

# Mental health gap action program: Scientific-based brief intervention

## Programa de ação para lacunas na saúde mental: Intervenção breve com base científica

*Programa de acción para reducir la brecha de atención en salud mental: Intervención breve basada en la evidencia científica*

Silvia Morales-Chaine<sup>1</sup>, Alejandra Lopez-Montoya<sup>1</sup>, Violeta Felix-Romero<sup>1</sup>, Alejandro Bosch-Maldonado<sup>2</sup>, Ana Gisela Beristain-Aguirre<sup>2</sup>, Claudia Lydia Treviño-Santa-Cruz<sup>3</sup>, German Palafox-Palafox<sup>1</sup>

<sup>1</sup> National Autonomous University of Mexico, Psychology Faculty - Mexico - Mexico City - México.

<sup>2</sup> National Autonomous University of Mexico, General Directorate of Community Attention - Mexico - Mexico City - México.

<sup>3</sup> National Autonomous University of Mexico, Biotechnology Institute - Mexico - Morelos - México.

### ABSTRACT

Evidence-based brief interventions reduce mental health problems. The paper aims to describe the action program designed to (1) reduce the mental health care gap, (2) screen mental health symptoms, and (3) implement scientific-based remote brief interventions during the COVID-19 pandemic. We screened mental health with 36,348 participants in 2021, 14,309 in 2022, and 8,963 in 2023. From these samples, we worked with 5,006 Mexicans, 62% women, aged 10 to 73, who were invited to enroll in the web-based application, receive feedback and psychoeducation, and agreed to be contacted for the synchronous remote brief interventions. Brief intervention means essential care practices, assessment (e.g., common symptoms presentation) and management of mental health symptomatology and psychoactive substance use skills (e.g., action planning to relaxation techniques and problem-solving). Findings suggest a reduced gap in remote psychological services over the years, a decreased acute stress and avoidance prevalences, stable prevalences of distancing, anger, anxiety, sadness, health-related anxiety, and somatization, slightly increased violence and self-harm/suicide, and a high prevalence of alcohol or other drug use during the pandemic. We implemented essential care, assessment, and management skills, setting goals to change behavioral patterns, action- plans, and life skills to cope with mental health conditions - eight out of 10 participants recovered health. The program implementation enabled early risk detection in the Mexican community and interrupted the progression toward severity.

**Keywords:** Mental health, Brief intervention, COVID-19 pandemic.

### RESUMO

Intervenções breves baseadas em evidências reduzem os problemas de saúde mental. O artigo tem como objetivo descrever o programa de ação projetado para (1) reduzir a lacuna de cuidados de saúde mental, (2) rastrear sintomas de saúde mental e (3) implementar intervenções breves remotas com base científica durante a pandemia de COVID-19. Examinamos a saúde mental com 36.348 participantes em 2021, 14.309 em 2022 e 8.963 em 2023. A partir dessas amostras, trabalhamos com 5.006 mexicanos, 62% mulheres, com idades entre 10 e 73 anos, que foram convidados a se inscrever no aplicativo baseado na web, receber feedback e psicoeducação e concordaram em ser contatados para as intervenções breves remotas síncronas. Intervenção breve significa práticas de cuidados essenciais, avaliação (por exemplo, apresentação de sintomas comuns) e gerenciamento de sintomatologia de saúde mental e habilidades de uso de substâncias psicoativas (por exemplo, planejamento de ação para técnicas de relaxamento e resolução de problemas). Os resultados sugerem uma lacuna reduzida nos serviços psicológicos remotos ao longo dos anos, uma diminuição do estresse agudo e das prevalências de evitação, prevalências estáveis de distanciamento, raiva, ansiedade, tristeza, ansiedade relacionada à saúde e somatização, ligeiro aumento da violência e automutilação/suicídio e uma alta prevalência de uso de álcool ou outras drogas durante a pandemia. Implementamos habilidades essenciais de cuidado, avaliação e gerenciamento, estabelecendo metas para mudar padrões de comportamento, planos de ação e habilidades para a vida para lidar com condições de saúde mental - oito em cada 10 participantes recuperaram a saúde. A implementação do programa permitiu a detecção precoce de riscos na comunidade mexicana e interrompeu a progressão para a gravidade.

**Palavras-chave:** Saúde mental, Intervenção breve, Pandemia de COVID-19.

#### Correspondence:

Silvia Morales-Chaine.

