salud mental

VOLUME 48 • ISSUE 4 • JUL-AUG 2025

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- Experiences of Mental Health Professionals with Control and Labor Demands during the Implementation of Teleconsultation at a University Care Center during the First Stage of the COVID-19 Lockdown
- The Context of Activo Consumption in People without Homes
- Caregiver Burden among Caregivers of Older Adults with Alzheimer's Disease Impairs their Quality of Life: A Cross-sectional Study in Brazil

Instituto Nacional de Psiquiatría
Ramón de la Fuente Muñiz

INSTITUTO NACIONAL DE PSIQUIATRÍA
RAMÓN DE LA FUENTE MUÑIZ

Directorio

Salud Mental, Año 48, No. 4, Julio-Agosto 2025, es una publicación bimestral, editada por el Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz. Calzada México-Xochimilco No. 101, Col. San Lorenzo Huipulco, Alcaldía Tlalpan, C.P. 14370, Ciudad de México, Tel. 55 4160-5128. Página web: https://revistasaludmental.gob.mx, correo electrónico: revistasaludmental@gmail.com. Editor responsable: Dr. Héctor Pérez-Rincón. Reservas de Derechos al Uso Exclusivo No. 04-1979-000000000-506-102 e ISSN: 0185-3325, otorgados por el Instituto Nacional del Derecho de Autor. Certificado de Licitud de Título y Contenido de la Comisión Calificadora de Publicaciones y Revistas Ilustradas de la Secretaria de Gobernación número 17472. Se terminó de imprimir en Editorial Cigome S.A. de C.V. Priv. de Oyamel S/N, Col. El Refugio, C.P. 50255, Toluca Estado de México. este número se terminó de imprimir en octubre de 2025 con un tiraje de 200 ejemplares.

Salud Mental

Since 1977, the SALUD MENTAL as the official publication of the National Institute of Psychiatry Ramón de la Fuente National Muñiz has sought to respond to the publishing needs of researchers working in the area of mental health, basing on four fundamental criteria: continuous education, updating, information and a multidisciplinary approach.

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Calz. México-Xochimilco 101, San Lorenzo Huipulco, Tlalpan, 14370 México, CDMX
Teléfono: 55 4160-5128, Sitio web: https://revistasaludmental.gob.mx
E-mail: revistasaludmental@gmail.com

ISSN 0185-3325

salud mental

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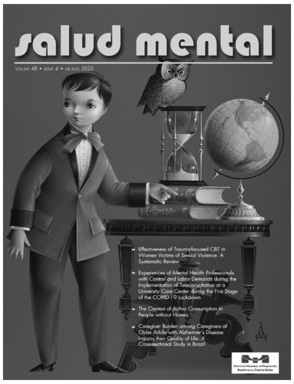

On the cover
El Niño Inteligente

Alejandro Rangel Hidalgo
(1923-200)

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salud mental

EDITORIAL
Volume 48, Issue 4, July-August 2025
doi: 10.17711/SM.0185-3325.2025.021

Bridging Mind and Brain: Incorporating Neuropsychiatry into Psychiatric Training

José Carlos Medina-Rodríguez[1]

[1] Unidad de Fomento a la Investigación, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México.

Correspondence:
José Carlos Medina-Rodríguez
Unidad de Fomento a la Investigación, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz. Calzada México-Xochimilco 101, San Lorenzo Huipulco, Tlalpan, 14370, Ciudad de México, México.
Phone:+52(55) 4443-860
E-mail: jcmedinar@inprf.gob.mx

Citation:
Medina-Rodríguez, J. C. (2025). Bridging Mind and Brain: Incorporating Neuropsychiatry into Psychiatric Training. *Salud Mental 48*(4), 179-181. https://doi.org/10.17711/SM.0185-3325.2025.021

DOI: 10.17711/SM.0185-3325.2025.021

INTRODUCTION

Psychiatry and neurology have traditionally been taught separately in medical training, and there is no formal educational pathway in place to integrate them (Baker, Kale, & Menken, 2002; Molina-Ruiz et al., 2024). The American Psychiatric Association (2025) defines psychiatry as the medical specialty focused on the diagnosis, treatment, and prevention of mental disorders. Conversely, neurology focuses on ailments affecting the nervous system, including the brain, spinal cord, and peripheral nerves (Barrow Neurological Institute, 2023). This divide has prompted discussions in global healthcare sciences, academia, and societal and cultural spheres since the turn of the twentieth century (Baker et al., 2002). Nonetheless, the conventional dichotomy separating mental processes from brain anatomy and function has been challenged by developments in the neurosciences, social theories, and philosophy of mind positing a plausible interaction between psychiatric and neurological disorders (Kandel, 1998; Baker et al., 2002).

This, in turn, led to a proposal to create a new, interdisciplinary clinical discipline incorporating conceptual frameworks from neurology, psychiatry, and neuropsychology. The objective was to explore the interplay between neural activity and cognitive processes to provide logical answers to traditional research inquiries while bridging the gap between longstanding interpretations of neuropsychopathology (Sachdev & Mohan, 2013; Insel 2005; St. George's University, 2023). However, the incorporation of brain-related psychological behavioral training into psychiatric education has proved to be a complicated pedagogical goal (Molina-Ruiz et al., 2024). This can be explained by the challenge of bringing together the standard scientific foundations of both medical specialties (Kandel, 1998; Sachdev & Mohan, 2013), resolving the long-standing disagreement between the epistemological perspectives on both (Pan American Health Organization, 2020; Barrón-Velázquez et al., 2024), and questioning the sweeping sociocultural and historical assumptions that have contributed to the fragmentation of this unification (de la Fuente & Heinze, 2014). This editorial therefore introduces a rational proposal to revisit the integration of the above evidence into the newly developed specialist discipline of neuropsychiatry and its relevance to current medical training (Molina-Ruiz, 2024; Motwani, 2023).

The historical division between psychiatry and neurology

For over two millennia, psychiatry and neurology were largely perceived as either metaphysical constructs or social phenomena, rather than complementary medical disciplines grounded in biological principles (Baker et al., 2002). It was only relatively recently that pioneering figures such as Jean-Martin Charcot, John Hughlings Jackson, and Sigmund Freud began to regard the brain and mind as interrelated entities (Kandel, 1998; Sachdev & Mohan, 2013). However, their unifying perspective gradually decreased over the years.Neurologists progressively embraced a radical positivist stance, concentrating on empirical manifestations of brain pathology distinguished by anatomical or functional abnormalities (Baker et al., 2002). The diagnosis and treatment of dysfunctional affective states, maladaptive behavioral patterns, and dysfunctional cognition, often without apparent anatomical functional correlations, became the province of psychiatrists (Sachdev & Mohan, 2013; Insel 2005). This disciplinary divergence encouraged the establishment of separate educational curricula, training programs, and residency pathways, creating skepticism about the validity and clinical necessity of an interdisciplinary approach (Molina-Ruiz et al., 2024). Professional advocacy for the earlier multidisciplinary paradigm, in which mental and neurological health were regarded as intrinsically interrelated, became largely marginalized within medical discourse and practice (Baker et al., 2002; Kandel, 1998).

This divergent theoretical framework is increasingly thought to be untenable (Baker et al., 2002; Kandel, 1998). Contemporary research has consistently found interactions between conditions previously classified as primarily psychiatric or neurological (Insel 2005; Sachdev & Mohan, 2013). Another instance of the convergence between the two medical specialties is the fact that a portion of individuals with Parkinson's disease or post-stroke syndrome develop psychopathology (Insel 2005). Genetics, imaging, and physiological analyses provide robust data on the relatedness of diseases classified as psychiatric, such as obsessive-compulsive disorder and schizophrenia (Insel 2005; Sachdev & Mohan, 2013). The dichotomy between brain and mind has periodically been challenged to the extent that it has been overridden by epistemological arguments pointing to the interrelated characteristics of the aforementioned medical specialties (Baker et al., 2002; Kandel, 1998).

The birth of neuropsychiatry

Neuropsychiatry was created as a unique, integrative disciplinary field focused on the research, diagnosis, and treatment of neuropsychopathology in the context of underlying brain dysfunction (Insel 2005; Sachdev & Mohan, 2013). Neuropsychiatrists depict the brain and mental apparatus as components of a unified biopsychosocial system (Kandel, 1998; Sachdev & Mohan, 2013). Whereas neurological disorders often manifest with significant psychological and behavioral symptoms, psychiatric symptoms are associated with specific neural substrates (Insel 2005; Sachdev & Mohan, 2013). This viewpoint is in line with the biopsychosocial framework incorporating social, cultural, and psychological theories of mental illness into non-reductionist appraisals of neuropsychological dysfunction in humans (Kandel, 1998).

Despite being related to both, neuropsychiatry differs from neurology and neuropsychological psychiatry. It is defined by Arciniegas and Kaufer (2013) as a medical specialty that is distinct from its parent specialties in terms of its foundational principles, avant-garde diagnostic methods, and clinical expertise not present in either. Whereas psychiatry concentrates on descriptive, phenomenological analysis and psychosocial processes, and neurology focusses on localization-based approaches to nervous system lesions, neuropsychiatry operates at the point where they intersect.It incorporates knowledge from various disciplines to address complex neurological and mental health disorders that neurology and psychiatry have failed to treat (Arciniegas & Kaufer, 2013; Sachdev & Mohan, 2013). The role of the neuropsychiatrist is multidisciplinary and adaptable, as it is defined by their ability to associate psycho-neurobehavioral clinical manifestations with morphophysiological substrates. At the same time, neuropsychiatrists use innovative diagnostic techniques such as state-of-the-art imaging and psychological assessments (Arciniegas & Kaufer, 2013). In addition, philosophical paradigms such as emergentism and the multiple realizability theory propose more complicated principles, arguing against reductionist and dualist models (Kim, 2020; Bickle, 2019). The former states that psychological and behavioral phenomena arise from brain-related processes and therefore possess unique properties that cannot solely be attributed to physical factors (Kim, 2020).

According to Bickle (2019), psychological phenomena can be classified into various models that may or may not be suitable for empirical research. These newer frameworks could therefore have implications for psychiatric training. Teaching future psychiatrists to navigate the intricacy, uncertainty, and theoretical range inherent in neuropsychiatry could be a formidable undertaking for institutions if residency programs are encouraged to combine biopsychosocial attributes and ontological principles. Even if difficulties arise, however, formally incorporating neuropsychiatry into psychiatric residencies could foster scientific coherence and encourage future professionals to explore complex psycho-neurobiological cases with patient subjectivities and a range of sociocultural contexts in greater depth (Sachdev & Mohan, 2013).

The relevance of neuropsychiatric services in Mexico

The argument for incorporating neuropsychiatry into medical training and care in Mexico is compelling from a public-health perspective. Neuropsychiatric disorders represent a significant proportion of the national disease burden (Pan American Health Organization, 2020). Cognitive dysfunction, together with altered behavior, accounts for approximately 20% of all disability-adjusted life years in Mexico and 35% of years lived with disability (Pan American Health Organization, 2020). This shows that approximately one-fifth of Mexico's health burden is related to conditions concerning both brain and mental issues (Pan American Health Organization, 2020). According to this view, neuropsychiatric disorders have the highest burden of disease, surpassing cardiovascular, metabolic, and infectious illnesses (Pan American Health Organization, 2020; Barrón-Velázquez et al., 2024).

Neuropsychiatry in psychiatric training

Neuropsychiatric education has not been fully integrated into medical training in most countries, including Mexico (Molina-Ruiz et al., 2024; Arciniegas & Kaufer, 2013). Standard psychiatric residency programs offer temporary rotation in neurological services. However, this is seldom sufficient to cover the rapidly developing field of neuropsychiatry (Molina-Ruiz et al., 2024). A recent international survey involving early-career psychiatrists found that approximately 80% reported having participated in mandatory neurology rotations during their residency training. However, fewer than 15% declared that they had received the required clinical training during these rotations (Molina-Ruiz et al., 2024).

Moreover, the curricular content of brain–behavior conditions within psychiatric training programs has not been sufficiently clarified (Sachdev & Mohan, 2013; Arciniegas & Kaufer, 2013). Although terms such as "clinical neuroscience," "behavioral neurology," and "biological psychiatry" sometimes appear in residency curricula, the latter fail to include dedicated neuropsychiatric lessons designed to integrate and consolidate knowledge across disciplines (Molina-Ruiz et al., 2024; Sachdev & Mohan, 2013). The absence of innovative curricular development can therefore translate into fragmented competencies and overlooked opportunities to provide beneficial medical training and future-proof psychiatry graduates (Molina-Ruiz et al., 2024; Arciniegas & Kaufer, 2013).

CONCLUSION

In conclusion, incorporating neuropsychiatry into psychiatric training in Mexico is a logical and reasonable evolution, which is also bioethical, and in line with growing evidence in the field of mental health. The burden of neuropsychiatric illness in Mexico is too high, and the current workforce too unevenly distributed to reduce healthcare gaps and leverage siloed expertise. Mexican psychiatry is currently at a crossroads where neuroscience has provided data on how brain activity and mental processes intersect. It would therefore be useful for educational authorities to incorporate this innovative knowledge into psychiatric training. Encouraging residents to pursue a neuropsychiatry specialization could equip generations of healthcare professionals to diagnose, treat, and prevent disorders affecting both the brain and mental health, thereby reducing the disease burden in vulnerable Mexican populations.

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salud mental

ORIGINAL ARTICLE
Volume 48, Issue 4, July-August 2025
doi: 10.17711/SM.0185-3325.2025.022

Effectiveness of Trauma-focused CBT in Women Victims of Sexual Violence: A Systematic Review

Dulce María Díaz-Sosa,[1,2] Anabel De la Rosa Gómez,[1] Alfonso Mendoza Leal,[2] Centli Guillén-Díaz-Barriga,[3] Alejandra Mares Portillo[1]

[1] Laboratorio de Psicología e Innovación tecnológica, Facultad de Estudios Superiores Iztacala, Universidad Nacional Autónoma de México, Tlalnepantla, Edomex, México.

[2] División de Ciencias Biológicas y Salud, Universidad Autónoma Metropolita, Unidad Lerma, Lerma, Edomex, México.

[3] Facultad de Psicología, Universidad Nacional Autónoma de México, Ciudad de México, México.

Correspondence:
Dulce María Díaz Sosa
Laboratorio de Psicología e Innovación tecnológica, Facultad de Estudios Superiores Iztacala, Universidad Nacional Autónoma de México, Tlalnepantla, Edomex, México y División de Ciencias Biológicas y Salud, Universidad Autónoma Metropolita, Unidad Lerma, Lerma, Edomex, México Av. de las Garzas #10, El Pan-teón 52005 Lerma de Villada, México.
Phone: +52 (72) 8282-7002
E-mail: psc.dulce.diaz@gmail.com

Received: 20 February 2024
Accepted: 7 October 2024

Citation:
Díaz-Sosa, D. M., De la Rosa Gómez, A., Mendoza Leal, A., Guillén-Díaz-Barriga, C., & Mares Portillo, A. (2025). Effectiveness of Trauma-focused CBT in Women Victims of Sexual Violence: A Systematic Review. *Salud Mental 48(4)*, 183-193. https://doi.org/10.17711/SM.0185-3325.2025.022

DOI: 10.17711/SM.0185-3325.2025.022

ABSTRACT

Introduction. A significant proportion of adult female victims of sexual violence develop post-traumatic stress disorder (PTSD). While numerous systematic reviews have demonstrated the efficacy of trauma-focused cognitive behavioral therapy (TF-CBT) in reducing PTSD symptoms in children and adolescents in high-income countries, there remains a lack of information regarding its effectiveness in adult women who are victims of sexual violence. **Objective.** This study aims to review the scientific literature on trauma-focused cognitive-behavioral interventions and their impact on PTSD outcomes in women who have experienced sexual violence. **Method.** The review followed PRISMA guidelines. **Results.** Seven studies were included, comprising three randomized, controlled clinical trials, three quasi-experimental studies, and one single-case study ($N = 1$). The total sample consisted of 378 female participants aged between 18 and 74 years. Six out of the seven studies reported a reduction in PTSD symptoms following the intervention. **Discussion and conclusion.** The findings suggest promise in reducing post-traumatic symptoms in adult female victims of sexual violence through TF-CBT interventions. However, there is a need for further evidence, particularly through randomized controlled trials conducted in low-income countries. These studies should aim to tailor intervention protocols to meet the specific needs and characteristics of the population, which may involve incorporating psychoeducational components addressing gender violence and implementing strategies to enhance women's access to TF-CBT, among other considerations.

Keywords: Trauma-focused cognitive behavioral therapy, graded exposure, sexual violence, posttraumatic stress disorder, women, systematic review.

RESUMEN

Introducción. Un alto porcentaje de mujeres adultas víctimas de violencia sexual desarrollan trastorno de estrés postraumático (TEPT). Numerosas revisiones sistemáticas han demostrado la eficacia de la terapia cognitivo conductual (TCC-CT) centrada en el trauma para reducir la sintomatología del TEPT en niños y adolescentes de países de altos ingresos. No obstante, no se tiene suficiente información sobre la terapia cognitivo conductual centrada en el trauma en mujeres adultas víctimas de violencia sexual. **Objetivo.** Revisar la literatura científica sobre la intervención cognitivo conductual centrada en el trauma y su efecto sobre los resultados del TEPT en mujeres víctimas de violencia sexual. **Método.** La revisión se desarrolló siguiendo las directrices PRISMA. **Resultados.** Se presentan siete estudios que evaluaron el TEPT antes y después de la intervención (tres ensayos clínicos controlados y aleatorizados, tres cuasiexperimentos y un estudio $N = 1$). Se incluyeron 378 mujeres participantes de entre 18 y 74 años. Seis de los siete estudios mostraron reducción del TEPT después de la intervención propuesta. **Discusión y conclusión.** Los resultados son prometedores para reducir los síntomas postraumáticos en mujeres adultas víctimas de VS. Sin embargo, es crucial generar más evidencia, donde los protocolos de intervención puedan adaptarse a las necesidades y características específicas de la población. Esto implica incorporar componentes psicoeducativos sobre violencia de género, diseñar estrategias para mejorar el acceso de las mujeres a la TCC-CT, entre otras consideraciones.

Palabras clave: Terapia cognitivo conductual centrada en el trauma, exposición gradual, violencia sexual, trastorno de estrés postraumático, mujeres, revisión sistemática.

INTRODUCTION

Gender-based violence is a manifestation of inequality between men and women, explained by sociocultural patterns, particularly gender roles contributing to the abuse of power (Ferrer & Bosch, 2004).

Global estimates indicate that one in three women aged 15 years and over has experienced sexual violence (SV) at some point in their life, the main aggressor being their intimate partner (27%; Pan American Health Organization, 2022**)**.

The World Health Organization (WHO) defines SV as follows:

> "*any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or actions to market or otherwise use a person's sexuality through coercion by another person, regardless of the relationship to the victim, in any setting, including the home and workplace*" (WHO, 2013, p. 1).

Sexual violence is known to cause a range of effects on mental health, with post-traumatic stress disorder (PTSD) being one of the main pathologies (Dworkin et al., 2017; Molina et al., 2020). Approximately 20.1 % of female victims of SV develop PTSD (Scott et al., 2018). The definition of PTSD, based on the criteria of the *Diagnostic and Statistical Manual of Mental Disorders 5th ed.* (DSM-5), comprises four core symptoms: re-experiencing, behavioral/cognitive avoidance, cognitive disturbances/negative mood, as well as psychophysiological arousal and reactivity, which can be expanded to include risk-taking or self-destructive behaviors, and dissociative symptoms (American Psychiatric Association, 2014). The specific characteristics contributing to the likelihood of developing PTSD in women victims of SV include having experienced more than one SV event, having suffered sexual violence in childhood, and experiencing intimate partner violence or family violence (Baker, et al., 2005).

Trauma-focused cognitive behavioral therapy (TF-CBT) has been widely used for the reduction of PTSD (Bisson et al., 2013). The main objective of TF-CBT is the processing of trauma based on two psychological principles (Cohen et al., 2012): classical and operant learning from a behavioral perspective (Lazarus, 1963) and maladaptive thoughts from a cognitive point of view (Beck, 1995), in other words when a person who has experienced a traumatic event gives an intense emotional response such as fear, anxiety, anger, guilt, or shame. To reduce emotional intensity, the person tends to avoid places, people, and thoughts that evoke the trauma, resulting in avoidant coping, which reduces the emotional response in the short term although these emotions return with greater intensity in the long term. In addition, avoidance limits a person's ability to develop adaptive strategies for emotional regulation. TF-CBT was therefore designed to gradually expose a person to the stressors evoking the trauma and enable them to cope adaptively, achieved through the implementation of various cognitive and behavioral techniques (Jaffe et al., 2021).

There is evidence supporting the efficacy of TF-CBT, which demonstrates significantly decrease in PTSD, depression and anxiety symptoms in children and adolescents who have experienced different types of trauma, such as domestic violence, SV, grief, and war (Xiang et al., 2021; Thielemann et al., 2022; Neelakantan et al., 2019). Moreover, TF-CBT has been shown to be equally effective for children and adolescents from high-, middle- and low-income countries (Thomas et al., 2022).The changes achieved through TF-CBT are also reflected at a neurobiological level, since decreased heart rate, blood pressure, and changes in the activity of frontal brain structures and the amygdala have been observed in children and adolescents after the intervention. These neurobiological changes negatively correlate with symptom severity (Zantvoord et al., 2013). In addition to demonstrating the efficacy of TF-CBT in preschool children, McGuire et al. (2021) highlighted the importance of considering culture during the intervention. This involves making modifications to ensure accessibility and acceptability for the target population, as well as considering intersectionality (such as race, ethnicity, immigration status, and socioeconomic status), since these variables influence interaction with the environment.

The literature reviewed provides limited information on TF-CBT in adults. Only one systematic review was found, conducted by Bisson et al. (2013), analyzing 70 randomized controlled clinical trials using psychological interventions for PTSD. The results indicated that TF-CBT in an individual format proved more effective in decreasing PTSD, depression and anxiety symptoms. However, it is important to note that none of the studies specifically implemented TF-CBT in women. In addition, most of the studies were conducted in high-income countries such as the United States, Canada, Australia and Spain, limiting the generalizability of results to other contexts, especially in middle- and low-income countries. It is also important to note that this review did not provide detailed information on the type of trauma, the study environment, or the specific characteristics of participants.

Based on the above data, the aim of this review was to examine the existing scientific literature on the effects of TF-CBT on PTSD outcomes in women who have been victims of SV. This will enable us to determine the contextual characteristics of women victims of SV to culturally adapt the materials, since in the framework of evidence-based practice, this is essential for designing and implementing effective, validated protocols for PTSD care.

METHOD

This systematic review adhered to the guidelines of the *Preferred Reporting Items for Systematic Reviews* and *Meta-Analyses* (PRISMA; Page et al., 2021) for conducting systematic reviews and meta-analyses.

