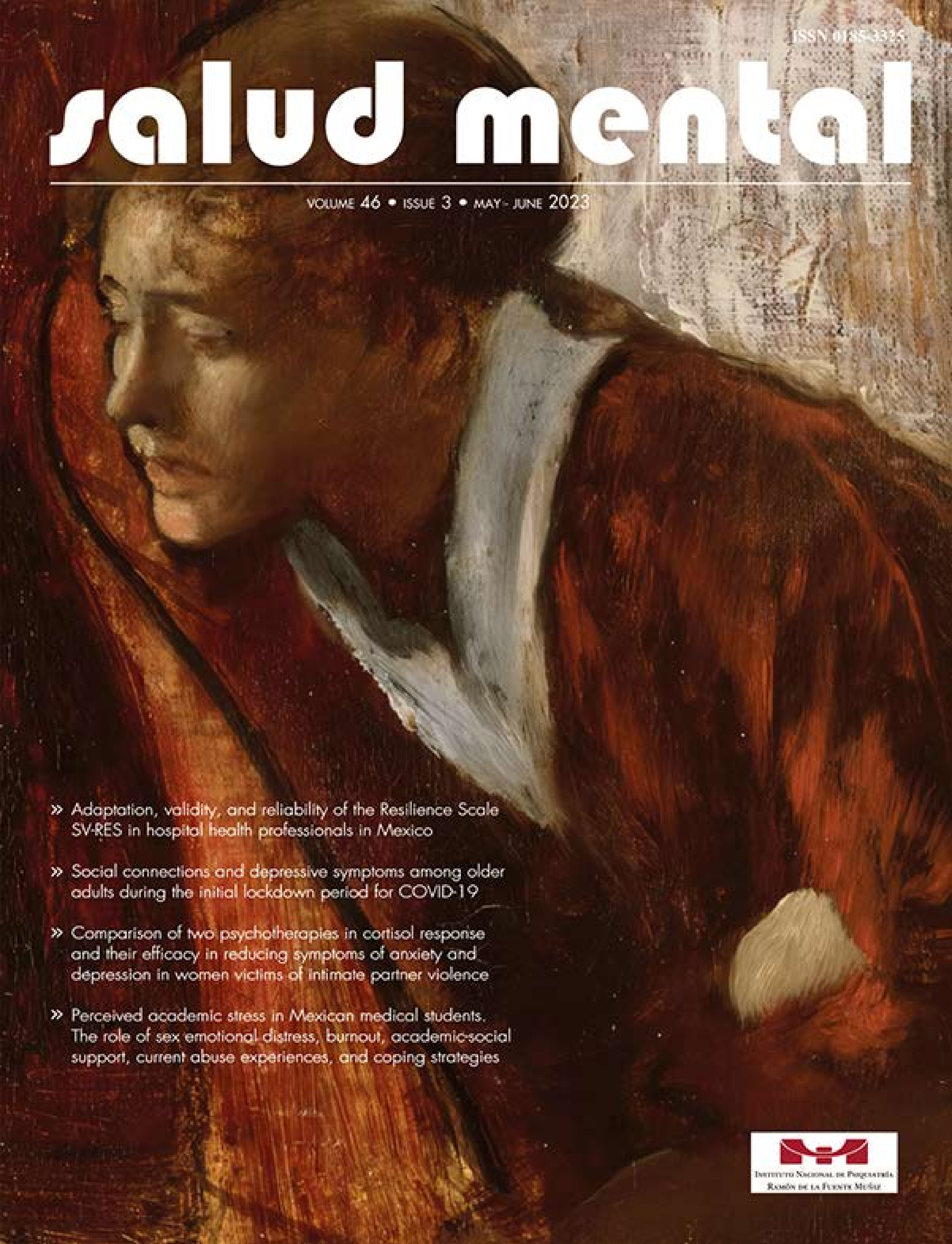

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salud mental

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Edgar Degas (1834-1917)
Oil on canvas,
19.05 x 24.76 cm
The Phillips Collection,
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Directorio

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Adaptation, validity, and reliability of the Resilience Scale SV-RES in hospital health professionals in Mexico

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ABSTRACT

Introduction. Resilience is the capacity in which the qualities and resources of the individual help in the successful coping of adverse situations. Studying the construct of resilience requires seeing it as a process and not only a characteristic of the individual. Saavedra's resilient response is a model that fits this idea and explains resilience satisfactorily. Having a measuring instrument for health personnel working in hospitals would allow discovering its benefits as a protective factor in the workplace. **Objective.** Adapt and validate the Resilience Scale SV-RES in hospital health professionals in Mexico. **Method.** Based on recent research literature, including response models and modified and adapted items from the Resilience Scale SV-RES, a total of 909 health professionals responded. Distribution, factor analysis, and internal consistency tests were performed. **Results.** The process led to a scale of 28 items grouped into six factors with an overall internal consistency of (α = .908) and 50.5% of explained variance. **Discussion and conclusion.** The Resilience Scale SV-RES has adequate psychometric properties that make it appropriate to measure the resilience capacity of hospital health professionals in Mexico.

Keywords: Resilience, health personnel, resilient response, psychometric scale.

RESUMEN

Introducción. La resiliencia es la capacidad en que las cualidades y recursos del individuo le ayudan al afrontamiento exitoso de situaciones adversas. Se ha advertido que estudiar el concepto de resiliencia requiere verse como un proceso y no sólo como elementos característicos del individuo, un modelo que explica de manera adecuada este proceso es el modelo de respuesta resiliente de Saavedra. Contar con un instrumento que permita su medición en personal de salud hospitalario permitiría descubrir su beneficio como factor protector en el lugar de trabajo y diseñar intervenciones preventivas o remediales. **Objetivo.** Adaptar y validar la Escala de Resiliencia SV-RES en profesionales de salud hospitalaria en México. **Método.** Se tomó como base la literatura de investigación científica contemporánea, modelos de respuesta resiliente y los reactivos de la Escala de Resiliencia SV-RES, adaptados y modificados, a los que respondieron 909 profesionales de la salud. Se realizaron pruebas de distribución, análisis factorial y consistencia interna. **Resultados.** Se obtuvo una escala conformada por 28 reactivos agrupados en seis factores con consistencia interna global de (α = .908) y una varianza explicada de 50.5%. **Discusión y conclusión.** La Escala de Resiliencia SV-RES cuenta con propiedades psicométricas adecuadas que la hacen apropiada para medir la capacidad de resiliencia en profesionales de la salud hospitalaria de México.

Palabras clave: Resiliencia, personal de salud, respuesta resiliente, escala psicométrica.

INTRODUCTION

Health professionals working in hospitals are particularly vulnerable to suffering from various psychological affectations (Duarte, Velasco, Sánchez-Sosa, & Reyes-Lagunes, 2019; Fouilloux et al., 2020; Gómez-Urquiza et al., 2017; Vidal, Chávez-Negrete, Riveros, & Sánchez-Sosa, 2019). Various complaints are associated with health system conditions (González & Pérez, 2012; Polanco et al., 2013); interpersonal dynamics at work (Brooks, Gerada, & Chalder, 2011; Aguado Martín, Bátiz Cano, & Quintana Pérez, 2013) and individual aspects (Landa-Ramírez et al., 2017; Trifunovic, Jatic, & Kulenovic, 2017). The consequences affect the quality and way of interacting with patients and other health team members, imbalance between work and personal life, and various aspects of their health (Duarte et al., 2019; Reith, 2018; Shanafelt et al., 2012).

This background has prompted the investigation of factors that can function as protectors against these consequences. Among them, resilience has gained an important role due to its apparent association with low levels of stress, anxiety, and burnout, among others (Rushton, Batcheller, Schroeder, & Donohue, 2015; Ríos-Risquez, García-Izquierdo, Sabuco-Tebar, Carrillo-Garcia, & Martinez-Roche, 2016; Deldar, Froutan, Dalvand, Gheshlagh, & Mazloum, 2018; Foster et al., 2019; Yu, Raphael, Mackay, Smith, & King, 2019).

The concept of resilience has been defined in diverse ways making it difficult to have consensual conventional concepts. This has contributed to a separation between resilience theory and practice. While there are core, widely accepted factors of resilience, such as social support (APA Help Center, 2019), others vary depending on the author and the instrument used to assess them.

Several commonalities have been found in the study of resilience (Connor & Davidson, 2003; García-Vesga & Domínguez-de la Ossa, 2013; Fernandes de Araújo & Bermúdez, 2015; Ortunio & Guevara, 2016; Stainton et al., 2019). These consistencies include perceived stress, adversity, and hostile work contexts. These contexts are not limited to extreme cases, such as losing a colleague or loved one. The context also functions as a protective factor to reduce everyday risk events, such as social, family, educational, and occupational vulnerability. When the individual successfully copes with these adversities, positive adaptation usually results.

Due to this conceptual complexity, resilience is considered a multifactorial phenomenon, where the qualities and resources of the individual contribute to the successful coping of the adverse situation (Connor & Davidson, 2003; García-Vesga & Domínguez-de la Ossa, 2013; Ortunio & Guevara, 2016). In general, resilience should be seen as a process and not only as an inherent or characteristic element of the individual (Stainton et al., 2019). Consistent with this stance, Saavedra proposed a model of resilient response from the emergent case study (Saavedra, 2003; Saavedra & Villalta, 2008, p. 32).

This approach sees resilient responses as goal-oriented actions that meet three essential conditions: a) *Basic conditions*, including beliefs, values, experiences, and social ties that the subject has developed throughout his or her life. b) *Positive self-view*, which includes positive emotions and thoughts that the person identifies in him/herself in the face of adversity, and c) *Problem view*, an articulated and positive perception in which the problem appears surmountable.

Several authors refer to resilience as a critical protective factor in the workplace (Jackson, Firtko, & Edenborough, 2007; Howe, Smajdor, & Stöckl, 2012; Epstein & Krasner, 2013; Brennan, 2017; Sotile, Fallon, & Simonds, 2019; McKinley et al., 2019; Yu et al., 2019). However, most studies assessing resilience use instruments with poor theoretical congruence, i.e. different elements of resilience from one instrument to another; low inter-scale consistency, and weak or absent ecological validity (measurement under specific conditions present during measurement).

Thus, it is essential to have a consistent resilience instrument with good psychometric characteristics for the population of hospital health professionals. Such an instrument would allow the proper evaluation of this protective factor and contribute to designing and examining the effectiveness of interventions that promote resilience. Within a broader study that evaluates risk and protection variables in health personnel, it was decided to use the Resilience Scale SV-RES. Due to its flexibility of use and validity of items, the objective of this study was to adapt and validate a scale to measure the resilient response of hospital health professionals.

METHOD

Design of the study

Development process of a measurement scale.

Participants

A total of 909 health professionals (attending staff and students) from the various services and shifts of the hospital participated. Participation was voluntary and strictly anonymous after signing the corresponding informed consent form. Personnel under psychiatric or psychological treatment or participating in any other study that could bias the findings were excluded from the analysis. Also excluded were those who had not responded to at least 80% of the items. The invitation to the study was open to all hospital staff and students through invitations from service chairpersons, social networks, posters, and other similar means. Seventy percent of the total staff participated, enough to be representative of said hospital. Data collection included from November 2018 to February 2019.

Measurement

The Resilience Scale SV-RES, initially developed by Saavedra and Villalta (2008) for the Chilean population, evaluates the concept of resilience-based on Edith Grotberg's theory of resilient verbalizations and Saavedra's resilient response model. It is a 60-item scale grouped into 12 factors: identity, autonomy, satisfaction, pragmatism, links, networks, models, goals, affectivity, self-efficacy, learning, and generativity. The answers require responding to a Likert-type scale, ranging from "1 = totally disagree" to "5 = totally agree", leading to a score for each factor and a global score through the sum; a higher score greater resilience capacity.

The original Scale has internal consistency of $\alpha = .96$ (Cronbach's alpha) and validity through Pearson's coefficient of $r = .76$, $p < .05$ with the CD-RISC instrument (Connor & Davidson, 2003).

Procedure

Once the original author of the scale gave the proper authorization, the scale was submitted to a trial with 24 expert health psychologists to examine comprehension (wording and structure) of the Mexican culture and to identify whether the items effectively evaluated relevant dimensions (content validity). Due to some initial inconsistencies in the results (Aiken coefficient less than .70), the next version got modified based on the most consistent suggestions stemming from the first procedure.

A second trial was carried out with 43 experts to evaluate factor assignment, adequacy to the Spanish language. Correct grammatical usage was assessed by an expert grammarian-philologist in Spanish. An interquartile deviation > 1.4 and a coefficient of variation < 30% were used as criteria for the discrimination capacity of the items, leading to a new version of 60 items.

The final version of the instrument was then administered to 909 health personnel to examine its main psychometric properties. The study is part of a larger project, the evaluation proceeded through a general battery composed of seven instruments. In order to avoid bias, the data corresponding to the resilience variable were recorded and analyzed separately. The capture and scoring of the items was carried out by means of a blind procedure and, in order to guarantee correct data capture, 30% of the captures were, again, randomly reviewed.

Table 1
*Sociodemographic data of participants (*N *= 909).*

Age		M = 35.35	SD = 11.49
		N	%
Sex	Male	260	28.6
	Female	649	71.4
Marital status	Single	522	57.4
	Married	252	27.7
	In cohabitation	83	9.1
	Other	51	5.7
	Not specified	1	.1
Position	Nursing staff	371	40.9
	Graduate students (nursing)	37	4.0
	Social service/interns (nursing)	56	6.2
	Medical staff (attending)	122	13.5
	Resident physicians	199	21.9
	Social service/interns (medical)	66	7.2
	Licentiate degree medical interns	39	4.3
	Other (nutritionists, psychologists, dentists, etc).	19	2.0
Shift	Morning-afternoon, 6:00 to14:00 hours	423	46.6
	Night shift 22:00 to 6:00 hours (nursing)	141	15.5
	Afternoon-evening 14:00 to 22:00.	118	13.0
	Special (weekends-holidays)	22	2.4
	Night shift, 22:00 to 6:00 (medicine)	10	1.1
	Guards (medicine)	195	21.4
Support services	Various schedules	34	

Notes: *N* = Number (frequency); M = Mean; SD = Standard Deviation.

Table 2
Factorial loading of items

	Factor-items	*Factors load*
Factor 1	I can assume the risks of my actions when solving problems.	.760
	I can do my best to achieve the goals I set to solve the problem.	.639
	I can learn to be creative in finding solutions to problems.	.609
	I can visualize myself overcoming difficult moments.	.596
	I can learn to collaborate with others to improve my situation and that of others.	.570
	I find it difficult to generate solution options when presented with a problem.	-.568
	I find it difficult to set realistic goals when faced with problems.	-.559
	I can learn from my successes and mistakes when faced with a problem.	.531
	I find it difficult to learn how to make decisions in a difficult moment.	-.441
	Total self-value: 8.9 % of variance: 31.8 Accumulated %: 31.8	
Factor 2	I am confident that the problems I face do not affect my work or school.	.735
	I am sure that my problems do not negatively affect my relationship with my partner.	.679
	I am sure that my problems negatively affect my relationship with family and friends.	-.544
	Total self-value: 2.4 % of variance: 8.9 Accumulated %: 40.7	
Factor 3	There are people in my life who have given me strength.	.781
	There are people in my life who have helped me make sense of my life.	.653
	I do not have friends and family to turn to in difficult situations.	-.598
	I do not have people whose support makes me feel good when I have a problem	-.567
	There are people close to me that I trust.	.527
	My emotional relationships have not been strong.	.483
	Total self-value: 1.7 % of variance: 6.2 Accumulated %: 46.9	
Factor 4	It is difficult for me to talk about my emotions.	-.667
	I have difficulty expressing affection to others.	-.693
	I cannot control my emotions and this makes it difficult for me to find effective solutions.	-.433
	Total self-value: 1.5 % of variance: 5.4 Accumulated %: 52.4	
Factor 5	I have people who help me find a solution when I confide my problems to them.	.910
	I have people who help me anticipate the possible dangers or threats of a problem.	.679
	I count on people who, by telling me about their experiences with similar problems, help me make good decisions.	.651
	Total self-value: 1.2 % of variance: 4.3 Accumulated %: 56.7	
Factor 6	I am a person who constantly doubts myself in difficult situations.	-.788
	I am a person who feels insecure about my projects and goals when facing problems.	-.781
	I am a person with low self-esteem.	-.556
	I am a person who feels self-confident, even if 1 am in a problematic environment.	.536
	Total self-value: 1.1 % of variance: 3.9 Accumulated %: 60.7	
Eliminated Items		
	I am a person who has hope.	
	I am a person who is pessimistic about the future.	
	I am a person sure of my convictions.	
	I am a person in constant development from my experiences.	
	I am a person who finds it easy to reach out to family and friends in difficult times.	
	I am a person who is appreciated by others in difficult times.	
	I am not sure that a problem is an opportunity to move forward.	
	I am confident that overcoming difficulties makes me a positive example to others.	

Table 2
Factorial loading of items (Continued)

Eliminated Items
I am a practical person when I solve problems.
I am a person who finds it difficult to set goals when faced with a problem.
I am a person who avoids facing problems.
I am a person who evaluates the meaning of life in difficult moments.
I am a person who thinks of various solutions when I have a problem.
My family has had poor relationships with each other.
I can access the public services and activities.
I need to feel and be a better person despite problems.
I have people who encourage my autonomy and initiative, making me feel competent to deal with difficult situations.
I have people who make me remember what I have achieved in life despite the difficulties.
I do not have people who guide and advise me to find the solution to a problem.
I do not have people who accompany me in the search for solutions when I have problems.
I have short-term goals that I keep despite problems.
I have difficulty keeping my goals clear in complicated situations.
I do not have people to help me take action to solve my problems.
Despite difficulties, I am convinced to act to maintain my goals and future projects.
I can solve my problems without affecting my goals and objectives.
I can trust people.
I can overcome emotional problems.
I can establish affective relationships with others.
I can propose solutions when problems arise.
When I feel bad, I cannot ask for help even though I know it would help solve my problem.
I can be a supportive person when others go through difficult times.
I can be responsible for what I do in the face of problems.
It is difficult for me to learn how to communicate appropriately to solve problems.

Notes: Extraction method: principal axis analysis.
Rotation method: Oblimin with Kaiser normalization.

Statistical analysis

Sociodemographic variables were examined through measures of central tendency and dispersion.

The analysis included frequency, Kolmogorov-Smirnov Z test, asymmetry and kurtosis, to identify the directionality and distribution of the data. The discriminative power of the items was examined employing two tests: a comparison of extreme groups for the total test (first and fourth quartiles) using the Mann Whitney U test. The total correlation of the test and each item used a correlation cutoff point above .30. (Construct validity) Factor analysis used the principal axis method with oblique rotation (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Ferrando & Anguiano-Carrasco, 2010; Beavers et al., 2013). To measure the relevance of the analysis, the Kaiser-Meyer-Olkin sample adequacy index (KMO = .920) and Bartlett's test of sphericity ($X^2 = 9979.492$; degrees of freedom = 378; $p \leq .001$) were computed. Elimination criteria included factors with two or fewer grouped items and items with factor loadings less than .40 (Morales Vallejo, 2013; Ferrando & Anguiano-Carrasco, 2010). Finally, reliability (internal consistency) was assessed through Cronbach's Alpha formula (Hernández, Fernández, & Baptista, 2010; Quero, 2010; Kerlinger & Lee, 2002).

Ethical considerations

This research is part of a larger one approved by the Research and Research Ethics Committee of the Hospital General Dr. Manuel Gea González, with the title of "Association of burnout with psychological and organizational variables in medical and nursing students and staff of the Hospital General Dr. Manuel Gea González".

Registration number: 27-51-2018, August 30, 2018.

RESULTS

The results include data from 909 health professionals from 24 medical services and five shifts, with an average age of 35.35 years and a standard deviation of 11.49. Of the participants, 464 were students and staff from the nursing area, 426 from the medical area, and 19 from nutrition, dentistry, and psychology (Table 1).

The frequency analysis of the 60 items showed that the directionality of items 2, 3, 8, 9, 11, 14, 17, 18, 22, 23, 27, 28, 31, 35, 37, 38, 41, 42, 45, 46, 48, 52, 55, 56, and 57 was contrary to that of the rest, leading to inverting the score. In the data distribution for each item, the Kolmogorov-Smirnov Z test ranged between .178 and .370; $p < .001$, with negative asymmetries and leptokurtic kurtosis, indicating a skewed distribution.

Prior to the factorial analysis, item 19: "I am a person who evaluates the meaning of life in difficult moments", was eliminated since its correlation with the total of the test was less than .30 (.249; $p < .001$).

The final results of the factor analysis showed a grouping of 28 items in six factors, with loadings ranging from .433 to .910 and an explained variance of 60.7%. The first factor grouped nine items, the second, fourth and fifth with three; the third with six, and the sixth with four items. Thirty-two items were eliminated (Table 2).

Finally, the internal consistency test revealed a value of $\alpha = .908$, and for each factor, the reliability index ranged from $\alpha = .708$ to $\alpha = .882$.

According to the characteristics of their items, the factors obtained were theoretically matched with the resilient response model which supports the original instrument, as follows; General Resources (Factor 3, 4, and 6), Vision of oneself (Factor 1) and Vision of the problem (Factor 2 and 5).

DISCUSSION AND CONCLUSION

The objective of this study was to adapt and validate the SV-RES resilience scale for Mexican hospital health professionals. The instrument has good psychometric properties; content validity, construct validity, and internal consistency.

The exploratory factor analysis led to eliminating over because their factor load did not exceed the established limit of .40 or grouped into factors with two or fewer items. This procedure left 28 items with five response options, from 1 "totally disagree" to 5 "totally agree". The items belong to six factors, obtaining, through the sum, a total score on the resilience capacity in the face of problematic situations (resilient response) and each factor that composes it. The items whose rating is reversed are; 6,7,9,12,15,16,18,19,20,21,25, 26, and 27.

The factors were defined based on the relationship of the items and the relevant research literature (Saavedra & Villalta, 2008; Ortunio & Guevara, 2016; Stainton et al., 2019; Fernandes de Araújo & Bermúdez, 2015). The factors obtained coincide with the theoretical resilience model proposed by Saavedra, as follows: Base conditions

Table 3
Composition of the SV-RES Resilience Scale for health personnel.

Categories	*Factors*	*Definition*	*Cronbach's α*	*No. Items*	*Example item*
General resources	Factor 3: Emotional support	Refers to the perception, as a resource, of the affective bonding of the person with his/her close social environment.	.810	6	"I don't have people whose support makes me feel good when I have a problem."
	Factor 4: Emotional control	Refers to the person's learned way to manage and express his/her feelings and emotions.	.738	3	"I cannot control my emotions, and this makes it difficult for me to find effective solutions."
	Factor 6: Self-concept	Refers to the person's learned way to describe him/herself in the face of problems.	.786	4	"I am a person who constantly doubts him/herself in the face of difficult situations."
View of oneself	Factor 1: Self-efficacy	Set of skills and resources that the person perceives him/herself capable of using in a problematic situation.	.882	9	"I can do my best to achieve the goals I set to solve the problem."
Vision of the problem	Factor 2: Social relationships	Refers to the value and maintenance of close social ties in the face of problems.	.708	3	"I am sure that my problems do not negatively affect my relationship with my partner."
	Factor 5: Use of social support	Refers to the contribution of social networks that benefit a solution-directed orientation to problems.	.843	3	"I count on people who, by entrusting them with my problems, help me find a solution."

Note: Internal consistency reliability, Cronbach's alpha, total α = .908.

(factors 3; Emotional support, 4; Emotional control, and 6; Self-concept), Vision of oneself (factor 1; Self-efficacy), Vision of a problem (factors 2; Social relationships and 5; Use of social support), and the score total (all factors), resilient response (Saavedra & Villalta, 2008; Saavedra, 2003; Table 3).

The identified factors describe resilience as a coping resource in widely documented situations requiring resilience as a process. They include coping, successful problem solving, and learning to resolve future conflicts (Stainton et al., 2019). This structure seeks to identify the present conditions and how they get perceived in the face of a problematic situation.

In the six factors obtained, social support, a proactive vision, self-confidence, and the management of feelings and emotions stand out (APA Help Center, 2019). Indeed, these are core dimensions to consider as pillars within the concept of resilience when seeking to homogenize the analysis of the concept in real situations and identify ways to design effective interventions. Finally, the instrument is a reliable option for assessing the resilience capacity of hospital health professionals. Also, the length of the scale will result in a shorter application time compared to its original version, which increases its viability of use in a population with work overload.

It is essential to note that this study is part of a broader one, which is why it required adaptation to the conditions set by the main project. For example, the application included a battery composed of six instruments, which extended the average answering time to 30 min, which could have influenced the participants' responses. This point should be relevant for future research in terms of practicality. Similarly, the present study involved an exploratory factor analysis. More exhaustive analysis (confirmatory factor analysis) would verify the factors obtained and their relationship with the three categories of Saavedra's resilient response model.

Finally, future research should consider the diversity of health professionals participating in these studies. The research literature generally reports high levels of resilience, but with minor differences in both students and staff (Chaukos et al., 2017; Dorote, 2018; Foster et al., 2019; McCain et al., 2017; Ríos-Risquez et al., 2016; Walpita & Arambepola, 2020; Yu et al., 2019).

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Conflict of interest

The authors declare they have no conflicts of interest.

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REFERENCES

Aguado Martín, J. I., Bátiz Cano, A., & Quintana Pérez, S. (2013). El estrés en personal sanitario hospitalario: estado actual. *Medicina y Seguridad del Trabajo*, *59*(231), 259-275. doi: 10.4321/S0465-546X2013000200006

APA Help Center. (2019). *The road to Resilience. American Psychological Association*. Retrieved from https://www.apa.org/helpcenter/road-resilience Access date February 29, 2019.

Beavers, A. S., Lounsbury, J. W., Richards, J. K., Huck, S. W., Skolits, G. J., & Esquivel, S. L. (2013). Practical considerations for using exploratory factor analysis in educational research. *Practical Assessment, Research & Evaluation*, *18*(6), 1-13. doi: 10.7275/qv2q-rk76

Brennan, E. J. (2017). Towards resilience and wellbeing in nurses. *British Journal of Nursing*, *26*(1), 43-47. doi: 10.12968/bjon.2017.26.1.43

Brooks, S. K., Gerada, C., & Chalder, T. (2011). Review of literature on the mental health of doctors: Are specialist services needed? *Journal of Mental Health*, *20*(2), 146-156. doi: 10.3109/09638237.2010.541300

Chaukos, D., Chad-Friedman, E., Mehta, D. H., Byerly, L., Celik, A., McCoy, T. H., & Denninger, J. W. (2017). Risk and Resilience Factors Associated with Resident Burnout. *Academic Psychiatry*, *41*(2), 189-194. doi: 10.1007/s40596-016-0628-6

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*(2), 76-82. doi: 10.1002/da.10113

Deldar, K., Froutan, R., Dalvand, S., Gheshlagh, R. G., & Mazloum, S. R. (2018). The Relationship between Resiliency and Burnout in Iranian Nurses: A Systematic Review and Meta-Analysis. *Open Access Macedonian Journal of Medical Sciences*, *6*(11), 2250-2256. doi: 10.3889/oamjms.2018.428

Dorote, C. (2018). *Síndrome de Burnout y resiliencia en internos de Obstetricia de la Universidad Nacional Mayor de San Marcos* (Tesis de pregrado). Universidad Nacional de San Marcos, Facultad de Medicina, Perú. Retrieved: https://cybertesis.unmsm.edu.pe/handle/20.500.12672/8318 Access date February 25, 2019.

Duarte, R. E., Velasco, E., Sánchez-Sosa, J. J., & Reyes-Lagunes, L. I. (2019) Validación psicométrica de la escala de gravedad de fatiga en médicos residentes mexicanos. *Educación Médica*, *20*(1), 28-36. doi: 10.1016/j.edumed.2017.11.006

Epstein, R. M., & Krasner, M. S. (2013). Physician resilience: What it means, why it matters, and how to promote it. *Academic Medicine*, *88*(3), 301-303. doi: 10.1097/ACM.0b013e318280cff0

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*(3), 272-299. doi: 10.1037/1082-989X.4.3.272

Fernandes de Araújo, L., & Bermúdez, M. de la P. (2015). Resiliencia en adultos: Una revisión teórica. *Terapia Psicológica*, *33*(3), 257-276. doi: 10.4067/S0718-48082015000300009

Ferrando, P. J., & Anguiano-Carrasco, C. (2010). Análisis factorial como técnica de investigación en psicología. *Papeles del Psicólogo*, *31*(1), 18-33.

Foster, K., Roche, M., Delgado, C., Cuzzillo, C., Giandinoto, J.-A., & Furness, T. (2019). Resilience and mental health nursing: An integrative review of international literature. *International Journal of Mental Health Nursing*, *28*(1), 71-85. doi: 10.1111/inm.12548

Fouilloux, C., Tafoya, S. A., Barragán, V., Navarro-Escalera, A., Campos-Castolo, E. M., & Sánchez-Sosa, J. J. (2020). Symptoms of depression and stress perception in medical students: Needs for attention and willingness to get help. *Latin American Journal of Behavioral Medicine*, *11*(1), 1-10.

García-Vesga, M. C., & Domínguez-de la Ossa, E. (2013). Desarrollo teórico de la Resiliencia y su aplicación en situaciones adversas: Una revisión analítica.

Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud, *11*(1), 63-77. doi: 10.11600/1692715x.1113300812

Gómez-Urquiza, J. L., De la Fuente-Solana, E. I., Albendín-García, L., Vargas-Pecino, C., Ortega-Campos, E. M., & Cañadas-De la Fuente, G. A. (2017). Prevalence of Burnout Syndrome in Emergency Nurses: A Meta-Analysis. *Critical Care Nurse*, *37*(5), e1-e9. doi: 10.4037/ccn2017508

González, E. I., & Pérez, E. (2012). Condiciones laborales y desgaste profesional en trabajadores de la salud. *Alternativas en Psicología*. *15*(27), 8-22.

Hernández, R., Fernández, C., & Baptista, M. del P. (2010). *Metodología de la Investigación* (5th ed). México: McGraw-Hill.

Howe, A., Smajdor, A., & Stöckl, A. (2012). Towards an understanding of resilience and its relevance to medical training. *Medical Education*, *46*(4), 349-356. doi: 10.1111/j.1365-2923.2011.04188.x

Jackson, D., Firtko, A., & Edenborough, M. (2007). Personal resilience as a strategy for surviving and thriving in the face of workplace adversity: A literature review. *Journal of Advanced Nursing*, *60*(1), 1-9. doi: 10.1111/j.1365-2648.2007.04412.x

Kerlinger, F., & Lee, H., (2002). *Investigación del Comportamiento. Métodos de Investigación en Ciencias Sociales*. México: McGraw Hill.

Landa-Ramírez, É., Rangel-Domínguez, N. E., Villavicencio-Carranza, M. A., Weingerz-Mehl, S., Reyes-Saavedra, M. I., González-Álvarez, V. R., … Jiménez-Escobar, I. (2017). Clima organizacional y factores relacionados con el burnout en urgencias médicas: un estudio correlacional. *Psicología y Salud*, *27*(2), 245-254.

McCain, R. S., McKinley, N., Dempster, M., Campbell, W. J., & Kirk, S. J. (2017). A study of the relationship between resilience, burnout and coping strategies in doctors. *Postgraduate medical journal*, postgradmedj-2016-134683. Advance online publication. doi: 10.1136/postgradmedj-2016-134683

McKinley, N., Karayiannis, P. N., Convie, L., Clarke, M., Kirk, S. J., & Campbell, W. J. (2019). Resilience in medical doctors: A systematic review. *Postgraduate Medical Journal*, *95*(1121), 140-147. https://academic.oup.com/pmj/article-abstract/95/1121/140/6983884?5

Morales Vallejo, P. (2013). *El análisis factorial en la construcción e interpretación de tests, escalas y cuastionarios* (pp. 1-46) Madrid: Facultad d Ciencias Humanas y Sociales, Universidad Pontificia Comillas. Retrieved from http://www.eio.uva.es/~valentin/ad3d/anadat/afc/comillas_AnalisisFactorial.pdf Access date January 15, 2019.

Ortunio, M., & Guevara, H. (2016). Aproximación teórica al constructo resiliencia. *Comunidad y Salud*, *14*(2), 96-105.

Polanco, G. C., Castañón, G. J., Buhse, T., Samaniego, M. J., Arreguín, N. R., & Villanueva, M., S. (2013). Índice de saturación modificado en el servicio de urgencias médicas. *Gaceta Médica de México*, *149*, 417-424.

Quero, V. M., (2010). Confiabilidad y coeficiente Alpha de Cronbach. *Telos*, *12*(2), 248-252.

Reith, T. P. (2018). Burnout in United States Healthcare Professionals: A Narrative Review. *Cureus*, *10*(12), 1-9. doi: 10.7759/cureus.3681

Ríos-Risquez, M. I., García-Izquierdo, M., Sabuco-Tebar, E. de los A., Carrillo-Garcia, C., & Martinez-Roche, M. E. (2016). An exploratory study of the relationship between resilience, academic burnout and psychological health in nursing students. *Contemporary Nurse*, *52*(4), 430-439. doi: 10.1080/10376178.2016.1213648

Rushton, C. H., Batcheller, J., Schroeder, K., & Donohue, P. (2015). Burnout and resilience among nurses practicing in high-intensity settings. *American Journal of Critical Care*, *24*(5), 412-420. doi: 10.4037/ajcc2015291

Saavedra, E. (2003). *El enfoque Cognitivo Procesal Sistémico, como posibilidad de intervenir educativamente en la formación de sujetos resilientes*. España: Universidad de Valladolid.

Saavedra, G. E., & Villalta, P. M. (2008). Medición de las caracteristicas resilientes, un estudio comparativo en personas entre 15 y 65 años. *Liberabit*, *14*, 31-40.

Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L. N., Sotile, W., Satele, D., … Oreskovich, M. R. (2012). Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Archives of Internal Medicine*, *172*(18), 1377-1385. doi: 10.1001/archinternmed.2012.3199

Sotile, W. M., Fallon, R. S., & Simonds, G. R. (2019). Moving From Physician Burnout to Resilience. *Clinical Obstetrics and Gynecology*, *62*(3), 480-490. doi: 10.1097/GRF.0000000000000444

Stainton, A., Chisholm, K., Kaiser, N., Rosen, M., Upthegrove, R., Ruhrmann, S., & Wood, S. J. (2019). Resilience as a multimodal dynamic process. *Early Intervention in Psychiatry*, *13*(4), 725-732. doi: 10.1111/eip.12726

Trifunovic, N., Jatic, Z., & Kulenovic, A. D. (2017). Identification of Causes of the Occupational Stress for Health Providers at Different Levels of Health Care. *Medical Archives*, *71*(3), 169-172. doi: 10.5455/medarh.2017.71.169-172

Vidal, E. A., Chávez-Negrete, A., Riveros, A., & Sánchez-Sosa, J. J. (2019). Stress in medical residents: Care needs exploration in a public hospital. *Latin American Journal of Behavioral Medicine*, *10*(1), 1-8.