E-mail: [smchaine@gmail.com](mailto:smchaine@gmail.com)



## RESUMEN

Las intervenciones breves basadas en evidencia reducen los problemas de salud mental. El artículo tiene como objetivo describir el programa de acción diseñado para (1) reducir la brecha en la atención de salud mental, (2) cribar los síntomas de salud mental e (3) implementar intervenciones breves remotas con base científica durante la pandemia de COVID-19. Evaluamos la salud mental con 36,348 participantes en 2021, 14,309 en 2022 y 8,963 en 2023. De estas muestras, trabajamos con 5,006 mexicanos, 62% mujeres, de 10 a 73 años, a quienes se invitó a inscribirse en la aplicación basada en la web, a recibir retroalimentación y psicoeducación, y que aceptaron ser contactados para las intervenciones breves remotas sincrónicas. La intervención breve significa practicas esenciales de salud, evaluación (p. ej., presentación de síntomas comunes) y manejo de la sintomatología de salud mental y del uso de sustancias psicoactivas (p. ej., planes de acciones para implementar las técnicas de relajación y resolución de problemas). Los hallazgos sugieren una reducción en la brecha de atención hacia los servicios psicológicos remotos a lo largo de los tres años. una disminución en las prevalencias del estrés agudo y la evitación, prevalencias estables de distanciamiento, ira, ansiedad, tristeza, ansiedad relacionada con la salud y somatización, un ligero aumento de la violencia y la autolesión/suicidio y una alta prevalencia del consumo de alcohol u otras drogas durante la pandemia. Los profesionales implementaron prácticas esenciales de salud y habilidades para la evaluación y manejo de riesgos a la salud mental, a través de establecer metas para cambiar los patrones conductuales, planes de acción y habilidades para enfrentar las condiciones de salud mental - 8 de cada 10 personas participantes recuperaron el bienestar. La implementación del programa favoreció la detección temprana de riesgos en la comunidad mexicana y la interrupción de la evolución hacia la severidad.

**Palabras clave:** Salud mental, Intervención breve, Pandemia de COVID-19.

---

## Highlights of Clinical Impact

- Eight out of 10 participants recovered health from implementing essential care, assessment, and management skills, setting goals to change behavioral patterns, action- plans, and life skills to cope with mental health conditions.

The COVID-19 pandemic may have increased violence, alcohol and other drug use (AOD), suicidal thoughts and behaviors (STB), and mental health problems in low- and middle-income countries (Pan American Health Organization [PAHO], 2020/2021; United Nations Office on Drugs and Crime [UNODC], 2022; UNODC Research—Data Portal—Violent and Sexual Crime, 2023); World Health Organization [WHO], 2022; 2023a). Accordingly, we have found that 25% of Mexican youths suffered from violence, 18.93% from harm (AOD) use, 44.46% from depression, 47.90% from anxiety, and 29.47% from post-traumatic stress symptoms (Morales-Chaine *et al.*, 2023), and 33.30% from for at least one STB, 38.30% from chronic pain – emotional symptoms, and 4.20% from thoughts-plans-acts of self-harm in 2023 during the COVID-19 pandemic (Morales-Chaine *et al.*, 2024).

Remarkably, Morales-Chainé *et al.* (2023) study suggested asymmetric victimization of intimate violence, harmful AOD use, and mental health symptoms by sex, with women mainly suffering from physical, emotional, and sexual intimate victimizing violence, anxiety, depression, and PTSD symptoms; meanwhile, men were suffering from harmful use of AOD. Such findings also suggested how being a victim of violence predicts harmful use of tobacco, alcohol, cocaine, and sedatives, depression, generalized anxiety, and specific PTSD symptoms (such as re-experimentation and avoidance symptoms). Being a victim of interpersonal violence resulted

in severe PTSD symptoms (including avoidance, negative alterations in cognition-mood, and hyperarousal signs).

Morales-Chainé *et al.* (2024) also suggested that a more significant percentage of women and participants seeking psychological care have shown high levels of mental health symptoms, self-harm, and STB. The valid path model suggested a direct influence of self-harm and chronic pain-emotional symptoms on STB. Depression symptoms lead to STB in three possible ways: through self-harm, through self-harm affecting chronic pain-emotional symptoms risk, and through generalized anxiety affecting chronic pain - emotional symptoms.