Information sources and search strategy

The recommendations of the Oxford Centre for Evidence-Based Medicine were followed by conducting an evidence-based review of the research articles. First, we searched for systematic reviews and randomized controlled trials (Level I and Level II Evidence). Cohort studies, case series, correlational studies and analytical observational studies in general were included (Level III and Level IV evidence). Finally, expert opinions, or mechanisms based on reasoning were considered, corresponding to Level V Evidence (OCEBM *Levels of Evidence Working Group,* 2011). The present study did not perform a meta-analysis, despite meeting the minimum number of required clinical trials, due to several limitations, including inconsistencies and heterogeneity in study design, population characteristics, and outcomes. The articles included in our review unfortunately failed to meet the criteria for a robust meta-analysis. Specifically, the studies varied considerably in terms of design, population, and—most notably—outcome measures, with the three clinical trials using different PTSD assessment tools, thereby limiting comparability. Additionally, while many studies reported statistically significant findings for key variables, small sample sizes reduced their statistical power and widened confidence intervals.

Although TF-CBT has been extensively researched, its application in female victims of violence remains underexplored. As this is an emerging area of study, our primary objective was to identify and conceptualize findings based on the existing literature. We believe that a systematic review allows for a more nuanced qualitative synthesis and comparison of available studies.

Table 1
Keywords related to each PIO element

P	*I*	*O*
Women victims of sexual violence	Trauma focused cognitive behavioral therapy	Post traumatic stress disorder
Women who experienced sexual abuse	TF-CBT	PTSD
Women victims of violence		

Note: P = population; *I* = intervention; *O* = outcome; TF-CBT = Trauma-focused cognitive behavioral therapy; PTSD = Post-traumatic stress disorder

Eligibility criteria

Studies were eligible if they (a) implemented TF-CBT, defined as any psychological therapy using predominantly trauma-focused cognitive, behavioral, or cognitive-behavioral techniques, including trauma narrative and gradual exposure; (b) targeted adult female victims of sexual violence diagnosed with PTSD; (c) had been published in peer-reviewed scientific journals from 2010 to 2023; (d) were written in English or Spanish; or (e) were indexed in PubMed, Redalyc, or Cochrane databases (Table 1). Exclusion criteria included non-peer-reviewed articles, studies without a clear PTSD diagnosis, and interventions not primarily focused on TF-CBT (Huang et al., 2006).

Study selection

Study selection was conducted in two stages. In the first one, two independent reviewers screened the titles and abstracts to identify studies meeting the inclusion criteria. In the second, the full texts of potentially eligible studies were retrieved and assessed for eligibility by the same reviewers. Any discrepancies between reviewers were resolved through discussion, and a third reviewer was consulted if consensus could not be reached. A PRISMA flow diagram was used to document the selection process.

Data extraction and management

Prior to data collection, the researchers deliberated on which variables would base the primary objective of the study.Data was collected using structured Excel spreadsheets. Two reviewers independently performed data extraction using a standardized form. The extracted data included (a) general study characteristics (author, year of publication, country); (b) participant characteristics (sample size, age, gender, PTSD diagnostic criteria); (c) intervention details (type of TF-CBT, intervention format, number and frequency of sessions, specific techniques used); and (d) outcomes (measures of PTSD symptoms and other psychological outcomes). Any discrepancies were resolved through consensus or by consulting a third reviewer. Data management software was used to ensure accuracy and consistency in managing the extracted data.

RESULTS

Study characteristics

The study selection flow chart is shown in Figure 1. The systematic review identified seven studies, conducted in four countries: Spain (three articles), the United States (two articles), Brazil (one article), and Pakistan (one article).

All articles were written in English and published between 2013 and 2022. Participants were primarily recruited from organizations and institutions, including shelters for female victims of gender-based violence (Jaffe et al., 2021; Latif et al., 2021; Crespo et al., 2021), and public centers for victims of gender-based violence (Matud et al., 2016; Habigzang et al., 2018). One study recruited from the outpatient mental health service at the department of defense veterans' affairs office (Cloitre et al., 2016).

In terms of research design, three studies were clinical trials, two of which had two groups (Crespo et al., 2021; Latif et al., 2021) while the other had three groups (Jaffe et al., 2021). One article included pre- and post-treatment measurements (Latif et al., 2021), one included a two- and six-month follow-up (Jaffe et al., 2021), and another had a three-, six- and twelve-month follow-up (Crespo et al., 2021). Three studies used quasi-experimental designs, of which, one article had pre- and post-treatment measurements (Habigzang et al., 2018), another included three- and six-month follow-up measurements (Matud et al., 2016), and another had one-, three-, six-, and twelve-month follow-up measurements (Sarasua et al., 2013). A final study was conducted with an $N = 1$ design, with pre- and post-treatment assessments (Cloitre et al., 2016).

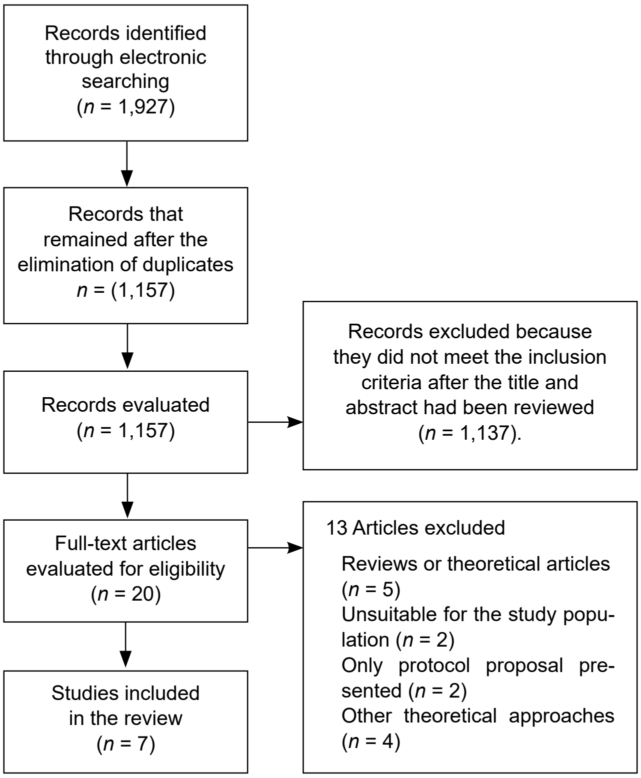

Figure 1. PRISMA Flow diagram showing the search strategy and documents retrieved.

A total of 378 female participants aged 18 to 74 years were included. Study sample size ranged from two to 107 participants. Four articles reported the percentage of participants who dropped out of the intervention, ranging from 16.8% to 54.1%. (Crespo et al., 2021; Habigzang et al., 2018; Matud et al., 2016; Sarasua et al., 2013). Only two studies asked about the socioeconomic status of the sample. Most study subjects were middle class (50.9% and 51.1%; Crespo et al., 2021; Sarasua et al., 2013, respectively). Two articles inquired about educational attainment, with most participants having completed elementary school (35.9% and 27%, Crespo et al., 2021; Habigzang et al., 2018, respectively). Four articles identified the marital status of participants. The results show that 32.1% reported being housewives and 30.2% were living with the aggressor at the time of the sexual violence (Crespo et al., 2021).Habigzang et al., 2018 found that 64% of their sample had separated from their partners, while two articles mentioned that 60.3% and 61.1% of their sample were single (Jaffe et al., 2021; Sarasua et al., 2013). Details of the samples are given in Table 2.

Features of interventions

Five studies used the individual intervention format (Cloitre et al., 2016; Habigzang et al., 2018; Latif et al., 2021; Matud et al., 2016; Sarasua et al., 2013). One study included the intervention in a group format (Jaffe et al., 2021) while another compared both formats (Crespo et al., 2021). The number of sessions comprising the interventions ranged from eight (Crespo et al., 2021) to 20 sessions (Matud et al., 2016). Six articles included psychoeducation on PTSD (Cloitre et al., 2016; Crespo et al., 2021; Habigzang et al., 2018; Latif et al., 2021), and two articles also included psychoeducation on gender, gender-based violence (Matud et al., 2016), and victimization process (Sarasua et al., 2013). Although six studies included cognitive restructuring (Crespo et al., 2021; Habigzang et al., 2018; Jaffe et al., 2021; Latif et al., 2021), two of them used that technique to modify automatic thoughts related to the SV experienced (Matud et al., 2016; Sarasua et al., 2013). Five studies included relaxation training (Cloitre et al., 2016; Crespo et al., 2021; Latif et al., 2021; Matud et al., 2016; Sarasua et al., 2013), four exposure (Crespo et al., 2021; Habigzang et al., 2018; Jaffe et al., 2021; Latif et al., 2021), and four problem-solving techniques (Crespo et al., 2021; Habigzang et al., 2018; Latif et al., 2021; Matud et al., 2016). Three studies included

Table 2
Study characteristics

Author, year	*Country*	*Study design*	*Intervention format*	*Techniques used*	*Sample characteristics*	*Diagnostic criteria for PTSD*	*Results*
Cloitre et al. (2016)	United States	Case studies, with pre- and post-treatment evaluations	Individual, 10 sessions	• Psychoeducation • Relaxation • Mindfulness • Social skills • Narrative therapy (only in case 2)	*N* = 3, only two correspond to women Case 1: 28 years old, Caucasian, war veteran Case 2: 35 years old, Hispanic, war veteran	Score between 10 to 20 points on the Self-Report PTSD Checklist (PCL) based on the DSM-IV	Case 1: Pre-test: 77 points in PCL Post-test: 46 points in PCL Case 2: Pre-test: 76 points in PCL Post-test: 38 points in PCL
Crespo et al. (2021)	Spain	A multi-group (two-group) experimental design was employed with pre and post measures and follow-up measures taken at 1, 3, 6 and 12 months after the end of treatment	Group and Individual 8 weekly sessions 60 minutes for individual sessions 90 minutes in group sessions	Multi-component cognitive behavioral program based on Rincón and Labrador: • Psychoeducation • Diaphragmatic breathing exercises • Behavioral activation • Techniques to increase self-esteem • Cognitive restructuring • Problem solving • Exposure techniques • Relapse prevention	24% dropout from treatment. *N* = 53, individual intervention *N* = 5, group intervention *N* = 28 Average age: 39.17 (*SD* = 10.19) Range: 23-65 50.9% Middle-class 35.8% had completed elementary school 32.1% homemakers 30.2% still lived with their aggressor	Posttraumatic Stress Disorder Symptom Severity Scale (Echeburúa et al., 1997)	50.9% presented with PTSD symptomatology PTSD symptoms showed significant differences over time. *F* (1.51) = .30, *p* < .001 No significant group *x* time interaction effect was found for posttraumatic stress symptoms *F* (1.51) = 65.15, *p* .07)
Habigzang et al. (2018).	Brazil	Quasi-experimental, pre-test/post-test study with a single group	Individual, 13 sessions	Psychoeducation Cognitive restructuring Gradual exposure to traumatic memories Problem solving Relapse prevention	54.1% dropout from treatment. *N* = 11 Average age: 42.7 years (*SD* = 9.5) 64% separated 27% elementary education	Structured interview based on DSM IV/SCID used to assess PTSD	PTSD symptoms remained stable (*p* = .45)
Jaffe et al. (2021)	United States	Randomized controlled clinical trial, with pre/post treatment evaluations and follow-up at 2 and 6 months Participants were randomly assigned to one of the following conditions: a) cognitive therapy only (CPT), CPT with a written account (CPT+WA), or written account only (WA)	Group CPT as CPT+A included 12 60-minute sessions twice a week The WA condition involved two 60-minute sessions in the first week followed by five 120-minute sessions per week	CPT intervention involves addressing beliefs about the meaning and implications of the traumatic event through cognitive restructuring The storytelling component of the CPT+A and WA interventions involves writing and reading a detailed recollection of the trauma memory, followed by a Socratic dialogue with the therapist	*N* = 58 participants 32% were under the influence of alcohol or drugs at the time of the sexual abuse. Age: 33.52 years (*SD* = 13.52, range: 18-74 years), 69% White 60.3% single 66.1% reported an annual income less than $30,000 USD	a) Post-traumatic stress symptoms *Clinician Administered PTSD Scale* (CAPS, administered by a physician, Blake et al., 1995) was used b) Standardized trauma interview, adapted from Resick et al. It included additional questions to preponderate the AS index	PTSD severity at 6-month follow-up was higher for individuals who experienced substance-related sexual abuse compared with nonsubstance-related sexual abuse among individuals in the reference group (i.e., CPT+ A; *p* = .047) A large effect size is reported for the CPT group relative to both CPT+WA (*d* = -1.10); and WA (*d* = -.79), among women who experienced substance-related sexual abuse

Table 2
Study characteristics (continued)

Author, year	*Country*	*Study design*	*Intervention format*	*Techniques used*	*Sample characteristics*	*Diagnostic criteria for PTSD*	*Results*
Latif et al. (2021)	Pakistan	Randomized clinical trial with pre-post treatment measurement	Individual Nine sessions distributed over 12 weeks	• Psychoeducation • Symptom management • Graded exposure • Cognitive restructuring • Behavioral activation • Problem solving • Improving relationships and communication skills	$N = 60$, 50 finished (25 in each group)	a) Clinical psychologist assessed PTSD symptoms during a clinical evaluation based on DSM-5 criteria b) The IES-R (Weiss & Marmar, 1996) is a 22-item self-report measure (for PTSD according to DSM-IV criteria) that assesses subjective distress caused by traumatic events	The effects of treatment differences were small, ($d = .01 - .18$), among women who experienced non-substance-related sexual abuse There were significant differences in the IES-R between intervention and treatment groups at the end of the intervention (F (1.41) = .48, $d = .48$; $p < .000$)
Matud et al. (2016)	Spain	Quasi-experimental design with two independent groups (intervention and control) and repeated measures (pre-treatment, post-treatment, and follow-ups at 3 and 6 months)	Individual Between 15 and 20 sessions	• Psychoeducation in gender and gender violence • Cognitive restructuring • Problem solving • Relaxation • Techniques to increase self-esteem • Social skills training	16.8 % dropout rate from treatment $N = 107$ Mean age = 39.64 years ($SD = 9.87$), range 23 to 64 years	Symptom Severity Scale for Post-traumatic Stress Disorder (PTSD; Echeburúa et al., 1997) based on DSM-IV criteria	Statistically significant decrease in re-experiencing symptomatology, F (1.96) = 104.57, $p < .001$; avoidance F (1.96) = 104.57, $p < .001$; and arousal, F (1.96) = 104.57, $p < .001$
Sarasua et al. (2013)	Spain	A single-center study using a single-group design with pre-post repeated measures and follow-ups of 1, 3, 6 and 12 months	Individual, 12 weekly 60-minute sessions	• First level of intervention: Motivation and emotional catharsis • Second level of intervention: Psychoeducation: victimization processes and psychological consequences. Cognitive restructuring: cognitive distortions, rationalization of the situation experienced • Third level of care: Coping skills training: cognitive distraction, progressive muscle relaxation, behavioral activation, normalization of sexual behavior	28.1 % dropout from treatment $N = 87$ Average age: 27.8 years ($SD = 9.2$; range: 18-54), 61.1% did not have a partner 90.1% Spanish nationality 51.1% socioeconomic level medium 42.7% low socioeconomic level	Symptom Severity Scale for Post-traumatic Stress Disorder (PTSD; Echeburúa et al., 1997) based on DSM-IV criteria	The success rate in the post-treatment evaluation in relation to PTSD is 90.7%, in other words, of the 43 victims who suffered from PTSD at the beginning of therapy, 39 overcame it

Note: PCL = PTSD Checklist for DSM–5 ;TF-CBT = Trauma-focused cognitive behavioral therapy; PTSD = Post-traumatic Stress Disorder; DSM = diagnostic and statistical manual of mental disorders; *SD* = Standard deviation; IV/SCID = Structured Clinical Interview for DSM-IV Axis I Disorders; CPT = Cognitive Processing Therapy; WA = written account only; CPT + A = cognitive processing therapy and written account; IES-R = Impact of Event Scale-Revised social skills (Cloitre et al., 2016; Latif et al., 2021; Matud et al., 2016), and three behavioral activation (Crespo et al., 2021; Latif et al., 2021; Sarasua et al., 2013), while two included techniques for boosting self-esteem (Crespo et al., 2021; Matud et al., 2016). Mindfulness (Cloitre et al., 2016); relapse prevention (Habigzang et al., 2018), and cognitive distraction and normalization of sexual behavior (Sarasua et al., 2013) were included in one study each.

PTSD Measurement

Five studies used scales based on DSM-IV diagnostic criteria (Cloitre et al., 2016; Crespo et al., 2021; Habigzang et al., 2018; Matud et al., 2016; Sarasua et al., 2013). Another two used clinical interviews based on DSM-V criteria were conducted by mental health specialists (Latif et al., 2021; Jaffe et al., 2021).

Differences in PTSD symptoms before and after the intervention

Six of seven studies showed a reduction in PTSD after the intervention. Four of them reported significant differences ($p < .001$), showing decreased PTSD (Crespo et al., 2021; Latif et al., 2021; Matud et al., 2016). One study also identified statistically significant decreases ($p = .001$) in each of the symptoms constituting PTSD: re-experiencing, avoidance, and arousal (Matud et al., 2016). Another used a multiple indicator of therapeutic success, evaluating the reduction of PTSD (score < 15 on the EGS), finding that the intervention had been successful with 90.7% of the sample. It obtained an improvement between pre- and post-treatment assessments, which remained constant and actually increased until 12-month follow-up ($p = .001$; Sarasua et al., 2013).

Two articles reported decreases in PTSD, although they did not mention statistical significance. One article concluded that in one case, an intervention including trauma narrative showed the greatest reduction in PTSD compared to one that only included cognitive behavioral techniques (Cloitre et al., 2016). Another study showed a greater effect in reducing the severity of PTSD symptoms from pretreatment to follow-up in an intervention that only included cognitive behavioral techniques, $d = 2.02$.

However, it also observed reductions in the group where techniques included CBT in addition to trauma narrative, $d = .92$. The group with which only the trauma narrative was used obtained $d = 1.23$. This occurred with women victims of sexual abuse, who had been under the influence of alcohol and other substances at the time of the trauma. Conversely, for women who had not consumed alcohol or other substances at the time of the sexual assault, the intervention modality that achieved the greatest reduction in PTSD was CBT + NT, $d = 2.22$, followed by the trauma narrative modality, $d = 2.05$, and then CBT alone, $d = 2.04$ (Jaffe et al., 2021). The last study concluded that PTSD symptoms remained stable after the intervention, meaning that there was no improvement (decrease) in PTSD ($p = .45$; Habigzang et al., 2018).

Main elements to be considered in the implementation of TF-CBT

After the analysis of the articles and as part of the main objective of the present review, it is important to mention the elements that should be considered for the implementation of TF-CBT. For explanatory purposes, they were divided into two parts. On the one hand, there were some elements that should always be considered, regardless of the sociocultural context, while on the other, there some that are important in certain contexts (Table 3).

Table 3
Elements to be considered for the implementation of TF-CBT

General factors in the implementation of TF-CBT
Elements related to the format of the intervention
Therapist profile The therapist profile for the administration of Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) should be that of a clinical psychologist with specific training in CBT and adequate training in TF-CBT, as noted by Cloitre et al. (2016). It is essential for the therapist to be sensitive to the dynamics of gender-based violence to ensure that the therapeutic space is completely free of comments or attitudes that could re-victimize the person being treated.
Intervention protocol It is essential to have an intervention manual that ensures treatment integrity and consistency (Cloitre et al., 2016; Habigzang et al., 2018; Latif et al., 2021).
First part of intervention implementation The initial modules of the intervention should focus on the development and strengthening of coping skills. To this end, it is essential to implement techniques that include psychoeducation, emotional regulation, mindfulness, problem solving, and cognitive flexibility. These strategies are critical to provide a solid foundation to base the subsequent therapeutic process (Bailey et al., 2019; Cloitre et al., 2016; Habigzang et al., 2018; Latif et al., 2021; Matud et al., 2016).

Table 3
Elements to be considered for the implementation of TF-CBT (continued)

General factors in the implementation of TF-CBT
In the field of psychoeducation, it is essential to incorporate detailed information on the intergenerational cycle of domestic violence and its different manifestations (Habigzang et al., 2018; Matud et al., 2016).
Second part of the implementation of the intervention After the strengthening of coping skills, it is necessary to proceed with the implementation of specific techniques for trauma processing. These techniques comprise the construction of the narrative of the traumatic event and gradual exposure (Bailey et al., 2019; Cloitre et al., 2016; Habigzang et al., 2018; Latif et al., 2021).
Third part of the implementation of the intervention The final module of the intervention should focus on relapse prevention, consolidating the skills acquired and ensuring the sustainability of the therapeutic progress achieved (Bailey et al., 2019; Cloitre et al., 2016; Habigzang et al., 2018; Latif et al., 2021).
Activities in the intervention modules Throughout all intervention modules, it is essential to incorporate activities that facilitate the consolidation of acquired knowledge and strengthen coping skills. These activities have proven effective in ensuring a deeper integration of the skills acquired during the therapeutic process. (Latif et al., 2021; Cloitre et al., 2016).
Individual and group therapy Both therapeutic formats have proved effective in reducing post-traumatic symptomatology. However, it is recommended to prioritize group therapy in cases where women lack a support network, as this format can offer a space for containment and connection with peers that is fundamental to their recovery process (Cloitre et al., 2016).
Trauma-related elements
Differentiate between a traumatic event and a history of sexual violence For processing a traumatic event, the task will be to include the traumatic event in the narrative. Conversely, for a history of sexual violence, since it is essential for the user to prioritize the memories of these traumatic events, only one to three events will be included in the narrative, namely those that cause the most emotional discomfort. It is important not to include more events, as this can be emotionally draining for the patient (Habigzang et al., 2018; Latif et al., 2021; Cloitre et al., 2016).
Identify whether substance use and abuse is related to the trauma If substance abuse limits the memory of the traumatic event to be narrated, it will be better not to use the narrative or gradual exposure techniques and spend more sessions strengthening coping skills. It is also recommended to pay special attention to the identification of guilt in women, since this emotion is usually associated with substance abuse, and if guilt is manifested, it will be advisable to implement emotional regulation (Jaffe et al., 2021).
Elements related to the user Women who cohabit with the aggressor cannot be part of the protocol because, as already mentioned, a fundamental part of the intervention is to expose themselves to certain events and situations that generate stress, such as the sexual aggressor. However, exposing themselves to him would only put them at risk (Bailey et al., 2019; Jaffe et al., 2021).
Specific factors to be considered in specific contexts for the implementation of TF-CBT
Elements related to the intervention format
Online intervention In low-income countries, it is important to use tools that foster the availability of access, such as online interventions, which have been shown to reduce time and monetary costs and consequently, foster therapeutic adherence (Latif et al., 2021; Matud et al., 2016).
Teaching resources in the intervention Teaching resources should be based on the sociocultural context, and easy to understand in countries with low educational levels (Latif et al., 2021; Cloitre et al., 2016).

DISCUSSION AND CONCLUSION

The overall results indicate that TF-CBT is effective in reducing PTSD in adult female victims of SV. However, this evidence must be expanded, mainly with randomized controlled studies in low-income countries, as only three of the seven studies included in this review incorporated comparison and randomization in their design. Most of the studies analyzed (five out of seven) were conducted in high-income countries such as Spain and the United States, with mostly white participants (Cloitre et al., 2016; Crespo et al., 2021; Jaffe et al., 2021; Matud et al., 2016; Sarasua et al., 2013).