Walpita, Y. N., & Arambepola, C. (2020). High resilience leads to better work performance in nurses: Evidence from South Asia. *Journal of Nursing Management*, *28*(2), 342-350. doi: 10.1111/jonm.12930

Yu, F., Raphael, D., Mackay, L., Smith, M., & King, A. (2019). Personal and work-related factors associated with nurse resilience: A systematic review. *International Journal of Nursing Studies*, *93*, 129-140. doi: 10.1016/j.ijnurstu.2019.02.014

APPENDIX

SV-RES Resilience Scale for health professionals in Mexico

Instrucciones: De acuerdo con la siguiente escala. Evalúe el grado en que estas afirmaciones la/lo describen cuando enfrenta una situación complicada.

A = Totalmente en desacuerdo; B = En desacuerdo; C = Ni en desacuerdo ni de acuerdo; D = De acuerdo; E = Totalmente de acuerdo.

		A	*B*	*C*	*D*	*E*
1	Puedo asumir los riesgos de mis acciones al solucionar los problemas.					
2	Puedo esforzarme al máximo para lograr los objetivos que establecí para solucionar el problema.					
3	Puedo aprender ser creativo en la búsqueda de soluciones a los problemas.					
4	Puedo visualizarme superando momentos difíciles.					
5	Puedo aprender a colaborar con otros para mejorar mi situación y la de los demás.					
6	Se me dificulta generar opciones de solución cuando se me presenta un problema.*					
7	Se me dificulta fijarme metas realistas ante los problemas.*					
8	Puedo aprender de mis aciertos y errores ante un problema.					
9	Me resulta complicado aprender a tomar decisiones en un momento difícil.*					
10	Estoy seguro que los problemas que enfrento no afectan mi trabajo o escuela.					
11	Estoy seguro de que mis problemas no afectan negativamente mi relación de pareja.					
12	Estoy seguro de que mis problemas afectan negativamente mi relación con familiares y amigos.*					
13	Existen personas en mi vida que me han dado fortaleza.					
14	Existen personas en mi vida que me han ayudado a darle sentido a mi vida.					
15	No tengo amigos y familiares a quienes recurrir para sentirme mejor en situaciones difíciles.*					
16	No tengo personas que con su apoyo me hagan sentir bien cuando tengo algún problema*					
17	Hay personas cercanas a mí en las que confío.					
18	Mis relaciones afectivas no han sido sólidas*					
19	Se me dificulta poder hablar de mis emociones.*					
20	Se me dificulta poder expresar afecto a los demás.*					
21	No puedo controlar mis emociones y esto me dificulta encontrar soluciones efectivas.*					
22	Cuento con personas que al confiarles mis problemas me ayudan a encontrar una solución.					
23	Cuento con personas que me ayudan a anticipar los posibles peligros o amenazas de un problema.					
24	Cuento con personas que, al contarme sus experiencias en problemas similares, me ayudan a tomar buenas decisiones.					
25	Soy una persona que se siente insegura de mis proyectos y metas al enfrentar los problemas.*					
26	Soy una persona que constantemente duda de sí misma ante situaciones difíciles.*					
27	Soy una persona con baja autoestima.*					
28	Soy una persona que se siente segura de sí misma, incluso si me encuentro en un ambiente problemático.					

* Reactivo inverso.

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Social connections and depressive symptoms among older adults during the initial lockdown period for COVID-19

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ABSTRACT

Introduction. Little information from developing countries during the first lockdown for COVID-19 is available. We hypothesized that the use of communication tools, and not living alone would provide a protective effect against DS. **Objective.** To determine the association between social connections and depressive symptoms (DS) during the first lockdown period among Mexican community-dwelling older adults. **Method.** Cross-sectional phone survey including 269 participants aged 65 years or older. Participants were asked about their social connections and the presence of DS during the first lockdown for COVID-19. **Results.** Mean age was 83.2 (SD = 6.7). Compared with those without DS, those with DS reported a greater number of phone calls or videocalls although this was not statistically significant. However, when stratifying by housing situation, only the participants who lived alone and that received less calls from friends had more DS (p = .04). **Discussion and conclusion.** Living alone allowed the participants not to have much contact with family and this caused friends to represent the most important social relationship outside the home. We hypothesize that the means to stay socially active for older adults in Latin America are different and have a different impact. Because, DS only were present among the participants who reported living alone and having fewer calls from friends during the confinement period.

Keywords: Depressive symptoms, COVID-19, social connections, older adults.

RESUMEN

Introducción. Hay poca información disponible sobre los países en desarrollo durante el primer período de confinamiento por COVID-19. Planteamos la hipótesis de que el uso de herramientas de telecomunicación y vivir acompañado proporciona un efecto protector frente a la presencia de síntomas depresivos (SD). **Objetivo.** Determinar la asociación entre las conexiones sociales y los SD durante el primer período de confinamiento en adultos mayores mexicanos que viven en la comunidad. **Método.** A través de un estudio transversal, 269 participantes de 65 años o más completaron una encuesta telefónica sobre sus conexiones sociales y la presencia de SD durante el primer período de confinamiento por COVID-19. **Resultados.** La edad media fue de 83.2 (DE = 6.7). En comparación con los que no tenían SD, los que tenían SD reportaron un mayor número de llamadas telefónicas o videollamadas, pero esto no fue estadísticamente significativo. Sin embargo, al estratificar por situación de vivienda, los participantes que vivían solos y que recibían menos llamadas de amigos tenían más SD (p = .04). **Discusión y conclusión.** Vivir solo permitió a los participantes no tener mucho contacto con la familia y esto provocó que los amigos representaran la relación social más importante fuera del hogar. Creemos que los medios para mantenerse socialmente activos de los adultos mayores en América Latina son diferentes y tienen un impacto diferente. Debido a que los SD solo estuvieron presentes entre los participantes que reportaron vivir solos y tener menos llamadas de amigos durante período de confinamiento.

Palabras clave: Síntomas depresivos, COVID-19, conexiones sociales, adultos mayores.

INTRODUCTION

Social isolation is a known risk factor for diverse negative health-related and mental health-related outcomes among older adults. These outcomes include the development of depression and depressive symptoms (DS). This risk was recognized well before the COVID-19 pandemic (Cipolleta & Gris, 2021; Santini et al., 2020). Therefore, as the World Health Organization warned, mental health-related complications associated with social isolation could increase in this already vulnerable population due to the adoption of the lockdown periods to limit the spread of SARS-CoV-2 at the beginning of the pandemic (World Health Organization [WHO], 2020). In this sense, older adults are not only at higher risk for increased mortality from COVID-19, but are also vulnerable for its indirect adverse mental health effects, such as the development of DS (Fraser et al., 2020).

Consequently, during the COVID-19 pandemic, multiple projects have been conducted in order to study the impact that social isolation may have had on older adults' mental health during diverse lockdown periods. In the pre-pandemic era, several studies have already shown an association between loneliness and social isolation and various adverse health-related outcomes among older adults including all-cause mortality, poor physical health (Noone et al., 2020), and increased risk for dementia (Cipolleta & Gris, 2021; Santini et al., 2020).

However, results coming from the early months of the pandemic and the first lockdown periods have been very heterogeneous, either because they did not observe changes in mental health during that period (Röhr, Reininghaus, & Riedel-Heller, 2020), or because they reported a worsening of DS (Robb et al., 2020). As the future of the pandemic remains uncertain, it is pertinent to continue studying the possible associations between isolation and its negative mental health-related consequences in older adults, such as the development of DS. Equally important is the need to study variables that could mitigate these consequences, such as maintaining social interactions (i.e., social connections). Social connections are the relationships that we have with the people around us and are shaped by verbal and non-verbal performances that co-construct the meaning of such interactions, either in person or remotely by using technology (Birt et al., 2020). For instance, studies conducted in high-income countries before the pandemic have reported that living with other people and maintaining remote contact through communication tools, such as telephone calls or videocalls, had a positive impact on the reduction of DS (Noone et al., 2020; Stevic, Schmuck, Matthes, & Karsay, 2021). However, little information from developing countries is available concerning the potential effect that the first lockdown period may have had on older adults' mental health (Buenaventura, Ho, & Lapid, 2020). In Mexico, in order to limit the number of infections by SARS-CoV-2, between March 23 and May 30, 2020, strict social distancing (domiciliary lockdown), as well as the suspension of all non-essential activities were recommended by the Government (Ibarra-Nava, Cardenas-de la Garza, Ruiz-Lozano, & Salazar-Montalvo, 2020). Relying on the PAMCOVID telephone survey aimed at communitarian older adults, and administered during the first lockdown period in Mexico (Hernández-Ruiz, 2021), the objective of the present study was to determine the association between social connections – assessed by the housing situation (if they lived alone or in the company of someone else) and the use of communication tools (phone-calls or video-calls) to maintain contact with family, friends, and neighbors during the first lockdown period in Mexico City – and the presence of DS among community-dwelling older adults.

METHOD

Participants

Cross-sectional study including the 269 participants from the PAMCOVID telephone survey. Briefly, the PAMCOVID survey is the Mexican counterpart of the French PACOVID ("Personnes Agées face au COVID") longitudinal telephone survey. These surveys were set up in the region of Bordeaux (France), and Mexico City a few days after the first global lockdown. Both were aimed at communitarian older adults and administered by trained health staff. Both surveys shared the initial main objective of addressing the issue; what are the attitudes, psychological, and social experiences of the older persons regarding the COVID-19 crisis and the lockdown measures? The complete methodology and initial results for both surveys have been described elsewhere (Hernández-Ruiz, 2021).

The collected data included information on the housing situation during the lockdown (i.e., if participants were living alone or with someone else), mental-health (three items from the CES-D questionnaire: how often have they felt "*sad*", "*depressed*", and "*lonely*" over the last week; Radloff, 1977), health status (including self-reported comorbidities), and social variables (non-professional phone or video contact over the last week).

For the present study, the included population consisted in older persons (≥ 65 years-old) from a Geriatrics outpatient clinic at a third-level university-affiliated hospital in Mexico City whose consultation was canceled during the first national mandatory lockdown. Thus, eligible participants were contacted, and asked if they wished to participate in a 30-minute phone interview. Data was collected in May-July 2020. At the beginning of the interview the objectives of the study were presented, and verbal informed consent was obtained. If the persons themselves could not respond to the questionnaire but wished to participate, a proxy was invited to answer in their place. Exclusion criteria were refusal to participate in the study, inability to answer the interview due to cognitive impairment or severe hearing problems as well as the absence of a proxy informant who could answer for them if needed.

Measurement

Depressive symptoms

DS were established by three items from the Center for Epidemiological Studies depression (CES-D) scale (*how often in the past week have you felt sad / how often in the past week have you felt depressed, and how often in the past week have you felt lonely*). Each item was scored on a four-point scale, and then it was dichotomized in "no" (not at all) or "yes" (rarely or less than a day, some of the time 1-2 days, occasionally 3-4 days or most of the time 5-7 days), being "yes" if in the past week they had felt these feelings at least one day. If the participants answered "yes" for at least one question, they were considered as having DS. If the participants reported DS they were oriented to receive the correspondent attention and also were referred to the hotline for older adults that was implemented by the Geriatrics clinic (Navarrete-Reyes & Avila-Funes, 2020).

Social connections

Several measures of social connections were included. Participants were asked about their housing condition during the lockdown period: if they lived alone or in the company of a partner/another member of the family. Likewise, they were asked if they have had remote contact via communication tools (phone calls or videocalls) with other persons (family members, friends and/or neighbors). Finally, participants were asked the number of phone calls or videocalls received on the seven days preceding the interview, and if that number represented a lower / same / higher quantity of calls respect to *the usual* (previous to the lockdown period).

Other variables

We obtained demographic data (age, sex, and level of education) from the medical records. Health conditions included self-reported diagnoses of hypertension, diabetes, or chronic lung disease.

Statistical analysis

Variables were described using arithmetic means and standard deviations (SD) or frequencies and proportions when appropriate. The following statistical procedures were used according to the characteristic of each variable: chi square test for qualitative data or Student t test for continuous data. In order to test the association between every measure of social connection and the presence of DS, univariate logistic regression models were conducted. All statistical tests were evaluated using 95% confidence intervals (CI) and p value < .05. Statistical tests were performed using the SPSS software for Windows® (SPSS Inc., Chicago, IL, version 25).

Ethical considerations

The patients/participants provided their informed consent to participate in this study. PAMCOVID ethics approval number 3361 (CONBIOÉTICA-09-CEI-011-2016027).

RESULTS

From 269 participants, the 71.7% (n = 193) of the responses were directly obtained from participants themselves and the 28.2% (n = 76) from a proxy. Mean age of participants was 83.2 (SD = 6.5; range 67-100), and 72.5% were women. The most prevalent chronic diseases were hypertension 66.5% (n = 179) and diabetes (n = 96; 35.7%; Table 1).

Regarding the housing situation during the lockdown period, most of the participants lived with a family member (n = 195; 72.5%). The most used means to keep social interactions were phone calls (n = 243; 90.3%) with an average of 29 (SD = 30.6) calls received from family members, friends and/or neighbors, in the seven days prior to the interview. And most of the participants perceived having received a greater number of calls (n = 231; 85.9%), being the calls from family members the ones who reported a greater perceived increased (n = 223; 94.9%), followed by the calls from friends (n = 95; 87.2%) and neighbors (n = 28; 78.5%). On the other hand, the use of videocalls was the less frequently used communication tool (n = 117; 43.5%). Among the participants that reported videocall use, an average of 4.2 (SD = 6.0) videocalls were received in the week before the interview from family members, friends and/or neighbors.

Half of the participants (n = 146; 54.3%) reported the presence of at least one depressive symptom in the week before the interview and "*feeling sad*" was the most frequently reported answer (n = 130; 48.3%). Compared with those who did not have DS, participants who reported DS were younger (p = .04), were predominantly women (p = .02), and more frequently reported living alone (p < .001). Despite that a higher number of received phone calls from their families, friends and/or neighbors was reported by participants with DS respect to their counterparts without DS, the difference was not statistically significant (p = .23). In the same vein, participants who had DS more frequently reported that the number of phone calls received from family, friends and/or neighbors during the lockdown was higher if compared to the pre-pandemic period; however, this difference was not statistically significant either (p = .39). In the same vein, the univariate logistic regression analysis showed that the number of phone-calls from friends (OR = .90, 95% CI = [.54,

Table 1
Sociodemographic and mental health characteristics

	All study sample (n = *269)*	*Without DS* (n = *123)*	*With DS* (n = *146)*	*p*
Age, mean (SD)	83.2 (6.5)	83.4 (6.8)	82.8 (6.3)	.04
Female, *n* (%)	195 (72.5)	81 (65.9)	114 (78.1)	.02
Health conditions:				
Hypertension, *n* (%)	179 (66.5)	79 (44.1)	100 (55.9)	.52
Diabetes mellitus, *n* (%)	96 (35.7)	50 (52.1)	46 (47.9)	.56
Pneumopathy, *n* (%)	52 (19.3)	20 (38.5)	32 (61.5)	.25
Cancer, *n* (%)	30 (11.2)	14 (46.7)	16 (53.3)	.89
Housing condition:				
Living with family, *n* (%)	195 (72.5)	94 (76.4)	101 (70.1)	.25
Living alone, *n* (%)	20 (7.4)	1 (0.8)	19 (13.2)	< .001
Number of phone contacts received, mean (SD)	29 (30.6)	28 (30.2)	30.7 (31.3)	.23
Number of videocalls contacts received, mean (SD)	4.2 (6.0)	4.2 (6.9)	4.2 (5.0)	.86
More calls perceived from family, *n* (%)	223 (94.9)	108 (96.4)	115 (93.5)	.31
More calls perceived from friends, *n* (%)	95 (87.2)	45 (86.5)	50 (87.7)	.85
More calls perceived from neighbors, *n* (%)	28 (75.7)	14 (73.7)	14 (77.8)	.77

Note: DS = depressive symptoms.

1.4], $p = .68$), family members (OR = .51, 95% CI = [.26, 1.00], $p = .52$) and neighbors (OR = .83, 95% CI [.37, 1.8], $p = .63$) was not statistically significant associated with the presence of DS. However, stratifying by housing situation (living alone vs. those who lived in the company of another person), only those who were living alone and had a lower number of phone-calls from friends presented more DS ($p = .04$; Table 2).

DISCUSSION AND CONCLUSION

This study did not find an association between keeping social connections and the presence of DS in community-dwelling older adults. And only when stratifying by housing situation, we found that those who were living alone and had lower number of phone-calls from friends presented more DS.

During the first waves of the COVID-19 pandemic, restrictive measures such as lockdowns and physical distancing were implemented in order to protect the population, particularly the more vulnerable groups as the older adults. However, it was warned that these restrictions could become a risk factor for the development of psychological problems such as DS (Cipolleta & Gris, 2021). That is why we hypothesized that the use of communication tools, like phone calls or video-calls, and not living alone (i.e., social connections) would provide a protective effect against DS (Käll et al., 2020). Nevertheless, this study does not prove it.

Even if our results are in the same line with existing literature reporting that populations with higher risks of developing DS during the first lockdown period were younger and living alone, we failed to show a statistical and significant association between the number of calls, as a proxy for social connection, and the presence of DS. For instance, Robb and collaborators showed that in 7,127 English community-dwelling older adults, women, younger persons, those single/widowed/divorced and those who were living alone more frequently reported a worsening of DS during the first lockdown (Robb et al., 2020). However, the evidence showing that the initial lockdown did not have the impact that we might have thought is increasing. For instance, in the cohort of Röhr and collaborators consisting of 1,005 community dwelling German older adults (aged 65-94) who were being followed for depression and anxiety prior to the pandemic, the authors report that mental health-related measures remained largely unchanged during the first lockdown period. This being assessed by a computer-assisted standardized telephone interview (Röhr et al., 2020). In the same vein, van Tilburg et al. found that despite an increase in the feeling of loneliness in older people, depression and anxiety feelings remained roughly stable during the first lockdown. This was evaluated in 1,679 Dutch community-dwelling persons aged 65-102 who completed a digital survey of loneliness and mental health (van Tilburg, Steinmetz, Stolte, van der Roest, & de Vries, 2021). It is possible that this can be explained by older adults' ability to apply coping strategies, like engaging in leisure activities, maintaining their daily routine, or by the

Table 2
Comparative analysis of depressive symptoms according calls number and housing condition

Living with family	*Calls from friends*	*With DS*	*Without DS*	*p*
No	No, *n* (%)	0 (0)	5 (19.2)	.04
	Yes, *n* (%)	19 (100)	21 (80.8)	
Yes	No, *n* (%)	7 (21.2)	2 (6.5)	.09
	Yes, *n* (%)	26 (78.8)	29 (93.5)	
	Calls from family			
No	No, *n* (%)	0 (0)	4 (10)	.09
	Yes, *n* (%)	27 (100)	36 (90)	
Yes	No, *n* (%)	4 (4.7)	4 (4.9)	.94
	Yes, n (%)	81 (95.3)	77 (95.1)	
	Calls from neighbors			
No	No, *n* (%)	0 (0)	2 (22.2)	.30
	Yes, *n* (%)	4 (100)	7 (77.8)	
Yes	No, *n* (%)	5 (33.3)	2 (22.2)	.56

Note: DS = depressive symptoms.

acceptance of the lockdown situation, as a way of facing these new circumstances. Likewise, they may display lower stress reactivity and more emotional resources to adapt in better ways to face adverse situations, as suggested by the French PACOVID study (Hernández-Ruiz et al., 2021).

It is important to recall that most of the evidence recommending the use of communication tools to maintain remote social interactions is based on studies that only found a positive impact of these tools in younger populations. However, a multi-national cross-sectional online survey by Bonsaksen and collaborators conducted in community-dwelling older adults during the first months of the pandemic, reported that only the participants between 60-69 years endorsed a reduction in the feeling of loneliness and an increase in quality-of-life estimators with the use of video-based communication (Bonsaksen et al., 2021). The mean age of our sample was higher in comparison to studies that recommend the use of newer communication tools, which may influence why in our sample only 43% of participants used video-calls. Nevertheless, this proportion is larger than the reported prevalence of use in other populations, which may reflect the characteristics of the Latin-American housing, where intergenerational cohabitation is more frequent (Kinsella, Velkoff, & U.S. Census Bureau, 2002). Another factor to account is that most of the studies evaluating older adults' mental health during the different lockdown periods have not been performed in Latin-American countries, where older adults probably experienced different impacts of the pandemic respect to their counterparts in high-income countries. Likewise, the means to keep socially active or the social connections adopted by older adults in Latin America could have been different, as suggested by the study of Tyler and collaborators. The work examined the relationships amongst demographics, COVID-19 life impacts, depression and anxiety in adults aged 60 or older from 33 countries (Tyler et al., 2021). This study found that in the first months of the pandemic being separated from, and having conflicts with loved ones predicted depression, as did residing in a country with higher income. In our study, most of the participants kept their family and friends close, and most of the participants lived in the company of someone else, who most likely acted like their social connections physically and helped them to maintain contact out of the household. This may be supported by the finding that in our study we only found DS among those participants who lived alone and did receive fewer calls from friends. Which may be a representation of other social constraints in these individuals. We hypothesize that living alone constrained them to not have much contact with their family members, and consequently their friends represented their most important social relationship outside of the household. Indeed, in Geriatrics it is well recognized that living alone and being socially isolated are two factors that can have a significant impact on older adults' mental health (Tanskanen & Anttila, 2016).

Some of our study's limitations are the lack of a previous mental health status assessment, its cross-sectional design, its sample size and that we didn't include participants who did not have access to phone-calls. However, several strengths can be underlined. This study is the first-one that has sought to determine whether maintaining social connections during the first lockdown either by household status, phone or video-calls had an association with the presence of DS in a middle-income country. Moreover, by relying on the telephone to do our survey, it was possible to achieve the participation of people in more vulnerable states of health, or who do not have the electronic means to answer an online survey. Which also contributes to reduce the selection bias, as described in other publications (Bethlehem, 2010). However, we are not exempt from other selection biases.

In conclusion, the present study showed that relatively younger participants, women, and people that were living alone and receive fewer calls from friends, more frequently reported depressive symptoms during the initial COVID-19 lockdown period in Mexico City. Social connections did not had associations with the presences of DS. This may reflect the impact of in person social interactions in the people who lived in the company of someone else. The results of this study offer an insight at some of the conditions that the older adults from Mexico City experienced during the first lockdown period of the COVID-19 pandemic, and thus, may promote the creation of tools to address the situation of those individuals who may have fewer social connections.

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Conflict of interest

The authors declare they have no conflicts of interest.

REFERENCES

Bethlehem, J. (2010). Selection bias in web surveys. *International Statistical Review*, *78*(2), 161-188. doi: 10.1111/j.1751-5823.2010.00112.x

Birt, L., Griffiths, R., Charlesworth, G., Higgs, P., Orrell, M., Leung, P., & Poland, F. (2020). Maintaining Social Connections in Dementia: A Qualitative Synthesis. *Qualitative Health Research*, *30*(1), 23-42. doi: 10.1177/1049732319874782

Bonsaksen, T., Thygesen, H., Leung, J., Ruffolo, M., Schoultz, M., Price, D., & Østertun Geirdal, A. (2021). Video-Based Communication and Its Association with Loneliness, Mental Health and Quality of Life among Older People during the COVID-19 Outbreak. *International Journal of Environmental Research and Public Health*, *18*(12), 6284. doi: 10.3390/ijerph18126284

Buenaventura, R. D., Ho, J. B., & Lapid, M. I. (2020). COVID-19 and mental health of older adults in the Philippines: a perspective from a developing country. *International Psychogeriatrics*, *32*(10), 1129-1133. doi: 10.1017/S1041610220000757

Cipolleta, S., & Gris, F. (2021). Older People's Lived Perspectives of Social Isolation during the First Wave of the COVID-19 Pandemic in Italy. *International Journal of Environmental Research and Public Health*, *18*(22), 11832. doi: 10.3390/ ijerph182211832

Fraser, S., Lagacé, M., Bongué, B., Ndeye, N., Guyot, J., Bechard, L., … Tougas, F. (2020). Ageism and COVID-19: what does our society's response say about us?. *Age Ageing*, *49*(5), 692-695. doi: 10.1093/ageing/afaa097

Hernández-Ruiz, V., Meillon, C., Avila-Funes, J.-A, Bergua, V., Dartigues, J.-F., Koleck, M., … Amieva, H. (2021). Older Adults and the COVID-19 Pandemic, What About the Oldest Old? The PACOVID Population-Based Survey. *Frontiers in Psychiatry*, *12*, 711583. doi: 10.3389/fpsyt.2021.711583

Ibarra-Nava, I., Cardenas-de la Garza, J. A., Ruiz-Lozano, R. E., & Salazar-Montalvo, R. G. (2020). Mexico and the COVID-19 Response. *Disaster Medicine and Public Health Preparedness*, *14*(4), e17-e18. doi: 10.1017/dmp.2020.260

Kinsella, K., Velkoff, V. A., & U.S. Census Bureau, (2002). Living arrangements. *Aging Clinical and Experimental Research*, *14*(6), 431-438. doi: 10.1007/bf03327344

Käll, A., Jägholm, S., Hesser, H., Andersson, F., Mathaldi, A., Norkvist, B. T., … Andersson, G. (2020). Internet-Based Cognitive Behavior Therapy for Loneliness: A Pilot Randomized Controlled Trial. *Behavior Therapy*, *51*(1), 54-68. doi: 10.1016/j.beth.2019.05.001

Navarrete-Reyes, A. P., & Avila-Funes, J. A. (2020). Staying in a Burning House: Perks and Perils of a Hotline in the Times of COVID-19. *Journal of the American Geriatrics Society*, *68*(5), E10-E11. doi: 10.1111/jgs.16479

Noone, C., McSharry, J., Smalle, M., Burns, A., Dwan, K., Devane, D., & Morrisey, E. C. (2020). Video calls for reducing social isolation and loneliness in older people: a rapid review. *Cochrane Database of Systematic Reviews*, *5*, (5), CD013632. doi: 10.1002/14651858.CD013632

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, *1*(3), 385–401. doi: 10.1177/014662167700100306

Robb, C. E., Jager, C. A., Ahmadi-Abhari, S., Giannakopoulou, P., Udeh-Momoh, C., McKeand, J., … Middleton, L. (2020). Associations of Social Isolation with Anxiety and Depression During the Early COVID-19 Pandemic: A Survey of Older Adults in London, UK. *Frontiers in Psychiatry*, *11*, 591120. doi: 10.3389/fpsyt.2020.591120

Röhr, S., Reininghaus, U., & Riedel-Heller, S. G. (2020). Mental wellbeing in the German old age population largely unaltered during COVID- 19 lockdown: results of a representative survey. *BMC Geriatrics*, *20*(1),489. doi: 10.1186/s12877-020-01889-x

Santini, Z. I., Jose, P. E., Cornwell, E. Y., Koyanagi, A., Nielsen, L., Hinrichsen, C., Meilstrup, C., … Koushede, V. (2020). Social disconnectedness, perceived isolation, and symptoms of depression and anxiety among older Americans (NSHAP): a longitudinal mediation analysis. *Lancet Public Health*, *5*(1), e62-e70. doi: 10.1016/S2468-2667(19)30230-0

Stevic, A., Schmuck, D., Matthes, J., & Karsay, K. (2021). 'Age Matters': A panel study investigating the influence of communicative and passive smartphone use on well-being. *Behaviour & Information Technology*, *40*(2), 176-190. doi: 10.1080/0144929X.2019.1680732

Tanskanen, J., & Anttila, T. (2016). A Prospective Study of Social Isolation, Loneliness, and Mortality in Finland. *American Journal of Public Health*, *106*(11), 2042-2048. doi: 10.2105/AJPH.2016.303431

Tyler, C. M., McKee, G. B., Alzueta, E., Perrin, P. B., Kingsley, K., Baker, F. C., & Arango-Lasprilla, J. C. (2021). A Study of Older Adults' Mental Health across 33 Countries during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, *18*(10), 5090. doi: 10.3390/ijerph18105090

van Tilburg, T. G., Steinmetz, S., Stolte, E., van der Roest, H., & de Vries, D. H. (2021). Loneliness and mental health during the COVID-19 pandemic: A study among Dutch older adults. *The Journals of Gerontology*, *76*(7), e249-e255. doi: 10.1093/geronb/gbaa111

World Health Organization. (2020). *Mental health and psychosocial considerations during the COVID-19 outbreak*. World Health Organization.

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Comparison of two psychotherapies in cortisol response and their efficacy in reducing symptoms of anxiety and depression in women victims of intimate partner violence

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ABSTRACT

Introduction. There is a growing need to implement evidence-based psychological treatments for women victims of intimate partner violence (IPV) who commonly experience stress-related disorders such as anxiety, depression, or suicide risk, as well as altered cortisol reactivity. **Objective.** 1. To compare the changes in depressive and anxious symptomatology, quality of life, and cortisol reactivity after two different interventions, Acceptance and Commitment Therapy (ACT, based on psychological flexibility) or Interpersonal Therapy (IPT, based on empowerment) in women exposed to IPV. 2. To compare the changes in relation to the presence of suicide thoughts. **Method.** A clinical sample of 50 women (ages 21-74) randomly assigned to attend ACT or IPT, completed pre- and post-intervention questionnaires about intimate partner violence, quality of life, depression, anxiety, and measurements of salivary cortisol reactivity (basal, 15, 30, and 45 minutes after a cognitive challenge). We used Generalized Estimating Equation Models for data analysis. **Results.** There was a significant improvement post-intervention in all variables, regardless of the type of psychotherapy or the presence of suicide thoughts. Before interventions, women that reported suicide thoughts had severe symptoms of depression, anxiety, worse quality of life, and a cortisol hyper-response profile, in contrast to women without suicide thoughts who had moderate symptoms and no cortisol response. Cortisol response to the cognitive test decreased in all women after both therapies. **Discussion and conclusion.** Although different psychological approach, ACT, and IPT effectively improved mental health, quality of life, and changed cortisol reactivity of women exposed to IPV, including women at suicide risk.

Keywords: Cortisol, psychotherapies, depression, anxiety, intimate partner violence.

RESUMEN

Introducción. Son necesarios tratamientos basados en evidencia para mujeres víctimas de violencia de pareja (IPV), con trastornos relacionados con estrés como ansiedad, depresión y riesgo suicida y alteraciones en la reactividad del cortisol. **Objetivo.** Comparar los cambios en la sintomatología depresiva, ansiosa, calidad de vida y reactividad del cortisol después de aplicar Terapia de Aceptación y Compromiso (ACT, basada en la flexibilidad psicológica) o Terapia Interpersonal (IPT, basada en el empoderamiento) en mujeres expuestas a IPV y compararlos en función al pensamiento suicida. **Método.** Una muestra clínica de 50 mujeres (entre 21 y 74 años) fueron asignadas aleatoriamente a recibir ACT o IPT, completaron antes y después, cuestionarios sobre IPV, calidad de vida, depresión y ansiedad, y mediciones de cortisol (basal, 15, 30 y 45 minutos después de un reto cognitivo) en saliva en respuesta a un reto cognitivo. Utilizamos modelos de Ecuaciones de Estimación generalizada para analizar los datos. **Resultados.** Mejoraron significativamente todas las variables, independientemente del tipo de psicoterapia y del pensamiento suicida. Antes de la intervención, las mujeres con ideación suicida presentaron depresión y ansiedad severas, peor calidad de vida e hiper-respuesta de cortisol, en contraste con las mujeres sin ideación, quienes presentaron síntomas moderados y una respuesta de cortisol plana. El cortisol disminuyó en todas las mujeres después de ambas terapias. **Discusión y conclusión.** Ambas terapias IPT y ACT mejoraron la salud mental y calidad de vida de las mujeres con IPV y modificaron la reactividad del cortisol, incluyendo a las pacientes que reportaron ideación suicida.

Palabras clave: Cortisol, psicoterapias, depresión, ansiedad, violencia de pareja.

INTRODUCTION

Intimate partner violence (IPV) has been defined as the abuse that occurs in a romantic relationship by both, current and former partner or dating partners, that causes physical, psychological or sexual harm. It is the most common form of violence against women, ranging from one episode of violence that could have lasting impact, to chronic and severe episodes over multiple years. IPV can include any of the following types of violence: physical, psychological, sexual, and controlling behaviors (World Health Organization, 2013; Pan American Health Organization, 2016). The experience of IPV in women has been associated with decreased quality of life (Achchappa et al., 2017; Alsaker, Moen, Morken, & Baste, 2018), presence of depressive disorders (DD), anxiety disorders (AD; Ahmadabadi et al., 2020; Chandan et al., 2020), and with risk of suicidal thoughts and behaviors (World Health Organization, 2005; Devries et al., 2013). Female survivors of IPV are twice as likely to attempt suicide multiple times, and the social isolation they are forced by their partners, increase the risk (Morfín López & Sánchez-Loyo, 2015). The experience of IPV is a traumatic condition that activates the hypothalamic-pituitary-adrenal stress axis (HPA; Morris et al., 2020). The activation of corticotrophin releasing hormone (CRH) from the hypothalamus results in the release of the adrenocorticotropic hormone (ACTH) from the hypophysis, which stimulates cortisol secretion from the adrenal glands. Cortisol exerts its metabolic function to cope with the threat, but once stressor is over, triggers the negative feedback mechanism by inhibiting the CRH-ACTH activity (Mielock, Morris, & Rao, 2017; Morris et al., 2020). Most evidence has confirmed that prolonged stressors alter the functionality of the HPA axis reactivity (i.e., the pattern of cortisol response), negatively affecting physical and mental health. Then, it has been reported that the overproduction of cortisol (i.e., hyperactivity) has a strong impact on the affective disorders manifestation and is an additional risk factor for DD and suicidal thinking (Dwivedi, 2012; Giletta et al., 2015; O'Connor, Gartland, & O'Connor, 2020).

