single	6 (21.00)
Common law marriage	10 (36.00)
Married	9 (32.00)
Divorced	3 (11.00)
Educational attainment [n (%)]	
Complete secondary	13 (46.43)
Incomplete secondary	4 (14.29)
Technical career complete	8 (28.57)
Technical career incomplete	1 (3.57)
Complete university	2 (7.14)
Do you consider yourself an abusive man? [n (%)]	
No	8 (36.36)
Yes	14 (63.64)

*SD: Standard Deviation
*** Mestizo: Latin American who has a mix of Spanish, Native American and African ancestors.*

spect them"(GFC1, 1:2). Participants explained that from a man's point of view, low self-esteem translated into mistrust and fear of being abandoned, *"fear that she will go off with someone else…"* (GFC1, 1:9). *"There are husbands who are very jealous and will think she is going somewhere to be with other men…"* (GFC2, 2:4) and of course, aggressiveness *"…a jealous man can go as far as committing feminicide…"* (GFC1, 1:17).

Men also identified as victims of IPV, especially in terms of physical violence, *"…a shouting match, a woman and a man shouting because they are hitting each other, because women also hit men!"* (GFT1, 1:4). They also mentioned experiencing psychological violence, which could elicit an aggressive response on their part. However, they remarked this was accompanied by a sense of shame, as they feared social questioning of their masculinity *"…the thing is that we, as men, are embarrassed to say it. These sorts of situations will never be heard around a dinner table"* (GFC1, 1:30).

A consensus was observed in the groups of men in Cali and Tuluá that women brought IPV upon themselves but that they too were perpetrators. This was explained by the lack of limits women imposed on their partners, *"From the moment he does it for the first time and she allows it by not creating a barrier or putting an end to the situation, he will keep hitting her"* (GFC3, 3:23), as well as attitudes or behaviours that can be seen by them as triggers of violence *"…there are many women who demand respect but when you see how they dress, it's inconsistent … many men disrespect them, they touch them and women incite them to do inappropriate things because of their own behavior…"* (GFC1, 1:2) They also attribute certain characteristics to women such as infidelity, suggestibility and weakness in response to external household stimuli, *"…in my neighborhood there is a lot of violence, there are many girls walking around in the street, girls as young as eight or ten years old who already allow others to grope and touch them…" (GFT1, 1:2).* This places men in a reasonably distrustful position *"you have to be very careful about her plans to study, because she may be looking to engage in some kind of lewd behavior…" (GFT3, 3:11).*

Both groups of men perceived female empowerment as a protective factor against IPV, particularly those who had the strength and courage to denounce it and to become financially independent. However, they tended to masculinize women who adopted strong positions or engaged in activities regarded as inherently masculine *"look, she is like a man…"* (GFC1, 1:8), *"…I have a little man…"* (GFT1, 1:7).

Couple Level

In the discourse regarding the men from Cali and Tuluá, there is a permanent emphasis on power for men-fathers,

husbands, boyfriends-to prevent women from performing various activities. There is an established power dynamic that affects the possibility of subverting power relationships at home, as well as in education and workplace settings, *"... sometimes we do not allow women to work for that reason, so they understand that it is the man who… And always to dominate them, given that it is the man who puts bread on the table…"* (GFC3, 3:28). The relationship between domination and violence is recognized by both sets of municipal men, since their discourse concerns violence, rather than power relations, "*...when he has a beer, he comes home with the aim of ... making his authority felt, which creates conflict"* (GFT2, 2:3).

Traits of domination in relationships were said to be passed on from fathers to sons and those of submission in relationships from parents to daughters. Physical violence as a form of communication was also described as being passed on from generation to generation, *"…well, I am a macho man, I followed my dad's example and you can't do that because you can't leave the children alone… you must look after my children… you must look after them, you can't do anything else…"* (GFT3, 3:4). This shows how both women and men observe their parents' behaviours in childhood and repeat them in their own couple relationships.

Participants from both locations described cases in which IPV committed by men responded to emotionally charged situations that women had initiated. They gave examples of women who were jealous, or complained about their behavior outside the household or money, and of expressions of vulnerability within the relationship itself, which led to intimate partner problems, *"…the truth is that I told her: I'll put you on a leash and hit you, because there is often no need for women to curse and treat you…with hurtful words"* (GFC2, 2:21).

Regarding the role of families in IPV, there was no clear consensus on whether it was a protective or risk factor. Some men described how families would attempt to contain it, whereas others remarked that if the family became aware of the situation, the violence could escalate.