In such context, Palafox *et al.* (2017) have recommended implementing evidence-based brief interventions to cope with health problems and reduce the risk caused by behavioral patterns. The PAHO has also recommended informal actions at the community level (WHO, 2019) and formal actions at the primary care level (WHO, 2016; 2023b) to close the care gap for mental health and substance use disorders. The psychosocial interventions, with community actions and pharmacological intervention on demand, are incorporated through decision algorithms into the clinical handbook for the action program to reduce the care gap in primary health care (WHO, 2016/2023b).

Based on international recommendations, mental health professionals, in collaboration with the community, evaluate mental health risks, discuss the drivers of change, set behavioral goals, collaborate in the development of action

plans, and follow up on the achievement of these life goals (Félix *et al.*, 2018). For the evidence-based brief intervention, the diagnostic formulation corresponds to the simplest version of the evolution and persistence of a specific problem (Brohan *et al.*, 2023). Accordingly, it seeks to intervene quickly and economically by exploring changes in behaviors or attitudes that help address mental and physical health risks (Palafox *et al.*, 2017). Specifically, in the evidence-based brief intervention, based on the action program to reduce mental health gaps (WHO 2016/2023b), promoters and health professionals adhere to observable phenomena and pragmatic conditions, focusing on the analysis of the ideas (constructs) and repetitive behavioral sequences that surround risks or, in the other side, promote mental health.

This paper aims to describe the action program designed to (1) reduce the mental health care gap, (2) screen mental health symptoms, and (3) implement scientific-based remote brief interventions at the Psychology Faculty of the National Autonomous of Mexico (UNAM) during the three years of the COVID-19 pandemic.

## METHOD

### PARTICIPANTS

Participants were invited to enroll voluntarily in a web-based application called *My Health is also Mental* (Morales-Chainé, Robles, Bosch *et al.*, 2022) through conferences in the media at the public Mexican Health Ministry website and the official institutional website of the leading public university in Mexico. Participants enrolled using their email addresses to complete an evaluation of their mental health status and receive free feedback while seeking the brief synchronous intervention. Afterward, During the implementation of the strategy program, we screened mental health symptoms with 59,620 participants 34% during the implementation of the strategy, we screened mental health symptoms with 59,620 participants, 34% men and 66% women, with an age range of 16 to 85 ( $M=29$ ;  $SD=11.98$ ). From these samples, we worked with 5,006 Mexicans, 62% women, aged 10 to 73 ( $M=29.85$ ,  $SD=12.45$ ), who enrolled in the web-based application after receiving the feedback and psychoeducation tools (infographics, videos, and Moodle® courses on COVID-19, self-care, relaxation techniques, problem-solving, and socioemotional management skills), and agreed to be contacted for the synchronous remote brief interventions. A 100% of participants received feedback and psychoeducational tools.

In the screening phase, participants were divided into three samples: those who participated in 2021 ( $n=36,348$ ), those in 2022 ( $n=14,309$ ), and those who did so in 2023 ( $n=8,963$ ). Through informed consent forms, participants accepted the privacy and information management policies. These forms established the duration of participation and how the information

would be used for epidemiological research and disseminating results. They had the right to refuse or drop out at any time. Although no incentives were provided, participants received feedback on their risk levels and the social benefit of their participation in implementing effective strategies through remote psychological support.

Mental health professionals were enrolled to participate immediately after graduating from the master's degree Program of the National Autonomous University of Mexico at the Addiction Psychology subprogram, where they had approved 1,600 of supervised professional practice. The protocol was approved with code FPSI/422/CEIP/157/2020 by the Institutional Review Board of the Psychology Faculty Ethics Committee on Applied Research at the National Autonomous University of Mexico.

### INSTRUMENTS

An Information System (IS) was created using Linux®, PHP®, HTML®, CSS®, and JavaScript® as an application with asymmetric data encryption and a protected database in the official university domain (Morales-Chaine *et al.*, 2021). Our survey recollected data from the sociodemographic section (including sex, age, or seeking psychological care) and the eight self-completed psychological scales: acute stress, avoidance-sadness, distancing-anger, generalized anxiety, health-related anxiety, somatization, psychoactive substance use, and violence scales (Morales-Chaine *et al.*, 2021; Morales-Chaine *et al.*, 2022), and self-harm/ suicide test (Morales-Chaine *et al.*, 2024). All scales have models compared to significant chi-square curves but with *CFI* and *TLI* values greater than 0.900, *RMSEA*, and *SRMR* values of less than 0.08 and 0.06; All scales also have Cronbach alphas over 0.60 (see Table 1).