The World Health Organization (2013) suggests that women victims of IPV with a psychiatric diagnosis should receive specialized evidence-based treatments with health professionals trained on gender violence. For instance, in a recent systematic review and meta-analysis, Hameed et al. (2020) described the effectiveness of several psychological interventions (including Psychoeducation, Cognitive Behavior Therapies, Acceptance and Commitment, Mindfulness, Integrative Therapies), in reducing depression and anxiety in women experiencing IPV. The authors reported that all kinds of therapies based on five or more sessions, but no fewer, were effective in reducing depression, and anxiety to a lesser degree. Contrastingly, the meta-analysis made by Keynejad, Hanlon, and Howard (2020) found that psychological therapies for IPV women (without mentioning the kind) were significantly effective only in reducing anxiety. However, evidence of the effectiveness of specific interventions for IPV exposed women in improving other negatively affected factors, such as quality of life or social support, are scarce (Hameed et al., 2020).

At the National Institute of Psychiatry "Ramón de la Fuente Muñiz" (INPRFM, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz) two different group-based psychotherapies, an adapted Interpersonal Therapy (IPT) and Acceptance and Commitment Therapy (ACT), has been applied with gender perspective to women victims of IPV with a psychiatric diagnosis; but their efficacy has not been investigated.

The adapted version of IPT proposed by Biagini-Alarcón (2016), targets the empowerment of women. The theoretical framework of IPT is based on the therapeutic approach of Yalom's group processes (Yalom, 1986). The IPT therapeutic process incorporates the recognition of current dysfunctional coping strategies for dealing with severe stress, to progressively improve the appropriate management of emotions. One of the outcomes of IPT is the recovery of ego and body limits that have been lost due to the violent relationship with the aggressor and also addresses the interpersonal conflicts with the partner (including anger towards the aggressor) and with the family, as well as the relationships with other members of the community. To achieve the beneficial therapeutic goals of IPT, Biagini-Alarcón (2016) and Biagini-Alarcón, Cerda-de la O, and Cerda-Molina (2020) recommended applying the intervention through 20 group sessions.

ACT was described by Hayes, Strosahl, and Wilson (2012) and Páez Blarrina and Gutiérrez Martínez (2012). In contrast to IPT, ACT targets psychological flexibility and the reduction of stress; it focuses on present-oriented training to cultivate a sense of conscious awareness by using metaphors and other practices such as Mindfulness. The theoretical principle of ACT is the acceptance of suffering as part of the human condition and the thought that many of our human reactions and emotions cannot be controlled, instead, they can be recognized and accepted. The theoretical principle of acceptance states that many of our human reactions cannot be controlled, instead, they can be recognized and accepted. Then, rather than staying into an emotional struggle, ACT teaches to redirect the efforts in acknowledging their own values. Although ACT can be individually applied, the intervention has been adapted to the IPV women by applying 12 grouped sessions (Reyes-Ortega & Vargas-Salinas, 2016; Vargas-Salinas & Reyes-Ortega, 2016; Biagini-Alarcón et al., 2020). Applied as brief intervention, ACT has been useful to different diseases (Ruiz et al., 2018; Zhang et al., 2018; Asplund et al., 2021) and also has been effective in reducing aggressiveness in male perpetrators of domestic violence. However, no evidence has found for their effectiveness in women victims of IPV with anxiety and depression.

Because most psychotherapies also intend to reduce people stress levels (e.g., Wynne et al., 2019), measuring the cortisol response to an acute stressor in IPV women might function as a biomarker of their efficacy in reducing anxiety and depression. For instance, in a recent meta-analysis, Fischer, Strawbridge, Vives, and Cleare (2017) found that only eight articles measured cortisol response to a variety of challenges, pre and post interventions (mostly based on Cognitive Behavioral Therapies) in people with depressive disorders. In most of the articles, those people with higher basal or post-challenge cortisol still have higher scores of depressions at the end of the intervention, whereas two of the articles did not report significant results. These findings agree with the literature supporting that the hyperactivity of the HPA axis is characteristic of women with DD (Heim et al., 2000). To date, no research has investigated whether the psychological interventions could change the reactivity to stress, together with an improvement in mental health and quality of life in women with experience of IPV.

Therefore, to contribute with the study of the efficacy of interventions specially applied to IPV victims, the aim of the present research was to compare the changes in depressive and anxious symptomatology, quality of life, and cortisol reactivity to a cognitive task (measured across four saliva samples) after two different theoretical psychological interventions, ACT or IPT, in women experiencing IPV, as well as to compare the changes as a function of the suicide thoughts (due to those women might be less likely to benefit from interventions). According to the literature, we expected a decrease in cortisol secretion, concurrent with a decrease in anxiety and depressive symptoms as well as an improvement in the general quality of life. We might expect greater changes in emotional symptomatology and cortisol reactivity with ACT, since it comprises mindfulness and attention regulation, in contrast with the long-lasting IPT, based on women's empowerment and the understanding of interpersonal relationships.

METHOD

Design of the study/description of the sample

This was a longitudinal, comparative, and randomized clinical trial carried out at the Gender and Sexuality Clinic and Psychotherapy Department of the INPRFM, Mexico City, Mexico. At the time patients presented for treatment, they were invited to participate, if they met the inclusion criteria of being adult women receptors of intimate partner violence (current and within the last 12 months), and with psychiatric diagnosis of depressive and/or anxious disorders. Exclusion criteria included a diagnosis of psychotic disorders, intellectual disability, substance abuse, serious physical illness, pregnancy, using contraceptives, and current treatment with corticosteroids. Diagnoses were made by Psychiatrists at the Gender and Sexuality Clinic, according to the Diagnostic and Statistical Manual Version 5 (DSM-5, American Psychiatric Association, 2013) and IPV was assessed by completing the Intimate Partner Violence Questionnaire. All participants were explained the purposes of the study and were told that they had the right to finish the procedure at any time. The dates of recruitment and follow-up were from November 1, 2017, to September 30, 2019, estimated time for research. Of the 71 patients that provided the written informed consent and completed the initial assessments, only 50 (Table 1) finished the interventions and completed the post-assessments; therefore, only these women entered the statistical analyses.

Measurements

Intimate partner violence. We applied the Mexican scale of violence by the male partner against women (Valdéz-Santiago et al., 2006; α = .99). This is a 27-item scale that measures four types of violence (psychological, sexual, physical, and severe physical violence – where life is at risk) and their severity as: no violence, moderated violence, and severe violence. α = .89, for the present sample.

Table 1
Demographic data of the participants. Data express the frequency and percentage, excepting for age expressed as mean, standard deviation of the mean (SD) and range

Parameter	*Frequency (%)*
Age	M = 45.68 SD = 10.47 (range 21-74)
Alcohol consumption	8 (16%)
Smoke	7 (14%)
Marital status	
Single/relationship	6 (12%)
Married/Cohabiting	33 (66%)
Divorced/Separated	11 (22%)
Occupation	
Housewife	30 (60%)
Formal employment	6 (12%)
Informal employment[1]	9 (18%)
Student	1 (2%)
Other	4 (8%)
Education degree	
Elementary	7 (14%)
Secondary	18 (36%)
High School	12 (24%)
Complete University	5 (10%)
Incomplete University	5 (10%)
Master's degree	3 (6%)

[1] Job without social security.

Beck Depression Inventory (BDI; validated by Jurado et al., 1998; α = .87). This is a 21-item scale ranging from 0 to 63 total score; the scale establishes 0-9 points as minimal or absent depression, 10-16 mild, 17-29 moderate, and > 29 severe. α = .88 for the present study. Of the 50 participants, 38% (*n* = 19) answered the item 9 about having thoughts of killing themselves; these patients were classified as having suicide risk.

Beck Anxiety Inventory (BAI; validated by Robles, Varela, Jurado, & Páez, 2001; α = .83). The total score of this scale ranges from 0 to 63; the scale establishes 0-5 points as minimal or absent anxiety, 6-15 mild, 16-30 moderate, and > 30 severe, α = .93 for the present study.

World Health Organization (WHO) Quality of Life Questionnaire (WHOQOL-BREF; Whoqol Group, 1998; validated by Skevington, Lotfy, and O'Connell, 2004; α = .68 - .81). This 26-item scale measures four health domains: Physical (daily activities, energy, fatigue, etc.); Psychological (bodily image, positive, and negative feelings, etc.); Environment (financial resources, home environment, transport, etc.); Social relations (personal relationships, social support, and sexual activity). Each item has a 5-point Likert interval scale for responses (1 = very bad/completely unsatisfied; 3 = neither unsatisfied; neither satisfied; 5 = Very good/completely satisfied). In the present sample, the internal consistencies were: total scale α = .88; physical health α = .72; psychological health α = .73; environment α = .70; social relations α = .60.

Salivary Cortisol Measurements. Saliva samples were frozen, thawed, and centrifuged twice at 1500 g during 30 min at 4°C, recovering only the supernatants (Schultheiss, Dargel, & Rohde, 2003). We measured cortisol in duplicates by using ELISA technique (ENZO life sciences) and by following the manufacturer's instructions. Cortisol concentrations were reported in pg/ml. Inter-assay and intra-assay coefficients were 9.8% and 7.1% respectively. Cortisol measurements were made at the Ethology Department of the INPRFM.

Procedure

By quota sampling, participants were enrolled and assigned randomly to receive ACT (12 sessions once a week) or IPT (20 sessions once a week). The assignment sequence was made by a researcher with no clinical participation in the trial and was double blind for participants as well as for the researchers who evaluated the results. Therapeutic groups were of no more than 12 participants and every session lasted an hour and a half. Interventions were applied by researchers trained and with expertise in the application of ACT and IPT with gender perspective. The number of sessions for each psychotherapy were based on the intervention manuals and previous literature, all delivered with gender perspective which makes them friendly to this population (Vargas-Salinas & Reyes-Ortega, 2016; Reyes-Ortega & Vargas-Salinas, 2016; Biagini-Alarcón et al., 2020).

Prior to the interventions, participants received instructions for the saliva sampling, such as brushing their teeth and not to eat, smoke, drink tea or coffee (only water), for at least two hours before the test. Patients donated a total of four saliva samples (2-3 ml), collected into new polypropylene tubes (15 ml). After participants completed a general information questionnaire (around 11:00, to avoid the increase in cortisol awakening response; Elzinga et al., 2008) they were asked to donate the first saliva sample (basal sample). After the collection of the first sample, participants were instructed to complete a brief IQ test (only as a challenge to promote the cortisol response, thus, this test did have not a statistical value) comprising 18 questions of verbal, mathematical, and abstract reasoning, in 10 timed minutes. After 15, 30, and 45 minutes of the test, we collected the second, third, and fourth saliva samples and finally the BDI, BAI, and WHOQOL-BREF questionnaires were completed. The procedure took about 60-70 minutes and was performed in groups of around 10-12 participants. Saliva samples were labeled with a code to ensure the confidentiality of the volunteer and immediately frozen and stored at -20°C until assayed. This procedure was repeated at the end of the interventions.

Statistical analysis

We used Generalized Estimating Equation Models (GEE), suitable and robust for data dependency, i.e, repeated sample design on the same subject (Pekár & Brabec, 2018). To analyze the changes in BDI, BAI, and WHOQOL-BREF we introduced in each model, the scores as dependent variables and as independent, we introduced the time pre and post intervention (Pre-T and Post-T), intervention (ACT or TIP), suicide risk (suicide risk and no suicide risk), and age (in years) as covariate. For cortisol reactivity, we performed two GEEs: one for pre and a second for post cortisol response. We included as dependent variable the cortisol concentration and as independent variables, the time of saliva collection samples (basal, 15, 30, and 45 minutes post- cognitive test), intervention (ACT or TIP), suicide risk (suicide risk and no suicide risk), and age (years) as covariate. Analyses were performed in SPSS version 22. We included the main and interaction effects, and used Bonferroni as a post-hoc test; significance was set at $P \leq .05$.

Ethical considerations

This study was approved by the Research and Ethic Committee of the INPRFM (Project Number SC19114.0) and was conducted in compliance with the declaration of Helsinki and the National Official Norms for Research with Human Beings (Secretaría de Salud, 2012). As compensation, patients were offered to receive their psychological and endocrine profile and were also offered to receive free further psychological assistance if needed.

RESULTS

The flow diagram shows the number of randomized participants who started the interventions (74), those who dropped out (3), those who discontinued the intervention (22), and those who were included in the final analysis (50; Figure 1). There were no harms or unwanted effects in the groups.

Anxiety symptoms varied with time, suicide risk, and age (X^2 Wald = 40.38, *df* = 1, 50, $p \leq .001$; X^2 Wald = 19.63, *df* = 1, 50, $p \leq .001$; X^2 Wald = 9.59, *df* = 1, 50, *p* = .002, respectively). The interactions *time* × *intervention* and *time* × *suicide risk* were not significant (X^2 Wald = 57.85, *df* = 1, 50, *p* = .06; X^2 Wald = .24, *df* = 1, 50, *p* = .61). Anxiety symptoms decreased regardless of the type of psychotherapy and whether patients presented suicide risk (Cohen's *d* = .79; 95% CI Pre-T = [22.80, 30.08] *vs.* Post-T = [13.80, 20.04]; Figure 2A). However, anxiety levels before and after the interventions were higher in patients with suicide risk (*p* = .002; Figure 2A). Anxiety symptoms decrease with age (Pearson r = -.28, *n* = 50, *p* = .04).

Depression symptoms also changed significantly with time and suicide risk (X^2 Wald = 40.19, *df* = 1, 50, $p \leq .001$; X^2 Wald = 24.72, *df* = 1, 50, $p \leq .001$, respectively). Neither age nor the interactions time × intervention or time × suicide risk had significant effects (X^2 Wald = .76, *df* = 1, 50, *p* = .38; X^2 Wald = 1.94, *df* = 1, 50, *p* = .16; X^2 Wald = .46, *df* = 1, 50, *p* = .49). Depressive symptoms decreased independently of the type of intervention and whether patients presented suicide risk (Cohen's *d* = .85; 95% CI Pre-T = [19.58, 24.98] *vs.* Post-T = [11.54, 16.90]; Figure 2B). Nevertheless, mean depression levels were higher in patients with suicide risk ($p \leq .001$ Pre-T; *p* = .008 Post-T; Figure 2B). After the interventions the number of patients with the suicide risk decreased from 19 to 10.

Table 2 shows a summary of the statistical analysis for the perception of quality of life. Time was significant for all dimensions, meaning an improved quality of life after interventions. Suicide risk was significant only for physical and psychological quality of life. Neither the interaction time × intervention nor the time × suicide risk were significant.

Before the interventions, cortisol secretion varied according to the time and the interaction time × suicide risk (X^2 Wald = 13.28, *df* = 3, 197, *p* = .004; X^2 Wald = 8.89, *df* = 4, 197, *p* = .03). Neither suicide risk alone nor the age affected cortisol secretion (X^2 Wald = .53, *df* = 1, 197, *p* = .46; X^2 Wald = .008, *df* = 1, 197, *p* = .93, respectively). As shown in Figure 3A patients with suicide risk, before the intervention, showed a significant rise in cortisol after 15 min of the cognitive test (*p* = .002 vs. basal) followed by a recovery

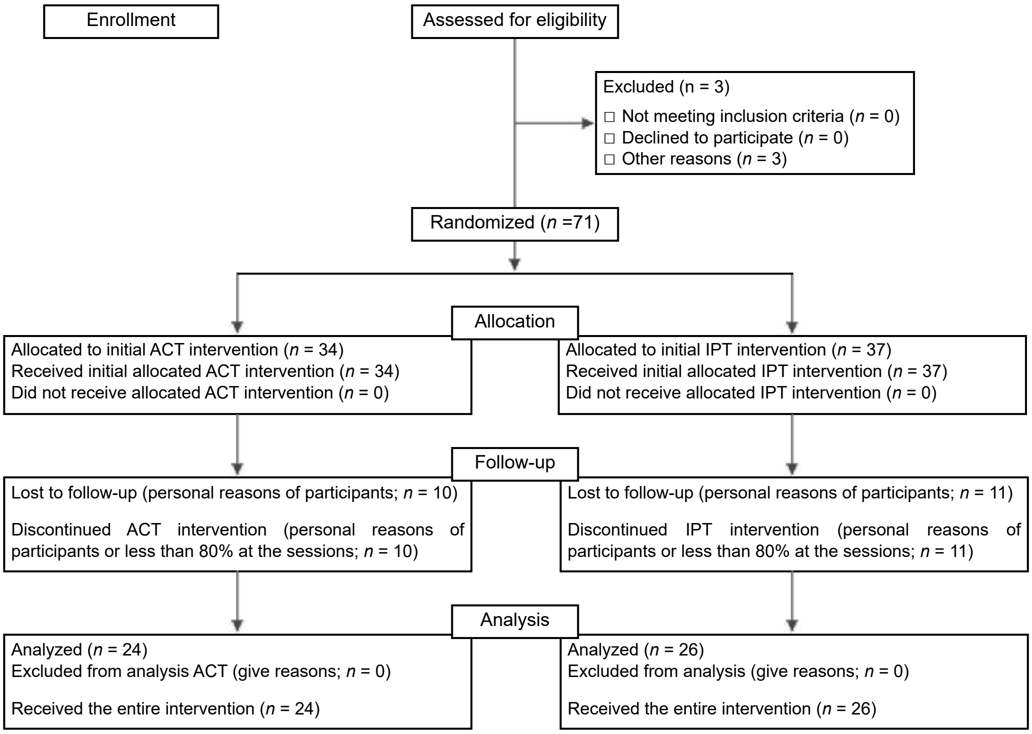

Figure 1. Investigation flow diagram.

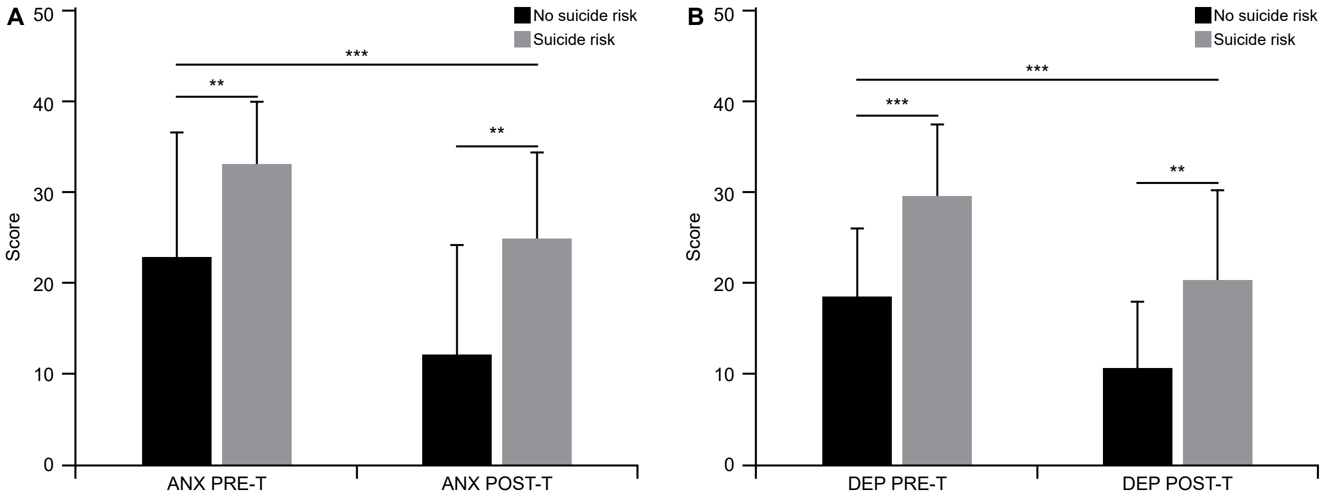

Figure 2. Anxiety and depression were higher in IPV exposed women with suicide risk before and after two types of interventions. **A)** Anxiety: ** $p \leq .01$ no-suicide risk vs. suicide risk. **B)** Depression: *** $p \leq .001$, ** $p \leq .01$ no-suicide risk vs. suicide risk. Regardless of the type of intervention and the presence of suicide, anxiety and depression decrease after interventions *** $p \leq .001$. Data expresses the mean (± SD).

after 30 min ($p = .005$ vs. 15 min). However, patients with no suicide risk showed a flattened profile without cortisol changes ($p = 1.0$). After the interventions, cortisol secretion varied only according to the time (X^2 Wald = 21.97, *df* = 3, 197, $p \leq .001$). The interactions time × intervention, time × previous suicide risk, and time × post suicide risk were not significant (X^2 Wald = 7.31, *df* = 4, 197, $p = .12$; X^2 Wald = 3.33, *df* = 4, 197, $p = .34$; X^2 Wald = 4.08, *df* = 4, 197, $p = .39$). Figure 3B illustrates that after the psychotherapies, patients showed a significant decrease of cortisol (basal vs. 30 min $p = .02$; basal vs. 45 min, $p \leq .001$).

DISCUSSION AND CONCLUSION

Our findings showed that regardless of the psychotherapeutic intervention -and duration-, and the presence of suicide thoughts, a significant reduction in depressive and

Table 2

Summary of the Generalized Estimated Equation models for the Quality-of-Life perception analyses before and after the interventions (X^2 Wald and β), as well as the mean, SD, and 95% CI of the Likert scale answer for each domain

Quality of life	***Physical***	***Psychological***	***Environment***	***Social***
Variables	*X^2 Wald (β)*	*X^2 Wald (β)*	*X^2 Wald (β)*	*X^2 Wald (β)*
Time	4.97 (.12)*	23.03 (-.73)***	17.33 (-.54)***	16.93 (-.71)***
Intervention	.03 (-.001)	.43 (-.25)	.44 (-.15)	.99 (-.32)
Suicide risk	7.72 (.69)**	10.40 (.46)***	1.26 (.04)	1.69 (.04)
Age	.31 (-.05)	.42 (.004)	1.54 (.008)	.003 (.00)
Time × T	.06 (-.62)	2.60 (.31)	.77 (.13)	3.68 (.39)
Time × suicide risk	8.79 (.004)	.28 (.11)	1.93 (.23)	1.36 (.23)
	Mean (SD) *95% CI*	*Mean (SD)* *95% CI*	*Mean (SD)* *95% CI*	*Mean (SD)* *95% CI*
Before T	2.71 (.70) 2.51 - 2.91	2.45 (.73) 2.24 - 2.66	2.53 (.56) 2.37 - 2.70	1.51 (.57) 1.35 - 1.67
After T	2.93 (.76) 2.91 - 3.35	2.98 (.86) 2.69 - 3.19	2.87 (.65) 2.68 - 3.06	1.87 (.69) 1.67 - 2.07
Cohen's *d*	.57	.66	.56	.56

Notes: T, intervention. In all cases df = 1. 50.
*** $p = .001$; ** $p = .01$; * $p = .05$.

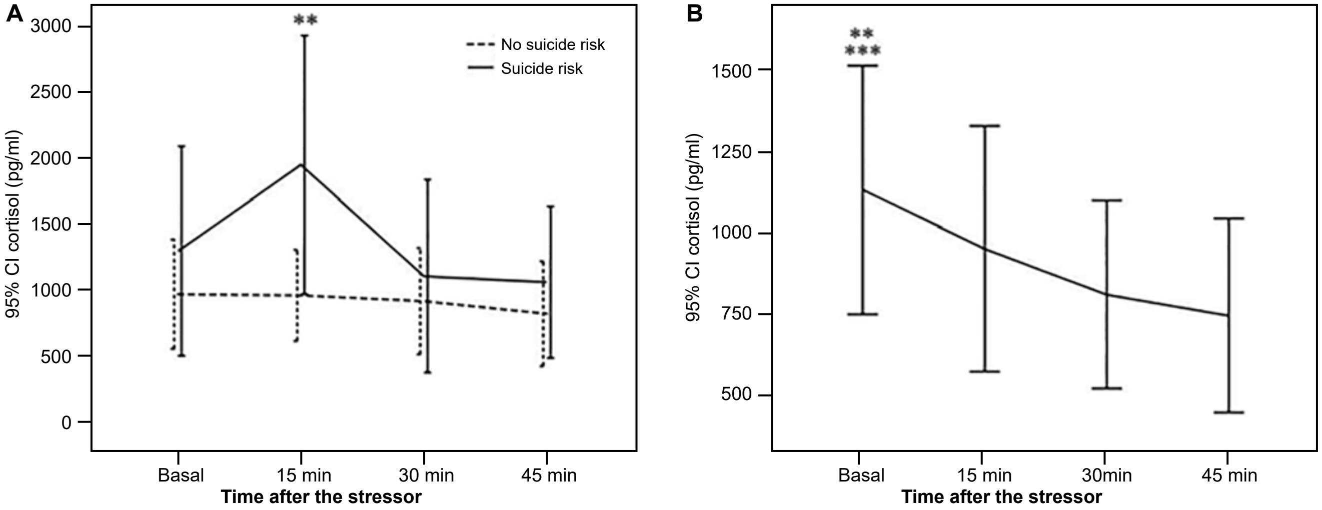

Figure 3. Mean (± 95% Confidence Interval) of salivary cortisol levels in response to a cognitive test before **(A)** and after (B) two types of interventions in IPV exposed women. **A)** ** *p* = .01 vs. basal and 30 min. **B)** ** *p* = .01 vs. 30 min, *** *p* = .001 vs. 45 min.

anxiety symptoms was observed in all patients, along with a decreased cortisol reactivity, pointing out the efficacy of both, ACT and IPT interventions. This result agrees with the findings of Hayes, Luoma, Bond, Masuda, and Lillis (2006), who described that there are not enough well-controlled studies to conclude that ACT be more effective than other active treatments. Moreover, our findings agree with that reported in the meta-analysis carried out by Hameed et al. (2020), who investigated the effectiveness of several psychological therapies for women experiencing IPV with depression as the main outcome and anxiety, posttraumatic stress disorder, and self-efficacy as secondary outcomes. In this meta-analysis, interventions were highly effective in reducing depression but less effective in reducing anxiety; besides, the duration of the treatments ranged between 5 and 50 sessions, concluding that interventions of less than five sessions were not very useful for the improvement of depressive symptoms. In our research, the number of sessions we delivered might have contributed to the beneficial effect of the interventions (12 for ACT and 20 for IPT). It is important to point out that although patients reduced their symptomatology, suicide risk women on average, turned from severe to moderate anxiety and depression, indicating the need to improve the therapies or to deliver a longer one, especially for women experiencing suicide thoughts. It would also be useful to evaluate for future research whether providing one type of psychotherapy versus another in less time generates some indirect impact on institutional costs, on the quality of the service provided, and in the burnout symptoms of the healthcare personnel who deliver the interventions.

We also found that anxiety scores decreased with age; this result could be explained by the fact that younger women suffered physical and sexual abuse more often and were exposed to greater risk to their lives than older victims as has been reported by Sarasua, Zubizarreta, Echeburúa, and del Corral (2007). The problem worsens because women of reproductive age (i.e., 19-30) are more vulnerable to developing anxiety disorders than adult or perimenopausal women (Terlizzi & Villarroel, 2020). Other explanations could be related to the fluctuations in reproductive hormones across the menstrual cycle (e.g., estradiol and progesterone). For instance, adult women with higher average progesterone levels across their cycles reported higher levels of anxiety than women with lower progesterone cycles, such as menopausal women (Reynolds et al., 2018). Moreover, greater estradiol increases have been correlated with negative mood in perimenopausal women (Gordon, Eisenlohr-Moul, Rubinow, Schrubbe, & Girdler, 2016). Steroid reproductive hormones also contribute to the regulation of some brain neurotransmitters such as serotonin or allopregnanolone, with potential role as anxiolytics, by promoting adaptive responses to stressors. Then, in cycling women the hormonal fluctuation along with altered cortisol response due to the IPV, might produce a reduced inhibitory tone or less efficient HPA axis stress regulation. Consequently, such altered hormonal regulation contributes to produce a women's increased vulnerability to anxiety disorder development (Li & Graham, 2017).

In the present study we also evidenced the efficacy of ACT and IPT in the perception of quality of life in all its dimensions (physical, psychological, social relations, and environment). However, the perception of social life that was the most affected; for instance, we found that the score changed from worse to bad, highlighting the negative impact of IPV on women, and the need to reinforce the social strategies during the therapeutic processes. These findings agree with other authors that have not found a beneficial effect of psychological treatments in the social dimension of quality of life either (Hegarty et al., 2013; Tirado-Muñoz, Gilchrist, Lligoña, Gilbert, & Torrens, 2015). In this study, the slight improvement in the social and the other dimensions of the quality of life could be associated with the generation of friendship ties and cohesion of the psychotherapeutic group itself, which constitutes an emphatic and safe support (Yalom, 1986; Burlingame, Fuhriman, & Johnson, 2001). Nevertheless, that support was still not enough for the needs of women, since the social isolation derived from the partner violence limits their supportive network (Hansen, Eriksen, & Elklit, 2014; Morfín López & Sánchez-Loyo, 2015). Subsequent interventions would focus on identifying the factors that contribute to the modest improvement in the social dimension. We also found that the physical and psychological aspects of the quality of life (i.e., daily activities, energy, bodily image, positive and negative feelings) were worse in those women with suicide thoughts, which signals the importance of the negative impact of IPV in the health of women and the need of an early detection of the risk.

Regarding cortisol, we found an increased response in those women at suicide risk indicating that women with severe symptoms of anxiety and depression, a rapid activation of the HPA axis occurs, compared to the lack of response in women without the risk. It is known that the stress related to living in an adverse environment, such as those imposed by IPV, with limited resources and uncertainty about the future can place women at risk for multiple health problems, such as suicide risk (Sabri & Granger, 2018). Our findings agree with O'Connor et al. (2020) and O'Connor, Ferguson, Green, O'Carroll, and O'Connor (2016) describing an overview of studies revealing that a dysregulated HPA axis activity and cortisol levels, constitutes an additional risk factor for DD and suicide in people with susceptibility to such behavior. The higher cortisol response in women with severe symptoms and suicide thoughts might be also explained by the presence of a history of early traumas, since it has been reported that adult women in this condition are characterized by an HPA hyperactivity, probably due to CRH hypersecretion (Heim et al., 2000). Contrastingly, in the present research, women with moderate symptoms showed no response of cortisol probably reflecting a lack of positive emotions or hopelessness. At the end of the intervention, cortisol decreased after the cognitive test in all women, possibly indicating that both psychotherapies, ACT and IPT, helped women to manage the stress by reducing the stressful perception of the test. For instance, some studies have reported that hypo-responses (a reduced secretion) are characteristic of women with early adversities but without developing a psychiatric illness (Elzinga et al., 2008; Cerda-Molina, Borráz-León, Mayagoitia-Novales, & Gaspar del Río, 2018). Besides, the literature has suggested that a reduced cortisol secretion could be considered as a resilient response or a protection to the brain to avoid the negative effects of a prolonged cortisol exposure (e.g., cognitive decline or decreased neurogenesis; Wüst, Federenko, van Rossum, Koper, & Hellhammer, 2005).

Measures of the HPA axis activity, and in particular the levels of salivary cortisol have been considered as possible biological markers in psychological and epidemiological studies, as complement of the self-assessments of health (Fischer et al., 2017); however, there is still not enough evidence of the impact of psychotherapeutic interventions on such HPA axis responses. Several studies have analyzed the concentrations of cortisol in saliva or serum, of women with a history of IPV, however these measurements have been made in morning samples (cortisol awakening response) or at night, which are punctual measurements more linked to a metabolic effect of cortisol (Seedat, Stein, Kennedy, & Hauger, 2003; Basu, Levendosky, & Lonstein, 2013; Pinna, Johnson, & Delahanty, 2014). In the present study, we measured cortisol in response to a cognitive stressor before and after psychotherapies, as a marker of improved response to stress in women with a history of IPV, which has not been measured to date. The only reported study that measured cortisol reactivity in women with a history of any interpersonal violence was that of Morris et al. (2020), where they describe elevated cortisol concentrations in those women with current post-traumatic stress disorder, compared to those who did not present the disorder with a flattened response. Similar results were obtained in our research, where cortisol levels changed from a hyper-response to a hypo-response profile after the two therapeutic interventions, mainly in those patients with suicidal thoughts, which could be explained by an improvement in the body response to stress.

Summarizing, despite the small sample size, this study showed the efficacy of two different psychological interventions, ACT, a shorter therapy that targets psychological flexibility by using Mindfulness sessions, and IPT, a longer therapy based on empowerment and confrontation. Both interventions are appropriate candidates to improve the quality of life and mental health of women experiencing IPV. Besides, cortisol reactivity showed differences accordingly to the suicide thoughts; this measurement can be useful as a biomarker of the mental health risk in IPV women. Some interventions with ACT in other populations include reinforcing sessions (Asplund et al., 2021). However, future research is needed to investigate whether increasing ACT sessions could impact successfully in reaching the symptoms remission. Future research is also needed to early identify the predisposing and precipitating factors of women who suffer IPV and to design more specific interventions that allow to limit the suicide risk.

Limitations

This study has some limitations. First, the small sample size of women in both interventions due to the COVID-19 pandemic, which prevented us to continue with face-to-face group interventions; consequently, we might not make generalizations to other populations. Second, since the IPV scale was validated to measure the frequency and severity of cumulative violence acts during the last year, future research must include a scale that measures only recent IPV in order to analyze the impact of the intervention on women violence perception.

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None.

Conflict of interest

The authors declare that they have no conflicts of interest.

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REFERENCES

Achchappa, B., Bhandary, M., Unnikrishnan, B., Ramapuram, J. T., Kulkarni, V., Rao, S., ... Priyadarshni, S. (2017). Intimate Partner Violence, Depression, and Quality of Life among Women Living with HIV/AIDS in a Coastal City of South India. *Journal of the International Association of Providers of AIDS Care*, *16*(5), 455-459. doi: 10.1177/2325957417691137

Ahmadabadi, Z., Najman, J. M., Williams, G. M., Clavarino, A. M., d'Abbs, P., & Tran, N. (2020). Intimate partner violence and subsequent depression and anxiety disorders. *Social Psychiatry and Psychiatric Epidemiology*, *55*(5), 611-620. doi: 10.1007/s00127-019-01828-1

Alsaker, K., Moen, B. E., Morken, T., & Baste, V. (2018). Intimate partner violence associated with low quality of life-a cross-sectional study. *BMC Women's Health*, *18*(1), 1-7. doi: 10.1186/s12905-018-0638-5

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*: DSM-5™ (5th ed). American Psychiatric Publishing, Inc. doi: 10.1176/appi.books.9780890425596

Asplund, M., Rück, C., Lenhard, F., Gunnarsson, T., Bellander, M., Delby, H., & Ivanov, V. Z. (2021). ACT-enhanced group behavior therapy for trichotillomania and skin-picking disorder: A feasibility study. *Journal of Clinical Psychology*, *77*(7), 1537-1555. doi: 10.1002/jclp.23147

Basu, A., Levendosky, A. A., & Lonstein, J. S. (2013). Trauma sequelae and cortisol levels in women exposed to intimate partner violence. *Psychodynamic Psychiatry*, *41*(2), 247-275. doi: 10.1521/pdps.2013.41.2.247

Biagini-Alarcón, M. (2016). Modelo de intervención terapéutica grupal para mujeres receptoras de violencia. In: Primero-Rivas, L, & Biagini-Alarcón, M. (Eds). *The New Epistemology and Mental Health in Mexico*, (pp. 95-108). Mexico: Educational Horizons, National Pedagogical University (UPN).