This highlights the need to develop studies on the efficacy of TF-CBT in low- and middle-income countries, because of the stark difference between the violence suffered by women in predominantly white countries and in racialized countries. This can be explained by several factors. These include sociocultural factors, specifically regarding gender norms and social roles, which differ significantly from one culture to another. In some countries, such as those in Latin America, traditional norms may justify or normalize violence against women. In this same context, the stigma attached to being a victim of sexual violence may be more pronounced, deterring women from seeking help

(Contreras et al., 2010; González, 2019; Ferrer & Bosch, 2004), whereas in others there may be greater awareness and rejection of these behaviors. Regarding economic factors, women in high-income countries may have better access to resources such as shelters, mental health services and legal support (Contreras et al., 2010; Londoño et al., 2017). By contrast, in many low- and middle-income countries, these resources may be limited or non-existent. Moreover, financial dependence on a violent partner may be more prevalent in countries with fewer job opportunities for women, making it more difficult to leave violent situations (Londoño et al., 2017; Scott et al., 2018). Finally, political and structural factors determine the effectiveness and fairness of the legal system. In some countries, gender-based violence may not be taken seriously, while laws to protect women may not be fully implemented. Law enforcement response may be ineffective or even counterproductive in certain countries, where corruption or lack of gender training is common (Contreras et al., 2010; Londoño et al., 2017). In short, although sexual violence is a global problem, women's experiences may differ significantly depending on the cultural, economic, political, and structural context of their respective countries. These differences underscore the importance of tailoring interventions and policies to specific contexts to effectively address the needs of women in different parts of the world. In this respect, the present literature review allowed us to identify the elements that contribute to the effectiveness of TF-CBT, regardless of the context in which it is implemented. In other words, it enabled us to determine the components that should be present in its implementation because they are related to the psychological processes that allow for the reduction of post-traumatic symptoms. These elements will be mentioned below, together with other elements that should be considered based on the sociocultural context in which the TF-CBT is implemented.

Regarding the techniques used to implement the intervention, all the articles included cognitive and behavioral elements (Part One of the intervention) allowing the development of adaptive coping strategies for dealing with life stressors and preparing patients for Part Two of the intervention involving trauma narrative and graded exposure. These approaches proved effective in reducing PTSD, which is in line with the findings of a narrative review analyzing the effectiveness of 20 psychological interventions for reducing PTSD in women victims of intrapersonal violence. This review concluded that psychoeducation, mindfulness, cognitive restructuring, relaxation, social skills training, safety planning, and gradual exposure were helpful in reducing PTSD (Bailey et al., 2019; Matud et al., 2016; Sarasua et al., 2013). These features should therefore always be considered in the administration of TF-CBT.

Gradual exposure is a key element of TF-CBT for achieving trauma processing, since it allows the extinction of anxious responses through the repeated presentation of the feared stimuli. It also promotes the habituation of unpleasant emotional and physiological responses, thereby achieving an increase in the perception of self-efficacy (Fernandez et al., 2012). Although it is an element that should also be considered a core element in the implementation of TF-CBT, this technique is contraindicated for women still living with the batterer, since exposing themselves to him would increase the risk of experiencing more severe violence (Bailey et al., 2019), Cohabitation with one`s sexual aggressor should be carefully evaluated, especially in women whose contexts limit their financial resources and access to work and encourage economic dependence on the violent partner. In these cases, efforts should focus on providing adaptive coping strategies and ancillary services to guarantee security, both individual and organizational (Bailey et al., 2019).

Most of the articles reviewed included psychoeducation about trauma, posttraumatic symptoms, and elements of TF-CBT in their intervention protocol. However, only two of the seven studies reviewed included psychoeducation about gender-based violence and victimization processes. (Matud et al., 2016; Sarasua et al., 2013). This aspect is particularly relevant in sociocultural contexts where gender norms are deeply entrenched and lead to violence against women. For example, in sexual violence, women victims are often held responsible for the violence suffered (revictimization), which can create feelings of guilt and shame. Providing information about the context of violence in a cultural system is therefore crucial to restructuring negative automatic thoughts and emotions such as guilt. Some studies have shown that this technique is most successful when applied to women victims of violence and PTSD (Gil-Iñiguez, 2016; Matud et al., 2016).

Another aspect to be considered is the high dropout rate of women participating in the interventions, especially when these were not mandatory in the shelters where they were living (Crespo et al., 2021; Habigzang et al., 2018; Matud et al., 2016). It was observed that the group format had a higher dropout rate than the individual format. Perhaps this is due to the fact that individual therapy is better adjusted to the time available to the women, although there were still cases of dropouts in this modality. These findings are consistent with previous research indicating that women attended the first sessions, but most failed to complete the treatment. Perceived barriers and social determinants, such as responsibility to family, may influence this trend. For example, it has been found that women with HIV consider that health care can wait, as they prioritize attention and care for their families (Díaz-Sosa et al., 2021). It is therefore suggested that future interventions consider strategies tailored to women's needs. In this sense, psychological interventions through information and communication technologies (ICTs), in other words telepsychology, has shown that it can reach a greater number of people who could benefit from psychological treatment, therefore reducing the financial and time expenditure required for face-to-face therapy. There is also evidence that TF-CBT in an online format has the same effectiveness as the in-person format, but with the added bonus that it decreases the stigma associated with mental health care-seeking (Lewis et al., 2018). However, the evidence does not include specific cases of sexual violence, meaning that future research is required to test it in this vulnerable population. There is a significant lack of evidence based on randomized clinical studies evaluating the efficacy of TF-CBT in adult female victims of sexual violence. This absence of evidence makes possible to draw definitive conclusions about the efficacy of these interventions. Nonetheless, the results appear promising for decreasing post-traumatic symptoms in adult female victims of SV. However, it is essential to gather more evidence, especially through randomized controlled studies in low-income countries, with intervention protocols adapted to the specific needs and characteristics of the of the population, including components. This involves including components of psychoeducation on gender-based violence, to gradually increase exposure in the case of complex trauma referrals, not subject women still living with the aggressor to the gradual exposure technique, and develop strategies to improve women's access to TF-CBT, such as technology-mediated interventions.

Limitations

Data in the present review should be analyzed with caution in view of certain limitations. First, the number of randomized controlled trials was limited, which led to include randomized and observational studies data, which in turn yielded lower quality evidence. In addition, more than a half of the studies included had a high risk of bias, as they lacked randomization and control groups, besides a high dropout rate and small sample size.

Finally, it is important to consider that many of the studies relied on self-report measures, may be mediated by social desirability. In future studies, it is suggested that researchers establish a good rapport with participants, especially because of the emotions present in female victims of SV, such as guilt or shame. This would help to improve the reliability and validity of the measurements used.

Funding

Postdoctoral Stay of Incidence 2022, financed by the Consejo Nacional de Humanidades Ciencia y Tecnología (CONAHCYT).

Conflict of interest

The authors have no competing interests to declare.

Acknowledgments

Project CONACYT-FORDECYT-PRONACES/1401.

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salud mental

ORIGINAL ARTICLE
Volume 48, Issue 4, July-August 2025
doi: 10.17711/SM.0185-3325.2025.023

Experiences of Mental Health Professionals with Control and Labor Demands during the Implementation of Teleconsultation at a University Care Center during the First Stage of the COVID-19 Lockdown

Ana Carolina Rodríguez-Machain,[1] Asunción Álvarez-del-Río,[1] Silvia A. Tafoya,[1] María Elena Medina-Mora,[2,4] Mariana Lizeth Zamora Acosta,[3] Ingrid Vargas-Huicochea[1]

[1] Departamento de Psiquiatría y Salud Mental, Facultad de Medicina, Universidad Nacional Autónoma de México.

[2] Facultad de Psicología, Universidad Nacional Autónoma de México.

[3] Facultad de Medicina, Universidad Nacional Autónoma de México.

[4] Instituto Nacional de Psiquiatría Ramon de la Fuente Muñiz.

Correspondence:
Ingrid Vargas-Huicochea
Oficina 6 del Departamento de Psiquiatría y Salud Mental, Facultad de Medicina de la Universidad Nacional Autónoma de México Edificio F de la Facultad de Medicina. Circuito interior y Cerro del Agua S/N, Ciudad Universitaria, Copilco Universidad. C.P- 04510, Coyoacán, Ciudad de México, México.
Phone: +52 (55) 5623-2300 ext. 43139
E-mail: dra.vargashuicochea@yahoo.com.mx

Received: 23 April 2024
Accepted: 8 November 2024

Citation:
Rodríguez-Machain, A. C., Álvarez-del-Río, A., Tafoya, S. A., Medina-Mora, M. E., Zamora Acosta, M. L., & Vargas-Huicochea, I. (2025). Experiences of Mental Health Professionals with Control and Labor Demands during the Implementation of Teleconsultation at a University Care Center during the First Stage of the COVID-19 Lockdown. *Salud Mental 48*(4), 195-202. https://doi.org/10.17711/SM.0185-3325.2025.023

DOI: 10.17711/SM.0185-3325.2025.023

ABSTRACT

Introduction: The implementation of teleconsultation during the first stage of the COVID-19 pandemic created work stress for mental health professionals, who were obliged to act in a timely manner without previously tested procedures. **Objective:** To describe the experiences of mental health professionals with control and work demands during the implementation of teleconsultation at a university health care center during the first phase of COVID-19. **Method:** This is a qualitative study with a phenomenological design. Twenty-eight focused interviews were conducted with the mental health team of a university health care center to explore the experiences of control and work demands associated with technological, organizational and human limitations. Results were analyzed using the meaning categorization technique: 1. Control/demand in the technological domain; 2. Control/demand in the organizational domain; and 3. Control/demand in the human domain. **Results:** Lack of structure, intermittent schedules, inclusion of technical assistance that conditioned their work, lack of control over meeting job demands, difficulty caring for high-risk patients, and no strategy for controlling a space that will guarantee confidentiality, constitute a high-stress scenario for professional performance. **Discussion and conclusion:** Lack of experience in the implementation of teleconsultation creates stress and distrust in the ability to establish therapeutic relationships. There is a need to construct teleconsultation care protocols for crisis care.

Key words: Mental health, teleconsultation, Covid-19, mental health professionals.

RESUMEN

Introducción: La implementación de la teleconsulta durante la primera etapa de la pandemia por COVID-19 creó una situación de estrés laboral al tener que actuar de manera oportuna y sin los procedimientos previamente probados. **Objetivo:** Describir las experiencias de profesionales de salud mental sobre el control y las demandas laborales durante la implementación de la teleconsulta en un centro de salud universitario en la primera fase de la pandemia SARS-CoV-2 (COVID-19). **Método:** Este es un estudio cualitativo con diseño fenomenológico. Se realizaron veintiocho entrevistas focalizadas con el equipo de salud mental de un centro de salud universitario para investigar las experiencias de control y demanda laboral relacionadas con limitaciones tecnológicas, organizativas y humanas. Los resultados fueron analizados mediante la técnica de categorización de significados: 1. Control/demanda en el dominio tecnológico; 2. Control/exigencia en el ámbito organizacional; y 3. Control/demanda en el ámbito humano. **Resultados:** La falta de estructura, horarios intermitentes, inclusión de asistencia técnica que condicionaba su trabajo, falta de control para resolver las demandas laborales, dificultad para la atención de pacientes de alto riesgo y ninguna estrategia para controlar un espacio que garantice la confidencialidad, representa un alto -Escenario de estrés para el desempeño profesional. **Discusión y conclusión:** La falta de preparación para implementar la teleconsulta, genera estrés y falta de confianza en el establecimiento de relaciones terapéuticas. Se destaca la necesidad de establecer protocolos de atención de teleconsultas para la atención de crisis.

Palabras clave: Salud mental, Teleconsulta, Covid-19, profesionales de la salud mental.

INTRODUCTION

The COVID-19 pandemic required addressing the health needs of the population (World Health Organization, 2020). because it also increased psychological distress and mental disorders (Dettmann et al., 2022; Hampshire et al., 2022; Bueno-Notivol et al., 2020; Yunitri et al., 2022). Lockdown also negatively impacted on the mental health (MH) of university students (Chang et al., 2021; Liyanage et al., 2022; Oliveira Carvalho et al., 2021; Reyes & Trujillo, 2021) raising the need for professional mental health care.

The implementation of lockdown as a protective measure led MH practitioners to use teleconsultation as a means of providing care for the population (Kane et al., 2022; Vázquez-García et al., 2021; Olwill et al., 2020; Siegel et al., 2021). This alternative has been endorsed as an essential tool during emergencies, although it underlines the need to reflect on the barriers inherent to teleconsultation (World Health Organization, s/f). The limitations of this form of intervention have been identified and grouped by scope, whether technological, organizational, human or financial (Saigí-Rubió et al., 2016).

At the onset of the COVID-19 pandemic, healthcare professionals reported complications during the implementation of teleconsultation, such as interacting with multiple tools and platforms immediately and without training in some cases, together with security and privacy issues (Kane et al., 2022; Olwill et al., 2020; Siegel et al., 2021). The environmental elements involved in changing the care and treatment management model was a limitation that raised concerns, as was the possibility of developing a physician-patient relationship and the absence of face-to-face social interaction (Kane et al., 2022; Olwill et al., 2020; Siegel et al., 2021). Likewise, the benefits of teleconsultation have been recognized in relation to outreach, schedules, and its impact on certain MH treatments (Kane et al., 2022; Olwill et al., 2020; Siegel et al., 2021).

The crisis triggered by the pandemic, together with the implementation of MH teleconsultation, created a work environment with elements that could cause fatigue and feelings of exhaustion. It is important to address this discomfort through qualitative methods that explore the experiences leading to burnout and the way this interferes with work performance. In this respect, the theoretical framework of demand and control allows us to delve into work life from the technological, organizational and human fields, enabling us to observe the way knowledge in the work field is intertwined with the pressure to perform one's job under emergency conditions. Studies have already revealed the impact of chronic exposure to occupational stress on the MH of health professionals (García-Arroyo & Osca Segovia, 2018; Hiver et al., 2022; Peckham, 2019). High levels of work fatigue associated with emotional exhaustion have been found, particularly in psychiatrists (Peckham, 2019; Rotstein et al., 2019).

The implementation of teleconsultation under the emergency conditions involved in the first stage of the COVID-19 pandemic created a situation of job stress due to having to act in a timely manner without previously tested procedures. This article analyzes the experiences of MH professionals related to work control and demands during the implementation of teleconsultation at a university care center during the first COVID-19 lockdown.

METHOD

Study design

This study employs a qualitative methodology with a phenomenological design, with the aim of deepening the analysis of the experiences and meanings of the participants (Vargas-Huicochea, 2022).

Participants

The entire mental health team responsible for providing services at a university healthcare center participated in semi-structured interviews.

Procedure

Over the course of 45 days between November and December 2020, the research objectives were presented and clarified with participants to conduct the interviews via audio-recorded videoconferences. The audio recordings were subsequently transcribed, categorized, and analyzed.

Instruments

The data were collected from semi-structured interviews for which a focused interview guide was constructed (Kvale, 1996; Saavedra-Solano & Berenzon-Gorn, 2022), to learn about the experience of care staff during the implementation of teleconsultation in the domains of safety, effectiveness, efficiency, access, and timeliness (World Health Organization et al., 2018). The chosen interview technique enabled us to explore to the experiences of control and work demand in relation to the limitations in the technological, organizational and human domains of MH care providers during the implementation of teleconsultation.

Analysis

The meaning condensation technique (Kvale, 1996) was used to analyze the experiences of participants within the context of the theoretical framework of demand and control (DC) (Karasek & Theorell, 1990) and barriers in teleconsultation (Karasek & Theorell, 1990; Saigí-Rubió et al., 2016). This approach yielded three saturated categories. The following categories were identified: DC in the technological domain, DC in the organizational domain, and DC in the human domain.

Ethical considerations

This study was evaluated and approved by the research and ethics committees of the university where the research was conducted (FM-DI/058/2020). Likewise, all guidelines were followed to guarantee the safety and confidentiality of participants.

RESULTS

The participants were psychiatrists ($n = 10$), psychologists ($n = 6$), social workers ($n = 5$), psychiatric resident physicians ($n = 3$), and medical interns ($n = 4$). All of them belong to the health team of the university MH service at the institution where the research was conducted, and agreed to participate by signing the informed consent form.

Seventy-five percent of the participants were women.

The following is a qualitative description of the data found. In each of the categories, DC are understood as the source of work stress.

Control is built on the autonomy of a worker to perform their work and contribute to their work group and organization, as well as the opportunity to develop new skills and learning that will allow them to do their job better. Work *demands* refers to the workload, working under pressure, and level of concentration required. (Karasek & Theorell, 1990). In this model, social support reduces stress through social relationships and the instrumental support of colleagues and superiors. Conversely, a lack of social support increases stress (Johnson & Hall, 1988). There are therefore four quadrants as a result of the interaction between *control* and work *demands*; high tension, active, low tension and passive (Karasek & Theorell, 1990). These are addressed in the three categories of analysis, as shown in Table 1.

Demand and control of work activities

1. Technological field

The implementation of teleconsultation during the first stage of the pandemic involved the use of software to establish communication and a new tool for file management. This scenario tested participants' ability to perform their work. On the one hand, there were difficulties with technological resources. Internet coverage sometimes interfered with adequate communication, although this element was found to be more present on the part of patients than health workers. And although the university provided technical support to improve the internet connection and solve problems, it was often decided to make a phone call to complete the session.

In general, the care team adapted to the scenario despite the lack of training for using the new care model. However, it is worth noting that they were not completely unfamiliar with the electronic clinical records used. Nevertheless, there were numerous reports of the difficulty of storing information on the session provided. Under pressure to continue providing care, health care workers used various strategies to record this information manually or on other

Table 1
Categories of analysis

Category	*Category explanation*
Demand and Control in the technological domain.	Describes the experiences regarding the interaction of demand and control when coping with technological limitations, which the WHO has described as access to the required equipment, skills and knowledge for the use of tools, Internet coverage, diversity of available software, security and confidentiality.
Demand and Control in the organizational domain.	Shows the experiences concerning the limitations in the organizational environment, which correspond to the redesigning of the care model and the training of its personnel. It also includes the correspondence between the areas involved in care delivery, changes in responsibilities that redefine existing roles and even the emergence of new profiles that create insecurity. Lastly it comprises conflicts of labor recognition and the situation of constant change caused by the speed of technological changes.
Demand and Control in the human domain.	Refers to the experiences of health professionals in response to limitations in the human sphere, in which the resistance of employees to change, lack of involvement, IT skills, opinions of telemedicine, skepticism, workload and changes in work routine occur.

Compiled by the authors based on the theoretical proposal of Saigí-Rubió et al. (2016).

software so that they could subsequently upload it to the system. Although using written notes that subsequently had to be transcribed into the file meant an additional workload, health workers were obliged to do this to avoid suspending patient care.

Additionally, work team communication due to the shift to teleconsultation required the use of different methods of electronic communication, such as e-mail and instant messaging via cell phone. The use of these tools had to be adapted during the course of the pandemic without prior training or protocols. As a result, electronic devices became saturated, as they were used to perform all tasks (whether work-related or personal).

In terms of safety, two issues emerged. One was the difficulty of handling at-risk patients. In this sense, participants were concerned about communication with the work team. In face-to-face mode, it sufficed to walk down the hall to attend cases of this nature. The greatest challenge in this regard involved maintaining the integrity of the patient at a distance, which is where the greatest source of stress lies for mental health professionals.

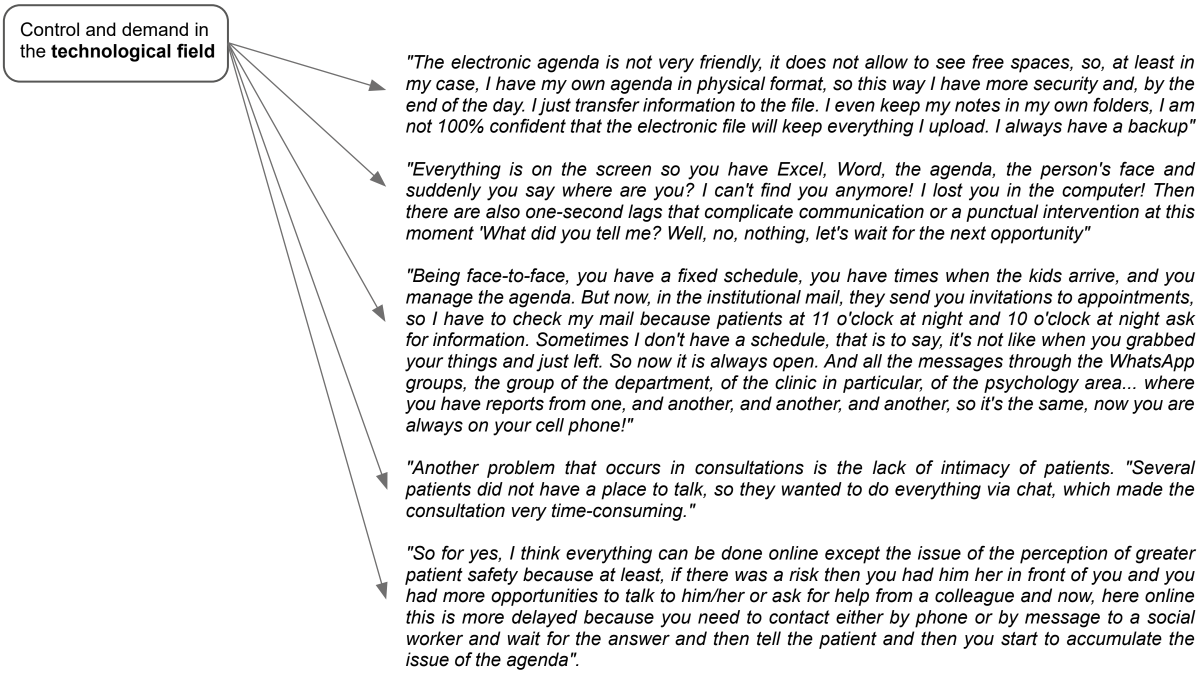
Another important aspect is the confidentiality of the data handled in consultations. Although it is possible to control the physical space of a MH professional, patients often lacked the conditions to guarantee confidentiality. In these circumstances, it was decided to use the teleconsultation chat, headphones and ask closed questions. Some of these experiences of health professionals involving demand and labor control in the technological field are shown in Figure 1.

2. Organizational field

Due to the nature of the pandemic, the most obvious change at the organizational level was observed when health professionals were obliged to adapt the face-to-face care model to teleconsultation without prior training. Most health professionals adapted a place in their homes that allowed them to convey warmth to patients, and attempted to avoid interruptions. A common issue encountered was the need to incorporate the daily life of both the patient and the therapist (such as pets and urban noises) into their consultations. This last scenario is out of MH practitioners' control, which creates stress due to the demand to ensure an uninterrupted session. At the same time, however, it has been acknowledged that this change of modality helped MH professionals to get to know the patient's context better.