Community Level

Participants in Cali regarded unemployment as one of the causes of IPV, which put pressure on their relationships as their partners were described as having many financial demands: *"Due to the lack of employment, there are also many domestic problems, there are women who demand too much from you as well…"* (GFC3, 3:32). Men from both cities identified the use of alcohol and other psychoactive substances as facilitating factors for IPV, which were used by men to externalize their emotions that would otherwise remain repressed, *"…my dad used to drink and beat my mum. He left her but every time he got drunk, he would go and beat her…" (GFC1, 1:26), "...some of us become more loving, ... others become aggressive. I gave up drinking ten years ago, but when I drank, I was very aggressive. I used to hit my partner for the slightest reason…"* (GFC3, 3:19).

The community's involvement with IPV was seen by participants from two different perspectives: on the one hand, they realized how local leadership initiatives could alleviate it, whereas on the other, they felt it could perpetuate more violence. They mentioned community projects that offered training regarding IPV such as educational strategies targeting children and young adults, information on their rights, the law, and places where women could obtain help in the event of IPV, "*I live in a community where there has been a lot of violence against women and well, in our neighborhood we have been working on this with the community… providing training sessions…*" (GFT1, 1:36). They identified the need to change gender stereotypes in the household. They identified lack of education as another determinant of violence, stating that it should begin in childhood. One the other hand, there was a consensus that intervention in IPV cases would be too risky. They feared negative consequences for themselves and/or the woman involved and explained how this could lead to passivity and tolerance of violence in their neighborhoods, *"…because he defended a woman who was being beaten...a man was caught at the liquor store and bar the following Sunday and shot four times in the head, he never messed with anyone, they worked together! He was one of the good guys here and because he got involved…"* (GFC2, 2:14*), "No, that's someone else's problem. That's the typical phrase of people who think I'm not getting involved because that's not my problem. But it is your problem, because that's precisely why violence is generated in the neighborhoods"* (GFT1, 1:32).

Socio-cultural Level

A strong patriarchal structure was evident in the accounts of men from both cities, speaking of clearly defined gender roles transmitted by men and women with entrenched sexist beliefs, *"Even the mothers were sexist."* (GFT3, 3:1) *"...we believe that women's place is in the kitchen and we have created an imaginary that women are the ones who do the housework… because we end up drinking beer, but if she wants to go out, if she wants to share a moment with a family member, she can't because she is a woman. So, these situations lead many of them to be mistreated and psychologically abused."* (GFC1, 1:3-4). The position of male dominance was also observed to delineate the physical space participants believed to be appropriate for men and women. They believed that the street was a natural space for men and the household for women where they cook and take care of the children: *"At the local scale, Tuluá is a very sexist city... because of this, a man from Tuluá who is able to support his family and who has deeply rooted traditional principles, would normally not allow his wife to work."* (GFT1,1:17).

Financial power was one of the most widely recognized factors through which the positions of domination and submission in the couple were perpetuated: *"…to make her understand that he is the one in charge …men sometimes don't let women work for that reason, so they know the man is in charge, and will always dominate her. Since it is the man who puts bread on the table… you understand… and many men bring that up whenever there is a problem… If you don't work, I am the one who provides for the household. So, they can't say anything. This is called manliness, machismo…"* (GFC3, 3:28).

In Tuluá, men described how the sexual objectification of women was heavily influenced by the drug trafficking culture present in the central and northern part of the Valle de Cauca, *"…it (IPV) increased in households because of the phenomenon of drug trafficking when they (drug traffickers) acquired economic power and women became sex toys and were increasingly seen as objects rather than as human beings with the same rights and possibilities..."* (GFT3, 3:2)

Regarding the government's role, men from both cities were aware of the laws and government institutions in place to both prevent and mitigate IPV. However, they perceived the government's response to be limited, untimely and delayed, *"Here, women have received death threats, and they don't even pay attention to that…"* (GFC1, 1:25). Participants from Tuluá felt that the government was responsible for IPV, and blamed corruption and indolence among civil servants for encouraging it, *"…nowadays institutions work by merely taking a picture (of their work) and... publishing it in the media... because I experienced that myself... I had to take pictures to send them to the office to show that work was being done, but it was a fake job."* (GFT1, 1:35).

DISCUSSION AND CONCLUSION

The ecological model provides a contextualized view of the IPV, by exploring the levels of analysis, with interdependent, dynamic relationships, making it possible to understand individual aspects such as gender in relation to the socio-historical conditions of the latter and the environment in which they develop (Crego Díaz, 2003).

In our study, we did not find any significant differences in the perspectives of intimate partner violence (IPV) between participants from Cali and Tuluá. However, it is crucial to consider the broader context of each region when interpreting these results. For instance, Tuluá has a significantly higher homicide rate (68.45 per 100,000 population) than Cali (44.77 per 100,000 population) (Forensis, 2022). This disparity in violence rates may be influenced by factors such as socioeconomic conditions, the presence of armed groups, and urban violence dynamics. These contextual differences might not directly affect the individual perceptions of IPV but are likely to impact on the overall environment of violence in which these individuals live (Moser & McIlwaine, 2006).