Biagini-Alarcón, M., Cerda-de la O. B., & Cerda-Molina, A. L. (2020). Violencia de pareja, modelos explicativos e intervenciones psicoterapéuticas en víctimas. In: Martínez López, J. N. I. (Ed). *Salud Mental Forense*, (pp. 497-518). México: Tirant Lo Blanch, INPRFM.

Burlingame, G., Fuhriman, A., & Johnson, J. (2001). Cohesion in group psychotherapy. *Psychotherapy: Theory, Research, Practice, Training*, *38*(4), 373-379. doi.10.1037/0033-3204.38.4.373

Cerda-Molina, A. L., Borráz-León, J. I., Mayagoitia-Novales, L., & Gaspar del Río, A. T. (2018). Reactividad del cortisol y salud mental en adultos expuestos a violencia temprana: revisión sistemática. *Revista Panamericana de Salud Pública*, *41*, e171. doi: 10.26633/RPSP.2017.171

Chandan, J. S., Thomas, T., Bradbury-Jones, C., Russell, R., Bandyopadhyay, S., Nirantharakumar, K., & Taylor, J. (2020). Female survivors of intimate partner violence and risk of depression, anxiety and serious mental illness. *The British Journal of Psychiatry*, *217*(4), 562-567. doi: 10.1192/bjp.2019.124

Devries, K. M., Mak, J. Y., Bacchus, L. J., Child, J. C., Falder, G., Petzold, M., & Watts, C. H. (2013). Intimate partner violence and incident depressivesymptoms and suicide Attempts: A Systematic Review of Longitudinal Studies. *PLoS Medicine*, *10*(5), e1001439. doi: 10.1371/journal.pmed.1001439

Dwivedi, Y. (Ed.). (2012). *The Neurobiological Basis of Suicide*. Boca Raton, FL: CRC Press/Taylor & Francis Group.

Elzinga, B. M., Roelofs, K., Tollenaar, M. S., Bakvis, P., van Pelt, J., & Spinhoven, P. (2008). Diminished cortisol responses to psychosocial stress associated with lifetime adverse events: a study among healthy young subjects. *Psychoneuroendocrinology*, *33*(2), 227-237. doi: 10.1016/j.psyneuen.2007.11.004

Fischer, S., Strawbridge, R., Vives, A. H., & Cleare, A. J. (2017). Cortisol as a predictor of psychological therapy response in depressive disorders: Systematic review and meta-analysis. *The British Journal of Psychiatry*, *210*(2), 105-109. doi: 10.1192/bjp.bp.115.180653

Giletta, M., Calhoun, C. D., Hastings, P. D., Rudolph, K. D., Nock, M. K., & Prinstein, M. J. (2015). Multi-level risk factors for suicidal ideation among at-risk adolescent females: the role of hypothalamic-pituitary-adrenal axis responses to stress. *Journal of Abnormal Child Psychology*, *43*(5), 807-820. doi: 10.1007/s10802-014-9897-2

Gordon, J. L., Eisenlohr-Moul, T. A., Rubinow, D. R., Schrubbe, L., & Girdler, S. S. (2016). Naturally occurring changes in estradiol concentrations in the menopause transition predict morning cortisol and negative mood in perimenopausal depression. *Clinical Psychological Science*, *4*(5), 919-935. doi: 10.1177/2167702616647924

Hameed, M., O'Doherty, L., Gilchrist, G., Tirado-Muñoz, J., Taft, A., Chondros, P., … Hegarty, K. (2020). Psychological therapies for women experience intimate partner violence. *The Cochrane Database of Systematic Reviews*, *7*(7). doi: 10.1002/14651858.CD013017.pub2

Hansen, N. B., Eriksen, S. B., & Elklit, A. (2014). Effects of an intervention program for female victims of intimate partner violence on psychological symptoms and perceived social support. *European Journal of Psychotraumatology*, *5*(1). doi: 10.3402/ejpt.v5.24797

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: model, processes and outcomes. *Behavior Research and Therapy*, *44*(1), 1-25. doi: 10.1016/j.brat.2005.06.006

Hayes, S. C, Strosahl, K. D., & Wilson, K. G. (2012). *Acceptance and commitment therapy: The process and practice of mindful change*. New York, NY: The Guilford Press. ISBN 9781462528943

Hegarty, K., O'Doherty, L., Taft, A., Chondros, P., Brown, S., Valpied, J., … Gunn, J. (2013). Screening and counseling in the primary care setting for women who have experienced intimate partner violence (WEAVE): a cluster randomised controlled trial. *Lancet*, *382*(9888), 249-258. doi: 10.1016/S0140-6736(13)60052-5

Heim, C., Newport, D. J., Heit, S., Graham, Y. P., Wilcox, M., Bonsall, R., … Nemeroff, C. B. (2000). Pituitary-adrenal and autonomic responses to stress in women after sexual and physical abuse in childhood. *Jama*, *284*(5), 592-597. doi: 10.1001/jama.284.5.592

Jurado, S., Villegas, M. E., Mendez, L., Rodriguez, F., Loperena, V., & Varela, R. (1998). Standardization of the Beck depression inventory for residents of Mexico City. *Salud Mental*, *21*(3), 26-31.

Keynejad, R. C., Hanlon, C., & Howard, L. M. (2020). Psychological interventions for common mental disorders in women experiencing intimate partner violence in low-income and middle-income countries: a systematic review and meta-analysis. *The Lancet Psychiatry*, *7*(2), 173-190. doi: 10.1016/S2215-0366(19)30510-3

Li, S. H., & Graham, B. M. (2017). Why are women so vulnerable to anxiety, trauma-related and stress-related disorders? The potential role of sex hormones. *The Lancet Psychiatry*, *4*(1), 73-82. doi: 10.1016/S2215-0366(16)30358-3

Mielock, A. S., Morris, M. C., & Rao, U. (2017). Patterns of cortisol and alpha-amylase reactivity to psychosocial stress in maltreated women. *Journal of Affective Disorders*, *209*, 46-52. doi: 10.1016/j.jad.2016.11.009

Morfín López, T., & Sánchez-Loyo, L. M. (2015). Violencia doméstica y conducta suicida: relatos de mujeres sobre la violencia y sus efectos. *Acta Universitaria*, *25*(2), 57-61. doi: 10.15174/au.2015.886

Morris, M., Okoth, V., Prigmore, H. L., Ressler, D. J., Mbeya, J., Rogers, A., … Audet, C. M. (2020). The prevalence of interpersonal violence (IPV) against women and its associated variables: an exploratory study in the Rongo Sub-County of Migori County, Kenya. *Journal of Interpersonal Violence*, *37*(5-6), 2083-2101. doi: 10.1177/0886260520935484

O'Connor, D. B., Ferguson, E., Green, J. A., O'Carroll, R. E., & O'Connor, R. C. (2016). Cortisol levels and suicidal behavior: A meta-analysis. *Psychoneuroendocrinology*, *63*, 370-379. doi: 10.1016/j.psyneuen.2015.10.011

O'Connor, D. B., Gartland, N., & O'Connor, R. C. (2020). Stress, cortisol and suicide risk. *International Review of Neurobiology*, *152*, 101-130. Academic Press. doi: 10.1016/bs.irn.2019.11.006

Páez Blarrina, M., & Gutiérrez Martínez, O. (2012). *Multiple applications of Acceptance and Commitment Therapy (ACT)*. Madrid: Ediciones Pirámide. ISBN-13:9788436826487

Pan American Health Organization [PAHO]. (2016). *Health care for women who have experienced intimate partner violence or sexual violence. Clinical Handbook*. Retrieved from: https://iris.paho.org/bitstream/handle/10665.2/31381/OPSFGL16016-spa.pdf

Pekár, S., & Brabec, M. (2018). Generalized estimating equations: A pragmatic and flexible approach to the marginal GLM modeling of correlated data in the behavioral sciences. *Ethology*, *124*(2), 86-93. doi: 10.1111/eth.12713

Pinna, K. L., Johnson, D. M., & Delahanty, D. L. (2014). PTSD, comorbid depression, and the cortisol waking response in victims of intimate partner violence: preliminary evidence. *Anxiety, Stress &Coping*, *27*(3), 253-269. doi: 10.1080/10615806.2013.852185

Reyes-Ortega, M., & Vargas-Salinas, A. (2016). *Intervention Manual in Acceptance and Commitment Therapy for victim care. Single module*. Mexico. Institute of Behavioral and Contextual Therapies.

Reynolds, T. A., Makhanova, A., Marcinkowska, U. M., Jasienska, G., McNulty, J. K., Eckel, L. A., ... Maner, J. K. (2018). Progesterone and women's anxiety across the menstrual cycle. *Hormones and Behavior*, *102*, 34-40. doi: 10.1016/j.yhbeh.2018.04.008

Robles, R., Varela, R., Jurado, S., & Páez, F. (2001). Versión mexicana del inventario de ansiedad de Beck: propiedades psicométricas. *Revista Mexicana de Psicología*, *18*(2), 211-218. Retrieved from: https://scinapse.io/papers/1597953883

Ruiz, F. J., Flórez, C. L., García-Martín, M. B., Monroy-Cifuentes, A., Barreto-Montero, K., García-Beltrán, D. M., … Gil-Luciano, B. (2018). A multiple-baseline evaluation of a brief acceptance and commitment therapy protocol focused on repetitive negative thinking for moderate emotional disorders. *Journal of Contextual Behavioral Science*, *9*, 1-14. doi: 10.1016/j.jcbs.2018.04.004

Sabri, B., & Granger, D. A. (2018). Gender-based violence and trauma in marginalized populations of women: Role of biological embedding and toxic stress. *Health Care for Women International*, *39*(9), 1038-1055. doi: 10.1080/07399332.2018.1491046

Sarasua, B., Zubizarreta, I., Echeburúa, E., & del Corral, P. (2007) Perfil psicopatológico diferencial de las víctimas de violencia de pareja en función de la edad. *Psicotema*, *19*(3), 459-66.

Schultheiss, O. C., Dargel, A., & Rohde, W., (2003). Implicit motives and gonadal steroid hormones: effects of menstrual cycle phase, oral contraceptive use, and relationship status. *Hormones and Behavior*, *43*(2), 293-301. doi: 10.1016/S0018-506X(03)00003-5

Secretaría de Salud. (2012). *Norma Oficial Mexicana NOM-012-SSA3-2012, que establece los criterios para la ejecución de proyectos de investigación para la salud en seres humanos*. México: Diario Oficial de la Federación. Retrieved from: http://www.dof.gob.mx/nota_detalle.php?codigo=5284148&fecha=04/01/2013

Seedat, S., Stein, M. B., Kennedy, C. M., & Hauger, R. L. (2003). Plasma cortisol and neuropeptide Y in female victims of intimate partner violence. *Psychoneuroendocrinology*, *28*(6), 796-808. doi: 10.1016/s0306-4530(02)00086-0

Skevington, S. M., Lotfy, M., & O'Connell, K. A. (2004). The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Quality of Life Research*, *13*(2), 299-310. doi: 1023/B:QURE.0000018486.91360.00

Terlizzi, E. P., & Villarroel, M. A. (2020). *Symptoms of generalized anxiety disorder among adults: United States, 2019*. US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. Retrieved from https://www.cdc.gov/nchs/products/databriefs/db378.htm

Tirado-Muñoz, J., Gilchrist, G., Lligoña, E., Gilbert, L., & Torrens, M. (2015). A group intervention to reduce intimate partner violence among female drug users. Results from a randomized controlled pilot trial in a community substance-abuse center. *Adicciones*, *27*(3), 168-178.

Valdéz-Santiago, R., Híjar-Medina, M. C., Salgado de Snyder, V. N., Rivera-Rivera, L., Avila-Burgos, L., & Rojas, R. (2006). Violence scale and severity index: a methodological proposal for measuring violence by the partner in Mexican women. *Salud Pública de México*, *48*(Supp. 2), 221-231. Retrieved from: http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0036-36342006000800002&lng=es&tlng=es

Vargas-Salinas, A., & Reyes-Ortega, M. (2016). *Acceptance and Commitment Therapy (ACT) intervention manual for victim care. Módulo Grupal*. México. Instituto de Terapias Conductuales y Contextuales.

Whoqol Group. (1998). Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychological Medicine*, *28*(3), 551-558. doi: 10.1017/S0033291798006667

World Health Organization [WHO]. (2013). *Responding to intimate partner violence and sexual violence against women*. World Health Organization. ISBN 978 92 4 154859 5

World Health Organization [WHO]. (2005). *WHO multi-country study on women's health and domestic violence against women: initial results on prevalence, health events and women's responses to domestic violence against women. to such violence. Summary Report*. Geneva: World Health Organization. ISBN 92 4 159358 X

Wynne, B., McHugh, L., Gao, W., Keegan, D., Byrne, K., Rowan, C., … Mulcahy, H. E. (2019). Acceptance and commitment therapy reduces psychological stress in patients with inflammatory bowel diseases. *Gastroenterology*, *156*(4), 935-945. doi: 10.1053/j.gastro.2018.11.030

Wüst, S., Federenko, I. S., van Rossum, E. F., Koper, J. W., & Hellhammer, D. H. (2005). Habituation of cortisol responses to repeated psychosocial stress—further characterization and impact of genetic factors. *Psychoneuroendocrinology*, *30*(2), 199-211. doi: 10.1016/j.psyneuen.2004.07.002

Yalom, I. (1986). *Theory and practice of group psychotherapy*. México: Fondo de Cultura Económica. ISBN 9681621662 9789681621667

Zhang, C. Q., Leeming, E., Smith, P., Chung, P. K., Hagger, M. S., & Hayes, S. C. (2018). Acceptance and commitment therapy for health behavior change: acontext-driven approach. *Frontiers in Psychology*, *8*, 2350. doi: 10.3389/fpsyg.2017.02350

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Sex and Body Mass Index differences after one-year follow-up of an eating disorders risk factors universal prevention intervention in university students in Mexico City

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ABSTRACT

Introduction. Interventions based on cognitive dissonance theory are the most effective for preventing eating disorders. **Objective.** To identify the changes at one year follow-up of a universal prevention intervention in disordered eating behaviors (DEB), thin-ideal internalization (TII), and drive for muscularity (DM). **Method.** A pre-experimental, pretest-posttest study was conducted on 602 university student subjects (76.1% women and 23.9% men) with an average age of 20.74 years at a public (30.6%) and a private university (69.4%) in Mexico City. A Split Plot ANOVA was performed with the intrasubject variable equal to each measurement (pretest, posttest, and follow-up), as well as the sex and body mass index (BMI) intersubject variables to analyze whether there was a significant interaction between these variables and the changes in dependent variables, as well as the changes through each measurement by group. **Results.** In the intrasubject analyses, statistically significant differences were found for DEB through the various measurements, without taking the interactions into account. Statistically significant interactions were observed between each measurement and BMI, and between each measurement and sex and BMI for the DM variable. **Discussion and conclusion.** Since a reduction of TII in women and DM in men was achieved, together with a decrease in DEB in women, the workshop can be said to have fully achieved its objectives for women and partly so for men.

Keywords: Prevention, youth, eating disorders, risk factors, disordered eating, thin-ideal internalization, body mass index.

RESUMEN

Introducción. Las intervenciones basadas en la teoría de la disonancia cognoscitiva son las más efectivas para la prevención de los trastornos de la conducta alimentaria. **Objetivo.** Conocer los cambios a un año de seguimiento de una intervención de prevención universal en las conductas alimentarias de riesgo (CAR), interiorización del ideal estético de la delgadez (IED) y la motivación por la musculatura (MM). **Método.** Se llevó a cabo un estudio pre-experimental pretest-postest en 602 (76.1% mujeres y 23.9% hombres) sujetos estudiantes universitarios con una edad promedio de 20.74 años en una universidad pública (30.6%) y una privada (69.4%) de la Ciudad de México. Se realizó un ANOVA split plot con la variable intrasujetos igual a cada medición (pretest, postest y seguimiento) así como el sexo y el índice de masa corporal (IMC) variables intersujetos, para analizar si existía una interacción significativa entre dichas variables y los cambios sobre las variables dependientes, así como los cambios a través de cada medición por grupo. **Resultados.** en los análisis intrasujetos se encontraron diferencias estadísticamente significativas para las CAR a través de las distintas mediciones, sin tomar en cuenta las interacciones. Se observaron interacciones estadísticamente significativas entre cada medición y el IMC, y entre cada medición con el sexo y el IMC para la variable MM. **Discusión y conclusión.** Se logró la reducción de la IED en las mujeres y de la MM en los hombres, así como la disminución de las CAR en las mujeres por lo que se considera que el taller logra sus objetivos para las mujeres y parcialmente para los varones.

Palabras clave: Prevención, jóvenes, trastornos de la conducta alimentaria, factores de riesgo, conductas alimentarias de riesgo, interiorización del ideal de belleza delgado, índice de masa corporal.

INTRODUCTION

Eating disorder (ED) risk factors prevention is an area of research that has received increasing attention in the past three decades (Le, Barendregt, Hay, & Mihalopoulos, 2017; Watson et al., 2016) and Mexico is no exception in this regard (Gómez Péresmitré et al., 2013; León, 2010; Pineda, Gómez, & Méndez, 2010; Rodríguez & Gómez Péresmitré, 2007; Saucedo, Villarreal, Oliva, Unikel, & Guzmán, 2018; Castillo, Solano, & Sepúlveda, 2016; Unikel, Díaz de León, Rivera, Bojorquez, & Méndez, 2019).

ED risk factors prevention interventions that have proved most effective are those based on cognitive dissonance theory (Festinger, 1962), which achieves effects of up to three years after the intervention and prevents the emergence of ED in the population (Stice, Marti, Spoor, Presnell, & Shaw, 2008).

The Body Project intervention is based on some of the risk factors that lead to bulimic pathology, such as the aesthetic thin-ideal internalization (TII), body dissatisfaction, which, in the case of men, is expressed as the drive for muscularity (DM); engaging in restrictive diets and negative affect, included in the dual-pathway model of bulimic psychopathology (Stice, 2001). This model posits that sociocultural influences encourage the pursuit of an ideal of unattainable thinness, which is internalized. Since this is incompatible with reality, it promotes body dissatisfaction, which, in turn, leads to engaging in restrictive diets and negative affect, and subsequently bulimic symptoms. This intervention uses verbal, written, and behavioral exercises with an interactive format, coordinated by previously trained facilitators to reduce the thin-ideal internalization, body dissatisfaction, and disordered eating behaviors (DEB).

Preventing ED risk factors is a priority for public health, since they include serious chronic diseases that emerge in adolescence and early adulthood, in subjects of either sex. There are many reasons why it is essential to undertake the early detection of at-risk cases and ED prevention in the youth population. Foremost among these are medical complications (Mitchell & Crow, 2006), psychiatric comorbidity (National Institute for Health and Care Excellence, 2017), treatment seeking delay (Rowe, 2017), high mortality rates (Zerwas et al., 2015), the tendency to relapse (Molin, von Hausswolff-Juhlin, Norring, Hagberg, & Gustafsson, 2016), and lack of effective treatments (Keel & Brown, 2010).

In Mexico, data from the National Health and Nutrition Surveys (ENSANUT 2006 and 2018-19; Olaíz-Fernández et al., 2006; Shamah-Levy et al., 2020), indicate that from 2006 to the most recent measurement taken in 2018-2019 disordered eating behaviors in the adolescent population aged 10 to 19 have increased from .7% to 1.3%. Data from this latest survey indicate that young people between the ages of 14 and 19 are at the greatest risk. In university students, the prevalence of DEB in different countries, can fluctuate between 5.5% (Sáenz-Duran, González-Martínez, & Díaz-Cárdenas, 2011) and 61.1% (Fragkos & Frangos, 2013) in women, and between 1.9% (Morán-Álvarez, Cruz-Licea, & Iñárritu-Pérez, 2009) and 38.9% (Fragkos & Frangos, 2013) in men, depending on the means of evaluation and the country where the study is conducted.

The predominance of women diagnosed with ED is widely known in the literature (Smink, van Hoeken, & Hoek, 2012), and constitutes a well-defined risk factor (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004). However, prevalence in men is increasing (Sangha, Oliffe, Kelly, & McCuaig, 2019), and one in four people with an ED is thought to be male (Dakanalis et al., 2014). According to data from ENSANUT 2018-2019 (Villalobos, Unikel, Hernández-Serrato, & Bojorquez, 2020), .7% percent of males in the sample are at high risk of developing an ED in the adolescent population aged between 10 and 19 years old compared to 1.9% of females. On the other hand, the study by Díaz de León-Vázquez (2013) found no statistically significant differences in the prevalence of DEB between university men and women in the sample (4.1% vs. 6.1%; Díaz de León-Vázquez, 2013).

Studies undertaken in Mexico on the association between body mass index (BMI) and DEB have indicated that the higher the BMI, the higher the percentage of DEB (Palma et al., 2011; Unikel, Saucedo, Villatoro, Medina-Mora, & Fleiz, 2002). Yoon, Mason, Hooper, Eisenberg, and Neumark-Sztainer (2020) found comparable results in American adolescents: the higher the DEB percentage, the higher the BMI at follow-up. Likewise, in a nationally representative sample in the United States, Nagata, Garber, Tabler, Murray, and Bibbins-Domingo (2018) found that the higher the BMI, the higher the percentage of DEB. Conversely, in the study conducted by Argyrides, Anastasiades, and Alexiou (2020) on a sample of 2605 adolescents with a mean age of 15.22 years (SD = 1.23) in Cyprus, BMI showed no differences when risk and protective factors for DEB were evaluated.

Given the above, the objective of this study was to evaluate the differences of an ED risk factors universal prevention intervention based on cognitive dissonance theory at one-year follow-up in university students, comparing the sex and BMI of subjects. Results were obtained by measuring DEB, thin-ideal internalization (TII), and drive for muscularity (DM).

METHOD

A pre-experimental, pretest-posttest study was conducted on 602 university students (76.1% women and 23.9% men) with an average age of 20.74 years at a public (30.6%) and a private university (69.4%) in Mexico City. The distribution characteristics of the sample are shown in Table 1.

Table 1
Distribution characteristics of sample by sex, type of university, and BMI

	Pretest				*Posttest*				*Follow-up*			
Sex	Women		Men		Women		Men		Women		Men	
	f	%	f	%	f	%	f	%	f	%	f	%
	458	76.1	144	23.9	375	77.2	111	22.8	122	83	25	17
University	Public		Private		Public		Private		Public		Private	
	f	%	f	%	f	%	f	%	f	%	f	%
	184	30.6	418	69.4	153	31.5	333	68.5	90	61.2	57	38.8
BMI	Normal		Overweight / Obesity		Normal		Overweight / Obesity		Normal		Overweight / Obesity	
	f	%	f	%	f	%	f	%	f	%	f	%
	443	80.1	110	19.9	354	81.8	132	18.2	112	80.6	27	19.4

Instruments

Brief Questionnaire to Measure Disordered Eating Behaviors (BQDEB)

The questionnaire consists of 10 questions with four response options (never or almost never, sometimes, often twice a week), and very often (more than twice a week), which measure concern about gaining weight, binge eating, and restrictive and purging behaviors in the three months prior to the evaluation. The higher the score on the questionnaire, the greater the eating pathology. A reliability of .83 was obtained in female students in Mexico City (Unikel, Bojorquez, & Carreño, 2004), .80 in adolescent female students from the State of Mexico (Unikel, Díaz de León, & Rivera, 2017) and .64 in male university students (Díaz de León-Vázquez, 2013).

Eating Disorder Examination Questionnaire (EDE-Q)

This seven-item questionnaire measures the specific psychopathology of eating disorders (Fairburn & Beglin, 1994; Grilo, Reas, Hopwood, & Crosby, 2015). In the validation conducted with students and patients with eating disorders in Mexico, a reliability of .98 and a factorial structure in three factors (restriction, concern about figure and weight, dissatisfaction with figure and weight) were obtained (Unikel et al., 2018). The response options of the questionnaire range from 0 to 6, either for frequency of behavior or attitude, with a rating rising from less to more eating pathology (Unikel et al., 2018). The reliability of the questionnaire in men obtained for this study was .77 ($N = 144$).

Body Figure Attitudes Questionnaire (BFAQ)

This questionnaire, comprising 15 questions with four response options (never or almost never, sometimes, often, and always), measures the aesthetic thin-ideal internalization. In its validation with adolescent female students and young adults from Mexico City (Unikel, Juárez, & Gómez Peresmitré, 2006) and the State of Mexico (Unikel et al., 2017), reliability indices of .93 and .90 respectively were obtained. The questionnaire has a cut-off point of 37 to determine at-risk cases: the higher the score, the greater the internalization.

Drive for Muscularity Questionnaire (DMQ)

The items in this questionnaire reflect an individual's perception of whether they are muscular enough and whether they need to increase their muscle mass (regardless of the individual's actual body fat or muscle mass percentage). Muscle motivation is more prevalent in males, in whom a muscular mesomorphic body figure has been found to be most desirable. It comprises 15 questions scored from 1 to 6 and is divided into three subscales: 1. Favorable attitudes towards muscularity ($\alpha = .88$), 2. Consumption of supplements ($\alpha = .77$) and 3. Adherence to training ($\alpha = .68$), Items 2, 6, 8 and 12 (Escoto et al., 2013).

Body Mass Index (BMI)

Students self-reported their body weight and height in each measurement, which was subsequently used to calculate their BMI (kg/m^2) and classify it according to the World Health Organization criteria: malnutrition ≤ 18.4, normal from 18.5 to 24.9, overweight from 25 to 29.9 and obesity ≥ 30 (WHO, 2013). Self-reported BMI is considered reliable according to reports on the Mexican adult population (Osuna-Ramírez, Hernández-Prado, Campuzano, & Salmerón, 2006), as well as Colombian university students (Martínez-Torres et al., 2013).

Procedure

The Body Project workshops were held in groups of eight to ten students comprising men and women, each coordinated by one or two trained facilitators (Unikel et al., 2019). Five hour-and-a-half to two-hour sessions were given, in which verbal, written, and interactive behavioral exercises were performed under the guidance of the facilitator of the Body Project, which had been translated into Spanish by the University of Valencia, Spain.[1] Although the guide was strictly adhered to, changes were made to the format of the sessions, which involved using images by local artists, and increasing the length of the sessions from one to one and a

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[1] The version of the facilitator's guide used was translated at the University of Valencia for the Prevent of Eating Disorders in the Adolescent Population, with the coordination of David Bisetto Pons.

half hours, as well as incorporating the concept of the male muscular body ideal for working with men.

Pretest, posttest and one-year follow-up evaluations were conducted using a battery of 13 instruments previously validated in the Mexican population. The results of five of these are reported in this study, together with self-reported BMI. The study was conducted from 2012 to 2019, during which the sample was collected at the beginning and end of the groups' academic years at various times.

Statistical analysis

All subjects formed part of the experimental group that attended the Body Project workshop. The objective of the study was to analyze whether sex and BMI had an effect on the dependent variables when interacting with the workshop received by the students.

A Split Plot ANOVA was performed with the intrasubject variable equal to each measurement (pretest, posttest, and follow-up), as well as the sex and BMI intersubject variable to analyze whether there was significant interaction between these variables and the changes in the dependent variables, as well as the changes through each measurement by group. This design is shown in Table 2.

Ethical considerations

The project was approved by the Research Ethics Committees of the Universidad Iberoamericana (Registration number CONBIOETICA-0-CEI-008-20160601), the Ramón de la Fuente Muñiz National Institute of Psychiatry (Registration number CONBIOETICA-09-CEI-010-20170316) and the Biological and Health Sciences Division Committee of the Universidad Autónoma Metropolitana, campus Xochimilco (Registration number 10/12 8.1). Authorization was requested from the university authorities, as well as group teachers to be able to undertake the interventions with the students. Students signed a written informed consent form prior to their participation in the study, which outlined the voluntary nature of the latter and the possibility of dropping out if they wished.

RESULTS

Descriptive statistics

At the beginning of the study, 602 university students enrolled in various degree courses (76.1% women and 23.9% men) with an average initial age of 20.74 years (SD = 1.85) participated. Subjects were classified by their BMI into normal (80%) and overweight/obesity (20%).

Table 2
Design of mixed variance or split plot analysis

	Pretest	*Intervention*	*Posttest*	*One-year Follow-up*
Sex				
BMI	T_0	Workshop	T_1	T_2

Mixed variance analysis

A mixed variance or Split Plot analysis was conducted to compare the effect of the workshop intervention on the interaction between sex and BMI, considering the following measurements: pretest (t0), posttest (t1), and one year later (t2) as a follow-up measure. Due to the fact that two out of the three necessary assumptions in this analysis (equality of samples and homogeneity of variances) were not fulfilled to compare the DEB and TII variables, lower limit correction was used.

As can be seen from Table 3, for the tests of intra-subject effects, it was found that there are statistically significant differences for the DEB variables measured with the BQDEB and EDE-Q instruments, and TII and DM through the different measurements, without taking the interactions into account. At the same time, statistically significant interactions were observed between each measurement and BMI, and between each measurement and sex and BMI for the DM variable.

To analyze the effect of BMI on the dependent variables through each measurement, comparisons were made in pairs (pretest vs. posttest and pretest *vs*. follow-up), yielding the following results. Table 4 shows that for the DEB variable, measured with the BQDEB, statistically significant differences were observed between the scores obtained in the pretest and posttest, as well as between the pretest and the follow-up for women with normal weight, with a downward trend, whereas in the group of overweight women, differences were only observed between the pretest and posttest. In the case of men, no statistically significant differences were found, which suggests that the results obtained in the DEB variable are not affected by the body weight of male subjects.

Table 5 shows that for the DEB variable measured with the EDE-Q, statistically significant differences were observed between the scores obtained in the pretest and posttest, as well as between the pretest and follow-up for women with normal weight, with a downward trend, where-

Table 3
Test of intra-subject effects and interaction

Intrasubjects	*F*	*Df*	*p*	*η2*
DEB (BQDEB)	6.20	1	*.015*	.06
DEB (EDE-Q)	9.05	2	< *.000*	.09
TII (BFAQ)	14.59	1	< *.000*	.14
DM (DMQ)	12.57	2	< *.000*	.12
*Time *BMI*	*F*	*Gl*	*Sig*	η^2
DM	9.92	2	< *.000*	.10
*Time*Sex*BMI*	*F*	*Gl*	*Sig*	η^2
DM	6.35	2	*.002*	.07

Table 4

Comparisons by pretest-posttest pairs and follow-up for the DEB variable measured with the BQDEB

Measurement			*Pretest*		*Posttest*		*Follow-up*		*Pretest* vs *Posttest* *(1 vs 2)*	*Pretest* vs *Follow-up* *(1 vs 3)*
			Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*		
DEB	Women	Normal	5.40	3.98	3.67	3.82	2.80	2.60	*.001*	*.001*
		Overweight	7.38	4.50	5.15	3.80	5.31	3.40	*.01*	.09
	Men	Normal	4.54	3.01	2.90	2.30	3.09	2.46	.12	.48
		Overweight	4.60	1.81	5.00	4.63	3.80	3.19	1.00	1.00

Table 5

Comparisons by Pretest-Posttest Pairs and Follow-up for the DEB variable measured with the EDE-Q

Measurement			*Pretest*		*Posttest*		*Follow-up*		*Pretest* vs *Posttest* *(1 vs 2)*	*Pretest* vs *Follow-up* *(1 vs 3)*
			Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*		
DEB	Women	Normal	9.37	8.91	4.73	6.07	5.33	6.07	*.001*	*.001*
		Overweight	17.38	9.34	11.85	9.45	11.85	8.41	*.003*	*.02*
	Men	Normal	8.90	6.86	6.54	6.40	6.36	6.24	.56	.74
		Overweight	11.20	7.98	8.60	11.26	7.20	10.73	.98	.66

as in the group of overweight women, differences were only observed between the pretest and posttest. In the case of men, no statistically significant differences were found, regardless of the subjects' body weight.

Table 6 shows that for the TII variable, statistically significant differences were observed between the scores obtained in the pretest and posttest, as well as between the pretest and the follow-up both for women with normal weight and overweight, with a downward trend and a slight increase at follow-up. In the case of men, statistically significant differences were only found between pre-test and post-test in the group with normal weight, with a downward trend.

Finally, Table 7 shows that for the DM variable, there were differences between the pretest and the posttest for women, regardless of their body weight. This means that changes between the first and the second moment were not influenced by the body weight of the subjects. In the case of men, statistically significant differences were found between pretest and posttest, as well as between pretest and follow-up, with a downward trend in each case. This was only observed for the group of overweight people.

DISCUSSION AND CONCLUSION

The objective of this study was achieved, namely, to evaluate the differences of an ED risk factors universal interactive prevention intervention based on cognitive dissonance

Table 6

Comparisons by pretest-posttest pairs and follow-up for the TII variable

Measurement			*Pretest*		*Posttest*		*Follow-up*		*Pretest* vs *Posttest* *(1 vs 2)*	*Pretest* vs *Follow-up* *(1 vs 3)*
			Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*		
TII	Women	Normal	28.15	9.40	21.50	8.37	22.58	8.35	*.001*	*.001*
		Overweight	32.23	10.56	24.38	9.04	26.62	8.85	*.001*	.03
	Men	Normal	31.18	7.93	25.00	7.21	27.82	8.98	*.001*	.49
		Overweight	28.60	6.98	25.60	11.08	24.80	10.82	.71	.86

Table 7

Comparisons by Pretest-Posttest Pairs and Follow-up for the DM variable

Measurement			*Pretest*		*Posttest*		*Follow-up*		*Pretest* vs *Posttest* *(1 vs 2)*	*Pretest* vs *Follow-up* *(1 vs 3)*
			Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*		
DM	Women	Normal	23.58	8.62	21.23	8.64	22.57	9.10	*.01*	*.84*
		Overweight	23.31	8.43	18.92	4.32	20.38	5.99	*.04*	*.45*
	Men	Normal	37.54	15.24	35.63	17.25	38.90	20.30	.96	1.00
		Overweight	54.00	26.85	44.40	25.63	38.80	28.07	*.003*	*.001*

theory at one-year follow-up in university students, comparing the sex and BMI of subjects.