Regarding the length of teleconsultations, they are usually shorter due to the time spent accessing the platform and the interruptions in communication due to technological issues. As for the approach to the patient, it is generally said to be similar to the face-to-face modality, given the information requested and other recursive elements in the conversation. In this respect, MH professionals mentioned the difficulty of expressing support when patients are vulnerable. At the same time, they acknowledged that the teleconsultation modality suited certain anxious patients. Remote care provided benefits for certain patient populations, although others would have preferred face-to-face care.

Unlike the interaction with patients, in the case of work team communication, there was a significant lack



Control and demand in the **technological field**

"The electronic agenda is not very friendly, it does not allow to see free spaces, so, at least in my case, I have my own agenda in physical format, so this way I have more security and, by the end of the day. I just transfer information to the file. I even keep my notes in my own folders, I am not 100% confident that the electronic file will keep everything I upload. I always have a backup"

"Everything is on the screen so you have Excel, Word, the agenda, the person's face and suddenly you say where are you? I can't find you anymore! I lost you in the computer! Then there are also one-second lags that complicate communication or a punctual intervention at this moment 'What did you tell me? Well, no, nothing, let's wait for the next opportunity"

"Being face-to-face, you have a fixed schedule, you have times when the kids arrive, and you manage the agenda. But now, in the institutional mail, they send you invitations to appointments, so I have to check my mail because patients at 11 o'clock at night and 10 o'clock at night ask for information. Sometimes I don't have a schedule, that is to say, it's not like when you grabbed your things and just left. So now it is always open. And all the messages through the WhatsApp groups, the group of the department, of the clinic in particular, of the psychology area... where you have reports from one, and another, and another, and another, so it's the same, now you are always on your cell phone!"

"Another problem that occurs in consultations is the lack of intimacy of patients. "Several patients did not have a place to talk, so they wanted to do everything via chat, which made the consultation very time-consuming."

"So for yes, I think everything can be done online except the issue of the perception of greater patient safety because at least, if there was a risk then you had him her in front of you and you had more opportunities to talk to him/her or ask for help from a colleague and now, here online this is more delayed because you need to contact either by phone or by message to a social worker and wait for the answer and then tell the patient and then you start to accumulate the issue of the agenda".

Figure 1. Experiences of the participants in terms of demand and control in the technological field.

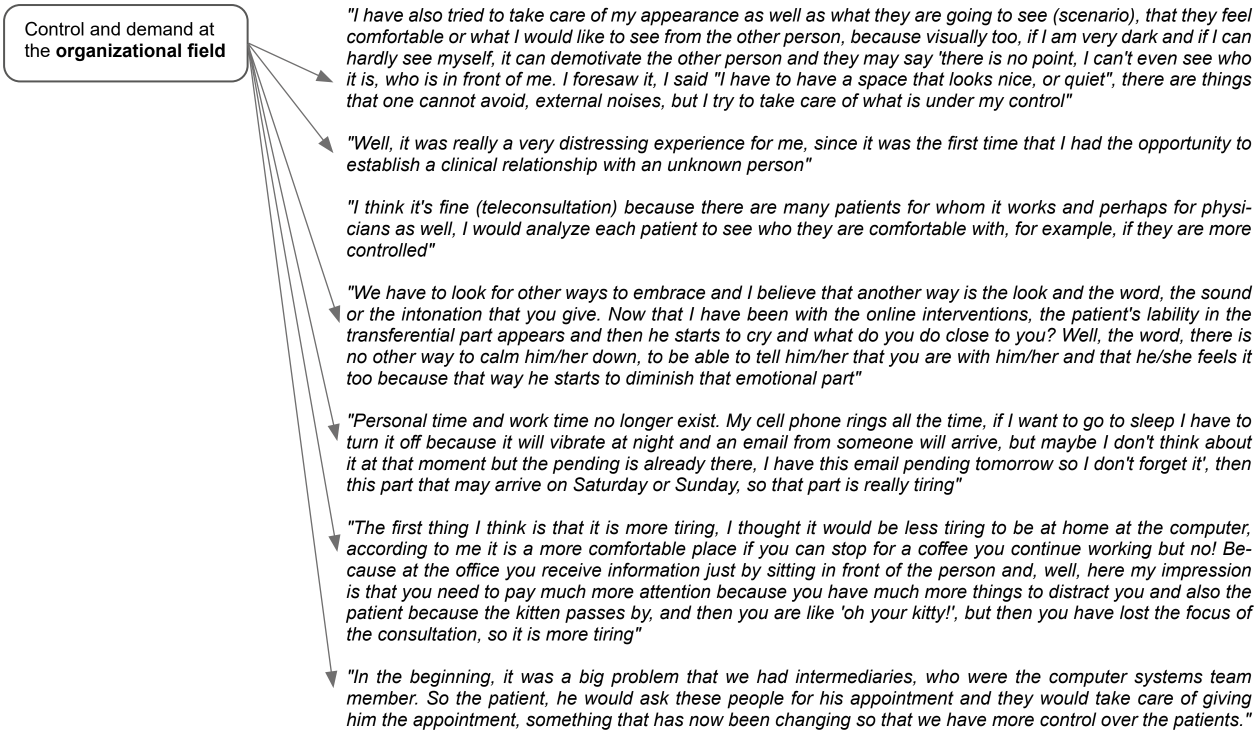
of immediate means of communication to provide interdisciplinary support, since, in the day-to-day work before the pandemic, this type of interaction had taken place in the corridors. Attempts to establish contact with colleagues via email or cell phone instant messaging created a perception of stress in most participants, and they often failed to achieve the desired communication.

Although the activities and procedures to be performed by the clinical team were the same as they had been before the pandemic, there was a change in terms of consultation days and established schedules. In this respect, participants mentioned a feeling of exhaustion, which was not due to work overload in terms of the number of patients, but to the change in routines that prevented them from organizing their own activities.

The incorporation of technology failed to simplify methods, particularly during the adaptation to digital tools for patient registration and follow-up. This situation created a higher level of stress in the healthcare team, as well as interfering with their communication with patients. Examples of these experiences are shown in Figure 2.

3. Human field

Regarding the human field, uncertainty was observed about the ability to establish a doctor-patient relationship



"I have also tried to take care of my appearance as well as what they are going to see (scenario), that they feel comfortable or what I would like to see from the other person, because visually too, if I am very dark and if I can hardly see myself, it can demotivate the other person and they may say 'there is no point, I can't even see who it is, who is in front of me. I foresaw it, I said "I have to have a space that looks nice, or quiet", there are things that one cannot avoid, external noises, but I try to take care of what is under my control"

"Well, it was really a very distressing experience for me, since it was the first time that I had the opportunity to establish a clinical relationship with an unknown person"

"I think it's fine (teleconsultation) because there are many patients for whom it works and perhaps for physicians as well, I would analyze each patient to see who they are comfortable with, for example, if they are more controlled"

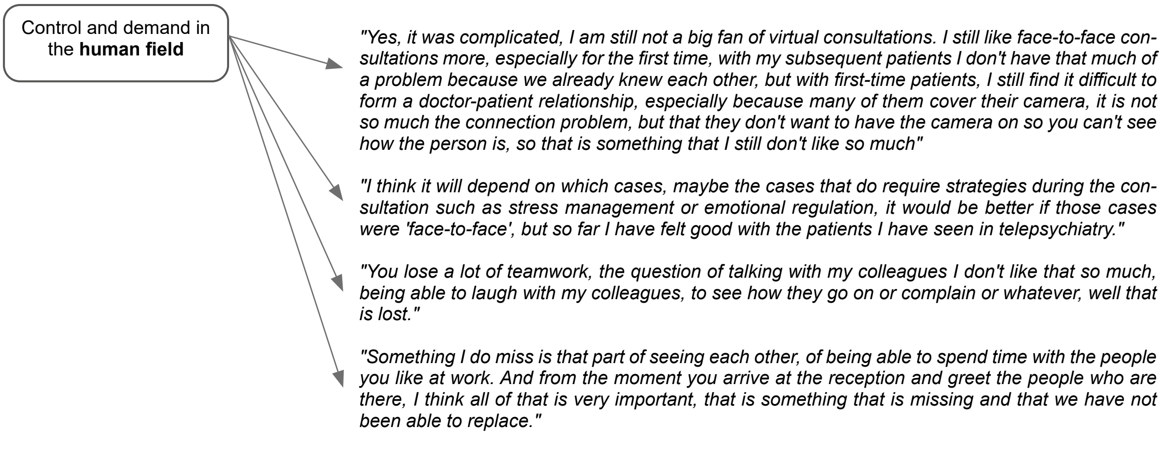
"We have to look for other ways to embrace and I believe that another way is the look and the word, the sound or the intonation that you give. Now that I have been with the online interventions, the patient's lability in the transferential part appears and then he starts to cry and what do you do close to you? Well, the word, there is no other way to calm him/her down, to be able to tell him/her that you are with him/her and that he/she feels it too because that way he starts to diminish that emotional part"

"Personal time and work time no longer exist. My cell phone rings all the time, if I want to go to sleep I have to turn it off because it will vibrate at night and an email from someone will arrive, but maybe I don't think about it at that moment but the pending is already there, I have this email pending tomorrow so I don't forget it', then this part that may arrive on Saturday or Sunday, so that part is really tiring"

"The first thing I think is that it is more tiring, I thought it would be less tiring to be at home at the computer, according to me it is a more comfortable place if you can stop for a coffee you continue working but no! Because at the office you receive information just by sitting in front of the person and, well, here my impression is that you need to pay much more attention because you have much more things to distract you and also the patient because the kitten passes by, and then you are like 'oh your kitty!', but then you have lost the focus of the consultation, so it is more tiring"

"In the beginning, it was a big problem that we had intermediaries, who were the computer systems team member. So the patient, he would ask these people for his appointment and they would take care of giving him the appointment, something that has now been changing so that we have more control over the patients."

Figure 2. Experiences of the participants in terms of demand and control in the organizational field.



"Yes, it was complicated, I am still not a big fan of virtual consultations. I still like face-to-face consultations more, especially for the first time, with my subsequent patients I don't have that much of a problem because we already knew each other, but with first-time patients, I still find it difficult to form a doctor-patient relationship, especially because many of them cover their camera, it is not so much the connection problem, but that they don't want to have the camera on so you can't see how the person is, so that is something that I still don't like so much"

"I think it will depend on which cases, maybe the cases that do require strategies during the consultation such as stress management or emotional regulation, it would be better if those cases were 'face-to-face', but so far I have felt good with the patients I have seen in telepsychiatry."

"You lose a lot of teamwork, the question of talking with my colleagues I don't like that so much, being able to laugh with my colleagues, to see how they go on or complain or whatever, well that is lost."

"Something I do miss is that part of seeing each other, of being able to spend time with the people you like at work. And from the moment you arrive at the reception and greet the people who are there, I think all of that is very important, that is something that is missing and that we have not been able to replace."

Figure 3. Experiences of the participants in terms of demand and control in the human field.

in teleconsultations. This tended to disappear over time and use of the computer and digital tools to deliver patient care became common. Participants mentioned that despite their being more familiar with teleconsultation, it could not be used in all cases, such as when there was violence or suicide risk. Although mental health professionals recognized the usefulness of this tool, the need for occasional face-to-face contact with psychiatric patients continued to be mentioned in the reports.

In the new work model, participants reported missing the social interaction they had enjoyed with their co-workers, recognizing the positive impact this had had on their day-to-day work. At the same time, they highlighted the benefits of teleworking in reducing commuting time and en abling them to manage their schedules. Examples of these experiences are given in Figure 3.

DISCUSSION AND CONCLUSION

The hasty implementation of MH teleconsultation during the first stage of the COVID-19 pandemic created a stressful scenario. Given the nearly universal lockdown, participants in this study lost almost any control they might have had over their work activities in terms of clinical services in MH. However, the demand to cope with the situation remained, underlining the need to develop and evaluate telemental health protocols. To our knowledge, this is one of the first studies to report mental health professionals' care experiences during the pandemic.

Telemental health delivery was implemented through a range of tools allowing communication with patients. This involved coping with technological problems with the technical support of a third party, undergoing a period of on-site learning they completed quickly yet which prevented them from maintaining control of their work situation. In addition, care protocols were adapted as along the way, meaning that participants did not have a guide to provide teleconsultations, putting their skills to the test in a complicated scenario (Olwill et al., 2020; Siegel et al., 2021). The tension created kept participants at a level that enabled them to cope with the situation. However, the use of multiple tools for work communication with an open schedule was perceived as a source of stress (Kane et al., 2022). It should be noted that, although mental health professionals experienced the saturation of their electronic media, since the latter constituted the means of answering their personal and work requests, they were unable to do without them. The lack of structure, irregular schedules, the inclusion of technical assistance conditioning their work, and the lack of control in the face of the need to resolve work demands created an enormous amount of tension.

In terms of safety management during teleconsultation, the care of high-risk patients constitutes a high-stress scenario for the MH professional. On the one hand, mental health professionals are aware of the need to react immediately. On the other, they feel a lack of control due to the distance preventing them from protecting patients' integrity. This points to the need for care protocols that will help control situations with at-risk patients, both for institutional referrals and for communication with family members to provide MH support(Kane et al., 2022; Olwill et al., 2020; Siegel et al., 2021).

Regarding the management of privacy, it was observed that there is no strategy to control a space guaranteeing data confidentiality, either on the part of patients or health professionals. In face-to-face care, the MH professional was responsible for ensuring confidentiality. However, the shift to teleconsultation made it necessary to lose control of this issue, increasing tension levels for health professionals. Telephones were widely used because given the impossibility of a private space for having a consultation, users could move to a secluded place with their cell phones (Siegel et al., 2021). In this respect, it is essential to reflect on the legal consequences that may arise in telephone care (Olwill et al., 2020). The lack of privacy has required improvising actions between patient and MH professional, such as the use of instant messaging when a third party appears (Siegel et al., 2021).

For members of the clinical team, having to set up a consultation environment within their homes implied an additional workload (Kane et al., 2022; Siegel et al., 2021) as well as financial costs. This also enabled them to seek alternatives to offset their lack of control over technological elements, thereby alleviating stress.

The logistics of teleconsultation were found to reduce the length of the sessions. For this care modality, it would therefore be important to consider shorter but more frequent consultations and provide more detailed and explanatory medical prescriptions (Kane et al., 2022; Siegel et al., 2021).

Regarding the human factor, a common belief was the impossibility of establishing and developing a therapeutic relationship through teleconsultation, due to the supposed deterioration of both verbal and nonverbal communication, which does not occur in face-to-face interaction. Likewise, the traditional elements used to show empathy may be limited and make it difficult to provide the secure atmosphere of a consulting room (Kane et al., 2022; Siegel et al., 2021). It has always been said that face-to-face encounters with patients or users improve the interaction of the binomial, provide more information and generate better risk assessments and diagnoses (Kane et al., 2022; Olwill et al., 2020; Siegel et al., 2021). However, in response to the COVID-19 health crisis, health care providers found it necessary to innovate to bridge these gaps.

Uncertainty about the feasibility of teleconsultation also speaks of areas in which MH professionals experience loss of control to be able to respond to work demands. However, the level of tension present allows the tool to be used, and doubts are dissipated through experience. Personalized hybrid care models are sometimes even proposed, based on geographical characteristics, as well as the patient's disorder.

In contrast to other studies, participants mentioned the need to naturally integrate the elements that occur in everyday life during teleconsultation to improve the doctor-patient relationship and the sense of closeness (Kane et al., 2022; Olwill et al., 2020; Siegel et al., 2021). In this way, the tension created by the lack of control of these elements is relieved and at the same time, mental health personnel's confidence is increased by being able to overcome these adversities. Likewise, observing a little of the patient's context can strengthen the relationship.

Finally, a sense of loss of community was observed as a result of the discomfort caused by social isolation (Kane et al., 2022; Siegel et al., 2021), in the absence of this moderator of tension, the perception of stress may increase.

In general, teleconsultation is observed to have benefits such as flexible time management and ease of geographic access, resulting in time savings and a decrease in the cancellation of appointments. It makes it possible to obtain a different type of information on patients from the context in which the consultation takes place. With certain disorders, teleconsultation reduces inhibitions (Kane et al., 2022; Olwill et al., 2020; Siegel et al., 2021).

It is important to design care guidelines incorporating the needs detected through the use of new technological tools. These include patient safety, ensuring privacy and creating the appropriate virtual environment to achieve a better therapeutic alliance. In this way, the MH professional will have greater control over how to respond to the demands of work performed with this modality. In organizational terms, the training of MH professionals should include these elements to ensure better patient care in this modality. In this respect, in addition to training MH professionals in the use of the various platforms used, it would be desirable for workplace authorities to specify the use of communication media for work purposes, adhering to the guidelines issued by the national authorities on this subject.

Lastly, in the human sphere, it is important to promote social interaction among workers while maintaining safety measures, so that these social relationships can mediate the stress produced by work demands and control over work tools.

Considering these experiences can contribute to further work on detecting and developing strategies to provide quality telemental health and safeguard the MH integrity of health professionals.

It is important to continue the discussion regarding the steps to follow in MH care, particularly with specific populations and in emergency conditions. In this way, tools can be created to control the situation and ensure better management. Along these same lines, it is possible to provide the care team with alternatives to cope with the obstacles to privacy.

Funding

This article is part of the products generated within the framework of the project Evaluation of the Feasibility and Efficacy of an Online Intervention to Address Mental Health Needs in University Students in Response to COVID-19, which received funding from PAPIIT IN309821 as part of the Support Program for Research and Technological Innovation Projects (Programa de Apoyo a Proyectos de Investigación e Innovación Tecnológica, PAPIIT) of the Universidad Nacional Autónoma de México (UNAM).

Conflict of interest

The authors declare that they have no conflict of interest.

Acknowledgments

We would like to thank our medical colleagues, and the psychologists, social workers, nurses, and administrative staff who did everything to continue safeguarding the mental health of the university population at times of difficulty and need. We are grateful to all of them for their trust and cooperation in agreeing to be interviewed for this research. Special thanks are due to Dr. José Benjamín Guerrero López for providing the facilities for undertaking this study.

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salud mental

ORIGINAL ARTICLE
Volume 48, Issue 4, July-August 2025
doi: 10.17711/SM.0185-3325.2025.024

The Context of *Activo* Consumption in People without Homes

José Arturo Rodolfo Ortiz Castro,[1] Mario Joaquín Domínguez García,[1] Berenice Fragoso Sánchez,[2] Paulina Soberanes-Chávez[3]

[1] Dirección de Investigaciones Epidemiológicas y Psicosociales, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México.
[2] Centro Comunitario de Salud Mental y Adicciones Los Reyes La Paz, La Magdalena Atlipac (CECOSAMA), Estado de México, México.
[3] Dirección de Investigaciones en Neurociencias, Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Ciudad de México, México.

Correspondence:
Mario Joaquín Domínguez García
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.
Teléfono: (55) 4160-5157
Correo electrónico: mariodom@inprf.gob.mx

Received: 14 March 2024
Accepted: 8 November 2024

Citation:
Ortiz Castro, J. A. R., Domínguez García, M. J., Fragoso Sánchez, B., & Soberanes-Chávez, P. (2025). The Context of Activo Consumption in People without Homes. *Salud Mental 48*(4). 203-211. https://doi.org/10.17711/SM.0185-3325.2025.024

DOI: 10.17711/SM.0185-3325.2025.024

ABSTRACT

Introduction. The use of the industrial solvent *activo* as a psychoactive substance is prevalent among people without homes. By the 80s and 90s, its use had already spread to the middle classes, and it soon became the substance of choice of young people aged 12 to 18. In the late 1990s, it became the second most commonly used substance among this age group, with the highest use observed in Mexico City's Historic Center. **Objective**. Describe the contexts and practices of *activo* consumption and analyze its role in the everyday life of the population under study. **Method.** We used two procedures to conduct the research, meeting places and snowball sampling, and various ethnographic techniques such as non-participant and participant observation, social mapping, and immersion in the various group spaces. **Results.** Incorporating *activo* into one's daily routine has been identified as a crucial strategy for surviving on the street. It allows better social interaction between the person using it and other social agents, enabling them to cope with their physical and emotional instability. **Discussion and conclusion.** Engaging in *activo* use can enhance individual and group identity, while serving as an intervention tool designed to identify feelings, help people set life goals and ultimately transition away from life on the street. It is important to note that using *activo* can produce pleasant sensations, which can lead individuals to prolong their presence on the street.

Keywords: Solvents, inhalants, poverty, people without homes, Mexico City.

RESUMEN

Introducción. El *"activo"* es un solvente industrial y es de las sustancias psicoactivas más utilizadas por la población en situación de calle. Entre los años 80 y 90 su uso ya se había extendido a la clase media y pronto se volvió la sustancia de preferencia entre los jóvenes de 12 a 18 años. A finales de la década de 1990 se convirtió en la segunda sustancia más consumida en este grupo de edad y algunos de los grupos que más consumen el *"activo"*, se ubican en el Centro Histórico de la Ciudad de México**. Objetivo.** Describir los contextos y prácticas del consumo de *"activo"* y su importancia en la vida cotidiana de la población que vive en situación de calle. **Método.** "Lugares de reunión" y "bola de nieve" y técnicas etnográficas: observación no participante y participante, mapeo social y la inmersión en los diferentes espacios de los grupos. **Resultados.** El uso de *"activo"* forma parte de las estrategias para permanecer en la calle, les facilita la interacción social entre ellos y con otros agentes sociales, así como hacerle frente a la precariedad de su situación física y emocional. **Discusión y conclusión.** El consumo de *"activo"* fortalece la identidad individual y con su grupo, y se vuelve una herramienta para la intervención orientada a identificar sentimientos, desarrollar metas de vida y dejar la calle. Es necesario reconocer que dicho consumo les proporciona sensaciones que les atraen y les permite permanecer en la calle.

Palabras clave: Disolventes, Inhalación, Pobreza, Personas en Situación de Calle, Ciudad de México.

INTRODUCTION

Inhalant misuse and abuse have been prevalent in Mexico City since the 50s (Brailowsky, 2002). Those who use inhalants tend to be marginalized people living on the streets, which is why it has been called the "poor man's drug" (Pérez, 2003). Users also include middle-class people, particularly middle and high school students (Vega et al., 2015). It is important to note that the demographic known to engage in the greatest use of inhalants is people without homes. This group encompasses a range of ages, including children, adolescents, young adults, and adults. These people often spend their evenings in abandoned properties, vacant lots, or houses, resorting to various means of earning money, such as windshield cleaning, fire-eating, clown performances, and panhandling (Ortiz-Castro et al., 2015, 2017).

In the past, common inhalants included thinner, Resistol 5000, and bike tube patch glue, FZ10 being the best known (Domínguez, 2000; Gutiérrez et al., 1995). In the 90s, people shifted from using solvents and glue to *activo*, an industrial solvent based on toluene, commonly used for cleaning PVC pipes and tanning hide. It is a readily available substance, which has led to its widespread use by adolescents and young adults aged 12 to 18.

For several years, it has been one of the most widely used inhalants among this population, second only to marijuana (Villatoro-Velázquez et al., 2016), sparking interest in its study (Aguilera et al., 2004; Lara et al., 2003), since it is considered a serious public health problem, particularly in Mexico City. However, the use of *activo* among people without homes has failed to elicit the same degree of interest. For some years now, this research group has therefore made it a priority to draw attention to this topic within pending public health issues.