The discussions in the focus groups for men in this study show that the vulnerability of both men and women is associated with IPV, cutting through all levels of the analysis: the individual, the couple, the community and society and culture. Kabeer, (2014) describes vulnerability as being "…conventionally conceived as a dynamic, multidimensional concept that relates to the choices that people can exercise and the capabilities they can draw on in the face of shocks and stresses." (Kabeer, (2014); Kabeer et al., 2013). This author prefers to use the term "relational vulnerabilities" when explaining IPV against women as it better describes the existing unequal social relationships and the resulting dependencies.

Examples of vulnerability in both women and men, across all levels found in this study include low self-esteem, a fragile couple relationship, family background, including a history of exposure to violence between parents and child abuse, psychoactive substance use, and external conditions that directly impact relationships (such as unemployment, low educational attainment, lack of support from family and neighbors, gender inequalities, and passive or negligent government intervention). Some of these conditions of vulnerability are often used by men as excuses and justifications for acts of violence. However, at the same time, they reflect the contradictory experiences of power and powerlessness perceived by men, a conclusion also highlighted by Pineda Duque & Otero Peña, (2004).

Vulnerability as a trigger for and perpetuating factor of IPV is consistent with findings described by other authors, at the individual, relational, community and societal and cultural levels as shown in Hardesty and Ogolsky's review of research on IPV over the past decade (Hardesty & Ogolsky, 2020).

Although men rationally questioned overt scenarios of violence and mentioned situations in which they had exercised different forms of IPV, they failed to identify the influence of unequal power between the sexes as underlying IPV. Gender inequality, manifested in the participant's statements, reflected the internalization of a patriarchal social structure known to exist in both study territories; Cali's Comuna 20 and Tuluá, which both experienced a strong cultural influence from rural migrants from Andean agricultural regions in Valle de Cauca and the surrounding regions.

Gender relationships are a result of everyday activities and interactions. At the same time, behavior in the private sphere is directly associated with collective social propensity in terms of three social aspects that interact together to form the gender order: work in both the household and the labour market; power through social relationships such as authority, violence, domestic life, institutions; and cathexis, which relates to the dynamics of intimate relationships,

such as marriage, sexuality, and parenting (Giddens & Sutton, 2021).

Giordano et al., (2015) used a symbolic interactionist approach to analyze young couples, finding that in regard to the dynamics of control and IPV, IPV occurred more when couples argued rather than as a general attempt to dominate (Giordano et al., 2015). This and other findings led them to conclude that it could be useful to conceptualize control mechanisms as an indicator of vulnerabilities in the relationship rather than a direct assertion of male privilege or dominance. In view of this, we conclude that, according to our findings, although there was no conscious intention of men to assert their power and dominance over women, men and women were 'placed' in their gender condition because structural inequality influences individual level. This reflects the internalization of roles through barely sustained propensities, particularly evident in patriarchal societies. Anderson also referred to the concept of "social location," which assigns gender specific behaviours and ways of perceiving or negotiating their identities at a micro-level of social interaction (Anderson, 2010).

The findings of this study suggest that there is a need to intensify multilevel preventive interventions rather than conducting targeted interventions for victims and perpetrators. Coordinated community responses to IPV have been shown to be effective in reducing recidivism and holding perpetrators of violent behavior to account. This requires the engagement of key actors at each level: the individual (survivors and perpetrators), families, community groups, and protection, justice and health systems, etc. (Pallatino et al., 2019).

Lastly, it is also necessary to address vulnerabilities early on in childhood (such as household relationship patterns, gender equity at school, support in primary care during the teenage years), and to strengthen responses to IPV by the community and health, protection and justice institutions, all of which must be supported by robust national legislation.

Men in this study recognized different forms of violence targeting female partners, with most of them self-identifying as perpetrators of this type of violence. Economic, structural and gender inequalities were expressed at the individual, couple, and socio-cultural levels. Participants rationally questioned overt scenarios of violence yet failed to identify the influence of unequal power between sexes as underlying IPV.

DECLARATIONS

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Conflicts of interest/Competing interests

The authors declared that they have no conflict of interests.

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al campo de la salud mental. *Es de carácter obligatorio mencionar a tres revisores nacionales o internacionales en el campo de conocimiento del manuscrito sometido, favor de indicar el nombre completo y correo electrónico de cada uno de los revisores.* Debe cargarse en formato PDF.