We considered the criteria for internet E-surveys, such as data protection, development, testing, contact mode, advertising the survey, compulsory /voluntary participation, completion rate, cookies used, IP check, log file analysis, registration, and atypical timestamp considerations (Eysenbach, 2004). The survey platform eliminates respondents who fail to complete the survey. Consequently, we only have complete response rates.

At the first level, the IS comprised algorithmic actions designed for immediate feedback based on the recommendations of the mhGAP guide using: a) infographics, videos, and psychoeducation courses on the Moodle® platform for empowerment regarding coping with mental health risks and preventing their progression to higher levels of severity; and b) the section to grant consent and receive remote synchronous brief intervention. Brief intervention means essential care practices, assessment (e.g., common symptoms presentation) and management of mental health symptomatology and psychoactive substance use skills (e.g., action planning to relaxation techniques and problem-solving) (WHO, 2016/2023b).

At the second and third level, in a modality exclusively available to health professionals, the IS comprised panels including a) information with real-time statistics, b) contact

with the list of consents to receive remote psychological care (marital status, age, sex, results, the reason for consultation, classification of main mental health risk [stress level, risk due to psychoactive substance use, bereavement, preferred care schedule, and authorization date]); and c) electronic file protection (with evaluation results, general data sheet, service plan, session summaries, rescue log, discharge and follow-up data). In conjunction with the information technology system, the Zoiper® 3.5 virtual switchboard, the Zoom® platform, Meet®, Teams®, and WhatsApp® were used for synchronous remote psychological brief intervention.

Additionally, we have designed a Brief Intervention Checklist, an observational format, about essential care practices, assessment, and managing mental health symptoms and psychoactive substance use (WHO, 2016). Finally, we designed one indirect measurement questionnaire to assess the skill levels acquired during the intervention. It comprises seven indicators: communication, decision-making, social interaction, anger management, sadness management, anxiety management, and family relationships, which the respondent rates on a scale of 0 (zero) to 100% (complete) perceived capacity in their everyday lives, at the time of answering.

## PROCEDURE

During 2021, 2022, and 2023, participants were invited to enroll voluntarily in the program to (1) complete the evaluation of their mental health status, (2) receive feedback and psychoeducational tools about mental health, and (3) select the option to receive a brief synchronous intervention. Afterward, the primary-level synchronous remote brief interventions for type and degree of risk were implemented with those who agreed to be contacted. Screening, feedback, psychoeducation, and selection of brief interventions were implemented throughout the web-based application (Morales-Chaine *et al.*, 2021).

The brief synchronous intervention includes implementing essential care practices, mental health assessment, and symptomatology management. The essential care practices were established through empathic verbal and gestural language, visual contact, open questions, active listening, summarizing - returning information, and solving doubts. The mental health assessment refers to the consultation reason exploration, common symptoms presentation, physical health problems, medicine use, psychosocial factors, emergency cases, and mental disorders. Finally, mental health symptomatology and psychoactive substance management consist of implementing symptom explanation, action planning, social-educational-economical-recreational- occupational activity guidance, healthy sleeping, physical activity, healthy nutritional routines, and coping stress direction (relaxation techniques and problem-solving). Brief synchronous interventions were implemented mainly using the Zoiper® 3.5 virtual switchboard, the Zoom® platform, Meet®, or Teams®, and rarely using WhatsApp®. None of the phases had a cost to the participants.

## DATA ANALYSIS

For the present study, the factor structure for each scale was evaluated as a replication of our previous studies (Morales-Chaine *et al.*, 2021; Morales-Chaine *et al.*, 2024), with the Confirmatory Factor Analysis (CFA), using the maximum likelihood (ML) and the diagonally weighted least squares (DWLS) procedures (West *et al.*, 2023). We also calculated the Cronbach Alpha reliability once we determined each scale's final structure model.