The analysis by sex found that the intervention had the expected effect at the follow-up measure, of reducing DEB scores measured with the EDE-Q, in normal weight and overweight women, DEB with the BQDEB only in normal weight women, TII scale scores in normal weight and overweight women, and DM in overweight men.

These data support the proposal to undertake the Body Project in groups with both men and women. This makes it possible to answer the question posed by the National Association for Males with Eating Disorders (National Association for Males with Eating Disorders, Naples, Florida, USA; Cohn, Murray, Walen, & Wooldridge, 2016) in one of its publications: Should men be told about the modifications to the images of men on magazine covers, such as body makeup and photoshop? The workshop version, examined in this study, included images of actors and models with "six-pack" abdominal muscles and developed pectorals. The origin of this beauty ideal was discussed, together with the consequences and costs of pursuing it. Although body ideals differ between women and men, in both cases, the health risks and costs of achieving them converge towards poor nutrition and ED. More current data show that the 10:1 ratio of ED in women and men has changed. Hudson, Hiripi, Pope, and Kessler (2007) report that 25% of people with anorexia nervosa and bulimia nervosa and 36% with binge-eating disorder are men.

Including a reflection on the body ideals required of both sexes in the workshop can make subjects more aware of the needs, insecurities and fears men and women may have about their bodies. It would therefore not be necessary to design a version of the Body Project workshop exclusively for men. Instead, it is more important to target the highest risk groups, including athletes such as boxers, gymnasts, endurance and long-distance runners, jockeys, and wrestlers.

Stice, Rohde, Butryn, Shaw, and Marti (2015) have found effects of the Body Project intervention for up to three years on various variables such as body dissatisfaction, negative affect, and psychosocial disability, but not on BMI. In the present study it was observed that the internalization of body ideals decreased in women regardless of body weight, and in overweight men, so that it can be said that the workshop had the expected effect, which consists of increasing body acceptance and not decreasing the BMI. As could be seen in the present study, the average BMI remained within the normal range, without changes at one year of follow-up; therefore, if the goal of lowering participants' BMI was to be achieved, other approaches would have to be considered. Analysis of the differences between BMI and DEB indicates that DEB are more prevalent in overweight and obese adolescents and young people of both sexes, as indicated in the studies by Yoon et al. (2020) and Lampard et al. (2016) in the United States, and Palma et al. (2011) and Unikel et al. (2002) in Mexico. However, these results have not been replicated in all studies (Argyrides et al., 2020; Ko et al., 2015). As we can see from the descriptive data of this study, mean DEB is higher in students with overweight and obesity, compared to those with normal weight, thus corroborating findings previously reported in Mexico and the United States.

The prevalence of overweight and obesity in young people between 20 and 29 years of age in Mexico is 35.9% and 24.1% in men and 32.7% and 26.2% in women, respectively, according to data from the National Survey of Nutrition and Health 2018-19 (Shamah-Levy et al., 2020) and in the sample in this study, 20% met some of these conditions. Given that these figures increase with age according to data from this same survey (43.9% and 34% in men and 37% and 39% in women, from 30 to 39 years old respectively), it is essential that action be taken to influence in biopsychosocial risk factors such as DEB, TII, and DM, and in this way reduce the effects they may entail in overweight and obese population product of the prevailing obesity reject.

This study has two significant limitations: on the one hand, experimental death from the baseline measurement to one-year follow-up, and on the other, the lack of a control group. Follow-up evaluations were hampered by students' absence on the day of the evaluation or their refusal to answer the questionnaires on the grounds that they were not interested in doing so. This occurred more in the control group, which is why there was not a large enough sample to perform the data analyses. Other limitations were the lack of other demographic data, such as distinguishing non-binary gender identities, socioeconomic differences, and the diagnosis of ED among the participants.

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Conflict of interest

The authors declare they have no conflicts of interest.

REFERENCES

Argyrides, M., Anastasiades, E., & Alexiou, E. (2020). Risk and Protective Factors of Disordered Eating in Adolescents Based on Gender and Body Mass Index. *International Journal of Environmental Research and Public Health*, *17*(24), 9238. doi: 10.3390/ijerph17249238

Castillo, I., Solano, S., & Sepúlveda, A. R. (2016). Programa de prevención de alteraciones alimentarias y obesidad en estudiantes universitarios mexicanos. *Behavioral Psychology/Psicologia Conductual*, *24*(1), 5-28.

Cohn, L., Murray, S. B., Walen, A., & Wooldridge, T. (2016). Including the excluded: Males and gender minorities in eating disorder prevention. *Eating Disorders*, *24*(1), 114-120. doi: 10.1080/10640266.2015.1118958

Dakanalis, A., Timko, C., Favagrossa, L., Riva, G., Zanetti, M., & Clerici, M. (2014). Why do only a minority of men report severe levels of eating disorder symptomatology, when so many report substantial body dissatisfaction? examination of exacerbating factors. *Eating Disorders*, *22*(4), 292-305. doi: 10.1080/10640266.2014.898980

Díaz de León-Vázquez, C. (2013). *Conductas alimentarias de riesgo, interiorización del ideal estético de delgadez e insatisfacción corporal en estudiantes universitarios de la Ciudad de México* (Tesis de maestría). México: Universidad Nacional Autónoma de México.

Escoto, C., Alvarez-Rayón, G., Mancilla-Díaz, J. M., Camacho Ruiz, E. J., Franco Paredes, K., & Juárez Lugo, C. S. (2013). Psychometric properties of the Drive for Muscularity Scale in Mexican males. *Eating and Weight Disorders*, *18*(1), 23-28. doi: 10.1007/s40519-013-0010-6

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*, *16*(4), 363-370.

Festinger, L. (1962). *A theory of cognitive dissonance*, (Vol. 2). Stanford University Press.

Fragkos, K. C., & Frangos, C. C. (2013). Assessing eating disorder risk: the pivotal role of achievement anxiety, depression, and female gender in non-clinical samples. *Nutrients*, *5*(3), 811-828. doi: 10.3390/nu5030811

Gómez Péresmitré, G., León Hernández, R., Platas Acevedo, S., Lechuga Hernández, M., Cruz, D., & Hernández Alcántara, A. (2013). Realidad Virtual y Psicoeducación: Formatos de Prevención Selectiva en Trastornos de la Conducta Alimentaria. *Revista Mexicana de Trastornos Alimentarios*, *4*(1), 23-30.

Grilo, C. M., Reas, D. L., Hopwood, C. J., & Crosby, R. D. (2015). Factor structure and construct validity of the Eating Disorder Examination-Questionnaire in college students: Further support for a modified brief version. *International Journal of Eating Disorders*, *48*(3), 284-289. doi: 10.1002/eat.22358

Hudson, J. I., Hiripi, E., Pope, H. G. Jr., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry*, *61*(3), 348-358. doi:10.1016/j.biopsych.2006.03.040

Jacobi, C., Hayward, C., de Zwaan, M., Kraemer, H. C., & Agras, W. S. (2004). Coming to terms with risk factors for eating disorders: Application of risk terminology and suggestions for a general taxonomy. *Psychological Bulletin*, *130*(1), 19-65. doi: 10.1037/0033-2909.130.1.19

Keel, P. K., & Brown, T. A. (2010). Update on course and outcome in eating disorders. *International Journal of Eating Disorders*, *43*(3), 195-204. doi: 10.1002/eat.20810

Ko, N., Tam, D. M., Viet, N. K., Scheib, P., Wirsching, M., & Zeeck, A. (2015). Disordered eating behaviors in university students in Hanoi, *Vietnam. Journal of Eating Disorders*, *3*, 18. doi: 10.1186/s40337-015-0054-2

Lampard, A. M., Maclehose, R. F., Eisenberg, M. E., Larson, N. I., Davison, K. K., & Neumark-Sztainer, D. (2016). Adolescents who engage exclusively in healthy weight control behaviors: Who are they? *International Journal of Behavioral Nutrition and Physical Activity*, *13*(1), 5. doi: 10.1186/s12966-016-0328-3

Le, L. K.-D., Barendregt, J. J., Hay, P., & Mihalopoulos, C. (2017). Prevention of eating disorders: A systematic review and meta-analysis. *Clinical Psychology Review*, *53*, 46-58. doi: 10.1016/j. cpr.2017.02.001

León, R. (2010). *Modelos de prevención de trastornos de la conducta alimentaria: técnicas asertivas/habilidades sociales y psicoeducativas*. [Doctoral dissertation]. México: Universidad Nacional Autónoma de México. Retrieved from http://132.248.9.195/ptd2009/diciembre/0652306/Index.Html

Martínez-Torres, J., Bucheli Sánchez, L. M., Manrique Gutiérrez, L. M., Cruz, R. E., Rojas Hoyos, Z. L., & Pérez Buelvas, J. L. (2013). Concordancia del autorreporte de peso y talla para valoración nutricional en estudiantes universitarios de 18 a 25 años. *Perspectivas en Nutrición Humana*, *15*(1), 57-65.

Mitchell, J., & Crow, S. (2006). Medical complications of anorexia nervosa and bulimia nervosa. *Current Opinion in Psychiatry*, *19*(4), 438-443. doi: 10.1097/01.yco.0000228768.79097.3e

Molin, M., von Hausswolff-Juhlin, Y., Norring, C., Hagberg, L., & Gustafsson, S. A. (2016). Case management at an outpatient unit for severe and enduring eating disorder patients at Stockholm Centre for Eating Disorders–a study protocol. *Journal of Eating Disorders*, *4*, 24. doi: 10.1186/s40337-016-0121-3

Morán-Álvarez, I. C., Cruz-Licea, V., & Iñárritu-Pérez, M. C. (2009). Prevalencia de factores y conductas de riesgo asociados a trastornos de la alimentación en universitarios. *Revista Médica del Hospital General de México*, *72*(2), 68-72.

Nagata, J. M., Garber, A. K., Tabler, J. L., Murray, S. B., & Bibbins-Domingo, K. (2018). Prevalence and Correlates of Disordered Eating Behaviors Among Young Adults with Overweight or Obesity. *Journal of General Internal Medicine*, *33*, 1337-1343. doi: 10.1007/s11606-018-4465-z

National Institute for Health and Care Excellence. (2017). *Eating Disorders: recognition and treatment. Full guideline*. Retrieved from: https://www.ncbi.nlm.nih.gov/books/NBK436876/pdf/Bookshelf_NBK436876.pdf

Olaíz-Fernández, G., Rivera Dommarco, J., Shamah-Levy, T., Rojas, R., Villalpando-Hernández, S., Hernández-Avila, M., & Sepúlveda Amor, J. (2006). *Encuesta Nacional de Salud y Nutrición 2006*. Instituto Nacional de Salud Pública.

Osuna-Ramírez, I., Hernández-Prado, B., Campuzano, J. C., & Salmerón, J. (2006). Índice de masa corporal y percepción de la imagen corporal en una población adulta mexicana: la precisión del autorreporte. *Salud Pública de México*, *48*(2), 94-103.

Palma, O., Hernández, M. I., Villalobos, A., Unikel, C., Olaiz, G., & Bojorquez, I. (2011). Association of socioeconomic status, problem behaviors, and disordered eating in Mexican adolescents: Results of the Mexican National Health and Nutrition Survey 2006. *Journal of Adolescent Health*, *49*(4), 400-406. doi: 10.1016/j.jadohealth.2011.01.019

Pineda, G. G., Gómez, P. G., & Méndez, H. S. (2010). Disonancia cognoscitiva en la prevención de trastornos alimentarios. Significancia clínica y estadística. *Psicología y Salud*, *20*(1), 103-109.

Rodríguez, R., & Gómez Péresmitré, G. (2007). Prevención de trastornos alimentarios mediante la formación de audiencias críticas y psicoeducación: un estudio piloto. *Psicología y Salud*, *17*, 269-276.

Rowe, E. (2017). Early detection of eating disorders in general practice. *Australian Family Physician*, *46*(11), 833-838.

Sáenz-Duran, S., González-Martínez, F., & Díaz-Cárdenas, S. (2011). Hábitos y trastornos alimenticios asociados a factores sociodemográficos, físicos y conductuales en universitarios de Cartagena, Colombia. *Revista Clínica de Medicina de Familia*, *4*(3), 193-204. doi: 10.4321/S1699-695X2011000300003

Sangha, S., Oliffe, J. L., Kelly, M. T., & McCuaig, F. (2019). Eating Disorders in Males: How Primary Care Providers Can Improve Recognition, Diagnosis, and Treatment. *American Journal of Men's Health*, *13*(3), 1-12. doi: 10.1177/1557988319857424

Saucedo, T. J., Villarreal, M., Oliva, L. A., Unikel, C., & Guzmán, R. (2018). Disordered eating behaviors and sedentary lifestyle prevention among Mexicans: pilot study. *Health Education Journal*, *77*(8), 872-883. doi: 10.1177/0017896918782279

Shamah-Levy, T., Vielma-Orozco, E., Heredia-Hernández, O., Romero-Martínez, M., Mojica-Cuevas, J., Cuevas-Nasu, L., … Rivera-Dommarco, J. (2020). *Encuesta Nacional de Salud y Nutrición 2018-19: Resultados Nacionales*. Instituto Nacional de Salud Pública.

Smink, F. R. E., van Hoeken, D., & Hoek, H. W. (2012). Epidemiology of Eating Disorders: Incidence, Prevalence and Mortality Rates. *Current Psychiatry Reports*, *14*(4), 406-414. doi: 10.1007/s11920-012-0282-y

Stice, E. (2001). A prospective test of the dual-pathway model of bulimic pathology: Mediating effects of dieting and negative affect. *Journal of Abnormal Psychology*, *110*(1), 124-135. doi: 10.1037/0021-843X.110.1.124

Stice, E., Marti, C. N., Spoor, S., Presnell, K., & Shaw, H. (2008). Dissonance and healthy weight eating disorder prevention programs: Long-term effects from a randomized efficacy trial. *Journal of Consulting and Clinical Psychology*, *76*(2), 329-340. doi: 10.1037/0022-006X.76.2.329

Stice, E., Rohde, P., Butryn, M. L., Shaw, H., & Marti, C. N. (2015). Effectiveness Trial of a Selective Dissonance-based Eating Disorder Prevention Program with Female College Students: Effects at 2- and 3-Year Follow-up. *Behavior Research and Therapy*, *71*, 20-26. doi: 10.1016/j.brat.2015.05.012

Unikel, C., Bojorquez, I., & Carreño, S. (2004) Validación de un cuestionario breve para medir conductas alimentarias de riesgo. *Salud Pública de México*, *46*(6), 509-515.

Unikel, C., Bojorquez, I., Díaz de León, C., Vázquez-Velázquez, V., Rivera-Márquez, J. A., Galván, G., & Rocha, I. (2018). Validation of Eating Disorders Examination Questionnaire in Mexican women. *International Journal of Eating Disorders*, *51*(2), 146-154. doi: 10.1002/eat.22819

Unikel, C., Díaz de León, C., & Rivera, J. A. (2017). *Conductas alimentarias de riesgo y factores de riesgo asociados: desarrollo y validación de instrumentos de medición*. Universidad Autónoma Metropolitana Xochimilco. ISBN: 978-607-28-1087-7

Unikel, C., Díaz de León, C., Rivera, J. A., Bojorquez, I., & Méndez, E. (2019). Dissonance-based Program for Eating Disorder Prevention in Mexican University Students. *Psychosocial Intervention*, *28*(1), 29-35. doi: 10.5093/pi2018a17

Unikel, C., Juárez, F., & Gómez Peresmitré, G. (2006). Psychometric Properties of the Attitudes Towards Body Figure Questionnaire in Mexican Female Students and Patients with Eating Disorders. *European Eating Disorders Review*, *14*(6), 430-435.

Unikel, C., Saucedo, T., Villatoro, J. A., Medina-Mora, M. E., & Fleiz, C. (2002) Conductas alimentarias de riesgo y distribución del Indice de Masa Corporal en estudiantes de 13 a 18 años. *Salud Mental*, *25*(2), 49-57.

Villalobos, A., Unikel, C., Hernández-Serrato, M. I., & Bojorquez, I. (2020). Evolución de las conductas alimentarias de riesgo en adolescentes mexicanos, 2006-2018. *Salud Pública de México*, *62*(6), 734-744. doi: 10.21149/11545

Watson, H. J., Joyce, T., French, E., Willan, V., Kane, R. T., Tanner-Smith, E. E., … Egan, S. (2016). Prevention of eating disorders: A systematic review of randomized, controlled trials. *International Journal of Eating Disorders*, *49*(9), 833-862. doi: 10.1002/eat.22577

World Health Organization (WHO). (2013). *Global data base on body mass index. BMI classification*. WHO. http://apps.who.int/bmi/index.jsp?introPage=intro_3.htm

Yoon, C., Mason, S. M., Hooper, L., Eisenberg, M. E., & Neumark-Sztainer, D. (2020). Disordered Eating Behaviors and 15-year Trajectories in Body Mass Index: Findings From Project Eating and Activity in Teens and Young Adults (EAT). *Journal of Adolescent Health*, *66*(2), 181-188. doi: 10.1016/j.jadohealth.2019.08.012

Zerwas, S., Larsen, J. T., Petersen, L., Thornton, L. M., Mortensen, P. B., & Bulik, C. M. (2015). The incidence of eating disorders in a Danish register study: Associations with suicide risk and mortality. *Journal of Psychiatric Research*, *65*, 16-22. doi: 10.1016/j.jpsychires.2015.03.003

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Perceived academic stress in Mexican medical students. The role of sex emotional distress, burnout, academic-social support, current abuse experiences, and coping strategies

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ABSTRACT

Introduction. Academic stress is a common problem among medical students that has a negative physiological, social, and learning impact. Perceived academic stress indicates how stressed a student is about academic issues over a given period of time and the ability to handle that stress. **Objective**. To determine the prevalence of PAS and evaluate possible risk factors, focusing on sex differences, burnout, emotional distress, academic-social support, and coping strategies. **Method.** A cross-sectional, retrospective, and comparative study was conducted through an online survey with medical students (MS) willing to participate anonymously. **Results.** All students reported PAS and the majority to a moderate-severe degree. Comparing the presence of abuse within the academic environment between men and women, we found differences in the frequency of reporting emotional abuse and sexual. Also, we found differences in perceived academic social support from teachers and family members. Multiple logistic regression analysis showed sex and current sexual abuse inside school had the strongest association with PAS in MS, followed by a family history of depression and perceived less academic social support from family. **Discussion and conclusion.** Timely identification of individuals at-risk will be critical to establish preventive strategies to limit the impact of PAS in MS, stress management programs, training coping skills, and offer prompt therapeutic alternatives when needed.

Keywords: Perceived academic stress, medical students, emotional distress, burnout, academic-social support, coping strategies.

RESUMEN

Introducción. El estrés académico es un problema común entre los estudiantes de medicina que tiene un impacto negativo a nivel fisiológico, social y de aprendizaje. El estrés académico percibido (PAS) indica lo estresado que está un estudiante por cuestiones académicas durante un periodo de tiempo determinado y la capacidad para manejar ese estrés. **Objetivo.** Determinar la prevalencia del PAS y evaluar los posibles factores de riesgo, centrándose en las diferencias por sexo, burnout, el malestar emocional, el apoyo académico-social y las estrategias de afrontamiento. **Método.** Se realizó un estudio transversal, retrospectivo y comparativo a través de una encuesta en línea con estudiantes de medicina dispuestos a participar de forma anónima. **Resultados.** Todos los estudiantes reportaron PAS y la mayoría en un grado moderado-severo. Comparando la presencia de maltrato dentro del ámbito académico entre hombres y mujeres, encontramos diferencias en la frecuencia de denuncia de maltrato emocional y sexual. Asimismo, encontramos diferencias en el apoyo social académico percibido por parte de docentes y familiares. El análisis de regresión logística múltiple mostró que el sexo y el abuso sexual actual dentro de la escuela tenían la asociación más fuerte con PAS, seguidos por antecedentes familiares de depresión y menos apoyo social académico percibido por parte de la familia. **Discusión y conclusión.** La identificación oportuna de las personas en riesgo será fundamental para establecer estrategias preventivas para limitar el impacto de PAS, programas de manejo del estrés, capacitación en habilidades de afrontamiento y ofrecer alternativas terapéuticas rápidas cuando sea necesario.

Palabras clave: Estrés académico percibido, estudiantes de medicina, distrés emocional, burnout, apoyo académico-social, estrategias de afrontamiento, ansiedad, depresión.

INTRODUCTION

'Stress' is a neuroendocrine, immune, and behavioral response of the organism, in the face of any demand that is presented to it (stressor) as a result of an interpretation of threat or danger, allowing the adaptation and survival of the living being (Herman et al., 2016). Perceived stress is defined as a condition or emotion experienced when an imbalance is perceived between the demands of daily life and a person's ability to respond (result of their personal resources and coping strategies; Wang, Liu, Zhang, Xie, & Yang, 2021; its nature is psychological and subjective induced by the perception and interpretation of facts and experiences. When it arises in the context of an educational process, it is called perceived academic stress (PAS; Aihie & Ohanaka, 2019). Several studies have shown that PAS increases as the student progresses through educational levels (Abdel Wahed & Hassan, 2017; Barbayannis et al., 2022; Dyrbye, Thomas, & Shanafelt, 2006). Going to college is a time of transition and challenge, and students are particularly vulnerable to psychological distress (Gómez- Molinero, Zayas, Ruíz-González, & Guil, 2018).

Undergraduate medical education is a long process in which students face multiple stressors, such as the large amount of information to learn in short periods of time, being in a very competitive environment, constant examinations, the structure of the curriculum design, ethical dilemmas throughout the training, cumulative exams, lack of sleep, violence (internal or external) towards medical students, lack of social support from professors and university, less time to rest and relax, restricted opportunities for social and recreational activities, poor eating practices, fear of failure, self-demand, idealism, dysfunctional defense mechanisms, perfectionist and neurotic traits, academic load, sleep problems, exposure to disease and death of patients, culture and parenting styles (Amir, Dahye, Duane, & Wendy, 2018; Heinen, Bullinger, & Kocalevent, 2017; Hill, Goicochea, & Merlo, 2018; Weber, Skodda, Muth, Angerer, & Loerbroks, 2019). Furthermore, family problems such as lack of social and emotional support and financial instability in the family are associated with stress levels in undergraduate medical students (Bergmann, Muth, & Loerbroks, 2019). Students, throughout their training they encounter factors that threaten their well-being as a highly hierarchical organization and authority figures that sometimes, far from being a positive mentoring, can be a source of abuse and stress (Ng, Lin, & Henning, 2020); Fnais et al. (2014) reported that 59.4% of physicians had experienced at least one form of harassment or discrimination during their training, with verbal harassment being the most frequent form of harassment (63%) followed by gender discrimination (53.6 %). They have been reported to suffer from higher perceived stress compared to undergraduate students from other academic fields (John & Naik, 2020). The high degree of perceived stress that medical students face requires "a call to action" (Dyrbye & Shanafelt, 2016).

Romo-Nava et al. (2016) reported that during exam season, the prevalence of depression in MS is 16.2%, and that depression is associated with PAS. The consequences of prolonged stress are widespread. Decreased academic performance, substance abuse, and detrimental effects on physical and mental well-being (including psychological distress and burnout) have been reported. Studies focusing on emotional distress as a consequence of prolonged exposure to stressors found an increase in anxiety and depression scores in medical students compared to the general population (Mirza, Baig, Beyari, Halawani, & Mirza, 2021; Philip, Molodynski, Barklie, Bhugra, & Chaturvedi, 2021; Salvagioni et al., 2017). To cope with pressures, students can employ a variety of personal resources (optimism, motivation, self-efficacy) and coping strategies, which may be focused on the problem (planning; asking others for advice) focused on emotions (venting; seeking emotional support from others) or focused on avoidance by nature (denial; alcohol / drug use), which can be classified as adaptive or maladaptive (Collin, O'Selmo, & Whitehead, 2020; Freire, Ferradás, Regueiro, Rodríguez, Valle, & Núñez, 2020; Neufeld & Malin, 2021). Social support is a survival mechanism for stress, since those medical students who are satisfied with their life and with their support network show low perception of stress, adequate coping strategies and high resilience (Ozbay et al., 2007). Academic stress can contribute to depression rates in medical students (Alzahrani et al., 2020; Avila-Carrasco et al., 2023; Mirza et al., 2021). Other factors associated with an increased risk to suffer mental health problems are a particularly academically and emotionally demanding training, competitive school environment, constant academic evaluations, the lack of family support, a personal and family history of mental health problems (anxiety, depression, etc.), and gender (Bergmann, Muth, & Loerbroks, 2019; Broks, Stegers-Jager, van der Waal, van den Broek, & Woltman, 2022; Lasheras et al., 2020; Pacheco et al., 2017; Thomas & Bigatti, 2020; Zeng, Chen, Wang, Zhang, & Deng, 2019). It is not known how the levels of perceived academic stress (PAS) and associated factors focusing on academic-social support and coping strategies. Therefore, the aim of the study was to determine the prevalence of PAS and possible risk factors focusing on sex differences, burnout, emotional distress, academic-social support, and coping strategies in a sample of medical students in Mexico.

METHOD

Study design and participants

A cross-sectional, retrospective, and comparative study was conducted through an online survey with medical students from the Faculty of Medicine of the Universidad Nacional

Autónoma de México (UNAM), who took part on a voluntary basis and were not remunerated for their participation. The study was conducted from January to December 2020. At the beginning of the online survey, the objectives and procedures of the study were explained, and anonymity of the information was guaranteed. The study was evaluated and approved by the institutional review boards.

Procedure and instruments

After electronic consent, participants were asked to fill self-report instruments. The first section included questions related to demographic and academic features: current age, sex, marital status, parents' levels of education, if he/she is engaged in a gainful activity (hours per week), type of high school (public or private), school grade and first year of medical studies point average, schedule (morning or afternoon classes), maximum studying hours per day. Afterwards, *SISCO inventory of academic stress* (SISCO-AS; Prochaska, Sung, Max, Shi, & Ong, 2012) is a measure of academic stress in students of upper education or postgraduates. Consists of 31 items on a 5-point Likert type scale (anchored by 1-never to 5-always) including three broad factors: stressors (intensity of academic stress and frequency of academic demands considered as stressful stimulus), symptoms (frequency of reactions to stressful stimulus), and coping (frequency with which coping strategies are used). The section "Symptoms to stressor stimulus" was omitted due to the doubt in discriminative validity generated by the presence of a strong correlation between physical, psychological, and behavioral reactions and due to possible collinearity with depressive symptoms. The Coping subscale had already been described by Barraza, with lower reliability (α Cronbach = .69; Barraza, 2007), as well as Guzmán-Castillo (α Cronbach = .45; Guzmán-Castillo, Bustos, Zavala, & Castillo-Navarrete, 2022) and (α Cronbach = .45, Omega total = .48; Guzmán-Castillo et al., 2022). Coping, as a multidimensional construct, is dynamic, and therefore difficult to measure adequately with six questions; therefore, we opted for a psychometric instrument specifically aimed at its measurement. For the present study, the variable "perceived academic stress" was built with the average score of the section "Demands of the environment", which showed an internal consistent Cronbach's alpha reliability of .90 in undergraduate Mexican students (Romo-Nava et al., 2016; 2019). The level of PAS categories (mild, moderate, and severe) was built according to the 33 and 66 percentiles of the study population. The Maslach Burnout Inventory-Student Survey (MBI-SS; Vega-Valero, Gómez-Escobar, Rodríguez-Hernández, & Gálvez-Jaramillo, 2017) is an instrument that allows identifying the three dimensions of the burnout syndrome: emotional exhaustion, cynicism, and ineffectiveness. It consists of 15 questions with a Likert-type measurement scale from 0 to 6 points that allow classifying the dimensions of the scale into four levels (no «burnout», «mild burnout», «moderate burnout», «high burnout»). Banda Guzmán, Robles Francia, and Lussier (2021) performed the validation in Mexican students, the factor analysis supports the validity in the use of the MBI-SS. The Cronbach's alphas obtained were .856 for Emotional Exhaustion, .851 for Cynicism and .717 for Emotional Exhaustion, .851 for Cynicism and .717 for Academic Efficacy. Kessler's K-6 scale (Kessler et al., 2003) is a very brief screening tool for nonspecific psychological distress in adults, six items assess the frequency on psychological distress referring to symptoms of anxiety and depression in the last month. The responses range from "none of the time" coded zero to "all of the time" coded four. The K6 has been adopted widely since its inclusion in the World Health Organization World Mental Health Survey Initiative and translated and validated in several countries including Mexico (Kessler et al., 2010). Academic Social Support Inventory (IASA; Azzahra & Paramita, 2019). Instrument of 80 items, validated in Mexican university students and created by Vega-Valero et al. (2017). It was divided into two sections, the first directed to Perceived Social Support (PSS) and the second to Received Social Support (RSS), likewise, each section evaluates four different areas of support (by peers, teachers, family, and institution). The PSS factor is conformed by peers (α = .85), teachers (α = .88), family (α = .86), and institution (α = .70). The second factor, RSS, is made up of peers (α = .80), teachers (α = .82), family (α = .85), and institution (α = .81). Likert-type scale from 1 (strongly disagree) to 6 (strongly agree). The Ways of Coping Questionnaire (WCQ; Bacchi & Licinio, 2017), a 66-item questionnaire (on a 4-point Likert scale; 0 = does not apply/or not used; 1 = used somewhat; 2 = used quite a bit; 3 = use a great deal) developed to tap into two main types of coping: emotion-focused and problem-focused coping. There are eight empirically derived subscales of coping: confronting, distancing, self-controlling, seeking support, accepting responsibility, escape-avoidance, planful problem-solving, and positive reappraisal, validated the questionnaire in the Mexican population with a Cronbach's alpha of .90 (Sotelo Arias & Maupome Santillán, 1999). Current physical, emotional, and sexual abuse outside and inside the academic context were also assessed by questions like: Are you currently a victim of abuse/mistreatment outside of school? And are you a victim of abuse/mistreatment inside the school? In case the answers to these questions were positive, the form included examples of the different types of abuse being assessed.

Statistical analysis

Descriptive information was described as means ± standard deviation (SD) as continuous variables and categorical variables were presented by frequencies and percentages. Women were compared to men in terms of demographic variables

Table 1
Sociodemographic data, perceived academic stress, emotional distress, burnout, academic-social support, current abuse experiences, and coping strategies of the study sample

		Total *(n = 210)*	*Men* *(n = 90)*	*Women* *(n = 120)*	
		n (%)	*n (%)*	*n (%)*	*p*
Demographic features	Age - years (mean; SD)	19.8 (1.09)	19.9 (1.18)	19.6 (1.01)	.51
	Marital status - Single	203 (96.6)	87 (96.6)	116 (96.6)	1
	Mother's schooling - years (mean; SD)	12.08 (7.28)	12.8 (7.41)	11.52 (7.16)	1
	Father's schooling - years (mean; SD)	13.53 (4.71)	13.5 (4.43)	13.4 (4.92)	.24
	Cohabitants (Others)	8 (3.8)	3 (3.3)	5 (4.16)	.75
	Financial resources (Restricted to scarce)	74 (35.2)	31 (34.4)	43 (35.8)	.83
Family and/or personal history of mental illness	Personal history of depression - positive	87 (41.4)	29 (32.2)	58 (48.3)	.004
	Personal history of suicide attempt - positive	22 (10.5)	12 (13.3)	10 (8.3)	.862
	Family history of depression - positive	101 (48.1)	33 (36.6)	68 (56.6)	.019
	Family history of suicide attempt - positive	29 (13.8)	12 (13.3)	17 (14.2)	.242
Study variables	Current abuse inside academic setting - Positive	111 (52.8)	43 (47.7)	68 (56.6)	.202
	Emotional - Positive	64 (30.5)	18 (20)	46 (38.3)	.004
	Physical - Positive	53 (25.2)	27 (30)	26 (21.6)	.169
	Sexual - Positive	23 (10.9)	2 (2.2)	21 (17.5)	< .001
	Ways of Coping Questionnaire (mean; SD)	59.7 (16.7)	62.3 (15.4)	57.7 (17.5)	.049
	Coping flexibility	22.5 (7.06)	23.9 (6.1)	21.5 (7.5)	.011
	Positive directed coping	21 (7.31)	21.2 (6.8)	20.8 (7.7)	.72
	Magical thinking	12.1 (5.36)	12 (4.8)	12.1 (5.7)	.859
	Distancing	9.59 (3.8)	10.2 (3.1)	9.2 (4.2)	.040
	Problem-directed coping	12.8 (5.4)	13.5 (5.5)	12.4 (5.2)	.042
	Positive reassessment	6 (3.01)	6.2 (3.6)	5.8 (2.9)	.185
	Burnout (MBI-SS) - positive (mean; SD)	54.8 (19.06)	56.8 (19.01)	53.3 (19.05)	.186
	MBI Depersonalization	3.33 (3.09)	4.4 (2.93)	2.9 (2.96)	< .001
	MBI Emotional exhaustion	28.7 (17.8)	30.1 (17.6)	27.7 (17.8)	.325
	MBI personal accomplishment	22.5 (6.22)	22.2 (6.06)	22.7 (6.35)	.574
	Kessler Psychological Distress Scale (mean; SD)	16. 62 (3.86)	15.12 (3.82)	17.75 (3.51)	< .001
	Nervous	3.03 (1.18)	2.94 (1.27)	3.10 (1.11)	.323
	Hopeless	2.73 (1.12)	2.42 (1.18)	2.97 (1.02)	< .001
	Restless or Fidgety	2.64 (1.03)	2.47 (1.04)	2.76 (1.01)	.044
	Depression	2.83 (1.01)	2.51 (1.12)	3.07 (.86)	< .001
	Everything was an effort	2.49 (1.12)	2.01 (1.07)	2.86 (1.02)	< .001
	Worthless	2.87 (.89)	2.76 (.96)	2.95 (.84)	.126
	Perceived academic stress-(mean; SD)	50.4 (10.4)	48.1 (8.02)	52.09 (11.5)	.005
	Competitiveness with classmates	3.2 (1.24)	2.9 (1.24)	3.4 (1.19)	.006
	Schoolwork overload	2.3 (1.12)	2.1 (1.13)	2.5 (1.07)	.005
	Teacher's character and personality	2.4 (1.14)	1.9 (1.02)	2.7 (1.11)	< .001
	Teachers' evaluations	2.4 (1.20)	1.9 (1.04)	2.7 (1.20)	< .001
	Type of Schoolwork requested by teachers	2.3 (1.13)	1.9 (.97)	2.7 (1.11)	< .001
	Misunderstanding class topics	2.5 (1.15)	2.2 (1.1)	2.7 (1.17)	.001
	Participation in class	2.3 (1.18)	1.8 (.97)	2.7 (1.19)	< .001
	Time to complete Schoolwork	2.4 (1.11)	2 (1)	2.6 (1.13)	< .001
Academic Social Support Inventory (IASA)	Perceived Social Support				
	Companions - Moderate	100 (47.6)	43 (47.7)	57 (47.5)	.968
	Teachers - Moderate	51 (24.3)	39 (43.3)	12 (10)	< .001
	Family - Moderate	41 (19.5)	26 (28.8)	15 (12.5)	.003
	Institution - Moderate	19 (9)	6 (6.6)	13 (10.8)	.298
	Social Support Received				
	Companions - moderate	67 (31.9)	32 (35.5)	35 (29.1)	.326
	Teachers - moderate	32 (15.2)	18 (20)	14 (11.6)	.224
	Family - moderate	45 (21.4)	19 (21.1)	26 (21.6)	.939
	Institution - moderate	4 (1.9)	3 (3.3)	1 (.8)	.293

(age, marital status, cohabitants, and financial resources) and clinical variables (current abuse, personal history of mental illness, family history of mental illness, emotional distress, burnout, academic-social support, and coping strategies). Categorical variables were compared between men and women using chi-square tests (X^2), and independent sample Student's t test, as well as the comparison of their items through the Mann–Whitney U test, were used to compare SISCO scores. PAS levels (SISCO scores) were dichotomized into mild (below the 33rd percentile) and moderate-severe (above the 33rd percentile) for logistic regression. Pearson coefficient was used to evaluate the correlation between MBI-SS, IASA, WCQ and perceived academic stress (SISCO scores). Simple logistic regression analysis was conducted to evaluate the association between PAS as a dependent variable and possible associated factors as independent variables. Variables showing a statistically significant association with PAS were then used in a backward elimination (conditional) multiple logistic regression model to evaluate their relationship with PAS. The estimation of the effect of the explanatory variable (PAS) was expressed by estimating the odds ratio (OR) adjusted for other factors included in the model as covariates, with a 95% confidence interval (95% CI). All analyses were performed using SPSS Statistics V 25.0. The significance level for all tests was established at $P < .05$.