ÉNFASIS Y PUNTUACIÓN

1. Es importante que los manuscritos eviten en general las notas a pie de página, aunque se pueden considerar si son claramente necesarias.
2. Las cursivas deben utilizarse para:
   - Destacar palabras extranjeras.
   - Enfatizar expresiones populares.
   - Mencionar títulos de libros, documentos ya publicados y publicaciones periódicas.
3. Las cursivas pueden emplearse para:
   - Resaltar términos significativos o importantes cuando se mencionan por primera vez.
   - Destacar una palabra u oración dentro de una cita.
4. Las comillas dobles deben usarse solamente para:
   - Citar párrafos de otros autores dentro del texto.
   - Citar textualmente fragmentos del discurso de los sujetos de estudio.
5. Evite el uso de paréntesis doble, es decir, un paréntesis dentro de otro. En su lugar utilice corchetes.
6. Puede emplearse guiones largos para indicar oraciones parentéticas.
7. Deben utilizarse de forma correcta todos los signos de puntuación. Por ejemplo, si emplea signos de interrogación en un texto en español, deben colocarse los de apertura y cierre correspondientes; se procede de igual manera con las comillas.

FÓRMULAS MATEMÁTICAS Y ESTADÍSTICAS

Para presentar los resultados se deben considerar las siguientes indicaciones:

1. Escribir con letra las cifras de cero a nueve y con números las cifras de 10 en adelante.
2. Utilizar números cuando se trate de fechas, muestras, etcétera.
3. Incluir en los datos estadísticos los intervalos de confianza.
4. Los símbolos estadísticos se escriben en cursivas (por ejemplo, *M, SD, n, p)*.
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.
6. Dejar un espacio antes y después de cada signo (a + b = c en lugar de a+b=c).
7. Emplear puntos en lugar de comas para indicar decimales.

VERIFIQUE LO SIGUIENTE ANTES DE SOMETER SU MANUSCRITO

Antes de enviar su manuscrito, cerciórese de adjuntar la documentación solicitada. A los autores, se les devolverá aquellos envíos que no cumplan con los lineamientos editoriales.

1. Manuscrito en formato en WORD.
2. Carta de presentación en formato PDF.
3. Carta de autorización de uso de obra en formato PDF.

GUIDELINES FOR AUTHORS

Salud Mental publishes original articles on psychiatry, psychology, neurosciences and other related fields in the following formats:

1. **Editorials**
   Written at invitation of the Director Editor, editorials express authoritative opinions on specific topics of interest to the scientific community and the area of mental health. They are designed to foster debate and promote new lines of research. *Maximum extension: 1000 words*.
2. **Original articles (peer-reviewed section)**
   These articles present research results unpublished in other journals, and can be written using the following methodologies:
   - *Quantitative methodology.* This methodology includes primary and secondary results from cross-sectional studies, clinical trials, cases and controls, cohorts, and quasi-experimental studies. *Maximum extension: 3500 words*.
     Depending on the type of study, manuscripts should adhere to the following guidelines:
     - Randomized clinical trials should adhere to the *CONSORT guidelines* (http://www.consort-statement.org).
     - Studies with non-experimental designs should adhere to the *TREND guidelines* (http://www.trend-statement.org).
     - Cross-sectional, cohort, and case-control studies should adhere to the *STROBE guidelines* (http://www.strobe-statement.org).
   - *Qualitative methodology.* This methodology includes focus group reports, in-depth interviews, semantic networks, and content analysis. *Maximum extension: 5000 words*.
     Articles using this type of methodology should comply with the *COREQ guidelines* (https://academic.oup.com/intqhc/article/19/6/349/1791966/Consolidated-criteria-for-reporting-qualitative).
3. **Review articles (peer-reviewed section)**
   - **Systematic reviews.** These reviews should preferably include a meta-analysis. *Maximum extension: 4000 words*.
4. **Case reports**
   They include reports on the effects of a diagnostic or therapeutic method that is useful or relevant in the medical, academic, or scientific field. *Maximum length: 2000 words.*
   These should comply with the *CASE REPORT guidelines* (https://www.care-statement.org/checklist).

Note. The word count for each of these sections excludes the title, abstracts, and keywords, as well as the funding, conflicts of interest and acknowledgments sections. Words included in tables, figures and references are not considered either.

LANGUAGES

Salud Mental receives and publishes only manuscripts in English.

ETHICAL ASPECTS IN PUBLISHING

See Ethical Guidelines for the journal at www.revistasaludmental.gob.mx

AUTHORSHIP

The number of authors will depend on the type of manuscript submitted. The maximum number of authors for original or review articles is eight. Only in the case of multicenter studies will the maximum number of authors be increased to twelve, provided this is justified by the scope of the study.

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]

   [1] Dirección de Investigaciones Epidemiológicas y Psicosociales, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México.
   [2] Departamento de Publicaciones, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México.

- 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:
  Juan José García-Urbina
  Dirección de Investigaciones Epidemiológicas y Psicosociales, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz.
  Calz. México-Xochimilco 101, San Lorenzo Huipulco, Tlalpan, 14370, Ciudad de México, México.
  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.gob.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
2. Cover letter in PDF format
3. Letter authorizing the use of the article