The term "street children" refers to boys and girls who begin living on the streets from an early age (Espinosa, 2005). They live in clusters in various parts of the city, engaging in activities in the informal economy, drug use, and sometimes the sale of *activo* and other substances.

In addition to the precarious conditions in which they live, inhaling *activo* damages their physical and mental health. At a somatic level, it damages the kidneys and bone marrow, weakening the immune system (National Institute of Drug Abuse, 2017), sometimes causing genetic damage. Regarding mental health, it impairs memory, attention, concentration, analysis, synthesis, and sequence tracking, eventually causing hallucinations and delusions and reducing impulse control, while limiting the ability to set long-term goals (Cruz, 201). Certain users have low risk perception.

Mexican laws regulate the production, carrying, and use of *activo* in the industrial sphere, given that it is not manufactured for use in human beings. Although sales to minors are prohibited and incur administrative sanctions, no public policies target this user population. This is a matter of concern since its production and distribution have increased, and it is now available at *narcotiendas* (small stores that also sell drugs) together with other illegal substances (Domínguez, 2000, Ortiz-Castro et al., 2017). *Activo* is not classified as a conventional drug. However, it is sought after by certain individuals because of its relaxing, hallucinatory, disinhibitory, and analgesic properties, which can provide physical and emotional relief (Cruz &Domínguez, 2011).

The use of *activo* also contributes to a sense of belonging in street spaces (Gutiérrez et al., 1993). It helps alleviate the unpleasant feelings arising from the problems driving people in extreme poverty to live on the streets (Domínguez, 2019; Ortiz-Castro et al., 2017).

Objective

Describe the contexts and practices of *activo* consumption and analyze its role in the everyday life of the population under study.

METHOD

This work uses grounded theory as a methodological strategy, as it allows us to actively build knowledge through the interrelation between the phases of research, including the simultaneous collection, coding and analysis of data. It is present throughout the research process, from the development of the protocol to the qualitative analysis of research results (Natera et al., 1999; Natera & Tiburcio, 1999, 2003). This approach allows the modification and enrichment of the theory based on the researcher's observations and findings when working with the study populations (Charmaz, 2004).

This study used an adapted version of the meeting places and snowball sampling methods (Kaplan et al., 1987) originally designed by (Shoemaker, 1978). To adapt it to the Mexican population (Ortiz-Castro, 1979) further modified the method, the outcomes of which have been documented in other articles (Ortiz-Castro et al., 2015, 2017). This study adopted an interpretative methodology through the allocation of dedicated time to engage with users and dealers on multiple occasions, at varying intervals, to gain comprehensive insights into their perspectives and experiences. This development has enabled the comprehension and interpretation of a specific reality, irrespective of cause-and-effect relationships (Ortiz-Castro, 1979).

Ethnographic techniques, such as non-participant and participant observation, social mapping, and immersion in the spaces occupied by groups of children without homes have also been used. The process of immersing oneself in a community requires the researcher to coexist with its members while demonstrating sensitivity, discernment, and the capacity to establish initial contact. The interviews were conducted by experienced researchers, Ortiz-Castro and Domínguez-García, who holds doctorates in their respective fields (psychoanalysis and anthropology). The study adhered to the consolidated criteria for reporting qualitative research, known as COREQ.

Data collection

The study of the interaction dynamics and *activo* use practices of the user groups was conducted from 2011 to 2019 by gaining access to their spaces. To this end, the area was visited twice a week at various times for several hours. The study area was delineated, and we identified general aspects of *activo* use, the spaces where these activities take place, and drug-related paraphernalia.

Access was sought to both unqualified and qualified informants. The former refers to people who move around the area and are aware of their activities. The latter, known as gatekeepers, are individuals who, due to their formal role in the area, have earned the trust of the community and are more likely to be knowledgeable about *activo* solvent use practices. In addition to immersing themselves in the community, researchers must coexist with the users, requiring sensitivity, judgment, and skill to make initial contact.

The leaders of each group granted the researchers permission to stay and interact with the users, and verbal consent was obtained from all users who were not minors. Accompanied by gatekeepers, who are part of the community, the researchers earned the trust of the population. This trust was key to opening spaces and understanding the everyday life, practices, and other activities related to substance use. The individuals involved in the interaction engaged in face-to-face meetings.

Study population

The study conducted in downtown Mexico City involved the participation of 960 individuals, distributed among twenty-eight groups in twenty-eight different locations. Group sizes varied from three to four to over fifty people, with a ratio of ten men to three women. Participants' ages ranged from 18 to 60 years, with a total of 672 men and 288 women.

Analytical process

After clarifying the study objectives and ensuring voluntary participation, the researchers used the Nvivo program to analyze the interview transcriptions. Anonymity and confidentiality were assured to all participants throughout the research proceedings.

Ethical considerations

The study was approved by the Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz (INPRFM) ethics committee, with approval number CONBIOÉTICA-09-CEI-010-20170316.

RESULTS

Activo users on the street

Street groups residing in the historic center of Mexico City are the highest *activo* users in the country. These groups are primarily located in the vicinity of the Church of San Hipólito, Tepito, and the Monument to the Revolution, encompassing an area of approximately nine square kilometers. Although most of them are no longer young, the term "street children" is a useful analytical category for studying drug use and other social problems. It is common for individuals to self-identify as "street children," given the historical and social incorporation of the term into their way of life. However, the average age of these individuals is twenty-five (Figure 1A).

People without homes also work on the street. They sleep in public spaces such as empty lots, abandoned buildings, subway stations, and small informal shops. They do odd jobs such as helping with informal businesses, selling cheap items on the street, cleaning windshields, juggling at traffic lights, and panhandling (Figure 1A).

They use *activo* to survive the day. It helps them kill time, alleviate hunger and pain, socialize and feel relaxed. *Activo* enables them to remain on the street as it helps them interact with other people and cope with the challenges of their situation (Figure 1B).

People in this group often wear ill-fitting hand-me-downs that may not be regularly washed because of their limited resources. When they can afford to, they wash in public restrooms or motels. Their language is often street slang, which may initially be impenetrable to outsiders. However, closer examination reveals that there are differences among them, and that there is a hierarchy of roles based on their involvement in the use and sale of *activo*. The group leader, *activo* sellers, regular members, and outsiders or satellites each have their own distinct practices and positions within the group. This description was previously published in (Ortiz-Castro et al., 2017).

Use contexts

There are an estimated 3,000 to 5,000 people without homes who are *activo* users in downtown Mexico City. However, there is no up-to-date record of this population, whose visibility depends on various factors such as the weather and social and cultural conditions (Figure 2).

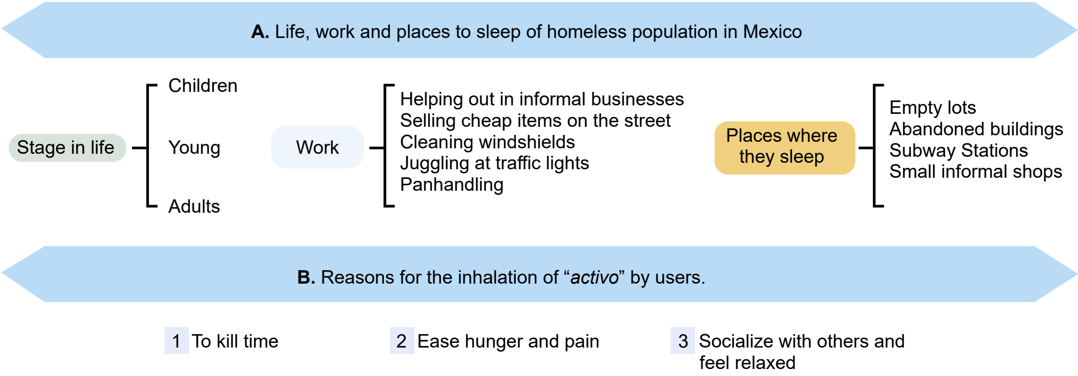
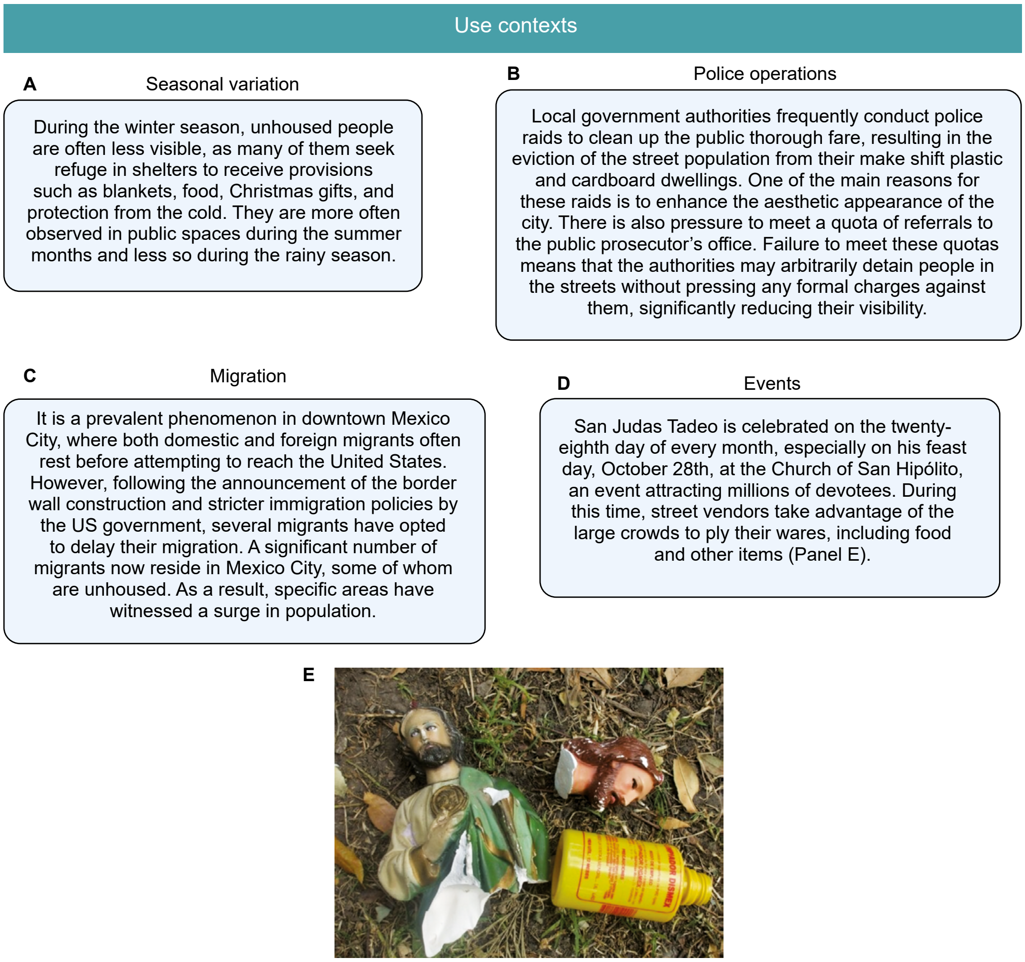


Figure 1. Illustrates the characteristics of *activo* users without homes, depicting their life stages from childhood, through adolescence, and into adulthood. Additionally, it provides information about their places of work and sleep (Panel A), as well as the primary reasons for the inhalation of *activo* among users (Panel B). Created with BioRender.



During the winter season, unhoused people are often less visible, as many of them seek refuge in shelters to receive provisions such as blankets, food, Christmas gifts, and protection from the cold. They are more often observed in public spaces during the summer months and less so during the rainy season.

Local government authorities frequently conduct police raids to clean up the public thorough fare, resulting in the eviction of the street population from their make shift plastic and cardboard dwellings. One of the main reasons for these raids is to enhance the aesthetic appearance of the city. There is also pressure to meet a quota of referrals to the public prosecutor's office. Failure to meet these quotas means that the authorities may arbitrarily detain people in the streets without pressing any formal charges against them, significantly reducing their visibility.

It is a prevalent phenomenon in downtown Mexico City, where both domestic and foreign migrants often rest before attempting to reach the United States. However, following the announcement of the border wall construction and stricter immigration policies by the US government, several migrants have opted to delay their migration. A significant number of migrants now reside in Mexico City, some of whom are unhoused. As a result, specific areas have witnessed a surge in population.

San Judas Tadeo is celebrated on the twenty-eighth day of every month, especially on his feast day, October 28th, at the Church of San Hipólito, an event attracting millions of devotees. During this time, street vendors take advantage of the large crowds to ply their wares, including food and other items (Panel E).

Figure 2. The *activo* users' context is represented through detailed descriptions associated with seasonal variations (Panel A), police operations (Panel B), migration (Panel C), and events (Panel D and E). Panel E represents the photograph symbolizing the link between *activo* use and the devotion to Saint Jude Thaddeus, a saint popular among adolescents who is associated with difficult, desperate causes. Photograph by Eduardo Zafra. Created with BioRender.

Table 1
Activo forms used in Mexico, including general characteristics, containers, and cost

Name	*Description or Characteristics*	*Container and volume*	*Cost*
mona or *monita*	Piece of paper soaked in *activo*	Paper or cloths	5 pesos (.30 USD).
charco or *charquito*	Plastic bottle containing a small amount of *activo*	250-milliliter plastic bottle containing 50 milliliters of *activo*	10 pesos (.60 USD).
mamila	Plastic bottle containing the substance	250-milliliter plastic bottle, filled with *activo*	Between fifteen and twenty pesos (.90 USD to $1.20 USD).

The substance and the paraphernalia

Activo is an industrial solvent consisting mainly of toluene. It is the substance most frequently used by people without homes in the Historic Center of Mexico City, who also use marijuana, crack, and alcohol. *Activo* is sold and used in various forms, including soaked papers or absorbent cloths called *monas** or *charcos†* as well as *mamilas‡* (See Table 1 for a comprehensive description).

In situations where individuals experience harassment from law enforcement officials, they tend to conceal *activo* in various forms, such as *monas*, *charcos,* and *mamilas.* These forms of *activo* are highly prized as they are rarely shared. Users often conceal them in their clothing, such as pants, bras, jackets, or sweatshirts.

> User 1. "Since I'm a street kid, I like designer clothes and sneakers, that's where I like to keep my *mona*."

Some users hide their *mamilas* or *charcos* in places that do not arouse suspicion, such as under stones or loose pieces of sidewalk, in garbage, under abandoned cars, in flowerbeds, between trees and bushes, or in holes in streetlamps. They retrieve them when they go to sleep, to prevent theft by others users or the police.

Inhalant use ractices

Children can initiate inhalant use around the age of six or seven, and even earlier in some cases, such as during gestation. It has been observed that those who become homeless often resort to inhalant consumption as a coping mechanism. According to firsthand accounts and observations, individuals tend to inhale *activo* over a period of several weeks or months. They begin inhaling sporadically until they do so every day. Nine out of ten users are estimated to have been using for four or more years, some for over ten years and a few have been doing so for over thirty years.

> User 2: "For two or three months, I smelled *activo* and I liked the smell, and I put it on again and started doing it again. Because I like the smell... to let off steam, it makes me forget, forget everything that has happened to me, and realize that my life is better now."

User profiles depend on whether a person's drug use is moderate, intense, or regulated. The first group includes those who have recently begun using the product, while the second consists of those who have been using it for more than four years. The third group includes long-term users who have learned to regulate their use over time, either by reducing it or quitting. Although most users begin inhaling solvents sporadically, they eventually establish a daily routine. Our estimates indicate that nine out of ten users have been inhaling *activo* for at least four years. Some have been using it for over a decade, while a few have been using it for over three decades. People engaged in the sale of inhalants may choose to minimize their inhalant use or abstain from it altogether to avoid experiencing its effects.

> User 3: "Starting to change my mentality was what helped me a lot… to see the things that were happening. Many people who continued taking drugs who were still on the streets later died in their sleep, so I realized death was a consequence."

An average user typically consumes one to one and a half liters of *activo* a day: 20 to 30 *monas*. The amount of *activo* in a *mona* averages around 30 milliliters and is known as a "well-wetted *mona.*" The effect of this type of *mona* can last anywhere from thirty minutes to an hour. It is important to note that although some individuals may experience this immediately, others may take up to fifteen minutes to feel its effects.

Estimating the amount of drug inhaled by each user is a challenge as *activo* tends to evaporate on contact with air. The duration of its effects therefore depends on the extent of exposure to the surrounding environment. Furthermore, the inhalation patterns of a user may vary, with some holding the containers close to their noses for extended periods while others may transition from deep to shallower inhalations as they become more intoxicated.

It is common for users to carry their *monas* with them throughout the day, regardless of whether it is still saturated

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* *Mona*. The most popular object and way of consuming *activo*. It is a piece of paper or cloth, such as a napkin, toilet paper, gauze, cotton or wet rag, held in the palm of the hand and placed over the nose or mouth or both to inhale.

† *Charco*. A PET bottle, containing 200 milliliters of *activo*, from which four to five *monas* are obtained per bottle.

‡ *Mamila*: A 125-milliliter plastic bottle, costing between 15 and 20 pesos.

with *activo*. This is partly because inhaling *activo* enabling them to remain on the street because they have become addicted to it, and having it, even if it is dry, reduces their anxiety because they have it ready for inhaling when they buy a *charco.*

> User 4: "My life is *monas*... for the gang, their whole life is the *mona*... you live and "*you inhale from monas,*" dude, from a young age... that is why you don't lend it to anyone... or give it away... it is mine and that is why I take care of it, so it lasts a long time."

> User 5: "I think that the *mona* makes it easier for you to talk and be really cool… here… with your girl … you love her, you take care of her… (referring to both the *mona* and the girlfriend)."

Over the past four years (2015-2019), drug use practices in downtown Mexico City have undergone significant changes. Although *activo* is still used, it is no longer the sole item on their list of drugs. In the past, only one group was observed to use other drugs. However, other groups are using marijuana, crack, crystal, and clonazepam alone or in combination with *activo* or cheap alcohol called Tonayán available for twenty-five pesos ($1.50 USD) at convenience stores. The use of *activo* and its combination with other drugs is sporadic. Only a few regularly use these drugs, with the majority continuing to use *activo* daily.

Types and times of use

Although many users inhale *activo* through the nose, some users prefer to inhale it simultaneously through the nose and mouth, claiming that this provides a more pleasant experience. Moreover, some users mention satisfaction with the experience, saying "It's better that way, you can feel it more." For example, when it is nearly dry, some people clench it between their teeth while inhaling slowly and deeply "to make the most of every last bit." This may result in them unintentionally swallowing it in fragments, as the paper disintegrates. Alternatively, they may inhale directly from the bottle or can.

Contrary to popular belief, people do not inhale *activo* all day and instead follow a schedule. They sleep during the morning since they fall asleep at dawn. Around noon, they wake up and go out to look for something to eat at eateries, where they are sometimes given free food. After they eat something, they usually start inhaling, although the process is intermittent, because they need to earn money.

> User 6: "At night, I take people water, they give me money, at juice stands, *carnitas* (fried pork cubes) stands, chicken stands… and busk in the subway… I earn money, but honestly, not by stealing. They give me food and sometimes I need to earn money to buy it."

In the afternoons, as they live with other members, they engage in recreational activities such as soccer, cards, and board games in addition to their income-generating pursuits.

It has been observed that people tend to use larger amounts, either alone or in groups, at night. This is mainly due to their lower levels of activity and fewer pedestrians and local law enforcement officers on the streets. *Activo* provides an additional benefit of protecting users from the cold, since their sleeping areas are built from materials such as canvas, plastic, or cardboard.

Particularly in winter, if users are not in a group and sleep outdoors, they are liable to die of hypothermia. At that time of the year, people tend to use *activo* in larger amounts, sometimes up to 1.5 liters per day. Daniel says, "We want to be happy and blot out these feelings…" meaning cold, sadness and loneliness. At times of crisis or following traumatic events, it is not uncommon for people to experience suicidal ideation. For example, those who have tested positive for the human immunodeficiency virus (HIV) may experience these feelings. In these situations, it is crucial to seek professional help and support.

Many individuals struggling with substance use have an intermittent pattern of use, characterized by alternating periods of high or low consumption, and abstinence. These periods can occur within the same day or extend for several weeks. In some cases, individuals can temporarily suspend their substance use and seek help by entering a toxicological clinic, known as "*the toxi*." Others may seek admission to government-run treatment centers, which require a minimum of three months' stay. Despite these efforts, voluntary discharge from treatment facilities is not uncommon, meaning that individuals resume their previous patterns of substance use, since they struggle to maintain complete abstinence.

In the event of acute poisoning, it is advisable to temporarily discontinue the use of a particular substance. This step is deemed necessary when poisoning produces an array of undesirable effects such as severe headaches, loss of appetite, and general weakness when moving or walking.

Quitting *activo* use remains challenging, as it can lead to a loss of social acceptance and even harassment from peers. Individuals who attempt to stop inhaling may face intimidation, threats, and in severe cases, physical attacks. This social pressure and fear of negative consequences can make it difficult for individuals to quit inhaling altogether.

During the fieldwork, we learned of one person who was burned with thinner while he was sleeping and another who was "stung" with a sharp object, or cut with a razor, which could have proved fatal.

Consequences of consumption

Individuals who exhibit symptoms of decreased reflexes, dizziness, and headaches may be using substances.

Although these symptoms tend to dissipate over time, the neurotoxic effects of prolonged abuse are known to produce severe neurological syndromes and brain damage (Figure 3).Individuals who continuously use *activo* tend to experience a progressive loss of visual, motor, and auditory functions. This is reflected in lethargic movements, excessive sleepiness, and a limited ability to recognize visual stimuli. In extreme cases, they can experience permanent sight loss (Figure 3).

The body can show damage such as dry skin on the hands and face that can become thicker, darker, irritated, and dull. The sense of smell can be impaired, making it hard to detect odors such as the smell of clothes, blankets, and living spaces. Other health issues include frequent respiratory tract infections, pneumonia, and digestive system problems, such as diarrhea. Some individuals have lost teeth due to fights, accidents, falls, malnutrition, and prolonged *activo* use (Figure 3).

Activo use causes spatio-temporal disorientation, and decreased perception of the acceleration, distance, and direction of moving objects. Consequently, *activo* users may walk without paying attention to their surroundings and be run over. They often have bruises and fractures that have either been left untreated or inadequately treated, with approximately one out of every twenty dying after being run over. Their perception of danger is significantly reduced, and blows do not hurt them because of the analgesic properties of *activo*. As a result, they can engage in combat for up to an hour, without experiencing any significant pain (Figure 3).

The neurological consequences of prolonged substance abuse are often irreversible. However, it is worth noting that the damage caused by *activo* use or inhaling solvents on the nervous system and other organs can be partially reversed on cessation of use.

Regarding *activo* use, we have observed a positive aspect in the emotional bond certain users form with their peer group. The group is perceived as a fundamental support system in their life, acting as a substitute for family members, together with the animals, particularly dogs, they keep as pets. Over the course of our time spent with the users (2011-2019), it has become clear that group membership and paradoxically, the use of *activo* constitute symbolic instruments enabling them to continue being homeless despite the precarious conditions and the physical, mental, and emotional deterioration this has caused them.