Ethical considerations

The present study was approved by the Ethics and Research Committees (National University of Mexico UNAM - IN309920) and that consent to participate could be withdrawn at any time by dropping out of the survey. The study was conducted according with the Helsinki Declaration as revised 1989. All subjects voluntarily signed electronic consent to participate after receiving a comprehensive explanation of the nature of the study. Students identified at-risk according to MBI-SS, Kessler's K-6 scale and/or current abuse inside school, were invited to a more in-depth evaluation to offer specialized attention if needed.

RESULTS

210 medical students were recruited, 57% (*n* = 120) were women, with a mean age of 19.8 (SD ± 1.09) years. Most participants were single (96.6%, *n* = 203), cohabited with their family (96.2%, *n* = 202), and received sufficient financial resources for costs of living (64.8%, *n* = 136). All students reported perceived academic stress, the majority a moderate degree (64.16%, *n* = 77; Table 1). In addition, 41.4% (*n* = 87) referred a personal history of depression, and 48.1% (*n* = 101) had a family history of depression.

Burnout was reported by all students, with the majority with a moderate degree (69%, *n* = 145). About 52.9% (*n* = 111) refer at least one type of violence within the school environment, verbal violence being the most frequent (30.5%), followed by physical (25.2%) and sexual (11%). Also, 47% (*n* = 100) perceived moderate academic social support from their peers, followed by teachers (24.3%, *n* = 51) and family members (19.5%, *n* = 41). Regarding social support received. 31.9% (*n* = 67) referred a moderate increase by peers, followed by relatives (21.4%, *n* = 45) and teachers (15.2%, *n* = 32). As seen in Table 1, similar demographic features were found between men and women. (Table 1). Regarding family and / or personal history of mental illness, differences were found between men and women regarding family (32.2% *vs.* 48.3%, *p* = .004) and personal history of depression (36.6% *vs.* 56.6%, *p* = .019). Comparing the presence of abuse within the academic environment between men and women, differences were found in the frequency of reporting emotional abuse (20% *vs.* 38.3%, *p* = .004) and sexual (2.2% *vs.* 17.5%, *p* ≤ .001). Mean item and total scores on Kessler Psychological Distress Scale were higher among females compared to males except for nervous and worthless. The comparation between the types of stressors described in the SISCO show that women scored higher on all perceived academic stress items compared to men. At the IASA. Differences were found in moderate perceived academic social support from teachers (men = 43.3% *vs.* women = 10%, *p* ≤ .001) and family members (men = 28.5% *vs.*12.5%, *p* = .003). Also, we did not find differences in social support received (Table 1).

The total score and the types of stressors described in the SISCO show that women scored higher on all perceived academic stress items compared to men.

Correlation analysis showed that the total score on the SISCO scale, and therefore of the perception of academic stress, increases while the total score on the WCQ scale (lower coping strategies), perception of academic social support from teachers and family decreases (Tabla 2).

Simple linear regression analysis showed a significant association between PAS scores and variables such as being a woman (OR = 3.25, IC 95% = [1.08, 9.5], *p* = .004), father´s scholar years (OR = 1.065, IC 95% = [1.015, 1.117], *p* = .010), family history of depression (OR = 1.943, IC

Table 2
Pearson's correlation coefficients between WCQ, SISCO, MBI-SS, PSS (teachers and family)

	WCQ	*SISCO*	*MBI-SS*	*PSS (Teachers)*	*PSS (Family)*
WCQ					
SISCO	-.481**				
MBI-SS	-.098	.075			
PSS (teachers)	.357**	-.475**	-.124		
PSS (family)	.398**	-.424**	-.170*	.712**	

Note: PSS = Perceived Social Support.
** The correlation is significant at the .01 level (bilateral).
* The correlation is significant at the .05 level (bilateral).

95% = [1.09, 3.4], $p = .023$), current emotional abuse (OR = 1.064, IC 95% = [1.022, 1.108], $p = .003$), problem-directed coping (OR = .867, IC 95% [.807,.932], $p \leq .001$), positive reassessment (OR = .834, IC 95% = [.730, .950], $p \leq .001$), perceived Mild Social Support from Companions (OR = 2.972, IC 95% = [.1.350, 6.54], $p = .007$), Teachers (OR = 3.012, IC 95% = [1.210, 7.496], $P = .018$) and Family (OR = 3.37, IC 95% = [1.179, 9.58], $p = .023$) and received Mild Social Support from family (OR = 3.358, IC 95% = [1.365, 10.2], $p = .010$; Table 3).

A multiple logistic regression analysis model was constructed using the variables with a significant association

Table 3
Simple logistic regression analysis of sociodemographic and clinical characteristics associated with perceived academic stress in medical students

		Criteria for PAS				
		Mild	*Moderate/Severe*			
	Risk factor	*n (%)*	*n (%)*	*OR*	*95% CI*	*p*
Demographic features	Sex. Women *n* (%)	38 (31.7)	81 (68.3)	3.25	1.08-9.5	*.004*
	Age - years (mean; SD)	19.8 (1.07)	19.7 (1.11)	.902	.692-1.17	.448
	Marital status - Single	70 (34.5)	133 (65.5)	1.32	.264-6.63	.733
	Mother's schooling - years (mean; SD)	12.08 (7.28)	12.8 (7.41)	.98	.922-1.057	.711
	Father's schooling -years (mean; SD)	10.26 (7.12)	13.1 (7.17)	1.065	1.015-1.117	*.010*
	Cohabitants. Negative *n* (%)	71 (35.1)	131 (64.9)	2.70	.498-14.67	.249
	Financial resources (Restricted to scarce)	46 (33.8)	91 (66.2)	.783	.414-1.479	.451
Family and/or personal history of mental illness	Personal history of depression- positive	33 (37.9)	54 (62.1)	1.943	1.09-3.43	*.023*
	Personal history of suicide attempt -positive	3 (13.6)	19 (86.4)	.512	.198-1.22	.164
	Family history of depression- positive	43 (42.6)	58 (57.4)	1.067	.563-2.02	.843
	Family history of suicide attempt- positive	13 (44.8)	16 (55.2)	1.398	.611-3.19	.428
Study variables	Current abuse inside academic setting – Positive	40 (52.8)	71 (64)	.642	.253-1.627	.350
	Emotional - Positive	22 (34.4)	42 (65.6)	1.064	1.022-1.108	*.003*
	Physical - Positive	18 (34)	35 (66)	1.75	.755-4.060	.192
	Sexual - Positive	7 (30.4)	16 (69.6)	.907	.325-2.52	.851
	Ways of Coping Questionnaire (mean; SD)	66.7 (14.3)	56.1 (16.8)	.962	.853-1.086	.532
	Coping flexibility	22.9 (7.45)	22.3 (6.88)	1.031	.965-1.102	.191
	Positive directed coping	21.6 (6.24)	20.6 (7.8)	1.023	.887-1.179	.756
	Magical thinking	12.1 (4.73)	12.08 (5.6)	1.52	.911-1.215	.487
	Distancing	9.54 (3.8)	9.6 (3.8)	.974	.806-1.176	.782
	Problem-directed coping	15.95 (6.1)	8.99 (6.7)	.867	.807-.932	< *.001*
	Positive reassessment	7.1 (2.94)	4.9 (3.2)	.834	.730-.950	< *.001*
	Burnout (MBI-SS) - positive (mean; SD)					
	MBI. Depersonalization	3.87 (3.3)	3.41 (2.88)	.909	.776-1.065	.240
	MBI. Emotional exhaustion	30.7 (15.5)	27.7 (18.7)	1	.974-1.027	.979
	MBI. personal accomplishment	22.6 (4.61)	22.4 (6.91)	.983	.929-1.040	.548
	Kessler Psychological Distress Scale (mean; SD)					
	Nervous	3.05 (1.06)	3.02 (1.24)	1.025	.699-1.503	.90
	Hopeless	2.47 (.98)	2.87 (1.17)	1.225	.813-1.845	.33
	Restless or Fidgety	2.53 (1.13)	2.69 (.97)	1.453	.896-.355	.13
	Depression	2.70 (1.11)	2.89 (.96)	.71	.434-1.1865	.19
	Everything was an effort	2.59 (1.10)	2.44 (1.14)	.895	.580-1.382	.61
	Worthless	2.92 (.89)	2.84 (.90)	1.288	.790-2.101	.31
Academic Social Support Inventory (IASA)	Perceived Social Support					
	Companions - Mild	47 (42.7)	63 (57.3)	2.972	1.350-6.546	*.007*
	Teachers - Mild	59 (38.6)	94 (61.4)	3.012	1.210-7.496	*.018*
	Family - Mild	65 (38.5)	104 (61.5)	3.358	1.179-9.58	*.023*
	Institution - Mild	70 (36.6)	121 (63.4)	3.403	.799-14.496	.098
	Social Support Received n (%)					
	Companions - Mild	49 (34.3)	94 (65.7)	1.161	.450-2.995	.758
	Teachers - Mild	58 (33.7)	114 (66.3)	.648	.251-1.672	.370
	Family - Mild	65 (40.1)	97 (59.9)	3.376	1.365-10.22	*.010*
	Institution - Mild	67 (32.7)	138 (67.3)	.653	.254-1.68	.981

to an increased risk for perceived academic stress. In this multivariate model, a significant association to an increased risk for current perceived academic stress remained in the following factors: sex (OR = 2.94, *p* = .03), problem-directed coping (OR = .814, *p* = .001), positive reassessment (OR = .765, *p* = .001), perceived Mild Social Support from Companions (OR = 2.88 *p* = .011), Teachers (OR = 2.68, *p* = .040) and Family (OR = 3.18, *p* = .040) and received Mild Social Support from family (OR = 4.2, *p* = .006; Table 3).

DISCUSSION AND CONCLUSION

In the present study, two main findings emerged: 1. being a woman, a family history of depression coping strategies (WCQ; problem-directed coping and positive reassessment) and perceived academic social support from companions, teachers and/or family correlates with perceived academic stress, and 2. women reported: higher levels of PAS and subscales, emotional distress, current emotional and sexual abuse inside the academic setting, a family history of depression, as well as less perceived social support from family and teachers.

Medical students reported higher levels of academic stress, which plays an important role in the overall mental health and academic performance of medical students, they showed more signs of stress, anxiety, and depression than other university students (Liu & Cao, 2022). The isolation experienced by medical students occurs from the moment they enter medical school, as educational demands prevent them from maintaining the family, social roles, and social relationships they had outside of medicine up to that point. Isolation also breaks with the ordinary spheres of life: sleep, work, and recreation, where everything converges in the same physical space, always in the company of the same people and under a hierarchical organization that imposes rigid schedules and plans.

Social support is the perception and/or actuality of being cared, receiving assistance from a teacher, family member and a college, and belonging to a supportive social environment. The supportive resources can be emotional, verbal, tangible, or companionship. In a stressful situation, social support is a survival mechanism (Kim, Jee, Lee, An, & Lee, 2018) , since those medical students who are satisfied with their life and with their support network show low perception of stress, adequate coping strategies and high resilience (Kilic, Nasello, Melchior, & Triffaux, 2021; Liu & Cao, 2022; Torales, Barrios, Samudio, & Samudio, 2018; Ulupinar & Tayfur, 2016). Low social support is related to high perceived academic stress, poor academic self-perception, as well as mental health problems among medical students (Kim et al., 2018; Shao et al., 2020; Torales et al., 2018; Ulupinar, & Tayfur, 2016). Like stress, insufficient social support could continue after the qualification of these already graduate students as physicians, potentially affecting their future clinical practice and reduced positive emotion and experience and lessened psychological well-being of medical students.

Similarly, female medical students display significantly higher values for perceived stress levels, with more females indicated more moderate levels of stress compared to their male counterparts. Being a female has been positively associated with PAS, similar to our findings (Castro & Villanueva Lozano, 2018; Graves, Hall, Dias-Karch, Haischer, & Apter, 2021). Women experience difficulties achieving their goals in a world dominated by men. Several researchers have corroborated the increased pressure on the medical curriculum, especially academic achievement. The numerical increase of women in medical schools has not significantly improved their position, which can be attributed to the highly hierarchical and androcentric nature of the medical field (Castro & Villanueva Lozano, 2018; Fnais et al., 2014). These hierarchical relationships are manifested in discrimination and violence against women, which persists openly as part of the university culture, for example, through the manifest rejection of some professors who still consider that women should remain in the domestic space and take care of the family, for which they experience throughout their professional lives the constant need to demonstrate their academic ability to their peers and teachers (Fnais et al., 2014; Graves, Hall, Dias-Karch, Haischer, & Apter, 2021). Our results showed that women students have a significant inclination towards academic stress compared to men. However, despite that, the stress conditions have negative consequences for both genders; women generally tend to feel pressured by their academic environment, family, and social environment.

At the same time, stress during medical training drives medical students to develop certain skills, resources, and strategies to cope with these situations, a phenomenon known as coping. Coping strategies play an important role and may contribute to the variability of responses among individuals facing similar sources of stress. Students who utilize maladaptive coping usually would not deal with their problems in a constructive manner. Although maladaptive coping may temporarily suppress stressful situations and distract students from the sources of stress, it could eventually lead to emotional distress.

This study presents several limits. First, our findings were derived from a cross-sectional and correlational design, and, therefore, our interpretations do not represent causal inferences. Second, our participation rate might also limit the generalizability of our results. Third, we collected self-reported measures and cannot exclude bias associated with self-assessment, such as social desirability.

Despite the limitations above, this study was conducted to resolve the issue of the lack of comprehensive empirical support of the prevalence of PAS and to evaluate gender differences in the association between demographic features, burnout, emotional distress, academic-social support, and coping strategies with PAS. Focusing on current abuse experiences suffered inside the academic setting.

Mental health interventions should be included in the crisis response by destigmatizing mental health problems, encouraging communication, and providing psychological support. Quarantined medical students should be initiated on coping skills and stress management techniques, while opportunities for personal and curricular development should be provided.

The findings point to the crucial need for stress management programs and training in coping skills in medical students. Special attention is required in the design, planning and evaluation of the curriculum with a gender perspective. Educative settings should prevent students from stress by planning brief periods of acute stress rather than a long period of stress.

It is essential to generate public policies that denature and evidence violence. It is necessary to create specialized and reliable centers for the complaint that support the student body with effective solutions that ensure confidentiality without fear of reprisals, and thus be able to make visible the magnitude and significance of the problem. To increase confidence in the university's fight against abuse, it is necessary to implement university policies and actions against bullying and abuse in general (for example, posting policies on the front page of the university's website, displaying folders and posters on this topic at the university, announcing activities on this subject, training university staff in non-humiliating ways to teach students).

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Conflict of interest

The authors declare they have no conflicts of interest.

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REFERENCES

Abdel Wahed, W. Y., & Hassan, S. K. (2017). Prevalence and associated factors of stress, anxiety and depression among medical Fayoum University students. *Alexandria Journal of Medicine*, *53*(1), 77-84. doi: 10.1016/j.ajme.2016.01.005

Aihie, O. N., & Ohanaka, B. I. (2019). Perceived Academic Stress among Undergraduate Students in a Nigerian University. *Journal of Educational and Social Research*, *9*(2), 56-66. doi: 10.2478/jesr-2019-0013

Alzahrani, A. M., Hakami, A., AlHadi, A., Batais, M. A., Alrasheed, A. A., & Almigbal, T. H. (2020). The interplay between mindfulness, depression, stress and academic performance in medical students: A Saudi perspective. *PLOS ONE*, *15*(4), e0231088. doi: 10.1371/journal.pone.0231088

Amir, M., Dahye, K., Duane, C., & Wendy, L. W. (2018). Medical Student and Resident Burnout: A Review of Causes, Effects, and Prevention. *Journal of Family Medicine and Disease Prevention*, *4*(4). doi: 10.23937/2469-5793/1510094

Avila-Carrasco, L., Díaz-Avila, D. L., Reyes-López, A., Monarrez-Espino, J., Garza-Veloz, I., Velasco-Elizondo, P., … Martinez-Fierro, M. L. (2023). Anxiety, depression, and academic stress among medical students during the COVID-19 pandemic. *Frontiers in Psychology*, *13*. doi: 10.3389/fpsyg.2022.1066673

Azzahra, F., & Paramita, R. W. (2019). *The Effect of Resilience toward Psychological Distress Among Female Medical Students.* Proceedings of the 4th ASEAN Conference on Psychology, Counselling, and Humanities (ACPCH 2018). Surat Thani, Thailand. doi: 10.2991/acpch-18.2019.26

Bacchi, S., & Licinio, J. (2017). Resilience and Psychological Distress in Psychology and Medical Students. *Academic Psychiatry*, *41*(2), 185-188. doi: 10.1007/s40596-016-0488-0

Banda Guzmán, J., Robles Francia, V. H., & Lussier, R. (2021). Validación del Maslach Burnout Inventory en estudiantes universitarios de El Bajío mexicano. *RIDE Revista Iberoamericana para la Investigación y el Desarrollo Educativo*, *12*(23). doi: 10.23913/ride.v12i23.1092

Barbayannis, G., Bandari, M., Zheng, X., Baquerizo, H., Pecor, K. W., & Ming, X. (2022). Academic Stress and Mental Well-Being in College Students: Correlations, Affected Groups, and COVID-19. *Frontiers in Psychology*, *13*. doi: 10.3389/fpsyg.2022.886344

Barraza Macias, A. (2007). El Inventario SISCO del Estrés Académico. *La Investigación Educativa en la Universidad Pedagógica de Durango*, *2*(7), 89-93.

Bergmann, C., Muth, T., & Loerbroks, A. (2019). Medical students' perceptions of stress due to academic studies and its interrelationships with other domains of life: a qualitative study. *Medical Education Online*, *24*(1), 1603526. doi: 10.1080/10872981.2019.1603526

Broks, V. M. A., Stegers-Jager, K. M., van der Waal, J., van den Broek, W. W., & Woltman, A. M. (2022). Medical students' crisis-induced stress and the association with social support. *PLOS ONE*, *17*(12), e0278577. doi: 10.1371/journal.pone.0278577

Castro, R., & Villanueva Lozano, M. (2018). Violencia en la práctica médica en México: un caso de ambivalencia sociológica. *Estudios Sociológicos de El Colegio de México*, *36*(108), 539-569. doi: 10.24201/es.2018v36n108.1648

Collin, V., O'Selmo, E., & Whitehead, P. (2020). Stress, psychological distress, burnout and perfectionism in UK dental students. *British Dental Journal*, *229*(9), 605-614. doi: 10.1038/s41415-020-2281-4

Dyrbye, L. N., Thomas, M. R., & Shanafelt, T. D. (2006). Systematic Review of Depression, Anxiety, and Other Indicators of Psychological Distress Among U.S. and Canadian Medical Students. *Academic Medicine*, *81*(4), 354-373. doi: 10.1097/00001888-200604000-00009

Dyrbye, L., & Shanafelt, T. (2016). A narrative review on burnout experienced by medical students and residents. *Medical Education*, *50*(1), 132-149. doi: 10.1111/medu.12927

Fnais, N., Soobiah, C., Chen, M. H., Lillie, E., Perrier, L., Tashkhandi, M., … Tricco, A. C. (2014). Harassment and Discrimination in Medical Training: A Systematic Review and Meta-Analysis. *Academic Medicine*, *89*(5), 817-827. doi: 10.1097/acm.0000000000000200

Freire, C., Ferradás, M. del M., Regueiro, B., Rodríguez, S., Valle, A., & Núñez, J. C. (2020). Coping Strategies and Self-Efficacy in University Students: A Person-Centered Approach. *Frontiers in Psychology*, *11*. doi: 10.3389/fpsyg.2020.00841

Gómez- Molinero, R., Zayas, A., Ruíz-González, P., & Guil, R. (2018). Optimism and resilience among university students. International Journal of Developmental and Educational Psychology. *Revista INFAD de Psicología*, *1*(1), 147. doi: 10.17060/ijodaep.2018.n1.v1.1179

Graves, B. S., Hall, M. E., Dias-Karch, C., Haischer, M. H., & Apter, C. (2021). Gender differences in perceived stress and coping among college students. *PLOS ONE*, *16*(8), e0255634. doi: 10.1371/journal.pone.0255634

Guzmán-Castillo, A., Bustos, N. C., Zavala, S. W., & Castillo-Navarrete, J. L. (2022). Inventario SISCO del estrés académico: revisión de sus propiedades psicométricas en estudiantes universitarios. *Terapia Psicológica*, *40*(2), 197-211. doi: 10.4067/s0718-48082022000200197

Heinen, I., Bullinger, M., & Kocalevent, R.-D. (2017). Perceived stress in first year medical students - associations with personal resources and emotional distress. *BMC Medical Education*, *17*(1), 4. doi: 10.1186/s12909-016-0841-8

Herman, J. P., McKlveen, J. M., Ghosal, S., Kopp, B., Wulsin, A., Makinson, R., … Myers, B. (2016). Regulation of the Hypothalamic-Pituitary-Adrenocortical Stress Response. *Comprehensive Physiology*, *6*(2), 603-621. doi: 10.1002/cphy.c150015

Hill, M. R., Goicochea, S., & Merlo, L. J. (2018). In their own words: stressors facing medical students in the millennial generation. *Medical Education Online*, *23*(1), 1530558. doi: 10.1080/10872981.2018.1530558

John, K. A., & Naik, P. R. (2020). Do the undergraduate medical students perceive stress and what are the stressors? *International Journal of Community Medicine And Public Health*, *7*(3), 877. doi: 10.18203/2394-6040.ijcmph20200934

Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., … Zaslavsky, A. M. (2003). Screening for Serious Mental Illness in the General Population. *Archives of General Psychiatry*, *60*(2), 184. doi: 10.1001/archpsyc.60.2.184

Kessler, R. C., Green, J. G., Gruber, M. J., Sampson, N. A., Bromet, E., Cuitan, M., … Zaslavsky, A. M. (2010). Screening for serious mental illness in the general population with the K6 screening scale: Results from the WHO World Mental Health (WMH) survey initiative. *International Journal of Methods in Psychiatric Research*, *19*(S1), 4-22. doi: 10.1002/mpr.310

Kilic, R., Nasello, J. A., Melchior, V., & Triffaux, J.-M. (2021). Academic burnout among medical students: respective importance of risk and protective factors. *Public Health*, *198*, 187-195. doi: 10.1016/j.puhe.2021.07.025

Kim, B., Jee, S., Lee, J., An, S., & Lee, S. M. (2018). Relationships between social support and student burnout: A meta-analytic approach. *Stress and Health*, *34(*1), 127-134. doi: 10.1002/smi.2771

Lasheras, I., Gracia-García, P., Lipnicki, D., Bueno-Notivol, J., López-Antón, R., de la Cámara, C., … Santabárbara, J. (2020). Prevalence of Anxiety in Medical Students during the COVID-19 Pandemic: A Rapid Systematic Review with Meta-Analysis. *International Journal of Environmental Research and Public Health*, *17*(18), 6603. doi: 10.3390/ijerph17186603

Liu, Y., & Cao, Z. (2022). The impact of social support and stress on academic burnout among medical students in online learning: The mediating role of resilience. *Frontiers in Public Health, 10*. doi: 10.3389/fpubh.2022.938132

Mirza, A. A., Baig, M., Beyari, G. M., Halawani, M. A., & Mirza, A. A. (2021). Depression and Anxiety Among Medical Students: A Brief Overview. *Advances in Medical Education and Practice*, *12*, 393-398. doi: 10.2147/amep.s302897

Neufeld, A., & Malin, G. (2021). How medical students cope with stress: a cross-sectional look at strategies and their sociodemographic antecedents. *BMC Medical Education*, *21*(1), 299. doi: 10.1186/s12909-021-02734-4

Ng, L., Lin, C., & Henning, M. A. (2020). A Narrative Review of Discrimination Experienced by Medical Students. *Medical Science Educator*, *30*(1), 577-584. doi: 10.1007/s40670-019-00878-z

Ozbay, F., Johnson, D. C., Dimoulas, E., Morgan, C. A., Charney, D., & Southwick, S. (2007). Social support and resilience to stress: From neurobiology to clinical practice. *Psychiatry (Edgmont)*, *4*(5), 35-40.

Pacheco, J. P., Giacomin, H. T., Tam, W. W., Ribeiro, T. B., Arab, C., Bezerra, I. M., & Pinasco, G. C. (2017). Mental health problems among medical students in Brazil: a systematic review and meta-analysis. *Revista Brasileira de Psiquiatria*, *39*(4), 369-378. doi: 10.1590/1516-4446-2017-2223

Philip, S., Molodynski, A., Barklie, L., Bhugra, D., & Chaturvedi, S. K. (2021). Psychological well-being and burnout amongst medical students in India: a report from a nationally accessible survey. *Middle East Current Psychiatry, 28*, 54. doi: 10.1186/s43045-021-00129-1

Prochaska, J. J., Sung, H.-Y., Max, W., Shi, Y., & Ong, M. (2012). Validity study of the K6 scale as a measure of moderate mental distress based on mental health treatment need and utilization. *International Journal of Methods in Psychiatric Research*, *21*(2), 88-97. doi: 10.1002/mpr.1349

Romo-Nava, F., Bobadilla-Espinosa, R. I., Tafoya, S. A., Guízar-Sánchez, D. P., Gutiérrez, J. R., Carriedo, P., & Heinze, G. (2019). Major depressive disorder in Mexican medical students and associated factors: A focus on current and past abuse experiences. *Journal of Affective Disorders*, *245*, 834-840. doi: 10.1016/j.jad.2018.11.083

Romo-Nava, F., Tafoya, S. A., Gutiérrez-Soriano, J., Osorio, Y., Carriedo, P., Ocampo, B., … Heinze, G. (2016). The association between chronotype and perceived academic stress to depression in medical students. *Chronobiology International*, *33*(10), 1359-1368. doi: 10.1080/07420528.2016.1217230

Salvagioni, D. A. J., Melanda, F. N., Mesas, A. E., González, A. D., Gabani, F. L., & Andrade, S. M. de. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PLOS ONE*, *12*(10), e0185781. doi: 10.1371/journal.pone.0185781

Shao, R., He, P., Ling, B., Tan, L., Xu, L., Hou, Y., … Yang, Y. (2020). Prevalence of depression and anxiety and correlations between depression, anxiety, family functioning, social support and coping styles among Chinese medical students. *BMC Psychology*, *8*, 38. doi: 10.1186/s40359-020-00402-8

Sotelo-Arias, C. M., & Maupome Santillán, V. (1999). *Traducción y estandarización del cuestionario "Modos de afrontamiento al estrés de Lazarus y Folkman para una población de adolescentes mexicanos"*. (Tesis de Licenciatura). México: Universidad Nacional Autónoma de México. Recuperado de https://repositorio.unam.mx/contenidos/245634

Thomas, M., & Bigatti, S. (2020). Perfectionism, impostor phenomenon, and mental health in medicine: a literature review. *International Journal of Medical Education, 11*, 201-213. doi: /10.5116/ijme.5f54.c8f8

Torales, J., Barrios, I., Samudio, A., & Samudio, M. (2018). Apoyo social autopercibido en estudiantes de medicina de la Universidad Nacional de Asunción (Paraguay). *Educación Médica*, *19*, 313-317. doi: 10.1016/j.edumed.2017.07.001

Ulupinar, S., & Tayfur, C. (2016). The Effect of Perceived Social Support on Academic Achievement in Health College Students. *Journal of Psychiatric Nursing*, *7(*1), 1-6. doi: 10.5505/phd.2016.52523

Vega-Valero, C. Z., Gómez-Escobar, G., Rodríguez-Hernández, E. E., & Gálvez-Jaramillo. F. (2017). Estrés, apoyo social académico y rezago escolar en estudiantes universitarios. *Revista Electrónica de Psicología Iztacala México*, *20*(1), 19-33.

Wang, J., Liu, W., Zhang, Y., Xie, S., & Yang, B. (2021). Perceived Stress Among Chinese Medical Students Engaging in Online Learning in Light of COVID-19. *Psychology Research and Behavior Management*, *14*, 549-562. doi: 10.2147/prbm.s308497

Weber, J., Skodda, S., Muth, T., Angerer, P., & Loerbroks, A. (2019). Stressors and resources related to academic studies and improvements suggested by medical students: a qualitative study. *BMC Medical Education*, *19*(1), 312. doi: 10.1186/s12909-019-1747-z

Zeng, W., Chen, R., Wang, X., Zhang, Q., & Deng, W. (2019). Prevalence of mental health problems among medical students in China. A meta-analysis. *Medicine*, *98*(18), e15337. doi: 10.1097/md.0000000000015337

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REVIEW ARTICLE
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Prolonged grief disorder treatment: An approach to COVID-19 grief

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ABSTRACT

Background. It has been estimated that COVID-19 grief will affect approximately sixteen million people worldwide, while the prevalence of prolonged grief disorder (PGD) could rise to 40%. **Objective.** To review treatments that can be administered to patients with PGD due to COVID-19. **Method.** PUBMED and Google Scholar were searched with the following keywords: prolonged grief disorder, complicated grief, grief and psychotherapy, and treatment of prolonged grief, complicated grief or persistent complex grief. **Results.** Fifty articles were reviewed on the efficacy of interpersonal therapy, rational emotional-behavioral therapy, supportive therapy, humanistic therapy, systemic family therapy, group therapy, writing therapy, Internet-based intervention, and a modality of cognitive behavioral therapy used with prolonged grief, metacognitive therapy, and acceptance and commitment therapy. **Discussion and conclusion.** There is no consensus on the psychotherapeutic treatment of choice for people with PGD due to the loss of a family member to COVID-19. Group therapy is effective in reducing the intensity of uncomplicated grief, cognitive-behavioral therapy is highly efficacious in reducing the severity of grief, metacognitive therapy specifically designed for PGD has a positive impact on depression, anxiety, stress, rumination, and quality of life while Acceptance and Commitment Therapy is helpful for restoring spirituality. Psychotherapy is most effective when combined with drug therapy. It is suggested that comparative studies be undertaken of psychotherapeutic techniques for managing patients with PGD associated with COVID-19 and the adaptation of these techniques to virtual settings.

Keywords: COVID-19, prolonged grief, treatment, cognitive behavioral therapy, psychotherapy.

RESUMEN

Antecedentes. Se estima que el duelo secundario a COVID-19 dejará cerca de 16 millones de personas afectadas mundialmente, y la prevalencia del Trastorno de Duelo Prolongado (TDP) pudiera incrementarse al 40%. **Objetivo.** Revisar los tratamientos susceptibles de aplicar en pacientes con TDP por COVID-19. **Método.** Se realizó la búsqueda en PUBMED y Scholar google con las palabras clave trastorno de duelo prolongado, duelo complicado, duelo y psicoterapia y tratamiento del duelo prolongado o complicado o complejo persistente. **Resultados.** Se revisaron 50 artículos, se refirió la eficacia de la terapia interpersonal, la terapia racional emotiva del comportamiento, la terapia de apoyo, la terapia humanista, la terapia familiar sistémica, la terapia grupal, la terapia de escritura, la intervención basada en internet, y una modalidad de terapia cognitivo conductual aplicada al duelo prolongado, la terapia metacognitiva y la terapia de aceptación y compromiso. **Discusión y conclusión.** No hay consenso sobre el uso preferencial de tratamientos psicoterapéuticos en personas con TDP por la pérdida de una familiar por COVID-19. La terapia grupal es efectiva en disminuir la intensidad del duelo no complicado, la terapia cognitivo conductual es altamente efectiva para disminuir la gravedad del duelo, la Terapia Metacognitiva diseñada específicamente para el TDP impacta positivamente en la depresión, ansiedad y calidad de vida; y la Terapia de Aceptación y Compromiso es útil en el restablecimiento de la espiritualidad. La psicoterapia es más eficaz cuando se combina con terapia farmacológica. Se sugiere la realización de estudios comparativos entre técnicas psicoterapéuticas para el manejo de pacientes con TDP asociado a COVID-19 y la adaptación de estas técnicas a ambientes virtuales.