Afterward, we calculated the scale scores and classified participants who met the acute stress, avoidance, anxiety, sadness, distancing, anger, health-related anxiety, somatization (arbitrary average percentages over 60%), psychoactive substance use (average punctuation over 2 out of 11 points), and violence and self-harm/suicide criteria for risk (average punctuation over 1 out of 6 points). In other words, we obtained the average scores of the scales and classified participants into at-risk or not-at-risk groups for each dimension by year. Regarding brief intervention, we calculated the proportion of implementation, which is defined as the percentage of observed behaviors of each skill (e.g., essential care practices). We thus used descriptive statistics about brief intervention implementation and findings. We finally used the related sample "t" test to compare pre-post values of skill effects of the brief synchronous intervention. We conducted all analyses using Lavaan 0.6-11 in the integrated development environment RSTUDIO® 2022.02.0, from the R Core Team Foundation for Statistical Computing, and SPSS® 25.0, from IBM Corporation.

## RESULTS

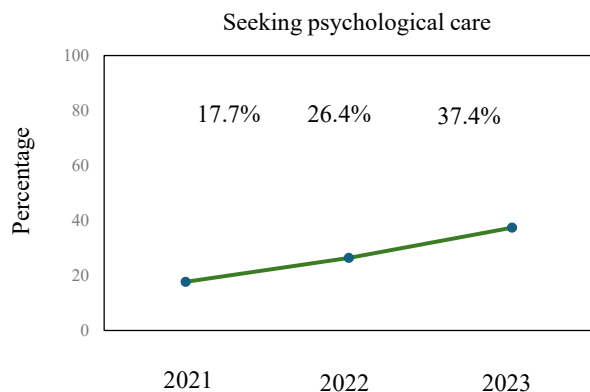
### MENTAL HEALTH CARE GAP

Based on the IS, Figure 1 highlights the percentage of participants who consented to receive brief intervention. Note that the percentage of those who accepted synchronic brief intervention increased over the three years of the pandemic, from 17.7% in 2021 to 26.4% in 2022 and 37.4% in 2023. The care gap seems to have been reduced while the action program was implemented, with the screening first and the brief intervention next.

Violence, AOD Use, Self-harm/Suicide, and Mental Health Risks for the Total Sample and by Year of the Pandemic

The distribution of participants at risk for mental health symptoms, violence, self-harm/suicide, and AOD use criteria for each year of the pandemic are shown in Figure 2. Every year, participants, fewer than the median, suffered from a high risk of acute stress (22.6% in 2021, 13.6% in 2022, and 10.8% in 2023) and avoidance (13.2%, 9.6%, and 8.8%, respectively), with a clear decreased tendency. However, the population suffering from distancing – anger (32.4%, 32.4%, and 31.0%), anxiety – sadness (44.2%, 46.6%, and 49.9%), health-related anxiety





**Figure 1.** Percentage of Participants Seeking Psychological Care during the Three Years of the Pandemic.

(36.5%, 32.5%, and 33.7%), and somatization (12.2%, 9.8%, and 10.0%, respectively) was similar over the three years of the pandemic. The population reporting violence (47.4%, 53.5%, and 59.8%) and self-harm/suicide (20.0%, 26.2%, and 29.6%, respectively) were slightly increasing during the pandemic years, and some were extreme cases. For the AOD use, risk prevalences were higher over the years (99.5%).

## BRIEF SYNCHRONOUS INTERVENTION

Figure 3 shows 59,620 participants received informal community care through infographics, videos, psychoeducation courses, and remote psychoeducation. Regarding brief intervention and support mental health actions, 5006 people benefited from the program (3,384 [67.6%] at the first level, 437 [8.7%] at the secondary level, and 1,185 [23.7%] at the third psychological care level). Of those, 12.7% sought treatment because they had presented anxiety, 10.5% had psychoactive substance use, 8.9% had developmental disorders, 8.7% had depression, and 59.2% had other conditions such as self-harm/suicide, violence, stress, or family problems.

We globally observed 7,420 implementation behaviors among participants and seven mental health professionals in the brief intervention to assess the processes. As shown in Figure 4, we registered 2,032 behaviors about essential care practices - 95.7% of empathic verbal and gestural language, 91.1% of visual contact, 96.8% of open questions, 99.3% of active listening, 87.5% of summarizing and returning information, and 85.8% of solving doubts. The implementation skill average of essential care practices was 94.64% ( $SD=11.34\%$ ), ranging from 12.50 to 100.00%.