> User 7: "Only the gang understands us…not our parents or siblings …. This is why we are here... this is why the gang is our gang, dude... because "*they use monas*."

Despite their constant consumption of *activo*, users' ability to communicate intimately and express sensitivity to

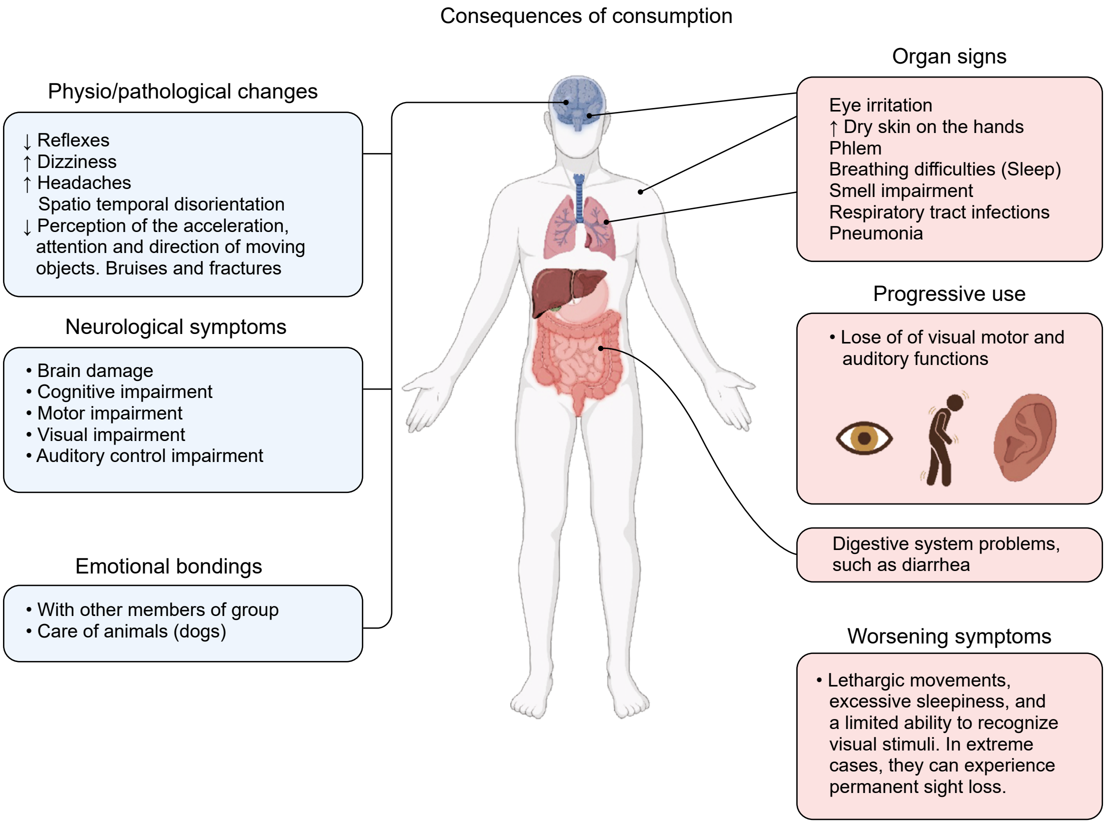

Figure 3. Clinical signs and consequences of *activo* consumption. Created with BioRender.

both personal and external misfortune remains unaffected. Those who use *activo* can reflect on their social reality and the adversities they cope with daily, such as stigma, discrimination, and violence because they are destitute, use drugs, and in some cases have HIV or different sexual preferences.

> User 8: "People don't understand us... or realize that we also feel... and have blood in our veins like them... it hurts that passersby don't even look at us."

Although *activo* use is just one of a host of problems they have, it is also the key to intervening in this social problem, without framing complete, permanent abstinence as the only solution. *Activo* use is one of several challenges requiring our attention. However, effectively intervening in this social phenomenon requires addressing the issue of excess use. It is important to note that there are alternative solutions for addressing a problem without insisting on complete or permanent abstinence as the only option.

Our team has observed that individuals attempting to "be clean" may experience relapses before achieving this. Despite their repeated attempts, they struggle to succeed in the context of the street. However, they are undeterred and continue to persist in their efforts. It is therefore essential to establish and implement intervention programs, even in cases where users fail to attain complete abstinence.

DISCUSSION AND CONCLUSIONS

It is important to acknowledge that the use of *activo*, like other psychoactive substances, poses a significant public health challenge. It is worth noting, however, that it is not simply a matter of use, and requires a comprehensive, nuanced approach to be effectively addressed. It is essential to remain mindful of the challenging contexts characterized by extreme poverty, violence, harassment, discrimination, and health issues such as malnutrition, HIV, Hepatitis C, and other sexually transmitted infections. Moreover, various physical and mental health problems such as blindness, bodily injuries, fractures, psychomotor damage, anxiety, depression, guilt, sadness, loneliness, and hopelessness are prevalent. Being homeless and inhaling makes people's lives even more precarious.

We have noticed that taking a break from their daily routines can provide an opportunity for people to attempt to overcome their addiction. To illustrate this, during their visit to obtain donated eyeglasses, some people reached out for assistance with detoxification and rehabilitation. Taking a temporary break from substances to undergo an eye examination and get new glasses can mark the start of a detoxification and rehabilitation process. This individualized experience can serve as a powerful incentive for individuals to demonstrate their capacity to abstain from substance use. For *activo* users without a home, it is essential to understand that although substance abuse can provide momentary relief from their struggles, in the long run, it exacerbates their situation.

Sharing the street with others who also eat, sleep, play, work, and use there creates a sense of connection and belonging to the community. This group provides love, support, and care for its members. Establishing a sense of belonging and loyalty is crucial for individuals to find their purpose in life. Sharing not only food but also experiences can provide people with the emotional strength to endure and overcome adversity, emotional and physical pain, as well as the challenges of hunger and cold. This condition is a crucial tool for emotional intervention. It facilitates the clarification of one's feelings and fosters the development of realistic goals, ultimately enabling individuals to transition away from street life.

The theoretical and methodological framework used for the study offers numerous pathways as there are no predetermined outcomes. Ethnography and grounded theory allowed us to conduct research in places that are difficult to access and have hidden populations, comprising people with no fixed abode, who conduct most of their activities on the street, do not wish to be located, conceal their drug use and have no interest in participating in studies. The researchers' interaction with the subjects was dynamic and occurred in real time, providing a unique opportunity for deeper insight into the issue. Flexible access and interaction strategies are essential to conducting research in volatile circumstances with unpredictable participants. It is worth noting that this type of research differs significantly from laboratory research, in which all participants are in the same place. However, the constant presence of the researchers in the area with the users enabled them to engage in in-depth observation and analyze the practices and patterns of behavior, the associated problems, and the aspects users find positive.

To enhance the quality of life of individuals struggling with homelessness and substance abuse, we propose the implementation of future interventions that will incorporate qualitative approaches in conjunction with epidemiological studies. This would require the involvement of specialists from various fields, such as psychology, medicine, anthropology, and social work, to work collaboratively. By working together, we could facilitate a smoother transition towards a better quality of life, providing individuals with the opportunity to overcome their addictions and the burden of homelessness. The issue of reintegration and social inclusion has always been a critical challenge, and we believe that by utilizing multi-disciplinary interventions, we could work towards a viable solution.

It is essential to note that the sale of inhalable solvents to minors is strictly prohibited. However, public policy does not restrict the storage, purchase, sale, or distribution of these solvents among adults. Furthermore, carrying inhalable solvents does not incur sanctions. Although the sale of inhalable solvents is regulated and sanctioned, there are no repercussions for sellers and distributors breaching these regulations.

Financing

None.

Conflicts of interest

The authors declare that they have no conflicts of interest.

Acknowledgments

We would like to thank the people without homes in the Historic Center for participating in this study, for having given us their trust and their time. We are also grateful to the Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz for its support in conducting this research.

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salud mental

ORIGINAL ARTICLE
Volume 48, Issue 4, July-August 2025
doi: 10.17711/SM.0185-3325.2025.014

Caregiver Burden among Caregivers of Older Adults with Alzheimer's Disease Impairs their Quality of Life: A Cross-sectional Study in Brazil

Chia Chen Lin,[1] Izabela Vitória Pereira Marques,[1] José Roberto Andrade do Nascimento Júnior,[2] Caroline Rodrigues Lyra,[1] Eduardo Quadros da Silva,[2] Daniel Vicentini de Oliveira[3]

[1] Physiotherapy Department, Universidade Cesumar, Maringá, Paraná, Brazil.
[2] Physical Education Department, Universidade Federal do Vale do São Francisco, Petrolina, Pernambuco, Brazil.
[3] Universidade Estadual de Maringá. Movement Science Department., Ivaiporã, Paraná, Brazil.

Correspondence:
Daniel Vicentini de Oliveira
Universidade Estadual de Maringá.
Movement Science Department.
Ivaiporã, Paraná, Brazil.
Espanha Avenue. 86870-000.
Europe Garden.
Phone: +55 (44) 9994-28575
E-mail: d.vicentini@hotmail.com

Received: 21 February 2024
Accepted: 14 November 2024

Citation:
Chia Chen, L., Pereira Marques, I. V., Nascimento Junior, J. R. A. do, Rodrigues Lyra, C., Quadros da Silva, E., & Vicentini de Oliveira, D. (2025). Caregiver Burden among Caregivers of Older Adults with Alzheimer's Disease Impairs their Quality of Life: A Cross-sectional Study in Brazil. *Salud Mental, 48*(4), 213-221. https://doi.org/10.17711/SM.0185-3325.2025.014

DOI: 10.17711/SM.0185-3325.2025.014

ABSTRACT

Introduction. The role of caregivers of older adults with Alzheimer's disease is crucial but often challenging. **Objective.** To determine whether the increased burden of care among caregivers of older adults with Alzheimer's disease negatively impacts their perceived quality of life. **Method.** This is a cross-sectional study of 126 caregivers using the Zarit Caregiver Burden Interview and WHOQOL-Bref. Data analysis included the Kolmogorov-Smirnov test, skewness and kurtosis coefficients, bootstrap procedures, Pearson correlation, simple linear regression analysis, Pearson's Chi-square test, and One-Way ANOVA together with Tukey's Post-Hoc test ($p < .05$). **Results.** The burden level explained a significant degree of caregivers' perceived quality of life ($p < .01$), with a significant negative prediction across all quality of life domains ($\beta = -.48$ to $-.62$). **Discussion and conclusion.** Higher burden levels compromise caregivers' perceived quality of life.

Keywords: Aging, home care service, dementia, quality of life.

RESUMEN

Introducción. El papel de los cuidadores de personas mayores con enfermedad de Alzheimer es crucial, pero frecuentemente desafiante. **Objetivo.** Analizar si el aumento de la carga entre los cuidadores de adultos mayores con enfermedad de Alzheimer afecta negativamente su percepción de la calidad de vida. **Método.** Este es un estudio transversal realizado con 126 cuidadores. Se utilizaron la Entrevista de Carga del Cuidador Zarit y el WHOQOL-Bref. El análisis de datos incluyó la prueba de Kolmogorov-Smirnov, coeficientes de asimetría y curtosis, procedimientos de bootstrap, correlación de Pearson, análisis de regresión lineal simple, prueba de Chi-cuadrado de Pearson y ANOVA de un factor seguido del test post-hoc de Tukey ($p < .05$). **Resultados.** El nivel de carga explicó una cantidad significativa y moderada de la percepción de calidad de vida de los cuidadores ($p < .01$), con una predicción significativa y negativa en todos los dominios de calidad de vida ($\beta = -.48$ a $-.62$). **Discusión y conclusión.** El aumento de la carga compromete la percepción de calidad de vida de los cuidadores.

Palabras clave: Envejecimiento, servicios de atención domiciliaria, demencia, calidad de vida.

INTRODUCTION

Alzheimer's Disease (AD) is a progressive, irreversible, and incurable neurodegenerative disease. Its main characteristics include functional and cognitive alterations such as memory deficit, apraxia, aphasia, visual-spatial issues, posterior and anterior cortical atrophy, loss of independence, and behavioral changes. AD is further categorized into mild or early onset, moderate, advanced, or late stage. It affects 10% of older adults aged over 65 and 50% of those aged over 85, making it the most common type of dementia (Zvěřová, 2019). Although the scientific literature is still unclear as to the exact cause of the disease, the hypotheses currently under evaluation include extracellular aggregation of neuritic plaques with beta-amyloid peptides (*Aβ*), neurofibrillary tangles, synaptic loss, microglial activation, loss of pyramidal neurons, and dominant autosomal genetic alteration (Srivastava et al., 2021).

As AD progresses, individuals become increasingly dependent, requiring assistance with both basic and complex daily activities. Caregiving for these individuals results in caregiver burden, with major contributing factors including the sex of the caregiver, lack of free time, number of hours spent caregiving, years of caregiving, caregiver self-esteem, and the severity of the patient's AD (Pudelewicz et al., 2019). A significant increase in caregiver burden ranging from 47.4% to 56.8% was observed in those looking after dementia patients over a period of three years (Connors et al., 2019).

Historically, women have been the primary caregivers of older adults, particularly those with AD, due to ingrained cultural and social factors (Yakubu & Schutte, 2019). This pattern is influenced by cultural norms that often associate caregiving responsibilities with the female sex, reflecting the expectation that women will assume caregiving roles within the family and society (Rosende-Roca et al., 2022). In addition, social aspects such as the unequal division of domestic labor and women's lower participation in high-status professional positions may exacerbate this responsibility (Yakubu & Shutte, 2019). This caregiving model can significantly impact on the quality of life of caregivers, as they often experience physical and emotional overload, leading to high stress levels and negative mental health effects. Insufficient social support coupled with a lack of caregiving resources can further compound these challenges, highlighting the need for policies that acknowledge and support caregivers (Delfino et al., 2018).

Regardless of their sex, caregivers experience high rates of depression and mental health issues including reduced emotional well-being, disruption of social life, feelings of loss of control over their personal lives, and physical stress, all of which affect their quality of life (Family Caregiver Alliance, 2020; Shafizadeh et al., 2020).

The concept of Quality of Life (QoL) is diverse and subjective. Multidimensionally assessed through an individual's perception of aging and personal identity, it is related to both physical and mental health (Fagerstrom et al., 2020). QoL and caregiver burden are key variables to be considered in elder care, requiring the implementation of effective strategies to enhance the QoL of caregivers of older adults with Alzheimer's Disease to prevent further deterioration of their conditions (Kawaharada et al., 2019).

It is therefore crucial to understand the challenges faced by caregivers of older adults with AD. Understanding how caregiver burden affects their QoL is essential for developing support and intervention strategies. In addition, the results of this study can inform resource allocation, and the development of public policies designed to support caregivers, recognizing their importance in the health and well-being of the older population. This study therefore seeks to analyze whether increased caregiver burden among caregivers of older adults with AD negatively impacts their perceived QoL.

METHOD

Study design

This quantitative, analytical, observational, cross-sectional study was developed according to the guidelines of Strengthening the Reporting of Observational Studies in Epidemiology (STROBE).

Participants

A non-probability sample was intentionally and conveniently chosen, consisting of 126 formal (professional) or informal (family) caregivers of older adults with AD residing in various regions of Brazil. In this country, formal caregivers are professionals who have at least completed secondary education and undergone specialized training. They may also include professionals with higher education, such as nurses, who have received additional caregiving training.

Only caregivers of older adults diagnosed with AD (as reported by the caregivers themselves) of either sex, aged 18 years or older, residing in all regions of Brazil, were included. Caregivers of institutionalized or hospitalized older adults were excluded.

Measurements

A questionnaire developed by the authors was used to assess the sociodemographic, health, and care profile of older adults with AD, with questions regarding age, age group, sex, family income, educational attainment, retirement status, and length of time since diagnosis. Another questionnaire containing questions on the caregiver's age, age group, sex, family income, educational attainment, length of time and number of hours a day spent providing care for the older adult with AD, and whether they reside in the same household as the older adult was used to evaluate the caregivers.

The Zarit Caregiver Burden Interview was employed to assess caregiver burden. This instrument evaluates caregivers' perceived burden, focusing on how their caregiving activity impacts their personal, social, financial, physical, and mental health. The instrument comprises 22 items to be answered by the caregiver using a 5-point Likert scale ranging from 0 points (never) to 4 points (always), with a total score of 0 to 88 points, with higher scores indicating more significant caregiver burden (Taub et al., 2004).

The WHOQOL-Bref, a shortened version of the World Health Organization Quality of Life assessment questionnaire, was used to evaluate caregivers' QoL. It consists of 26 questions, two of which concern individual perceptions of QoL and health, while the rest are subdivided into physical and psychological aspects, social relationships, and environmental domains. Each domain ranges from four to 20 points, with higher scores indicating better QoL in the domain evaluated (Fleck et al., 2000).

Procedures

A link was created to host the electronic questionnaire developed for the study, and quantitative data were collected through an online form provided by the Survey Monkey platform. Contact was established with the Brazilian Alzheimer's Association (ABRAz) so that they could send the research form link to registered caregivers. To broaden the scope of the national sample, assistance was requested from elder caregiver training course instructors and the directors of caregiver training schools.

The survey link was also distributed through the authors' social media platforms (Facebook™, Instagram™, and WhatsApp™). The platform remained open to receive responses from participants for 90 days (from February to May 2023). Before completing the questionnaire, participants received brief instructions containing information on the research objectives, target audience, and the estimated time required to complete the questionnaire (approximately 15 minutes). Interested participants were first required to fill in the Informed Consent Form (ICF) on the online platform, indicating their agreement.

There was no pre-selection of who would receive the invitation to participate. The invitation was widely shared on the authors' social media platforms, with a link containing the ICF and research instruments. In the posts, we asked those who knew caregivers of older adults with Alzheimer's disease to share the link with them to identify potential participants.

There was no direct contact between the researchers and potential participants. Those who were interested, met the inclusion criteria, and accepted the ICF were allowed to access the link and complete the questionnaire. Since the questionnaires were hosted on Survey Monkey, the responses were automatically saved in an Excel spreadsheet at the end.

The exclusive use of the authors' social media for dissemination allowed us to reach a broad, varied network, enabling the research team to reach caregivers of older adults with AD in various regions of Brazil.

Statistical analysis

Data analysis was performed with SPSS 25.0 software using descriptive and inferential statistical approaches. Frequency and percentage were used as descriptive measures for categorical variables. Data normality was assessed using the Kolmogorov-Smirnov test, and skewness and kurtosis coefficients were used for numerical variables. Bootstrapping procedures (1000 re-samplings; 95% *BCa CI*) were also performed to enhance result reliability, correcting for potential deviations from sample normality and differences between group sizes, and to achieve a 95% confidence interval for the means (Haukoos & Lewis, 2005). Pearson correlation was used to explore the association between caregiver burden levels and caregivers' QoL domains. Simple linear regression analysis was employed to determine whether caregiver burden level (independent variable) predicts caregivers' perceived QoL (dependent variables). Five simple linear regression models were used with the enter method. There were no sufficiently strong correlations between variables to indicate multicollinearity issues (Variance Inflation Factor/VIF < 5.0). Pearson's Chi-square test (X^2) was used to analyze sociodemographic, health, and professional performance factors associated with caregiver burden levels. One-way Anova, followed by Tukey's Post-Hoc, was used to compare QoL domains based on caregiver burden levels. A significance level of $p < .05$ was used.

Ethical guidelines

The study was approved by the Cesumar University Research Ethics Committee (Unicesumar), with approval number 6.001.701/2023, and followed the research standards in human subjects established in Resolution 466/12 of the National Health Council. All participants signed the Informed Consent Form.

RESULTS

A total of 126 caregivers participated in the research, comprising 118 females and eight males, with ages ranging from 22 to 80 years ($M = 51.36$; $SD = 10.90$). The data in

Table 1
Sociodemographic profile of caregivers of Alzheimer's patients participating in the research, Brazil, 2023

Variables	*f* *(n = 126)*	*%*
Gender		
Female	118	9.7
Male	8	6.3
Age Group		
20 to 39 years	22	17.5
40 to 59 years	78	61.9
60 years or older	26	20.6
Marital Status		
Partnered	69	54.8
Unpartnered	57	45.2
Educational Attainment		
Incomplete/Complete Elementary School	10	7.9
Complete High School	40	31.7
Complete Higher Education	76	60.3
Race/Ethnicity		
Caucasian	81	64.2
Asian	6	4.8
Black/Brown	39	31.0
Monthly Income		
1 to 2 MW	53	42.1
2.1 to 3 MW	25	19.8
More than 3 MW	48	38.1

Note: MW: minimum wage (*s*).

Table 2
Professional profile of caregivers of older adults with Alzheimer's disease, Brazil, 2023

Variables	*f* *(n = 126)*	*%*
Time Spent Caring for Older Adult		
Less than 1 year	11	8.7
1 to 4 years	64	50.8
More than 4 years	51	40.5
Number of Older Adults Cared for		
Only 1	117	92.9
More than 1	9	7.1
Hours per Day Spent Caring for Older Adult		
Up to 8 hours	33	26.2
9 to 12 hours	26	20.6
More than 12 hours	67	53.2
Lives with Older Adult		
Yes	83	65.9
No	43	34.1
Type of Care		
Informal	99	78.6
Formal	27	21.4

Table 3
Sociodemographic profile of older adults with Alzheimer's disease attended by caregivers participating in the research, Brazil, 2023

Variables	*f* *(n = 126)*	*%*
Gender		
Female	101	80.2
Male	25	19.8
Age Group		
60 to 69 years	11	8.7
70 to 79 years	39	31.0
80 years or older	76	60.3
Time since Diagnosis		
Up to 4 years	65	51.6
More than 4 years	54	42.9
Don't know	7	5.6

Table 1 reveal a predominance of caregivers who were in the 40 to 59 year age group (61.9%), partnered (54.8%), had completed higher education (60.3%), were Caucasian (64.2%), and earned a monthly income ranging from one to two minimum wages (42.1%).

According to the results shown in Table 2, most caregivers reported having cared for only one older adult with AD (92.9%) for a period ranging from one to four years (50.8%) and for more than 12 hours per day (53.2%). Most of them also lived with the older adults (65.9%) and provided informal care (78.6%). The mean age of the older adults reported by caregivers was 81.48 ($SD = 7.91$) years.

According to the caregivers (Table 3), most of the older adults with AD they cared for were female (80.2%), aged over 80 years (60.3%), and had been diagnosed with AD less than four years earlier (51.6%).

Table 4 shows that caregivers exhibited a slight burden overall ($Md = 59.07$; $SD = 15.83$). Regarding QoL, higher scores were observed in the physical domain ($M = 12.92$; $SD = 3.39$), followed by the environmental ($M = 12.73$; $SD = 2.50$), self-assessment ($M = 12.50$; $SD = 3.42$), psychological ($M = 12.37$; $SD = 3.27$), and social relationships domains ($M = 11.89$; $SD = 3.90$).