Palabras clave: COVID-19, duelo prolongado, tratamiento, terapia cognitivo conductual, psicoterapia.

BACKGROUND

In December 2019, an outbreak of febrile respiratory syndrome due to pneumonia caused by a new coronavirus was identified in the city of Wuhan, China (Li et al., 2020a). The consequences of the COVID-19 pandemic are severe, producing extremely high death rates. Since SARS-COV-2 was detected, over ninety million people worldwide have been infected and over two million have died from coronavirus. (COVID-19; Lopez-Leon et al., 2021). The uncertainty and unpredictability of COVID-19 threaten both physical and mental health in terms of emotions and cognition (Li, Wang, Xue, Zhao, & Zhu, 2020b). Approximately fifty per cent of people who experience the loss of a loved one due to unnatural causes subsequently suffered prolonged grief disorder, associated with increased morbidity. Death from COVID-19 usually occurs under specific circumstances: isolation, sudden death preceded by uncertainty, states of anguish at having to make quick, drastic decisions, often conflicting with the initial wishes of the patient (such as orotracheal intubation), the lack of funeral rituals, farewells or physical contact, which even leads to denial after the death of the person with COVID-19. In this context, death can leave sequelae in the form of prolonged mourning for family members, making it impossible to accept it and exacerbating the pain and suffering caused by the loss. A study undertaken of people who have lost a loved one to COVID-19 found a 37.8% prevalence of prolonged grief disorder (PGD) and a 39.9% prevalence of persistent complex bereavement disorder (PCBD; Tang & Xiang, 2021) . PGD is therefore expected to become a significant public health concern globally. Due to the increase in the prevalence of PGD following COVID-19 as well as the associated morbidity and mortality, it is essential to know how this disorder can be treated in these circumstances. However, due to the relative novelty of the SARS-CoV-2 pandemic as well as the minimum period required to diagnose PGD/PCBD (six to twelve months), limited information is available on interventions that can be provided for PGD following the loss of a loved one to COVID-19. This study was undertaken to identify the main evidence-based, empirically validated psychotherapeutic techniques used for treating patients with PGD and to suggest a therapeutic approach for managing COVID-19 grief.

METHOD

A literature search was conducted using the PUBMED and Google Scholar search engines, published from January 2016 to September 2021, with the English and Spanish terms for prolonged grief disorder, persistent complex bereavement disorder, complicated grief, COVID-19 grief, cognitive behavioral therapy, treatment, psychotherapy and pharmacotherapy. These terms were used in combination with the operators "and" "or" and "not" to narrow down results. References from PUBMED and Google Scholar specifically related to prolonged grief disorder were selected according to the criteria of the eleventh revision of the International Classification of Diseases (ICD-11), Persistent Complex Grief Disorder according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), or Complicated Grief. Articles describing case studies were ruled out, with priority being given to randomized clinical trials and systematic reviews. Fifty articles were eventually selected (Figure 1).

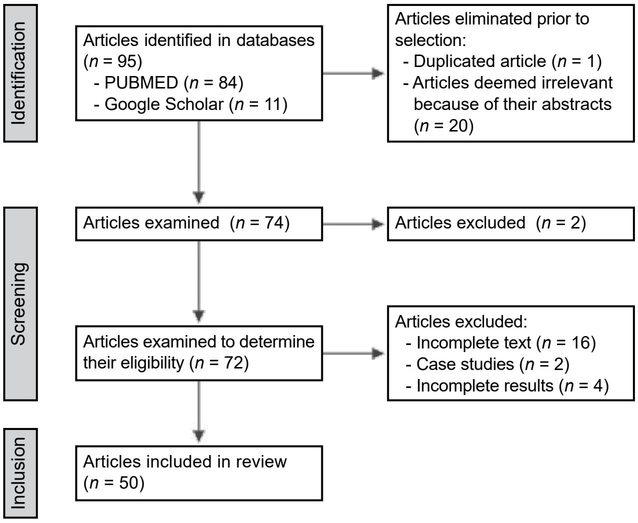

Figure 1. Article selection: search algorithm.

RESULTS

Over the course of their lifetime, most people experience the loss of a loved one due to a range of causes including illness, disasters, accidents, and suicide. Death is irrevers-

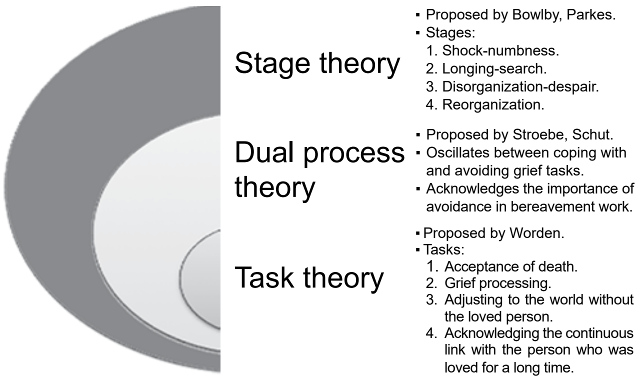

Figure 2. Bereavement process theories.

ible, and in most cases, the bereaved person does not require professional assistance (Nakajima, 2018). Grief is perceived as a normal reaction, with most people eventually adapting to their new lifestyles with the physical absence of their loved ones. For many researchers, the most important aspect distinguishing normal from pathological grief is the process itself. It is therefore essential to know what a normal grief process encompasses. Various theories exist such as the stage theory proposed by Bowlby and Parkes, according to which the period of adjustment to grief lasted from a few weeks to several months, entailing four stages. Worden suggested changing the term from "stage" to "task," which involves the bereaved person in an active process and identified four basic tasks. Stroebe & Schut proposed the dual process model to explain how people come to terms with the death of their loved ones, recovering from discomfort in daily life through a dynamic process oscillating between loss and restoration, coping with and avoiding the work of mourning (Figure 2).

Tabla 1
Persistent complex grief disorder criteria according to the DSM-5

A. The individual has experienced the death of someone with whom they had a close relationship.

B. Since that person's death, at least one of the following symptoms has been present on more days than not at a clinically significant level, persisting for at least twelve months for bereaved adults and six months for bereaved children:

1. Persistent yearning/longing for the deceased. In young children, longing can be expressed through play and behavior, including behaviors that reflect separation as well as a re-encounter with a caregiver or another attachment figure.
2. Intense grief and emotional distress in response to the person's death.
3. Concern regarding the deceased.
4. Concern about the circumstances of the death. In children, this concern over the deceased can be expressed through the content of the game and behavior and can extend to concern over the possible deaths of other people close to them.

C. Since the person's death, at least one of the following symptoms has been present on more days than not at a clinically significant level, persisting for at least twelve months for bereaved adults and six months for bereaved children:

Discomfort related to the person's death

1. Significant difficulty accepting death. In children, this depends on the child's ability to understand the meaning and permanence of death.
2. Experiencing disbelief or emotional anesthesia in relation to the loss.
3. Difficulty remembering the deceased in a positive light.
4. Bitterness or anger in relation to the loss.
5. Maladaptive evaluations about oneself in relation to the deceased or their death (such as self-incrimination).
6. Excessive avoidance of memories of the loss (such as avoiding individuals, places, or situations associated with the deceased. In children, this may include avoiding thoughts and feelings about the deceased).

Social/Identity Alteration

7. Wishing to die to be with the deceased.
8. Difficulty trusting other people since the person's death.
9. Feelings of loneliness or detachment from other individuals since the person's death.
10. Feeling that life is meaningless or empty without the deceased, or believing that one cannot function without the deceased.
11. Confusion about one's role in life, or a diminished sense of self-identity (such as feeling that a part of oneself died with the deceased).
12. Difficulty in or reluctance to maintain interests (such as friendships, activities) or make plans for the future since the loss.

D. The disturbance causes clinically significant distress or dysfunction in social, occupational, or other significant areas of functioning.

E. The grief reaction is out of proportion to or inconsistent with cultural, religious, or age-appropriate norms.

Specify whether this is:

Traumatic grief: Grief due to homicide or suicide with persistent distressing concerns about the traumatic nature of the death (often in response to reminders of the loss), including the last moments of the deceased, the degree of suffering and mutilating injuries, or the malicious or intentional nature of the death.

Note: DSM-5: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.
Source: APA (2014).

Types of grief

The concept of pathological grief is widely accepted among researchers. Grief that deviates from the normal process is referred to in various ways, such as delayed grief, distorted grief, complicated grief, traumatic grief, PGD, and persistent complex bereavement disorder (PCBD; Maciejewski, Maercker, Boelen, & Prigerson, 2016). Approximately 10% of a group of bereaved patients experience intense grief that persists longer than expected after a natural death, while 50% do so when death is due to unnatural causes. This type of grief is characterized by an overwhelming, persistent sense of longing and concern for the deceased and significant emotional distress, together with impaired functionality (Djelantik, Smid, Mroz, Kleber, & Boelen, 2020; Lundorff, Holmgren, Zachariae, Farver-Vestergaard, & O'Connor, 2017).

Since the evidence supports prolonged grief disorder as a new diagnostic category, both the World Health Organization (WHO) and the American Psychiatric Association have introduced what appears to be a version of PGD into their own diagnostic classification systems: the International Classification of Diseases (ICD-11) and the DSM-5 (Table 1). However, lack of standardization regarding the terminology and conceptualization of the disorder has created confusion about prolonged grief disorder and its relationship with normal grief due to loss and other mental disorders (Maciejewski et al., 2016).

Likewise, WHO proposed incorporating PGD into the ICD-11 with the following criteria:

- PGD is a disorder in which, following the death of someone close to the bereaved person, there is a persistent and pervasive grief response, characterized by longing for the deceased person or persistent worry accompanied by intense emotional pain (such as sadness, guilt, anger, denial, blame, difficulty coming to terms with their death and feeling that one has lost a part of oneself, an inability to experience a positive mood, blunted affect, and difficulty engaging in social or other activities).
- The grief response has persisted for an unusually long period after the loss (for at least six months) and clearly longer than expected according to social norms and the individual's cultural and religious context.
- The disturbance causes significant impairment in personal, familial, social, educational, occupational, and other key areas of behavior (Mauro et al., 2019).

The main differences between PGD and PCBD are semantic rather than substantive. The scientific and clinical community must recognize that PGD and PCBD are fundamentally the same disorder and should work towards a common understanding of this disorder and adopt useful ways of recognizing it clinically. The term PGD captures the essence of the disorder, facilitates its understanding, and therefore supports clinical judgment in its diagnostic evaluation (Maciejewski et al., 2016). PCBD will be replaced by another diagnostic name, PGD, in section two, under the criteria and diagnostic codes in the next DSM-5 (Boelen & Lenferink, 2020). Research has concluded that PGD is a different mental disorder from others, such as major depressive disorder, generalized anxiety disorder, and post-traumatic stress disorder. Several characteristics have been identified that predict a greater risk of developing PCBD (Table 2).

Grief and comorbidities

Several studies have identified associations between grief and an increased risk of developing physical and mental health problems (Stroebe, Stroebe, Schut, & Boerner, 2017), together with a high risk of death after grief (Ytters-

Tabla 2
Risk factors for developing persistent complex grief disorder/severe grief

Pre-loss factors	*Post-loss factors*
Female	Social circumstances
Elderly	Resources available after death
Low socioeconomic status	Limited social support
Living without a partner	Interference with the natural grieving process
Nature of death (unnatural death)	Inability to follow cultural death and mourning practices
Relationship and care roles	Psychoactive substance use
History of childhood trauma	
Previous bereavement	
Pre-existing depression and anxiety disorders	
Being unprepared for the death	

Source: Compiled by the author, based on data from Olaolu et al. (2020), Tang and Xiang (2021), Thimm, Kristoffersen, and Ringberg, (2020).

tad & Brenn, 2015); this is known as the widowhood effect and has also been identified following the death of a child or a sibling in childhood (Yu et al., 2017).

Other effects on physical health include cardiovascular and cerebrovascular events (Tofler et al., 2020). Associations have also been reported with infections (Lu et al., 2016) and Type I diabetes mellitus (Virk, Ritz, Li, Obel, & Olsen, 2016). As for mental health, findings suggest an increased risk of depression, anxiety, and substance use disorder after bereavement (Keyes et al., 2014).

Grief during the COVID-19 pandemic

According to recent studies, for every loss due to COVID-19, approximately nine family members will be affected and in mourning (Verdery, Smith-Greenaway, Margolis, & Daw, 2020). It is estimated that the massive grief following COVID-19 will leave approximately sixteen million people in mourning worldwide. Since including the deaths of close friends could push this figure even higher, being able to provide proper care for people in mourning following COVID-19 is becoming a global challenge (Tang & Xiang, 2021). Researchers have expressed concern that circumstances related to COVID-19 deaths will lead to a high global prevalence of PGD (Eisma, Boelen, & Lenferink, 2020) cases. COVID-19 deaths are usually unexpected, which has led to higher levels of prolonged grief symptoms in mourners in various countries (Djelantik et al., 2020). Moreover, COVID-19 deaths can be traumatic because people may experience the pandemic as a disaster, while survivors of unnatural events such as disasters and accidents are at higher risk of developing prolonged grief (Yi et al., 2018). The traumatic nature of COVID-19 deaths is related to the inability to visit the dying person or to be able to engage in traditional funeral protocols and other rituals. One study revealed that mourners who had not had a chance to say farewell to a person who had died in an intensive care unit were two to three times more likely to develop PGD (Kentish-Barnes et al., 2015). As the subjective experience of a traumatic death increases, so does the severity of PGD symptoms (Tang & Chow, 2017). A recent study involving forty-nine Dutch people who had experienced COVID-19 grief reported more severe bereavement than those mourning a natural death, and similar bereavement levels to those who had experienced a death due to unnatural causes (Eisma, Tamminga, Smid, & Boelen, 2021). Another study in China, conducted on people who had lost a loved one to COVID-19, found that a 37.8% prevalence of PGD according to the ICD-11 and a 39.9% prevalence of PCBD according to the DMS-5. Factors associated with more severe PGD or PCBD symptoms after losing someone close to them to COVID-19 (Tang & Xiang, 2021) have been identified, such as the absence of traditional funeral rituals, when an unexpected or traumatic death occurs, when a partner, child, parent or grandparent dies, or having had a conflict with the deceased.

Evidence-based techniques for managing prolonged grief disorder

Two successful randomized controlled trials have examined individual treatment for prolonged grief disorder. The first is a trial with two active conditions comparing the treatment of complicated grief (including three phases: the introductory phase, where the therapist provided information on normal and complicated grief and described the model of the dual adaptive coping process involved and recovering a satisfying life and adjusting to loss. In this case, the therapist not only focused on loss but also on personal life goals. In the middle phase, the therapist addressed both stages in tandem, and in the final phase, therapist and patient together reviewed progress, plans for the future and feelings related to the end of treatment. Complicated grief treatment used cognitive behavioral therapy techniques focussing on loss, which included retelling the story of the loss and working on coping with situations the person was avoiding. Cognitive techniques included an imaginary conversation with the dead person and working with memories in interpersonal therapy (which also used three phases: an introductory phase during which symptoms were reviewed and identified, a middle phase dealing with grief and other interpersonal problems and a completion phase, during which the benefits of treatment and the person's life project were reviewed). Feelings about the end of treatment were also discussed. Interpersonal therapy techniques helped reestablish relations and restore effective interpersonal functioning. It was found that both treatments produced an improvement. However, the range of responses was greater (51%) and the response time for treating complicated grief quicker than with interpersonal therapy (28%; Shear, Frank, Houck, & Reynolds, 2005). The second is a trial comparing the efficacy of an Internet-based cognitive behavioral intervention. This program combined established psychotherapy methods with new technology. Therapists and patients communicated exclusively by email. This five-week intervention comprised three modules. The first involved exposure to signs of grief, the second cognitive restructuring and the third integration and restoration), with an untreated control group (on a waitlist). The treatment group was found to have improved significantly in relation to subjects on the waitlist as regards symptoms such as intrusion, advoidance, maladaptive behavior, and psychopathology in general (Wagner, Knaevelsrud, & Maercker, 2006). Another study was conducted with Cognitive Behavioral Therapy (CBT) applied to prolonged mourning, consisting of twenty-five sessions, five of which were optional (anniversaries, celebrations, family sessions, and legal proceedings). The remaining twenty sessions were standard treatment and divided into three parts. The first part consisted of seven sessions focused on stabilizing, motivating, and exploring grief. The second comprised nine sessions on relaxation techniques, confrontation, and reinterpretation of cognitions and perceptions and the third consisted of four sessions focusing on the future while maintaining a healthy bond with the deceased. Sessions were held weekly, and lasted fifty minutes, with the exception of two ninety-minute sessions. This treatment was found to be highly effective in terms of reducing the severity of grief. The controlled effect size for the improvement of grief symptoms in people who completed CBT treatment was $d = 1.61$ (Rosner, Pfoh, Kotoučová, & Hagl, 2014). Wagner and Maercker tested the long-term effects of an Internet-based cognitive behavioral intervention, reporting that the decrease in PGD symptoms remained eighteen months after treatment (Wagner & Maercker, 2007). In another 1.5-year follow-up study including fifty-one patients with clinically significant prolonged grief symptoms who had participated in a randomized controlled trial in which they had received integrative CBT for PDD, this intervention proved effective in the long term. In terms of clinical significance, 64% of those who completed the study had achieved or maintained recovery at follow-up (Rosner, Bartl, Pfoh, Kotoučová, & Hagl, 2015).

The effectiveness of CBT was compared with a non-specific treatment with supportive therapy. Fifty-four bereaved persons with clinically significant levels of complicated grief were assigned to one of three treatment conditions: (a) six sessions of cognitive restructuring (CR), and six sessions of exposure therapy (ET), (b) the same interventions administered in reverse order (ET+CR) and (c) twelve support therapy sessions. The results showed that the two cognitive behavioral therapy conditions achieved greater improvement in complicated grief and overall psychopathology than supportive therapy. Comparing the cognitive behavioral conditions showed that exposure alone was more effective than cognitive restructuring alone and that adding exposure therapy to cognitive restructuring enhances improvement more than adding cognitive restructuring to exposure therapy (Boelen, de Keijser, van den Hout, & van den Bout, 2011).

Other randomized studies have demonstrated the efficacy of both interpersonal therapy and complicated grief-focused therapy in treating PGD, with significantly better results being reported with complicated grief-focused therapy. This shows that it achieved greater reductions in depressive and anxious symptoms, which included negative thoughts about the future and grief related avoidance, in addition to a more significant decrease in depression among those who did not take antidepressants (Simon, 2015; Glickman, Shear, & Wall, 2016).

Systemic family therapy focuses on improving the ability of family members to support each other and develop coping strategies for various situations such as chronic diseases, such as cancer. It consists of families telling the story of the disease, therapists exploring the types of communication within each family, and cohesion and conflict resolution together with family values, beliefs, roles, and expectations. The therapy was provided in six and ten sessions. This type of therapy has been reported to decrease the severity and development of prolonged grief disorder (Kissane et al., 2016).

One interesting systematic review examines the effectiveness of interventions focusing on people who suffer from grief following the suicide of a loved one. Due to the multiple characteristics surrounding this type of death, the associated grief can become pathological, traumatic, or complicated in nearly half of all cases. Seven interventions were evaluated: two based on the cognitive behavioral method, four consisting of bereavement groups, and one using writing therapy (subjects wrote about their grief experience four times for fifteen minutes over a fortnight). Five of the seven interventions proved efficacious in decreasing grief intensity on at least one outcome measure. For example, group therapy tends to be effective in decreasing symptom intensity in uncomplicated grief whereas writing therapy (by inviting subjects to write openly and in a safe environment about suicidal thoughts and emotions) has been shown to reduce specific aspects of suicide-related grief compared to those randomly assigned to a control condition. Cognitive behavioral programs proved useful for a subgroup of people with complicated grief with high levels of suicidal ideation (Linde, Treml, Steinig, Nagl, & Kersting, 2017).

The metacognitive model suggests that psychological disorders are the result of repetitive negative thinking about a perceived belief, leading to an attentional cognitive syndrome that includes worry/rumination, threat monitoring, and maladaptive coping behaviors (Wenn, O'Connor, Breen, Kane, & Rees, 2015). A pilot study was conducted to test the efficacy and feasibility of Metacognitive Grief Therapy (MCGT), specifically designed for prolonged grief symptoms, in which twenty-two adults who were randomly assigned to a waitlist ($n = 10$) or intervention ($n = 12$) group participated, with follow-up at three and six months and six two-hour group MCGT sessions a week. Subjects who received MCGT showed significant improvement in PGD symptomatology, depression, anxiety, stress, rumination, and quality of life after MCGT compared with waitlist participants offered MCGT after posttest assessment (Wenn, O'Connor, Kane, Rees, & Breen, 2019).

Treatments within the realm of cognitive behavioral therapy have proved to be of the greatest empirical use for a wide range of psychiatric disorders. However, a meta-analysis of 125 studies of this traditional form of outpatient psychotherapy found that 50% of patients withdrew from treatment early, with nearly forty percent dropping out after the first or second visit. Acceptance and Commitment Therapy (ACT) helps subjects come to terms with the fact that pain, loss, illness, fear, and anxiety are inevitable characteristics of human life. Its goal is therefore not to eliminate or suppress these experiences but rather to emphasize the search for valuable areas of life and directions in response to these painful experiences. Developing psychological flexibility through ACT achieves greater commitment to a meaningful life, despite experiencing negative thoughts or emotions (Dindo, Van Liew, & Arch, 2017). ACT is used to treat a range of mental health conditions involving experiential avoidance, including grief. A study conducted at the Suicide Grief Clinic at the University Center for Health Sciences of the University of Guadalajara, Mexico evaluated complicated grief in patients treated with ACT. The study population comprised thirty-nine adults (thirty-two women and seven men) who attended eight weekly two-hour sessions. In the therapeutic process, the issue of emotions was addressed through questions oriented towards spirituality. The intervention focused on the subject's own moral and ethical values. Some exercises consisted of locating people in the present and using metaphor to begin to create a new conception of what death means for the mourner. It proved useful in the mourning process, as well in re-establishing spirituality, which is resignified and gives meaning to painful experiences (Villagómez-Zavala, Ornelas-Tavares, Franco-Chávez, Gutiérrez-Castillo, & Martínez-Becerra, 2020).

The Table 3 shows the techniques identified for PGD management.

Only limited information on Pharmacological Therapy focusing on the management of prolonged grief symptoms is available. Three open-label trials on grief-associated depression were identified. The first open-label trial was conducted by Jacobs et al. with ten widows and widowers who received desipramine (75 mg to 150 mg/day), only three of whom experienced a significant reduction in grief intensity. The second open-label trial, conducted by Pasternak et al. examined the efficacy of nortriptyline for grief-related depressive symptoms, sleep, and grief severity in thirteen widows, whose clinical improvement was marginal. In the third open-label trial conducted by Zisook et al. on grief-related depressive symptoms eight weeks after losing their wives, which treated subjects with bupropion at doses of 150-300 mg/day, there was a 36% dropout rate. It was concluded that tricyclic antidepressants may be effective, especially for bereavement-related depression symptoms, although their effect is not as significant or specific for bereavement severity. In regard to benzodiazepines, there are no reports of primary efficacy for complicated grief treatment. Conversely, in a randomized controlled trial investigating the use of diazepam versus a placebo in medical treatment for recent bereavement, with seven-month follow-up, those who received diazepam experienced more sleep problems than those assigned to the placebo group. The most recent studies show that psychotherapeutic interventions for prolonged grief may be more effective in combination with the administration of selective serotonin reuptake inhibitors (SSRIs; Bui, Nadal-Vicens, & Simon, 2012).

A randomized placebo-controlled clinical trial was conducted to assess the efficacy of antidepressant pharmacotherapy, with and without psychotherapy for complicated grief in the treatment of prolonged grief, involving 395 adults. Psychotherapeutic treatment focusing on complicated grief consisted of a protocol with sixteen sessions. The first to the third session included recording the history of relationships and grief experience and beginning daily grief monitoring and psychoeducation. Aspirational work goals were introduced and a joint session with a significant person were introduced. Sessions four to nine included exposure procedures with imagery and situational procedures, and work was carried out with memories and images. Session ten was a review session, while sessions eleven through sixteen included an imaginary conversation with the deceased. Participants were randomly assigned to groups with citalopram (n = 101), a placebo (n = 99), psychotherapeutic treatment for complicated grief plus citalopram (n = 99), and psychotherapeutic treatment for complicated grief plus a placebo (n = 96). Prolonged grief treatment was found to be the treatment of choice, while the addition of citalopram proved to improve the therapeutic response in patients with co-occurring depressive symptoms. Psychotherapeutic treatment for complicated grief proved more effective for depression than either interpersonal psychotherapy or antidepressant drugs (Shear et al., 2016). Another multicenter clinical trial included 394 adults and examined the relationship between maladaptive thoughts and suicidal risk at baseline and post-treatment. It also explored the effect of treatment with and without complicated grief therapy compared with the use of citalopram or placebo. An analysis of the scores of the typical belief questionnaire revealed a significant decrease in these symptoms in subjects who received complicated grief therapy with citalopram compared with those who were only given citalopram (Skritskaya et al., 2020).

Addressing grief in relatives of patients who died from COVID-19

In the context of the COVID-19 pandemic, the uncertainty surrounding the disease and the absence of the usual rituals can hamper the acceptance of death (Mayland, Harding, Preston, & Payne, 2020). The COVID-19 crisis has combined various mental health stressors that have been assessed individually in other contexts yet never been seen together, since this is an unprecedented global disaster (Gesi et al., 2020). In a narrative review conducted by nursing staff to identify the available evidence on recommendations for addressing grief and death in relatives of COVID-19 patients, it was found that social distancing measures hamper

Tabla 3
Psychotherapeutic techniques for treating prolonged grief disorder

Technique	*Objective*	*Results*
Cognitive Behavioral Therapy for Prolonged Grief Disorder (PGD)	To determine whether patients with PGD benefited from a new therapy: CBT for PGT: - Fifty-one patients (two groups: twenty-four in the treatment group and twenty-seven in the control group: waitlist). Twenty-five sessions: - Five optional sessions. - Seven stabilization and motivation sessions. - Nine sessions with relaxation, coping, and re-interpretation of cognition and perceptions techniques - Four sessions where a healthy bond is maintained with the deceased and the subject is encouraged to focus on the future. Weekly sessions for fifty minutes.	- Highly effective in terms of reducing grief severity (Rosner et al., 2014). - Effective for subgroup of people with high levels of suicidal ideation (Linde et al., 2017). - Effect size for symptom improvement: d = 1.61 (Rosner et al., 2014).
	* Fifty-one outpatients with clinically significant prolonged grief symptoms who participated in an RCT were followed up for 1.5 years after CBT for PGD.	* CBT for PGD proved effective in the long run (Rosner et al., 2015).
Internet-Based Therapy (CBT)	- Five-week intervention. - Three modules: Exposure to signs of grief, cognitive restructuring and integration and restoration. - Therapists and patients communicated via email. - Evaluation through a 1.5-year follow-up after an Internet-based CBT intervention for complicated grief. - Group of patients (n = 22).	- The reduction in PGD symptoms was maintained at 18-month follow-up (Wagner & Maercker, 2007).
Support Therapy	- Fifty-four PGD patients were assigned to three conditions, one of which was supportive therapy while the other two included CBT. - Weekly sessions.	- They improve less than those receiving CBT (Boelen et al., 2011).
Interpersonal Therapy	- It examined anxiety and depression symptoms in a sample of people assigned to complicated grief treatment (n = 35) or interpersonal psychotherapy (n = 34) in a RCT. - Sixteen weekly sessions- Three phases: Introduction, middle phase, and ending.	- Complicated grief therapy had a significantly greater effect and greater tolerability compared with bereavement-focused Interpersonal Therapy in older adults who have experienced bereavement and achieved a greater decrease in anxiety and depression symptoms including negative thoughts about the future and grief-related avoidance (Shear et al., 2014; Glickman et al., 2016; Simon, 2015).
Bereavement groups	- Systematic review of seven intervention studies (two CBT-based, four bereavement groups, and one writing therapy where students were invited to write openly and in a safe environment about suicidal thoughts and emotions).	- They are effective for de-escalating uncomplicated grief (Linde et al., 2017).
Family or Systemic Therapy	- Randomized controlled study of family therapy for families at risk of dysfunctional relationships when one of their members has advanced cancer. - Six hundred and twenty patients (170 families) were recruited and divided into three levels of dysfunction. - They were assigned to standard care, including six to ten family intervention sessions. - Communication, cohesion, conflict resolution, family values, beliefs, roles, and expectations were explored.	- Family therapy given to high-risk families during palliative care and continued through bereavement decreases the severity of complicated grief and the development of prolonged grief disorder (Kissane et al., 2016).
Group Metacognitive Therapy for prolonged grief (TMCD)	- Randomized controlled pilot study to test the efficacy and feasibility of MCGT in reducing psychological distress and impaired functioning as a result of bereavement. - Twenty-two adults with prolonged grief symptoms (n = 10 for waitlist and n = 12 for intervention). - Three and six month follow-up. - Six two-hour group sessions a week.	- Promising results for the usefulness of MCGT group therapy to reduce psychological distress and enhance quality of life. - Subjects showed significant improvement in PGD symptomatology, depression, anxiety, stress, rumination, and quality of life after MCGT compared with subjects on waitlist (Wenn et al., 2019).
Acceptance and Commitment Therapy (ACT)	- Thirty-nine adults (thirty-two women and seven men) experiencing grief, received eight two-hour weekly sessions. - Intervention focusses on subjects' moral and ethical values. - Exercises to place people in the present, use of metaphor.	- This has proved useful in the mourning process as well as the reestablishment of spirituality, which is resignified and gives meaning to painful experiences (Villagómez-Zavala et al., 2020) .
	- Eighteen studies with 1,088 subjects were included in the review.	- Meta-analysis suggests that ACT significantly reduces depressive symptoms compared to the control group (CBT), especially at three month follow-up, in the group of adults and those with mild depression (Bai, Luo, Zhang, Wu, & Chi, 2020).
	- Thirty-six randomized controlled trials	- A review of thirty-six RCTs of anxiety and depression treatments: ACT appears to be more effective than waitlist and treatment as usual with effects relatively equivalent to CBT (Twohig & Levin, 2017).

Note: PGD: Prolonged Grief Disorder, CBT: Cognitive Behavioral Therapy, RCT: Randomized Clinical Trial, MCGT: Metacognitive Grief Therapy, ACT: Acceptance and Commitment Therapy. *Source:* Compiled by the authors.

the normal mourning process by eliminating the symbolism of mourning. The need to share the experience socially with gestures that show accompaniment and empathy has been acknowledged. This can now be done through social networks, diary writing, letters of condolence, support programs, active listening, reinforcing self-care, and attention to spirituality. Fluid, effective communication should be maintained between health personnel and the family as well as between isolated patients and their loved ones by using new technologies or transmitting the message in writing, implementing a person's living will or advance directive and following up on the bereaved family member in the short, medium, and long term (Araujo Hernández, García Navarro, & García-Navarro, 2021).

The possibility of reducing the psychological impact on those in mourning during this pandemic is limited, since only a few risk factors for prolonged grief can be altered through intervention (Gesi et al., 2020). These strategies include: 1) promoting communication between the patient, the primary caregiver and the health professional when possible through new technology; 2) ensuring individualized attention in decision-making, advanced care planning, and support for the patient's beliefs and wishes; and 3) future commemoration (Mayland et al., 2020). Involving family members in decision-making correlates with a reduction in symptoms of prolonged grief among survivors. Since living alone after the death of a loved one has been associated with the presence of symptoms of prolonged grief, it is important to provide bereaved family members with effective social support (Gesi et al., 2020).

DISCUSSION AND CONCLUSION

The main finding of this narrative review is that there is not yet sufficient information to enable one to recommend specific psychotherapeutic interventions based on efficacy criteria in the medium and long term, for people suffering from the loss of a loved one following COVID-19. Various techniques have proved effective in specific aspects in the treatment of patients with prolonged grief disorder, but there is a lack of multidimensional studies that would make it possible to document the comparative efficacy between them and on various areas of interest for psychotherapy. This is significant if one considers that the frequency of people with COVID-19-related prolonged grief disorder continues to increase worldwide (Tang & Xiang, 2021). It was found that the characteristics of a COVID-19 death resemble those of a traumatic death caused by a natural disaster, with the attendant losses this entails, because of the psychosocial conditions surrounding it. It combines factors that exacerbate psychological, social, physical, economic, and labor stress in a way that increases the risk of those grieving the death of a loved one from COVID-19 of having a PGD by up to 40%. This, in turn, is associated with greater psychiatric and physical morbidity, and higher death rates, which is why it is estimated that PGD will become a public health problem while at the same time posing a challenge to providing efficient management. The review conducted by the authors found that various terms are used to refer to grief that deviates from the normal process, which can lead to confusion around diagnosis and treatment. Nevertheless, the most widely recognized concepts are persistent complex grief disorder, according to the diagnostic classification of the DSM-5 (APA, 2014), and prolonged grief disorder according to the ICD-11. For Maciejewski et al. (2016), since both diagnoses are essentially the same disorder, MCGT is expected to be replaced by PGD, in section two, under the diagnostic criteria and codes in the next version of the DSM-5. The review identified various techniques used for the management of PGD, with CBT applied to Prolonged Grief being found to be highly effective in terms of reducing the severity of grief in individuals who complete treatment (Rosner et al., 2014). It is effective in the long term according to the follow-up study at one and a half years. Likewise, exposure techniques with behavioral and emotional elements were found to be more effective than cognitive restructuring for mourning (Boelen et al., 2011). Although there is evidence of the effectiveness of CBT applied to grief, nearly half the patients withdrew from treatment early after the first or second visit (Dindo et al., 2017). It is important to note that in times of pandemic, the use of social networks can become an effective means for people who have difficulty obtaining in-person treatment. There is evidence that Internet-based CBT decreases PGD symptoms and that this benefit remains after a year and a half of follow-up (Wagner & Maercker, 2007). However, since prior to the conditions caused by the pandemic, the use of new technology to provide mental health care was limited, there are very few studies on the administration of remote care. In general, other interventions such as family therapy, grief groups, supportive therapy, and interpersonal therapy tend to show a favorable response compared to being on a waitlist, although less than CBT for PGD. The review found that Metacognitive Therapy specifically designed for prolonged grief disorder significantly improves the symptoms of PGD, depression, anxiety, stress, rumination, and quality of life (Wenn et al., 2019). The most recent therapies for grief management include ACT, which can be useful in the mourning process, as well as for restoring spirituality (Dindo et al., 2017).