An analysis of the correlations between caregiver burden levels and QoL domains (Table 4) found that the burden levels perceived by caregivers had a significant ($p < .05$), negative, and moderate correlation ($r = -.48$ to $-.62$) with all QoL domains, indicating a moderate, inversely proportional association between caregiver-perceived burden and QoL. The

Table 4
Descriptive statistics and correlations between burden level and quality of life domains of caregivers of older adults with Alzheimer's disease. Brazil, 2023

Variables	*1*	*2*	*3*	*4*	*5*	*6*
1. Burden level	-	-.60**	-.58**	-.62**	-.51**	-.48**
2. Physical Domain		-	.84**	.72**	.73**	.67**
3. Psychological Domain			-	.74**	.74**	.70**
4. Social Relationships Domain				-	.66**	.57**
5. Environmental Domain			.		-	.62**
6. Self-assessment						-
Mean	59.07	12.92	12.37	11.89	12.73	12.50
Standard Deviation	15.83	3.39	.3.27	3.90	2.50	3.42

Note: Pearson correlation - ** $p < .01$; *$p < .05$.

Table 5
Burden level as a predictor of quality of life perception among caregivers of older individuals with Alzheimer's disease, Brazil, 2023

	Burden Level				
	Predictor Variable				
Dependent Variables	*B (I.C. 95%)*	*β*	*Adjusted R-squared*	*F test*	*Durbin-Watson*
Physical (M1)	-.13 (-.16; -.10)	**-.60*****	.36	70.275***	1.81
Psychological (M2)	-.12 (-.15; -.10)	**-.58*****	.34	64.111***	1.78
Social Relationships (M3)	-.15 (-.19; -.12)	**-.62*****	.38	76.106***	1.94
Environmental (M4)	-.10 (-.11; -.06)	**-.51*****	.25	42.536	2.06
Self-assessment (M5)	-.10 (-.14; -.07)	**-.48*****	.23	37.354***	2.10

Note: Only standardized regression coefficients below the significance level of .05 are highlighted in bold. *B* = Unstandardized regression coefficient; *β* = Standardized regression coefficient; *CI* = 95% confidence interval; *$p < .05$, **$p < .01$, ***$p < .001$.

QoL domains showed significant ($p < .05$), positive, and moderate to strong correlations ($r = .57$ to .84) with each other.

Table 5 shows the simple linear regression models of perceived caregiver burden level as a predictor of perceived QoL. The burden level explained a significant ($p < .01$) and moderate amount (R^2 between .23 and .38) of caregivers' perceived QoL. Caregiver burden levels showed a significant ($p < .01$) and negative prediction ($\beta = -.48$ to -.62) across all QoL domains, showing that higher caregiver burden levels affect perceived QoL.

DISCUSSION AND CONCLUSION

The results of this study indicate that higher caregiver burden is linked to lower perceived QoL, showing that caregiver burden exists. The physical domain of QoL was identified as the most satisfactory, while the social relationships domain was considered the least favorable among caregivers. These findings underscore the interconnection between the various components of QoL.

It should be noted that 93.7% of the participants in our study were women, reflecting the predominant trend in the caregiving field. This result could have significant implications for understanding and managing sectoral demands. First of all, it points to the need to promote policies and initiatives to include and train male caregivers, foster greater diversity in the workforce, and potentially achieve a more balanced distribution of caregiving responsibilities (Furegato & Santos, 2012).

The fact that men are a minority in caregiving roles can be explained by cultural and social factors, such as the traditional association of caregiving with women, rooted in gender norms assigning the role of care and emotional support to women (Cruz & Handam, 2008). Additionally, barriers such as the perception of a lack of skill or empathy among men and the lower flexibility of work schedules associated with traditionally male-occupied professions could discourage their participation in this field (Hellis & Mukaetova-Ldinska, 2022).

At the same time, according to Luzardo, Gorini, and Silva (2006), the predominance of women also reflects family dynamics in which women often assume responsibility for caring for relatives, due either to their perceived availability or cultural expectations. These factors underscore the need for social interventions to challenge this cultural norm and promote more equitable participation by both sexes in caregiving.

The results indicating the predominance of caregivers aged 40 to 59 years, with higher education and a monthly income of one to two minimum wages, are due to several factors. According to Gutierrez et al. (2021), this age group coincides with a stage of life where many individuals have achieved a certain level of professional and personal stability, which could facilitate their involvement in caring for elderly family members. Moreover, higher educational attainment suggests that these caregivers may be better informed about the complexity of the disease and more willing to assume specialized caregiving roles (Farina et al., 2017).

Conversely, the limited monthly incomes of caregivers reflect the financial burden many families face, indicating that despite having academic qualifications, caregivers may experience financial challenges in balancing paid work and prolonged caregiving. This situation highlights the need for greater government and community support (Cheng, 2017).

The results show that most caregivers focus on caring for only one older adult with AD, which could be interpreted as a care management strategy, given the physical, emotional, and cognitive demands involved in this type of assistance. The period of one to four years reflects an early to intermediate stage of disease progression (Pinyopornpanish et al., 2022), in which symptoms still allow for a degree of autonomy albeit under constant supervision.

The fact that the caregiving workload exceeds 12 hours a day highlights the heavy dependence of older adults and the burden faced by caregivers, who often balance these demands with other responsibilities such as work and family life. Providing care 12 hours a day for one to four years can place a physical and emotional strain on caregivers, increasing the risk of burnout and health problems (Kim, Noh, Kim, 2021).

This scenario reinforces the need for social support and public policies to prevent physical and psychological exhaustion among caregivers and improve the quality of life of both the latter and older adults (Falcão et al., 2018).

Regarding older adults with AD, the results showed that over 80% were women aged over 80, who had been diagnosed with the disease less than four years earlier. It is important to note that the higher prevalence among women reflects their longer life expectancy, making them more likely to develop the disease, as the risk of AD increases with age (Paschalidis et al., 2023). Furthermore, according to Zhang et al. (2021), the predominance of older adults over the age of 80 aligns with the fact that Alzheimer's disease (AD) typically manifests at advanced stages of life. Conversely, recent diagnoses may be related to increased awareness and efforts to promote timely diagnosis over the past few years, enabling symptoms to be identified in the early or intermediate stages of the disease (Khan, Barve, & Kumar, 2020).

Caregiver burden can be explained by the increased physical and emotional demands often accompanying this role. The constant physical and mental exhaustion can decrease available energy, contributing to a negative perceived QoL (Peixoto et al., 2022). These results are in line with previous research, such as the study conducted by Ibrahim et al. (2024) in Egypt, identifying an intense physical burden among caregivers of older adults with AD, whereas the psychological burden was considered to be lower, with approximately 30% of the sample reporting poor QoL.

It is important to note that caring for a person with AD requires significant time and energy, restricting the caregiver's social and personal activities, and resulting in feelings of isolation and lower perceived QoL (Sklavou & Sarathanou, 2022). This is borne out by the research of Vu et al. (2022), in which 43% of 200 caregivers of older adults with AD reported feeling more isolated from their families, and 35.5% did not seek help from third parties. These data highlight the challenges caregivers face and the importance of addressing their social and emotional needs during caregiving.

It is also essential to note that caregiver burden is likely to harm caregivers' interpersonal relationships, including those with their families, friends and intimate partners. The additional stress caused by this burden could presumably trigger conflicts and social distancing, compromising the quality of these relationships (Zahed et al., 2020; Duplantier & Williamson, 2023). These findings are consistent with the study by Nascimento and Figueiredo (2019) highlighting the difficulties caregivers of people with AD experience in their social relationships due to the additional fatigue and stress resulting from daily caregiving. This information underscores the need for support and adequate interventions for caregivers to preserve and enhance their interpersonal relationships despite the challenges of caregiving.

It is crucial to emphasize that caregiver burden is directly associated with mental health problems, such as anxiety and depression (Keklikçi, 2023), which has the potential to significantly impact perceived QoL (Pinyopornpanish et al., 2021). Moreover, in the context of informal caregivers, the financial burden associated with caring for a person with AD can cause additional concerns, potentially contributing to a negative perception of QoL. These financial worries can intensify existing stress and negatively influence caregivers' perception of their well-being. In this respect, addressing these financial concerns and providing emotional support is essential to improving caregivers' QoL and ensuring proper care for patients with AD.

Caregivers often devote so much effort to caring for patients with AD that they neglect their own needs (Alonso-Cortés et al., 2020). This was corroborated by a qualitative study conducted by Mattos et al. (2020), which, through focus group discussions with caregivers of older adults with dementia, found that the caregiving burden directly influences their self-care.

The lack of time for self-care, exercise, and enjoyable activities can result in a decline in caregivers' physical and emotional health and contribute to a sense of lack of control over their own lives. This perception of lack of control can cause hopelessness and dissatisfaction (Talib et al., 2021; Villarejo-Galende et al., 2022). These findings highlight the importance of recognizing and addressing caregivers' needs, promoting self-care strategies, and offering emotional support to counteract the adverse effects of the caregiving burden.

There are several hypotheses and possible explanations for the scenario in which caregivers of older adults with AD experience greater satisfaction in the physical than the social relationships domain. Caring for a person with AD often involves a series of physical tasks, such as assisting with mobility, bathing, and feeding (Chandran, 2021). It is important to note, however, the significant gap in studies exploring actions performed in the family caregiving context for these older adults, as highlighted by the scoping review by Silva et al. (2023).

Caregivers may indeed experience momentary gratification when performing these physical activities, resulting in a positive impact on the physical aspect of their QoL. These activities provide caregivers with a tangible sense of accomplishment, as they are concrete, measurable tasks. These achievements, in turn, can positively influence the overall perception of the physical domain of QoL (Bernardo & Raymundo, 2018). However, it is essential to note that while caregivers may derive satisfaction from performing the physical tasks associated with caregiving, there may be a need for additional support and intervention to strengthen caregivers' social relationships. This is essential to promoting a more balanced, satisfactory QoL, and addressing caregivers' physical and social needs.

Advancing AD can result in behavioral changes in patients, including social isolation and difficulties with social interactions (El-Haj et al., 2016; Zhang et al., 2022). Conversely, as observed in the publication by Shea et al. (2020), social isolation, particularly during the COVID-19 pandemic, exacerbated psychological and behavioral symptoms, such as mood changes and aggression, in three older adults with AD. This was due to the disruptions in their normal routines and lack of social interaction.

These changes can restrict caregivers' opportunities to participate in social activities, negatively impacting the social relationships domain in their QoL, as observed in the present study. This dynamic underscores the importance of addressing both the social needs of patients with AD and those of caregivers by ensuring adequate support and interventions to promote a socially stimulating, supportive environment for all involved.

Additionally, the stigma associated with AD may lead caregivers to avoid social situations for fear of being judged or stigmatized (Monfared et al., 2023). In this regard, the study conducted by Gale, Acar and Daffner (2018) shows that the stigma associated with dementia, including AD, leads to negative consequences such as social isolation, difficulties in rehabilitation, and impacts on the caregiver's health. This fear can contribute to an unfavorable perception of the domain of social relationships. These findings emphasize the importance of combating the stigma associated with AD and providing adequate support for caregivers to enhance the QoL and well-being of all those involved.

The positive correlation between all domains of QoL (physical, environmental, social relationships, psychological, and self-assessment) among caregivers of older adults with AD can be attributed to a series of interrelated factors. Caregivers who adopt a holistic approach to care, considering both the physical and psychosocial aspects of the patient, tend to experience improvements across all domains (Elagamey et al., 2022; Jayakodoy & Arambepola, 2023). Moreover, studies such as the one by Rozani et al. (2022) demonstrate that interdisciplinary programs encompassing physical, psychoeducational, cognitive, behavioral, and health education components have the potential to reduce caregiver burden and improve health-related QoL. This comprehensive approach can contribute to a positive perception of QoL.

It is important to note that caregivers who develop personal resilience and adopt effective coping strategies tend to cope better with the stress associated with caring for people with AD (Rosa et al., 2020; Han et al., 2019). These positive characteristics have the potential to positively influence all domains of QoL. However, it is interesting to note that the research by Durán-Gómez et al. (2020), conducted of 120 caregivers of people with AD in Spain, concluded that those reporting higher levels of resilience displayed indicators of moderate to intense caregiver burden. However, they also demonstrated fewer depression and anxiety symptoms. These results suggest that resilience may play a role in protecting against the negative impacts of caregiving, despite the perceived burden.

Notwithstanding its important findings, this study has certain limitations. First, the fact that it is an observational, cross-sectional study means that it is not possible to infer causality. Moreover, the nature of this study limits the ability to establish temporal relationships between the variables, making it challenging to determine whether the observed associations are a cause or a result of the phenomena analyzed.

Findings should therefore be interpreted with caution, acknowledging these limitations.

The sample may not be representative enough of the general population of caregivers of patients with AD, as it only includes a particular demographic group. Additionally, the use of self-reported questionnaires may introduce biases of self-assessment and subjectivity into the results. The lack of control over potentially confounding variables, such as the severity of the patient's AD or the social support available to caregivers, may also limit the generalizability of findings. Another possible limitation is the absence of longitudinal follow-up, which could provide deeper insights into changes in caregiver burden and QoL over time. These considerations underscore the need for future research with more comprehensive methods and more representative samples to corroborate and expand the results of this study.

Another limitation of the study is the inability to confirm whether the individuals under care have AD, due to the type of methodology used. The study relies on self-reported data and does not include molecular studies or precise etiological diagnoses for dementia, meaning that the AD diagnoses could not be conclusively verified. Further, this study only focused on the psychological domain associated with chronic stress on caregivers, since it did not explore the importance of the professional and sociodemographic variables in the association between burden and quality of life. Future research should therefore explore this gap.

Based on the research results, there is significant evidence of a correlation between perceived caregiver burden and all domains of QoL, suggesting an inversely proportional relationship. Additionally, it was found that increased caregiver burden compromises caregivers' perceived QoL. These conclusions highlight the need for interventions designed to reduce the burden and enhance the QoL of caregivers of older adults with AD.

Funding

This study was funded by the Araucária Foundation in Brazil.

Conflict of interests

The authors declare that they have no conflicts of interest.

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ORIGINAL ARTICLE
salud mental
Volume 48, Issue 4, July-August 2025
doi: 10.17711/SM.0185-3325.2025.025

Cyberchondria in High-risk Pregnant Women: Its Relationship with Depression and Anxiety

Tuğçe Sönmez[1], Rukiye Türk Delibalta[2], Esranur Yurt[3]

[1] Department of Midwifery, Faculty of Health Sciences, Tarsus University, Mersin, Türkiye.
[2] Department of Birth, Women Health and Gynecology Nursing, Faculty of Health Sciences, Kafkas University, Kars, Türkiye.
[3] Health Care Services Manager, Bitlis Ahlat State Hospital, Bitlis, Türkiye.

Corresponding:
Rukiye Türk Delibalta
Associate Professor, RN, PhD,
Department of Birth, Women's Health, and Gynecology Nursing, Faculty of Health Sciences, Kafkas University, Kars, Türkiye
Phone: +90 (53) 1374-0528
E-mail: rahsantur@gmail.com

Received: 15 February 2025
Accepted: 25 June 2025

Citation:
Sönmez, T., Türk Delibalta, R., & Yurt, E. (2025). Cyberchondria in High-risk Pregnant Women: Its Relationship with Depression and Anxiety. *Salud Mental 48*(4), 223–230. https://doi.org/10.17711/SM.0185-3325.2025.025

DOI: 10.17711/SM.0185-3325.2025.025

ABSTRACT

Introduction: Increased stress and anxiety can cause significant physiological and psychological pressure in high-risk pregnant women. As a result, they may seek information from various sources on the risks they experience during this period. **Objective:** This study aims to determine cyberchondria levels and examine their relationship with depression and anxiety in high-risk pregnant women. **Method:** This study used a descriptive, correlational design and was conducted with pregnant women (*n* = 216) diagnosed with high-risk pregnancy in the obstetrics clinic of a state hospital between July and December 2024. Data were collected through the Personal Information Form, the Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI), and the Cyberchondria Severity Scale (CSS). **Results:** The mean scores found were 32.53 ± 19.270 for the BDI, 31.75 ± 20.227 for the BAI, and 34.06 ± 14.757 for the CSS. A positive, moderately significant relationship was found between the BDI, BAI, and CSS. The study detected high levels of depression and anxiety, together with moderate levels of cyberchondria in high-risk pregnant women. **Discussion and conclusion:** Health professionals should refer pregnant women to internet sources where they can obtain accurate information to reduce the negative effects of online health searches, and develop and control online platforms designed for pregnant women.

Keywords: Anxiety, cyberchondria, depression, high-risk pregnancy.

RESUMEN

Introducción. El aumento del estrés y la ansiedad causa una presión fisiológica y psicológica significativa en mujeres embarazadas de alto riesgo. Por lo tanto, las mujeres embarazadas buscan información sobre los riesgos que experimentan durante este período en diversas fuentes. **Objetivo.** Este estudio tiene como objetivo determinar los niveles de cibercondría y examinar su relación con la depresión y la ansiedad en mujeres embarazadas de alto riesgo. **Método.** Este estudio utilizó un diseño descriptivo y correlacional y se realizó con mujeres embarazadas (*n* = 216) diagnosticadas con embarazo de alto riesgo en las clínicas de obstetricia de un hospital estatal entre julio y diciembre de 2024. Los datos se recopilaron mediante el "Formulario de Información Personal", el "Inventario de Depresión de Beck (BDI)", el "Inventario de Ansiedad de Beck (BAI)" y la "Escala de Gravedad de la Cibercondría (CSS)". **Resultados.** Las puntuaciones medias fueron de 32.53 ± 19.270 para el BDI, 31.75 ± 20.227 para el BAI y 34.06 ± 14.757 para la CSS. Se encontró una relación positiva y moderadamente significativa entre el BDI, el BAI y la CSS. Este estudio detectó niveles altos de depresión y ansiedad, y niveles moderados de cibercondría en mujeres embarazadas de alto riesgo. **Discusión y conclusión.** Los profesionales de la salud deben dirigir a las mujeres embarazadas a fuentes de internet donde puedan obtener información precisa para reducir los efectos negativos de las búsquedas de salud en línea, y también trabajar en el desarrollo y control de plataformas en línea que puedan ser utilizadas por mujeres embarazadas.

Palabras clave: Ansiedad, cibercondría, depresión, embarazo de alto riesgo.

INTRODUCTION

The psychological and physiological changes involved in pregnancy make it an extremely special, complex process in women's lives (Bjelica et al., 2018; Davis & Narayan, 2020). The presence of physiological or psychosocial conditions threatening the lives or health of the mother, fetus, or newborn creates what are known as high-risk pregnancies (Çoban, 2016).

The conditions that make a pregnancy high-risk can lead to hospitalization, which in turn causes stress and anxiety for expectant mothers (Ölçer & Oskay, 2015; Bekmezci & Özkan, 2016). This can create significant physiological and psychological pressure in these women (Tiryaki et al., 2024; Koss et al., 2016), who may then begin seeking information from various sources on the risks to which they are exposed during this period.

The internet has become the most frequently used source of information on health problems. Excessive, uncontrolled information seeking produces a behavior pattern known as cyberchondria in certain individuals (Zheng et al., 2021). Cyberchondria is an uncontrollable behavior pattern that increases anxiety and distress levels due to health-related internet research (Starcevic & Berle, 2013).Cyberchondria places a heavy burden on the health care system and is particularly dangerous for individuals living in underdeveloped regions (Starcevic et al., 2020). Because over-evaluation of online information increases anxiety about one's general health, cyberchondria causes excessive anxiety (McElroy & Shevlin, 2014). Various studies have reported that fear and anxiety are directly or indirectly linked to cyberchondria (Lin et al., 2020; Liu et al., 2020; Wu et al., 2021; Jungmann et al., 2020; Maftei & Holman, 202; Jungmann & Witthöft, 2020). Given that approximately 75% of internet users browse the web to identify symptoms of an illness they have, cyberchondria is a cause for concern (Bajcar & Babiak, 2021). Long-term internet use for health purposes has been found to be associated with a slight increase in depression (Bessière et al., 2010). Conversely, Starcevic & Berle (2019) reported a weak relationship between cyberchondria and depression and general anxiety. Arsenakis et al. (2021) found that depressive symptoms were also associated with cyberchondria. Cyberchondria was also reported to possibly affect psychosocial functioning and quality of life (Mathes et al., 2018; Rahme et al., 2021). Current research continues to explore the effect of online health information seeking on anxiety and depression. The literature was found to include no studies on the cyberchondria levels of high-risk pregnant women. The purpose of the present study is therefore to determine the cyberchondria severity levels of high-risk pregnant women and to examine its relationship with depression and anxiety. In addition to the general objective, the study includes the following specific objectives:

- To examine the levels of depression, anxiety, and cyberchondria among high-risk pregnant women.
- To investigate the relationships between cyberchondria, depression, and anxiety.
- To compare psychological outcomes by high-risk pregnancy conditions and health information sources.
- To determine the predictive effect of cyberchondria on depression and anxiety levels through regression analysis.

METHOD

Study design

This study used a descriptive, correlational design.

Participants

The study was conducted with high-risk pregnant women seeking treatment in the obstetrics and gynecology clinics of Bitlis Ahlat State Hospital between July and December 2024. The calculation made in the Open-Epi analysis program indicated the sample size as 214, with 90% power and a margin of error of .05 according to Cohen's d .50 effect size value. The study sample comprised 216 high-risk pregnant women who agreed to participate in the study and were diagnosed with high-risk pregnancies. In this study, high-risk pregnancy was diagnosed by a physician specializing in the field of obstetrics and gynecology, based on a clinical evaluation. The classification was established in accordance with the clinical guidelines issued by the Ministry of Health of the Republic of Türkiye (Republic of Türkiye Ministry of Health, 2014). Medical risk factors such as heart disease, diabetes, hypertension, Rh incompatibility, threatened miscarriage, and pregnancy-related bleeding were taken into consideration. Only women who had been formally diagnosed with a high-risk pregnancy by a medical professional were included in the study. The inclusion criteria for the study were being ≥ 18 years old, able to communicate, literate, willing to provide consent to participate in the study, and having a high-risk pregnancy (such as heart disease, diabetes, hypertension, Rh incompatibility, risk of miscarriage, or bleeding).

Measurements

Study data were collected using the four forms listed below.

Personal Information Form. The form prepared by the researchers comprised a total of 17 questions (age, educational attainment, employment status, obstetric characteristics, discomfort experienced during pregnancy, sources of information concerning issues related to high-risk pregnancy, and daily internet use).

Beck Depression Inventory (BDI). Depression scores were evaluated using the BDI. The BDI includes 21 items, each corresponding to a specific category of symptoms and attitudes. It is scored on a scale from 0 to 3. In this study, the total score was used. The scale has a score range of 0–63, with higher scores indicating more severe depression. Hisli (1988) translated the inventory into Turkish and reported Cronbach's alpha reliability coefficient as .80 (Hisli, 1989). The reliability coefficient was found to be .89 in this study.

Beck Anxiety Inventory (BAI). The 21-item BAI, developed by Beck et al. in 1988, is a self-assessment scale, translated into Turkish by Ulusoy et al. in 1998. Each item on the scale is scored from 0 and 3. Total scores range from 0 to 63, with an increase in the total score indicating an increase in anxiety symptoms (Ulusoy et al., 1998). Rather than providing a diagnosis, the scale seeks to determine the frequency and severity of anxiety symptoms experienced by individuals. Cronbach's alpha reliability coefficient was found to be .93 in the reliability analysis of the scale (Ulusoy et al., 1998). This study found a reliability coefficient of .842.

Cyberchondria Severity Scale (CSS-12)-Short Form. The scale was developed by McElroy and Shevlin (2014) to assess cyberchondria, a form of anxiety characterized by individuals' excessive searching for health information on the internet. The CSS-Short Form was developed by McElroy et al. (2019). The Turkish validity and reliability study was conducted by Söyler et al. (2021). The scale includes 12 questions scored from 1 to 5 points. The evaluation is based on the total score of the scale, ranging from 12 to 60. The scale is evaluated based on the total score. The higher the score, the higher the severity of cyberchondria. The scale has four sub-scales including excessiveness (min. 3, max. 15), distress (min. 3, max. 15), reassurance seeking (min. 3, max. 15), and compulsion (min. 3, max. 15). Cronbach's reliability coefficient of the original scale and sub-dimensions was reported as .86, .83, .78, .65, and .76 respectively, and was found to be .90, .86, .90, .81, and .90, in the present study.

Procedure

Data were collected by interviewing the pregnant women face to face.

Statistical analysis

The data obtained in this study were analyzed using the SPSS 23 package program. Skewness and Kurtosis values were examined to determine whether the data follow a normal distribution. Descriptive statistics were analyzed using numbers, percentages, medians, means, and standard deviations. Pearson correlation analysis was conducted to examine the relationships between scales. While correlation findings align with the broader literature, they confirm that these associations are also found in high-risk pregnant women, a group with unique psychosocial vulnerabilities. These correlations were therefore reported not to demonstrate novelty, but to validate these well-established relationships within this specific population. Hierarchical regression analysis was performed to determine the predictive power of cyberchondria on depression and anxiety levels. One of the main assumptions of regression analysis is the absence of multicollinearity between variables.In this study, variance inflation factor (VIF) values were examined to assess multicollinearity, with all VIF values being found to be below the recommended threshold of 10 (Hair et al., 2010). In addition, the Durbin-Watson statistics were evaluated to detect autocorrelation problems in the model, with acceptable values ranging from 1 to 3 (Field, 2009). The results indicate that the model met all assumptions, with no multicollinearity or autocorrelation issues observed, allowing for reliable regression analysis. The significance level for the main variables of the study was $p < .05$.

Ethical considerations

Official permission was obtained from the Ethics Committee of the Faculty of Medicine at Kafkas University (dated 26.06.2024 and numbered 2024/06). Informed consent was obtained from the participating women, who were told they could drop out of the study at any time. The study adhered to the principles of the Declaration of Helsinki.

RESULTS

Table 1 shows the distribution of the descriptive statistics and demographic characteristics of the participants. Of the women who participated in the study, 53.2% had completed elementary school, and 66.2% were employed. A total of 33.3% reported having experienced severe hyperemesis during pregnancy. The most frequently consulted source of information regarding high-risk pregnancy was the internet, with 69.4% of pregnant women citing it as their primary resource. In terms of daily internet use, 46.8% of the pregnant women reported using the internet primarily for social media purposes. The average age of participants was 25.77 ± 3.521 years, the average number of pregnancies was .96 ± .806, the average number of deliveries was 1.05 ± .848, the average length of their marriages was 5.26 ± 3.161 years, and the average gestational week was 12.70 ± 5.736.

The results given in Table 2 show a highly significant, positive correlation between the BDI and the BAI [$r(216) = .779$; $p < .001$]. This result suggests that the anxiety levels of high-risk pregnant women rise alongside depression.

Table 1
Demographic characteristics of high-risk pregnant women

Demographic characteristics	*n/%*
Educational Attainment	
Elementary school (grades 1-8)	115 (53.2)
High school (grades 9-12)	84 (38.9)
University and above	17 (7.9)
Employment status	
Employed	143 (66.2)
Unemployed	73 (33.8)
Discomfort experienced during pregnancy	
(1) Pregnancy-related diabetes	30 (13.9)
(2) Hypertension	50 (23.1)
(3) Bleeding	28 (13.0)
(4) Severe hyperemesis	72 (33.3)
(5) Multiple pregnancy	23 (10.6)
(6) Rh incompatibility	13 (6.0)
Sources of information on issues related to high-risk pregnancy	
(1) Internet	150 (69.4)
(2) Television	22 (10.2)
(3) Friends	10 (4.6)
(4) Family	17 (7.9)
(5) Health Institution	17 (7.9)
What do you spend most of your online time on?	
Social media	101 (46.8)
Series	52 (24.1)
Other	63 (29.2)
	(X ± SD)
Age	25.77 ± 3.521
Number of pregnancies	1.96 ± .806
Number of deliveries	1.05 ± .848
Length of marriage (in years)	5.26 ± 3.161
Gestational week	12.70 ± 5.736

Table 2
Correlation test results for the relationship between scale

Scales		1	2	3	4	5	6	7
(1) BDI	*r*	1						
	p							
(2) BAI	*r*	.779	1					
	p	.0**						
(3) Excessiveness	*r*	.472	.661	1				
	p	.0**	.0**					
(4) Distress	*r*	.488	.689	.980	1			
	p	.0**	.0**	.0**				
(5) Reassurance seeking	*r*	.489	.689	.981	.979	1		
	p	.0**	.0**	.0**	.0**			
(6) Compulsion	*r*	.494	.682	.975	.975	.982	1	
	p	.0**	.0**	.0**	.0**	.0**		
(7) CSS	*r*	.490	.686	.992	.992	.994	.991	1
	p	.0**	.0**	.0**	.0**	.0**	.0**	

Note: ** $p < 0.001$, *r* = Pearson Correlation, *BDI* = Beck Depression Inventory, *BAI* = Beck Anxiety Inventory, *CSS* = Cyberchondria Severity Scale

A positive, moderately significant relationship was found between the BDI, BAI, and CSS [$r(216) = .490$; $p < .001$; $r(216) = .686$; $p < .001$]. This result suggests that the depression and anxiety levels of high-risk pregnant women increase as their cyberchondria levels rise. An analysis in terms of sub-scales showed a similarly positive, moderately significant relationship ($p < .001$).

Table 3
Results of the hierarchical regression analysis conducted on the association with depression due to cyberchondria

Variable	*B*	*SE*	*β*	*t*	*p*
Model 1 (Constant)	30.724	3.377	-	9.099	.0**
Pregnancy-related diabetes[a]	-	-	-	-	-
Hypertension	.477	4.193	.010	.114	.910
Bleeding	-1.194	4.812	-.021	-.248	.804
Severe hyperemesis	4.153	3.994	.102	1.040	.300
Multiple pregnancy	-6.435	4.960	-.103	-1.297	.196
Rh incompatibility	-16.604	5.966	-.205	-2.783	.006*
Internet[a]	-	-	-	-	-
Television	11.444	4.202	.180	2.723	.007*
Friends	-10.491	5.937	-.115	-1.767	.079
Family	14.617	4.732	.205	3.089	.002*
Health Institution	4.042	4.712	.057	.858	.392
$R = .419$ $F_{(9\text{-}215)} = 4.881$	$R^2 = .176$ $p = .0$**	$R^2_{(\text{Adjusted})} = .140$			
Model 2 (Constant)	14.805	3.876	-	3.819	.0**
Pregnancy-related diabetes[a]	-	-	-	-	-
Hypertension	-2.691	3.835	-.059	-.702	.484
Bleeding	-2.419	4.372	-.042	-.553	.581
Severe hyperemesis	-.226	3.684	-.006	-.061	.951
Multiple pregnancy	-4.223	4.514	-.068	-.935	.351
Rh incompatibility	-12.139	5.456	-.150	-2.225	.027*
Internet[a]	-	-	-	-	-
Television	5.296	3.923	.083	1.350	.179
Friends	-10.744	5.389	-.117	-1.994	.048*
Family	13.750	4.298	.193	3.200	.002*
Health Institution	1.675	4.292	.023	.390	.697
Cyberchondria	.548	.082	.420	6.709	.0**
$R = .569$ $F_{(10\text{-}215)} = 9.833$	$R^2 = .324$ $p = .0$**	$R^2_{(\text{Adjusted})} = .291$ Durbin Watson: 1.786		$\Delta R = .148$**	

Note: * $p < .05$. ** $p < .001$ Reference level. *B* = Unstandardized Regression Coefficients. *β* = Standardized Regression Coefficient. *SE* = Standard Error. ΔR = *R* Square Change

The results of the hierarchical regression analysis examining the association role of cyberchondria in depression are given in Table 3. In the model, demographic variables showing significant differences in depression (Health Problems Experienced during Pregnancy, Sources of Information on High-Risk Pregnancy) were included as control variables. In the first step, these variables were included in the model (Model 1), explaining 14% of the variance in the dependent variable (depression) (R^2(Adjusted) = .140; $F(9, 215) = 4.881$; $p < .001$). It was found that blood incompatibility ($\beta = -.205$, $p < .05$), television ($\beta = .180$, $p < .05$), and family ($\beta = .205$, $p < .05$) were significantly associated with depression.

Table 4
Results of hierarchical regression analysis of association with anxiety due to cyberchondria

Variable	*B*	*SE*	*β*	*t*	*P*
Model 1 *(Constant)*	28.203	3.377		8.350	.0**
Pregnancy-related diabetes[a]	-	-	-	-	-
Hypertension	3.855	4.194	.081	.919	.359
Bleeding	2.224	4.813	.037	.462	.644
Severe hyperemesis	7.108	3.995	.166	1.779	.077
Multiple pregnancy	-6.705	4.961	-.102	-1.352	.178
Rh incompatibility	-19.017	5.967	-.224	-3.187	.002*
Internet[a]	-	-	-	-	-
Television	16.589	4.203	.249	3.947	.0**
Friends	-12.600	5.938	-.131	-2.122	.035*
Family	15.345	4.733	.205	3.242	.001**
Health Institution	-5.823	4.713	-.078	-1.236	.218
R = .502	R^2 = .252		$R^2_{(\text{Adjusted})}$ = .219		
$F_{(9\text{-}215)}$ = 7.696	p = .0**				
Model 2 *(Constant)*	3.398	3.213		1.057	.292
Pregnancy-related diabetes[a]	-	-	-	-	-
Hypertension	-1.081	3.179	-.023	-.340	.734
Bleeding	.317	3.624	.005	.087	.930
Severe hyperemesis	.285	3.054	.007	.093	.926
Multiple pregnancy	-3.259	3.742	-.050	-.871	.385
Rh incompatibility	-12.060	4.522	-.142	-2.667	.008*
Internet[a]	-	-	-	-	-
Television	7.009	3.252	.105	2.155	.032*
Friends	-12.995	4.467	-.135	-2.909	.004*
Family	13.995	3.562	.187	3.929	.0**
Health Institution	-9.512	3.557	-.127	-2.674	.008*
Cyberchondria	.854	.068	.623	12.611	.0**
R = .761	R^2 = .579		$R^2_{(\text{Adjusted})}$ = .558		ΔR = .327**
$F_{(10\text{-}215)}$ = 28.145	p =.0**		Durbin Watson: 1.779		

Note: $^*p < .05$. $^{**}p < .001$ [a] reference level. B = Unstandardized Regression Coefficients. β = Standardized Regression Coefficient. SE = Standard Error. ΔR = R Square Change

In the next step, the cyberchondria variable was incorporated into the model (Model 2). The inclusion of cyberchondria led to a significant increase in the proportion of explained variance ($\Delta R^2 = .148$; $p < .001$). Cyberchondria was found to be significantly associated with depression ($\beta = .420$, $p < .001$). In the final model, the independent variables accounted for 29.1% of the variance in depression (R^2(Adjusted) = .291; $F(10, 215) = 9.833$; $p < .001$).

The results of the hierarchical regression analysis examining the association role of cyberchondria in anxiety are given in Table 4. In the model, demographic variables showing significant differences in anxiety levels (Health Problems Experienced During Pregnancy, Sources of Information on High-Risk Pregnancy) were included as control variables. In the first step, these control variables were entered into the model (Model 1). The control variables accounted for 21.9% of the variance in the dependent variable (anxiety) (R^2(Adjusted) = .219; $F(9, 215) = 7.696$; $p < .001$). Blood incompatibility ($\beta = -.224$, $p < .05$), television ($\beta = .249$, $p < .001$), and family ($\beta = .205$, $p < .001$) were identified as having a significant association with anxiety.

In the next step, the cyberchondria variable was incorporated into the model (Model 2). The inclusion of cyberchondria significantly increased the proportion of explained variance ($\Delta R^2 = .327$; $p < .001$), and cyberchondria was found to have a significant association with anxiety ($\beta = .623$, $p < .001$). In the final model, independent variables explained 55.8% of the variance in anxiety (R^2(Adjusted) = .558; $F(10, 215) = 28.145$; $p < .001$).

DISCUSSION AND CONCLUSION

Although platforms accessed through the web are recognized as being a significant source of information on health-related issues, they also contain a great deal of misinformation (Tarhan et al., 2021; Cinelli et al. 2020). Levels of internet use as a source of information during pregnancy were reported to range between 45.4% and 97% in Türkiye (Cirban & Özsoy, 2020). Experiencing a high-risk condition with a sense of uncertainty encourages first-time expectant mothers to seek information and use the internet more.

Online environments containing non-evidence-based data and a large amount of negative information may further increase anxiety in individuals with high anxiety levels (Abu Khait et al., 2023; Mrayyan et al., 2022; 2023). A study found that individuals' health-related internet searches did not reduce their disease-related concerns and instead increased their depression and anxiety levels (Muse et al., 2012). Another study showed that health anxiety and anxiety sensitivity were features that contributed to the development of cyberchondria (Schenkel et al. 2021). This study found that high-risk pregnant women had high depression and anxiety levels and moderate cyberchondria levels. Tiryaki et al. (2024) observed that mothers experienced moderate levels of cyberchondria. A study conducted with women of reproductive age (18-49 years) reported moderate levels of cyberchondria (Sezer et al., 2022). Another study conducted with women of reproductive age found that cyberchondria levels increased in keeping with their trait anxiety levels (Sezer et al., 2022). A study conducted of pregnant women indicated that women with health anxiety were more susceptible to cyberchondria. These results suggest that when pregnant women excessively engage in health-seeking behaviors, this may increase their anxiety levels, making them more prone to cyberchondria (Šoštarić et al., 2023).

In addition to the widely recognized role of internet-based information seeking, this study also found that high-risk pregnant women who relied on traditional sources such as television and family members for health-related information reported significantly higher levels of depression and anxiety. This suggests that the type and emotional tone of information, regardless of the source, may influence psychological outcomes. Unlike structured, evidence-based sources, these channels may convey emotionally charged or anecdotal content, potentially increasing feelings of fear and uncertainty. These findings underline the need for healthcare professionals not only to steer women toward credible digital resources but also to support them in navigating interpersonal and media-driven information environments that may amplify psychological distress.

This study also found that high-risk pregnant women who cited healthcare institutions and friends as their primary source of information experienced significantly less anxiety. Receiving information from formal medical sources and peer networks may provide more structured, reassuring, and emotionally supportive information, which can help reduce anxiety in vulnerable populations. Likewise, RH incompatibility was associated with lower levels of depression and anxiety, possibly due to increased awareness, and the timely diagnoses and more frequent medical checkups these women receive.

This study found a significant relationship between the source of information concerning high-risk pregnancy and the discomfort experienced during pregnancy, and depression, anxiety, and cyberchondria. Research has documented that seeking health information may cause people to feel more anxiety and distress about their health (Baumgartner & Hartmann, 2011; Doherty-Torstrick et al., 2016). Those experiencing moderate levels of anxiety were reported to spend more time online than those who experienced mild anxiety. Online medical consultations increased their fear of illness. These individuals often browse two or more websites simultaneously because they do not find a single source of information to be sufficient (Akhtar & Fatima, 2019). Gioia and Boursier (2020) noted that while some cyberchondriac individuals may be particularly intent on finding reassurance in their search for online health-related information, repeated anxiety-raising behaviors can become addictive.

This study found that cyberchondria levels increased alongside high-risk pregnant women's depression and anxiety levels. Starcevic et al. (2019) found that depressive symptoms were only minimally associated with cyberchondria. Arsenakis et al. (2021) reported that depressive symptoms were negatively associated with cyberchondria. Another study found that cyberchondria may affect depression in individuals with compulsive problems (Ambrosini et al., 2022).

The positive correlation observed between depression and anxiety, as well as the relationship between cyberchondria and anxiety, is consistent with prior research findings (Starcevic & Berle, 2013; McElroy & Shevlin, 2014). Although these relationships are well-established in the general population, their confirmation in high-risk pregnant women adds contextual value. Given the heightened emotional vulnerability and specific stressors experienced by this population, reaffirming these associations is important for developing tailored psychoeducational and clinical interventions.

In this study, cyberchondria was an association factor for depression and anxiety explaining 29.1% and 55.8% of the effect of cyberchondria on depression and anxiety levels in high-risk pregnant women respectively. Misra and Stokols (2012) reported that cyberchondria negatively affected general health and increased anxiety levels. Vismara et al. (2022) reported that patients with psychiatric disorders (such as major depressive disorder or anxiety disorder) had more severe cyberchondria symptoms. In this regard, the occurrence or presence of physical or psychological disorders may be a predisposing factor for health-related information-seeking and cyberchondria.

This study has several strengths. It is among the first to specifically explore cyberchondria in high-risk pregnant women, a vulnerable population often overlooked in mental health and digital behavior research. Moreover, the use of reliable, validated psychometric instruments enhances the robustness of the data. However, some limitations must be acknowledged. The cross-sectional design precludes any conclusions regarding causal relationships between cyberchondria, depression, and anxiety. Furthermore, data were collected using self-reported questionnaires, which may be subject to recall bias and social desirability bias. Another important limitation is the lack of an assessment based on whether the women were in their first, second or third trimester of pregnancy. Future research employing longitudinal or experimental designs, as well as mixed-methods approaches, and stratifying participants by trimester and type and severity of high-risk condition could provide deeper insights into the dynamic interplay between information-seeking behavior and psychological well-being in this population.

The study was conducted with a relatively small sample of high-risk pregnant women from a single state hospital in Türkiye, which may limit the generalizability of the findings to other populations or regions. The study reflects cultural and healthcare-specific factors in Türkiye, which may not apply to other settings with different internet usage patterns or healthcare systems.

This study is the first comprehensive research on cyberchondria in high-risk pregnant women. Its results showed that high-risk pregnant women had high depression and anxiety levels and moderate cyberchondria levels. It contributes to an understanding of the relationship between the psychological difficulties experienced during high-risk pregnancy and internet use, and the development of appropriate intervention and support programs. In this regard, it fills an important gap in the literature and could be used to guide health professionals.

Health professionals (especially midwives, nurses, and obstetricians), the media, and legislators have a key role to play in promoting appropriate use of social media and improving the quality of health information. Health professionals should provide guidance to reduce the negative effects of online health searches. They should steer pregnant women toward internet resources where they can obtain accurate information, in addition to developing and overseeing online platforms catering to pregnant women. Disadvantaged groups should be provided with support and guidance regarding reliable health practices by midwives and nurses to ensure sustainable health care.

Conflicts of interest

The authors declare that they have no conflict of interest.

Funding

None.

Acknowledgments

We are grateful to the women who agreed to participate in the study.

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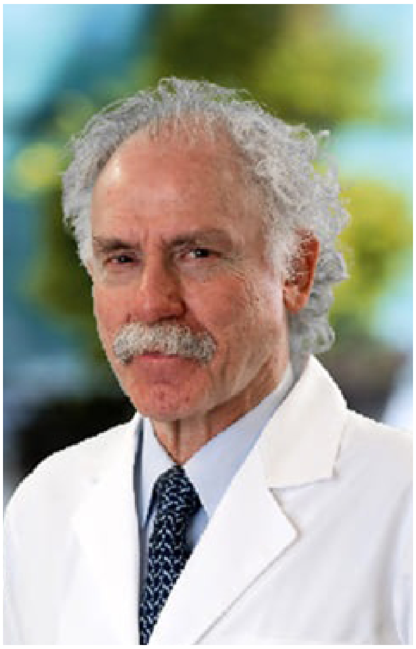
In memoriam
Arnoldo Samuel Kraus Weisman (1951 – 2025)



El pasado sábado 30 de agosto falleció en la Ciudad de México, donde había nacido, una de las figuras más distinguidas de la medicina mexicana, que había sido miembro del Comité Editorial de SALUD MENTAL y lo era ahora de MENTE Y CULTURA, publicación para la que pudo enviar, para los números más recientes, algunos artículos de su autoría. Varias de las figuras más importantes de la república de las letras de nuestro país, que fueron sus pacientes, han escrito notas laudatorias llenas de emoción y gratitud para un médico y escritor que poseía la ya infrecuente cualidad de saber escuchar y poder confortar a quienes recurrían a él. Su figura obliga a evocar un famoso dicho, atribuido a Hipócrates, sobre el arte médico: “El médico cura a veces, alivia a menudo y consuela siempre”.

Nació dentro de una familia asquenazi de origen polaco que logró huir de la Shoah, en la que murieron muchos de sus parientes, gracias a que sobrevivió oculta en el sótano de la casa de un sacerdote católico. Estudió la carrera de medicina en la UNAM y realizó sus estudios de posgrado en Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán. Fue profesor en la Facultad de Medicina de esa Casa de Estudios en donde fundó Colegio de Bioética, tema en el que fue una de las figuras más relevantes en nuestro país. Fue miembro del Seminario de Cultura Mexicana.

Escribió durante largos años un artículo semanal en el ejemplar dominical de el diario El Universal y otro artículo mensual en la revista Nexos. Su opinión sobre temas de bioética, sobre políticas de salud, eutanasia, tecnología y relación médico-paciente, sobre la calidad de la medicina en México y el mundo, fueron de gran lucidez y valentía. La situación del mundo actual, sus dirigentes y las figuras de poder religioso y periodístico, lo condujeron a un escepticismo desencantado y desesperanzado. En la última conversación telefónica que mantuvimos, me expresó: “Ésta no es nuestra época”. Escribió en coautoría con el Doctor Ruy Pérez Tamayo una “Bioética laica”, que debería ser lectura obligatoria para quienes se forman en la carrera de medicina, que, en opinión de Arnoldo Kraus, había ganado en capacidades tecnológicas lo que había perdido en el difícil arte de consolar, escuchar, considerar y compadecer a los pacientes.

La sensibilidad del Doctor Arnoldo Kraus queda plasmada en sus libros, entre los que destacan “Morir antes de morir: El tiempo Alzheimer”, “¿Quién hablará por ti?”, “La Eutanasia”, “Recordar a los difuntos”, “Apología de las cosas”, “Adiós, Glinka”, “Apología del polvo”, “Apología del papel”, “Apología del lápiz”, “La vida: un repaso”, “No eran letras, eran hormigas: (y otros relatos breves)”, “La morada infinita: Entender la vida, pensar la muerte”, “Apología de la morada”. “Dolor de Uno, Dolor de Todos”, “Una receta para no morir”, “A veces ayer”.

La lectura de estas obras hará permanecer vigente y estimulante su pensamiento y su enseñanza.

Héctor Pérez-Rincón García

San Lorenzo Huipulco
Otoño de 2025