Limited information was found on the pharmacological treatment of PGD. In the trials where tricyclic antidepressants were used, improvement was insignificant. In the case of bupropion, there was a dropout rate of almost 40%, wherea with the use of benzodiazepines (Diazepam), there are insufficient reports of primary efficacy coupled with increased problems of insomnia (Bui et al., 2012). The use of SSRIs (citalopram) was found to enhance the efficacy of psychotherapy for co-occurring depressive symptoms. The efficacy of purely pharmacological treatment for PGD management is limited, and better results have been reported if it is used in conjunction with psychotherapeutic treatment (Skritskaya et al., 2020).

There are undoubtedly limitations because there are no studies comparing the various psychotherapeutic techniques. Since there are even fewer studies of relatives of those who died from COVID-19 currently suffering from PGD, there is obviously a need for them. These studies would have to be adapted to the circumstances imposed by the pandemic, particularly social distancing. The search for and improvement of virtual psychotherapy strategies, as well as the reinforcement of social support networks and effective communication between the patient and the family and health personnel, are some of the proposals that can yield positive results. At the same time, it is necessary to standardize the apparently equivalent terms to refer to PGD in the available mental illness manuals, to improve both its identification and diagnosis, as well as the treatment and follow-up of this disorder.

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Conflict of interests

The authors declare that they have no conflicts of interest.

REFERENCES

APA. (2014). *Manual Diagnóstico y Estadístico de los Trastornos Mentales DSM-5.* Medica Panamericana, España: APA.

Araujo Hernández, M., García Navarro, S., & García-Navarro, E. B. (2021). Approaching grief and deathin family members of patients with COVID-19: Narrative Review. *Enfermeria Clinica*, *31*(Suppl 1), S112-S116. doi: 10.1016/j.enfcli.2020.05.011

Bai, Z., Luo, S., Zhang, L., Wu, S., & Chi, I. (2020). Acceptance and Commitment Therapy (ACT) to reduce depression: A systematic review and meta-analysis. *Journal of Affective Disorders*, *260*, 728-737. doi: 10.1016/j.jad.2019.09.040

Boelen, P. A., & Lenferink, L. I. M. (2020). Comparison of six proposed diagnostic criteria sets for disturbed grief. *Psychiatry Research*, *285*, 112786. doi: 10.1016/j.psychres.2020.112786

Boelen, P. A., de Keijser, J., van den Hout, M. A., & van den Bout, J. (2011). Factors associated with outcome of cognitive-behavioural therapy for complicated grief: a preliminary study. *Clinical Psychology & Psychotherapy*, *18*(4), 284-291. doi: 10.1002/cpp.720

Bui, E., Nadal-Vicens, M., & Simon, N. M. (2012). Pharmacological approaches to the treatment of complicated grief: rationale and a brief review of the literature. *Dialogues in Clinical Neuroscience*, *14*(2), 149-157. doi: 10.31887/dcns.2012.14.2/ebui

Dindo, L., Van Liew, J. R., & Arch, J. J. (2017). Acceptance and Commitment Therapy: A Transdiagnostic Behavioral Intervention for Mental Health and Medical Conditions. *Neurotherapeutics*, *14*(3), 546-553. doi: 10.1007/s13311-017-0521-3

Djelantik, A., Smid, G. E., Mroz, A., Kleber, R. J., & Boelen, P. A. (2020). The prevalence of prolonged grief disorder in bereaved individuals following unnatural losses: Systematic review and meta regression analysis. *Journal of Affective Disorders*, *265*, 146-156. doi: 10.1016/j.jad.2020.01.034

Eisma, M. C., Boelen, P. A., & Lenferink, L. I. M. (2020). Prolonged grief disorder following the Coronavirus (COVID-19) pandemic. *Psychiatry Research*, *288,* 113031. doi: 10.1016/j.psychres.2020.113031

Eisma, M. C., Tamminga, A., Smid, G. E., & Boelen, P. A. (2021). Acute grief after deaths due to COVID-19, natural causes and unnatural causes: An empirical comparison. *Journal of Affective Disorders*, *278,* 54-56. doi: 10.1016/j.jad.2020.09.049

Gesi, C., Carmassi, C., Cerveri, G., Carpita, B., Cremone, I. M., & Dell'Osso, L. (2020). Complicated Grief: What to Expect After the Coronavirus Pandemic. *Frontiers in Psychiatry*, *11*. doi: 10.3389/fpsyt.2020.00489

Glickman, K., Shear, M. K., & Wall, M. (2016). Exploring Outcomes Related to Anxiety and Depression in Completers of a Randomized Controlled Trial of Complicated Grief Treatment. *Clinical Psychology & Psychotherapy*, *23*(2), 118-124. doi: 10.1002/cpp.1940

Kentish-Barnes, N., Chaize, M., Seegers, V., Legriel, S., Cariou, A., Jaber, S., ... Azoulay, É. (2015). Complicated grief after death of a relative in the intensive care unit. *European Respiratory Journal*, *45*(5), 1341-1352. doi: 10.1183/09031936.00160014

Keyes, K. M., Pratt, C., Galea, S., McLaughlin, K. A., Koenen, K. C., & Shear, M. K. (2014). The Burden of Loss: Unexpected Death of a Loved One and Psychiatric Disorders Across the Life Course in a National Study. *American Journal of Psychiatry*, *171*(8), 864-871. doi: 10.1176/appi.ajp.2014.13081132

Kissane, D. W., Zaider, T. I., Li, Y., Hichenberg, S., Schuler, T., Lederberg, M., ... Del Gaudio, F. (2016). Randomized Controlled Trial of Family Therapy in Advanced Cancer Continued Into Bereavement. *Journal of Clinical Oncology*, *34*(16), 1921-1927. doi: 10.1200/jco.2015.63.0582

Li, Q., Guan, X., Wu, P., Wang, X., Zhou, L., Tong, Y., ... Feng, Z. (2020a). Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. *New England Journal of Medicine*, *382*(13), 1199-1207. doi: 10.1056/nejmoa2001316

Li, S., Wang, Y., Xue, J., Zhao, N., & Zhu, T. (2020b). The Impact of COVID-19 Epidemic Declaration on Psychological Consequences: A Study on Active Weibo Users. *International Journal of Environmental Research and Public Health*, *17*(6). doi: 10.3390/ijerph17062032

Linde, K., Treml, J., Steinig, J., Nagl, M., & Kersting, A. (2017). Grief interventions for people bereaved by suicide: A systematic review. *PLOS ONE*, *12*(6), e0179496. doi: 10.1371/journal.pone.0179496

Lopez-Leon, S., Wegman-Ostrosky, T., Perelman, C., Sepulveda, R., Rebolledo, P. A., Cuapio, A., & Villapol, S. (2021). More than 50 Long-term effects of COVID-19: a systematic review and meta-analysis. *medRxiv: the preprint server for health sciences*, 2021.01.27.21250617. doi: 10.1101/2021.01.27.21250617

Lu, D., Sundström, K., Sparén, P., Fall, K., Sjölander, A., Dillner, J., ... Fang, F. (2016). Bereavement Is Associated with an Increased Risk of HPV Infection and Cervical Cancer: An Epidemiological Study in Sweden. *Cancer Research*, *76*(3), 643-651. doi: 10.1158/0008-5472.can-15-1788

Lundorff, M., Holmgren, H., Zachariae, R., Farver-Vestergaard, I., & O'Connor, M. (2017). Prevalence of prolonged grief disorder in adult bereavement: A systematic review and meta-analysis. *Journal of Affective Disorders*, *212,* 138-149. doi: 10.1016/j.jad.2017.01.030

Maciejewski, P. K., Maercker, A., Boelen, P. A., & Prigerson, H. G. (2016). "Prolonged grief disorder" and "persistent complex bereavement disorder", but not "complicated grief", are one and the same diagnostic entity: an analysis of data from the Yale Bereavement Study. *World Psychiatry*, *15*(3), 266-275. doi: 10.1002/wps.20348

Mauro, C., Reynolds, C. F., Maercker, A., Skritskaya, N., Simon, N., Zisook, S., ... Shear, M. K. (2019). Prolonged grief disorder: clinical utility of ICD-11 diagnostic guidelines. *Psychological Medicine*, *49*(5), 861-867. doi: 10.1017/s0033291718001563

Mayland, C. R., Harding, A. J. E., Preston, N., & Payne, S. (2020). Supporting Adults Bereaved Through COVID-19: A Rapid Review of the Impact of Previous Pandemics on Grief and Bereavement. *Journal of Pain and Symptom Management*, *60*(2), e33-e39. doi: 10.1016/j.jpainsymman.2020.05.012

Nakajima, S. (2018). Complicated grief: recent developments in diagnostic criteria and treatment. Philosophical Transactions of the Royal Society B. *Biological Sciences*, *373*(1754),1-10. doi: 10.1098/rstb.2017.0273

Olaolu, O., Tumenta, T., Adeyemo, S., Popoola, O., Oladeji, O., & Olupona, T. (2020). Two Cases of Persistent Complex Bereavement Disorder Diagnosed in the Acute Inpatient Unit. *Case Reports in Psychiatry*, 3632060. doi: 10.1155/2020/3632060

Rosner, R., Bartl, H., Pfoh, G., Kotoučová, M., & Hagl, M. (2015). Efficacy of an integrative CBT for prolonged grief disorder: A long-term follow-up. *Journal of Affective Disorders*, *183*, 106-112. doi: 10.1016/j.jad.2015.04.051

Rosner, R., Pfoh, G., Kotoučová, M., & Hagl, M. (2014). Efficacy of an outpatient treatment for prolonged grief disorder: A randomized controlled clinical trial. *Journal of Affective Disorders*, *167*, 56-63. doi: 10.1016/j.jad.2014.05.035

Shear, K., Frank, E., Houck, P. R., & Reynolds, C. F. (2005). Treatment of Complicated Grief. *JAMA*, *293*(21), 2601. doi: 10.1001/jama.293.21.2601

Shear, M. K., Reynolds, C. F., Simon, N. M., Zisook, S., Wang, Y., Mauro, C., Duan, N., Lebowitz, B., & Skritskaya, N. (2016). Optimizing Treatment of Complicated Grief. *JAMA Psychiatry*, *73*(7), 685-694. doi: 10.1001/jamapsychiatry.2016.0892

Shear, M. K., Wang, Y., Skritskaya, N., Duan, N., Mauro, C., & Ghesquiere, A. (2014). Treatment of Complicated Grief in Elderly Persons. *JAMA Psychiatry*, *71*(11), 1287. doi: 10.1001/jamapsychiatry.2014.1242

Simon, N. M. (2015). Increasing Support for the Treatment of Complicated Grief in Adults of All Ages. *JAMA*, *313*(21), 2172. doi: 10.1001/jama.2015.105

Skritskaya, N. A., Mauro, C., Garcia de la Garza, A., Meichsner, F., Lebowitz, B., Reynolds, C. F., … Shear, M. K. (2020). Changes in typical beliefs in response to complicated grief treatment. *Depression and Anxiety*, *37*(1), 81-89. doi: 10.1002/da.22981

Stroebe, M., Stroebe, W., Schut, H., & Boerner, K. (2017). Grief is not a disease but bereavement merits medical awareness. *Lancet*, *389*(10067), 347-349. doi: 10.1016/s0140-6736(17)30189-7

Tang, S., & Chow, A. Y. (2017). Subjective and objective traumatic death: distinct roles in developing complicated grief and depression among older adults in Hong Kong. *International Psychogeriatrics*, *29*(3), 409-417. doi: 10.1017/s1041610216001873

Tang, S., & Xiang, Z. (2021). Who suffered most after deaths due to COVID-19? Prevalence and correlates of prolonged grief disorder in COVID-19 related bereaved adults. *Globalization and Health*, *17*(1), 1-9. doi: 10.1186/s12992-021-00669-5

Thimm, J. C., Kristoffersen, A. E., & Ringberg, U. (2020). The prevalence of severe grief reactions after bereavement and their associations with mental health, physical health, and health service utilization: a population-based study. *European Journal of Psychotraumatology*, *11*(1). doi: 10.1080/20008198.2020.1844440

Tofler, G. H., Morel-Kopp, M. C., Spinaze, M., Dent, J., Ward, C., McKinley, S., ... Buckley, T. (2020). The effect of metoprolol and aspirin on cardiovascular risk in bereavement: A randomized controlled trial. *American Heart Journal*, *220*, 264-272. doi: 10.1016/j.ahj.2019.11.003

Twohig, M. P., & Levin, M. E. (2017). Acceptance and Commitment Therapy as a Treatment for Anxiety and Depression. *Psychiatric Clinics of North America*, *40*(4), 751-770. doi: 10.1016/j.psc.2017.08.009

Verdery, A. M., Smith-Greenaway, E., Margolis, R., & Daw, J. (2020). Tracking the reach of COVID-19 kin loss with a bereavement multiplier applied to the United States. *Proceedings of the National Academy of Sciences*, *117*(30), 17695-17701. doi: 10.1073/pnas.2007476117

Villagómez-Zavala, P. G., Ornelas-Tavares, P. E., Franco-Chávez, S. A., Gutiérrez-Castillo, L. A., & Martínez-Becerra, A. K. (2020). Evaluación de la espiritualidad en pacientes con duelo utilizando la terapia de aceptación y compromiso en la clínica de duelo por suicidio del Centro Universitario de Ciencias de la Salud de la Universidad de Guadalajara, México. *Revista Salud Bosque*, *10*(1). doi: 10.18270/rsb.v10i1.2901

Virk, J., Ritz, B., Li, J., Obel, C., & Olsen, J. (2016). Childhood Bereavement and Type 1 Diabetes: a Danish National Register Study. *Paediatric and Perinatal Epidemiology*, *30*(1), 86-92. doi: 10.1111/ppe.12247

Wagner, B., & Maercker, A. (2007). A 1.5-year follow-up of an internet-based intervention for complicated grief. *Journal of Traumatic Stress*, *20*(4), 625-629. doi: 10.1002/jts.20230

Wagner, B., Knaevelsrud, C., & Maercker, A. (2006). Internet-Based Cognitive-Behavioral Therapy for Complicated Grief: A Randomized Controlled Trial. *Death Studies*, *30*(5), 429-453. doi: 10.1080/07481180600614385

Wenn, J. A., O'Connor, M., Kane, R. T., Rees, C. S., & Breen, L. J. (2019). A pilot randomised controlled trial of metacognitive therapy for prolonged grief. *BMJ Open*, *9*(1), e021409. doi: 10.1136/bmjopen-2017-021409

Wenn, J., O'Connor, M., Breen, L. J., Kane, R. T., & Rees, C. S. (2015). Efficacy of metacognitive therapy for prolonged grief disorder: protocol for a randomised controlled trial. *BMJ Open*, *5*(12), e007221. doi: 10.1136/bmjopen-2014-007221

Yi, X., Gao, J., Wu, C., Bai, D., Li, Y., Tang, N., & Liu, X. (2018). Prevalence and risk factors of prolonged grief disorder among bereaved survivors seven years after the Wenchuan earthquake in China: A cross-sectional study. *International Journal of Nursing Sciences*, *5*(2), 157-161. doi: 10.1016/j.ijnss.2018.04.001

Ytterstad, E., & Brenn, T. (2015). Mortality After the Death of a Spouse in Norway. *Epidemiology*, *26*(3), 289-294. doi: 10.1097/ede.0000000000000266

Yu, Y., Liew, Z., Cnattingius, S., Olsen, J., Vestergaard, M., Fu, B., ... Li, J. (2017). Association of Mortality With the Death of a Sibling in Childhood. *JAMA Pediatrics*, *171*(6), 538-545. doi: 10.1001/jamapediatrics.2017.0197

GUÍA PARA AUTORES

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   Se escriben por invitación del Director-Editor de la revista. Deben expresar opiniones autorizadas sobre temas específicos de interés para la comunidad científica y para el área de la salud mental. Su objetivo es estimular el debate y promover nuevas líneas de investigación. *Extensión máxima: 1000 palabras*.
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     Se cambiaron las definiciones de algunos patrones conductuales (Tabla 3) de manera que fueran más comprensibles en el idioma español y se redefinieron las categorías que agrupan dichos patrones con base en la literatura especializada. (INSERTAR AQUÍ TABLA 3)

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Los siguientes documentos se adjuntan en el paso 4 del envío. Asegúrese de dar clic en “CARGAR” después de seleccionar cada archivo. De no hacerlo, los archivos no se adjuntarán al guardar y continuar con los demás pasos.

1. **Carta de autorización de uso de obra.** Todo artículo debe acompañarse de la Carta de autorización de uso de obra firmada por todos los autores y enviarse en formato PDF. El formato de la Carta de autorización de uso de obra está disponible en el siguiente enlace: *http://revistasaludmental.mx/Carta_autorizacion_uso_obra_final.pdf.*
2. **Carta de presentación.** El autor debe exponer las fortalezas de su aportación científica, resaltando el alcance, la originalidad y la importancia de su contribución al campo de la salud mental. En la carta se pueden sugerir tres revisores nacionales o internacionales calificados en el campo de conocimiento del manuscrito sometido, asegurándose de que éstos no tengan ningún conflicto de intereses con los resultados presentados. Ésta debe cargarse en formato PDF.
3. ***Checklist* de estándares metodológicos.** Es importante enviar el *checklist* debidamente contestado según las guías para cada tipo de estudio (veáse apartado de *CONSIDERACIONES METODOLÓGICAS*) y en formato PDF.

CONSIDERACIONES METODOLÓGICAS

Salud Mental adopta el sistema convencional de cinco por ciento como valor para la significancia estadística y no toma en cuenta las tendencias para valores mayores. Con el propósito de proporcionar mayor claridad a los lectores y revisores, es necesario que, de acuerdo con el tipo de estudio, los manuscritos se apeguen a los siguientes estándares:

- Los ensayos clínicos aleatorizados deben adecuarse a las guías CONSORT (*http://www.consort-statement.org*).
- Los estudios con diseños no experimentales, a las guías TREND (*http://www.trend-statement.org*).
- Los estudios transversales, de cohorte y de casos y controles, a la guía STROBE (*http://www.strobe-statement.org*).
- Los estudios cualitativos, a la guía COREQ (*https://academic.oup.com/intqhc/article/19/6/349/1791966/Consolidated-criteria-for-reporting-qualitative*).
- Los artículos de revisión, a las guías PRISMA (*http://www.prisma-statement.org/PRISMAStatement/PRISMAStatement.aspx*) y/o MOOSE (*http://www.ncbi.nlm.nih.gov/pubmed/10789670*).

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. No deben utilizarse letras negritas en el texto.
3. Las cursivas deben utilizarse para:
   - Destacar palabras extranjeras.
   - Enfatizar expresiones populares.
   - Mencionar títulos de libros, documentos ya publicados y publicaciones periódicas.
4. 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.
5. Las comillas dobles deben usarse solamente para:
   - Citar párrafos de otros autores dentro del texto.
   - Referir textualmente fragmentos del discurso de los sujetos de estudio.
6. En la medida de lo posible, se recomienda evitar el uso de cualquier otro tipo de énfasis como cursivas, negritas, subrayados o letras mayúsculas.
7. Evite el uso de paréntesis doble, es decir, un paréntesis dentro de otro. En su lugar utilice corchetes.
8. Pueden emplearse guiones largos para indicar oraciones parentéticas.
9. Deben utilizarse de forma correcta todos los signos de puntuación. Por ejemplo, si emplea signos de interrogación en un texto en español, debe colocar el de apertura y cierre correspondientes, de igual manera se debe proceder 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 o más.
2. Utilizar números cuando se trate de fechas, muestras, etc.
3. Incluir en los datos estadísticos los intervalos de confianza.
4. Escribir en cursivas los símbolos estadísticos (por ejemplo, M, SD).
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 se deberá indicar 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. Anexamos la siguiente tabla que describe el contenido y el formato en el que es necesario presentar dichos documentos.

Documento	Contenido	Formato
1. Manuscrito	1. Primera página (página de título) 2. Segunda página (resúmenes) 3. Tercera página (cuerpo del artículo) con la siguiente estructura: - Introducción/Antecedentes - Objetivo - Método - Resultados - Discusión y conclusión - Declaraciones de los autores (Financiamiento, Conflictos de intereses y Agradecimientos) - Referencias - Tablas, figuras e ilustraciones.	Word. Se adjunta en el segundo paso del envío en la página web (“CARGAR EL ENVÍO”).
2. Carta de presentación	Breve presentación de las fortalezas, originalidad y aportaciones del artículo. En este espacio se pueden sugerir tres revisores para la evaluación del manuscrito.	PDF. Se adjunta en el paso 4 del envío (“CARGAR LOS ARCHIVOS COMPLEMENTARIOS”).
3. Carta de autorización de uso de obra	Este documento debe presentarse firmado por el autor responsable (a quien se dirigirá la correspondencia); además, debe contener los nombres y correos electrónicos de todos los coautores.	PDF. El formato está disponible en: *http://revistasaludmental.mx/Carta_autorizacion_uso_obra_final.pdf.* (“CARGAR LOS ARCHIVOS COMPLEMENTARIOS”).
4. *Checklist* de estándares metodológicos	Debe estar debidamente contestada según el tipo de estudio.	PDF. Se adjunta en el paso 4 del envío (“CARGAR LOS ARCHIVOS COMPLEMENTARIOS”).

UNA VEZ ENVIADO SU MANUSCRITO

El envío y la recepción del manuscrito, así como la resolución del proceso de evaluación, podrá consultarlos en el “ÁREA PERSONAL”.

Salud Mental recibe una gran cantidad de manuscritos, cuya calidad es determinada por el Comité de Evaluación Interno (CEI), encargado de comprobar que estos trabajos cumplan con los estándares de calidad establecidos: calidad metodológica, relevancia e innovación. Además, cada manuscrito es evaluado por pares externos que, en ocasiones, son miembros del Comité Editorial de la revista o expertos en el tema de la publicación y, en los casos en los que el autor haya sugerido dictaminadores, pueden ser elegidos de entre éstos.

Las posibles calificaciones que se pueden asignar a los manuscritos evaluados son: aceptado, publicable con modificaciones, reevaluable y no publicable. En función de los procesos de la Coordinación Editorial, Salud Mental estima un período de evaluación de tres a cuatro meses para el dictamen inicial del manuscrito y de uno a dos meses para la evaluación de segundas versiones, lo cual varía según el tipo de correcciones solicitadas.

GUIDELINE FOR AUTHORS

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

1. **Editorials**
   Written at the invitation of the Director-Editor of the journal. They must express authoritative opinions on specific topics of interest for the scientific community and the mental health field. They must also stimulate debate and promote new research lines. *Maximum extension: 1000 words*.
2. **Original articles (peer-reviewed section)**
   They present unpublished research results. They can be developed according to the following methodologies:
   - **Quantitative:** Comprehends primary and secondary results of transversal studies, clinical trials, cases and controls, cohorts, and quasi-experimental studies. *Maximum extension: 3500 words*.
   - **Qualitative:** They include reports of focus groups, in-depth interviews, semantic networks, and content analysis. *Maximum extension: 5000 words*.
3. **Brief original articles (peer-reviewed section)**
   They validate measuring instruments and preliminary results of original research. *Maximum extension: 2000 words*.
4. **Review articles (peer-reviewed section)**
   - **Narrative reviews.** They comprise narrative reviews based on national and international bibliography in accordance with the corresponding standards. *Maximum extension: 5000 words.*
   - **Systematic reviews.** They must adhere to standard methodologies (e.g. Cochrane), preferably, they should include a meta-analysis. *Maximum extension: 4000 words*.

- **Case reports**
  They include reports of atypical cases in clinical practice as well as the diagnosis approach and innovative procedures. *Maximum length 2000 words*.

N.B. the word count of each section does not consider title, abstracts and keywords, or sections on funding, conflict of interests and acknowledgments; neither does it consider words included in tables, figures and references.

LANGUAGES

Salud Mental publishes manuscripts in Spanish and English. However, the publication of articles in English is preferred for the benefit of the international scientific community.

ETHICAL ASPECTS IN PUBLISHING

For Salud Mental it is important to observe the ethical policies of scientific publishing, Because of this, it is essential for the editors that every research involving animal and/or human subjects adheres to national and international regulations of basic, clinical, and social research. All clinical research articles must adhere to the ICJME international regulations.

SUBMISSION DECLARATION

By submitting an manuscript, the author states that:

1. The work has not been previously published (except as a summary or as a part of a lecture or a degree thesis).
2. It is not currently under review in any other journal in any language.
3. The work has been authorized by all co-authors and responsible authorities of the place where it was carried out.

AUTHORSHIP

Only those individuals who actively participated in the process of research and drafting of the manuscript should be considered as authors. Owing to this, Salud Mental accepts five coauthors maximum (in addition to the main author). In the case of projects involving multiple research groups and requiring the inclusion of more than five coauthors, the main author must justify their inclusion in the Cover letter.

SUBMIT YOUR PUBLICATION

Manuscripts must be exclusively submitted through the website available at: *http://revistasaludmental.mx* Prior to the submission of a manuscript, the sender needs to be registered as an author. Before making a submission, make sure to click on UPLOAD every time a file is added. In step 1 you must fill the checklist to declare you fulfill the policies established by the journal. In step 2, the Microsoft Word manuscript is attached. It must not include notes or track changes and must comply with each requirement listed in Guidelines for Authors. The main data will be requested in step 3. In step 4, Copyright Assessment and Cover letter must be attached in PDF.

EDITORIAL GUIDELINES

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

1. Manuscripts must be clear and concise, avoiding spelling, grammar, and syntax mistakes.
2. The text must be written in Microsoft Word format, Times New Roman 12, with double spacing and 2.5 centimeters margins, in letter size paper.
3. Pages must be numbered in a consecutive order, beginning by the title page, with numbers placed in the upper right corner.
4. The title page should contain the following ordered sections:
   - **Title of the study in Spanish and English.** The title must be descriptive and indicate the study's main results.
   - **Short title.** Six words at most.
   - **Full name(s) of the author and coauthors.** The order in which this information is provided will be preserved in the manuscript's possible publication and registration in databases. Authors' full names must be separated by a comma. Then, following this punctuation mark, an Arabic numeral in superscript, with no intermediate space, will indicate the affiliation institution. Following each author's superscript number, their full affiliation must be stated, specifying their particular area of work therein.
   - **Author's affiliation.** This is indicated in Arabic numerals as superscripts. Affiliations are placed immediately below authors' names, not as footnotes. It is necessary that the ascription specifies: department, area, institution, city and country for each author, without indicating a postal address. The institutions must be written in their official language. The authors' degrees or positions (PHD, doctor, resident, researcher, etc.) must not be included.

     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.

   - At the bottom of the first page, the legend "**Correspondence:**…" must be placed, mentioning the corresponding author and including affiliation with postal address, telephone number and email. This will be the only author addressed by Salud Mental during the entire 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 must present the abstract of the work in Spanish and English. Each abstract must be 250 words maximum.
   - The abstracts of Original articles, Brief original articles, and Systematic reviews must comprise: Introduction, Objective, Method, Results, and Discussion and conclusion.
   - In the cases of Narrative reviews, the order of the abstract must be: Background, Objective, Method (databases consulted), Results, and Discussion and conclusion.
   - **Keywords.** At the end of each abstract, four key words minimum and six maximum must be included, separated by commas and in lowercase. Keywords must be the same in Spanish and English. As these are used in the articles' indexation, at least three of them must be based on MeSH (Medical Subject Headings), consulting *http://www.nlm.nih.gov/mesh/MBrowser.html*.
6. The manuscript proper begins in page three, following this structure:
   - **Introduction (**or **Background** in the case only of Narrative reviews**).** The research's background is disclosed here for the reader to understand the problem being dealt with. The final paragraph of this section must clearly state the objectives of the work, and if deemed necessary the hypotheses.
   - **Method.** It must be sufficiently detailed so that the study can be reproduced. It must include the following sections:

     • Design of the study
     • Subjects / description of the sample
     • Places
     • Measurements
     • Procedures
     • Statistical analysis
     • Ethical considerations

   - **Results.** They are presented following a logical sequence in the text and making use of tables, graphs, and figures.
   - **Discussion and conclusion.** This section highlights new and important aspects of the study, conclusions drawn from it, possible implications of the findings, and its limitations if any.
7. After the Discussion and conclusion, the authors' declarations are listed in the following order:
   - **Funding.** In this section, it must be declared if the study or the manuscript preparation received any funding, indicating the name of the financing entity.

     For example:

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

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

     For example:

     None.
   - **Conflict of interest.** Authors must declare here if they have any conflict of interest regarding their scientific activity. Having a conflict of interest does not necessarily pose an impediment to publish the manuscript. If there is no conflict of interest, the following must be written: "The authors declare they have no conflicts of interest."
   - **Acknowledgments.** When deemed necessary, after the declarations, acknowledgements for people, centers, or entities that collaborated or supported the research must be mentioned.
8. **References** are placed after the authors' declarations (Funding, Conflicts of interest, and Acknowledgements), following exclusively the Publication Manual of the American Psychological Association (APA), sixth edition.
9. **Tables and figures.** Salud Mental establishes a limit of five graphic elements maximum, excepting the case of short communications, which may only include two. The standard required for tables and figures is also APA's, sixth edition. Tables and figures must be included in the same file of the manuscript after References:
   - Tables must bear a title on top and a note below with legends for the initials.
   - Figures must be sent in high resolution (at least 300 dpi).
   - The titles and footnotes of the tables and figures must be clear and brief and bear always an identifying number. In the text, the author must indicate in parentheses and in capital letters wherein the text the graphic elements should be placed.

     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

The following documents are attached in Step 4 in Submission. Make sure to click "UPLOAD" after selecting each file; if this is not done, the files will not be attached when saving and continuing to the next steps.

1. **Copyright assignment.** Each manuscript should include this letter signed of all the authors and must be sent in PDF. The official format of this letter is available at: *http://revistasaludmental.com/Copyright_assessment.pdf*
2. **Cover letter.** The main author must expose the strengths of manuscript scientific output, underscoring the scope, originality, and importance of its contributions to the field of mental health. In the letter, three national or international reviewers qualified in the submitted manuscript's field of knowledge may be suggested, making sure they do not have any conflict of interest with the results presented. This letter must also be uploaded in PDF format.
3. **Checklist of methodological standards.** It is important to send the checklist duly completed following the guides for each sort of study (see Methodological Considerations) in PDF format.

METHODOLOGICAL CONSIDERATIONS

Salud Mental adheres to the conventional system of 5-percent value for statistical significance and does not consider tendencies for higher values. For readers and reviewers to have a better clarity, it is necessary that, depending on the sort of study, manuscripts adhere to the following standards:

- Randomized clinical trials must follow the CONSORT Statement.
- Studies with nonrandomized designs must follow the TREND Statement.
- Transversal, cohort and cases, and control studies must follow the STROBE Statement.
- Qualitative studies must follow the COREQ.
- Review articles must follow the PRISMA Statement and/or the MOOSE Guidelines.

EMPHASIS AND PUNCTUATION

1. Although it is important for authors to avoid using footnotes in manuscripts as much as possible, they can be used if it is clearly necessary.
2. Bold letters should never be used in the main text.
3. Italics must be used for:
    - Distinguishing foreign words.
    - Emphasizing popular expressions.
    - Book titles, published documents, and periodical publications.
4. Italics may be used for:
    - Calling the attention to significant or important terms when they are mentioned for the first time.
    - Highlighting a word or phrase in a quotation.
5. Inverted commas must be used only for:
    - Quoting other authors' paragraphs in the text.
    - Textually quoting fragments of discourse of the subjects under study.
6. As much as possible, it is recommended to avoid using any other sort of emphasis such as italics, bold, underlining, or capital letters.
7. Avoid using double parentheses, that is, a parenthesis inside another. Use brackets instead.
8. Dashes may be used to indicate subordinate or other explanatory sentences.
9. Every punctuation mark must be correctly used. For example, in the case of questions, a question mark must close the question. Likewise, opening and closing inverted commas must be used.

MATHEMATICAL AND STATISTICAL FORMULAE

To present the results the following must be considered:

1. Write numerals from zero to nine in words and from 10 onwards in figures.
2. Use numbers in the case of dates, samples, and so on.
3. Include confidence intervals in statistical data.
4. Write statistical symbols in italics *(M, SD)*.
5. Use the exact probability with two or three decimals (e.g., $p = .04$; $p = .002$) with no zero before the decimal point. If it is lower than 001, indicate it as < .001.
6. Leave a space before and after each sign (a + b = c, instead of a+b=c).
7. Use points instead of commas to indicate decimals.

VERIFY THE FOLLOWING BEFORE SUBMITTING YOUR MANUSCRIPT

Before submitting your manuscript, make sure to upload the documents requested. We present a table describing the content and format in which such documents must be presented.

Document	Content	Format
1. Manuscript	1. First page (title page) 2. Second page (abstracts) 3. Third page (text of the article) with the following structure: ● Introduction/Background ● Objective ● Method ● Results ● Discussion and conclusion ● Authors' declarations (funding, conflict of interests, and acknowledgements) ● References ●Tables, figures, and illustrations.	Microsoft Word. It is attached in Step 2 in Submission at the website.
2. Cover letter	Brief presentation of the strengths, originality, and contributions of the article. Up to three reviewers may be may suggested to assess the manuscript.	PDF. It is attached in Step 4 in Submission ("UPLOAD COMPLEMENTARY FILES").
3. Copyright assignment	Signed by all the authors.	PDF. You can download the form in *http://revistasaludmental.com/Copyright_assessment.pdf* It must be attached in Step 4 in Submission ("UPLOAD COMPLEMENTARY FILES").
4. Checklist of methodological standards	Duly completed according to the sort of study.	PDF. It is attached in Step 4 in Submission ("UPLOAD COMPLEMENTARY FILES").

ONCE YOUR MANUSCRIPT HAS BEEN SUBMITTED

The submission and reception of the manuscript as well as the outcome of its review process may be consulted at "User Home."

Salud Mental receives a large amount of manuscripts, the quality of which is judged by an Internal Review Board (IRB). This Board verifies that each manuscript meets the established quality standards: methodological quality, relevance, and innovation. Each manuscript is also reviewed by external peers who, on occasion, are members of the journal's Editorial Committee or experts in the area of interest of the submitted text. In those cases in which authors have suggested reviewers, the reviewers can be chosen by the Editor. The possible outcomes for the manuscripts assessed are: accepted submission, revisions required, resubmit for review, and declined submission. In accordance with the processes of the Editorial Coordination, Salud Mental estimates an assessment period of three to four months for the initial review of the manuscript and one to two months for second versions, depending on the modifications requested.