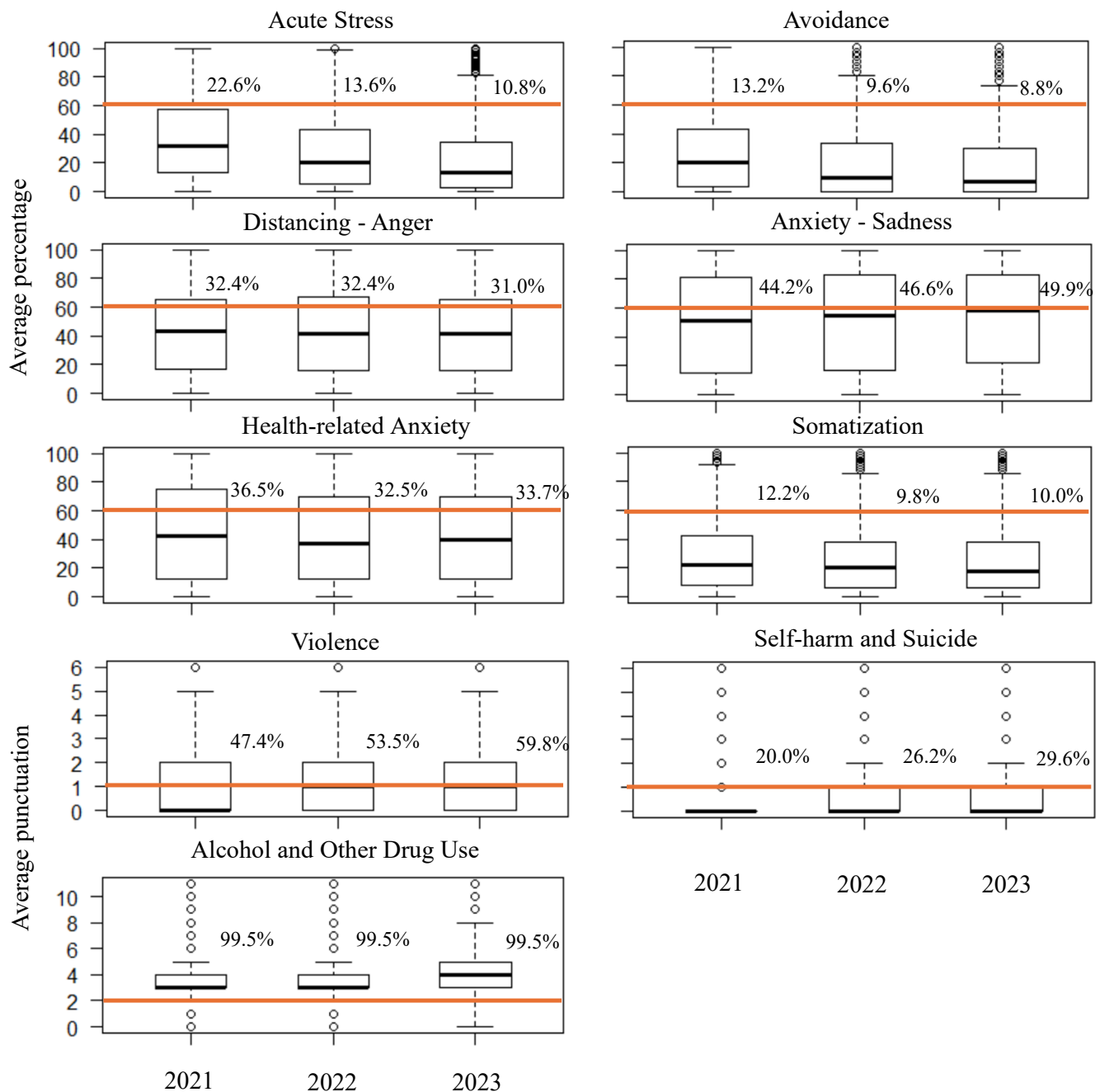
We also observed 2,938 behaviors about mental health assessment - 87.5% of consultation reason exploration, 87.9% of common symptoms presentation, 53.4% of physical health problems, 36.3% of medicine use, 59.4% of psychosocial factors, 69.4% of emergency cases, and 60.5% of mental disorders. The implementation skill average of assessment skills was 60.23% ( $SD=21.35\%$ ), ranging from 7.69 to 100.00%.

We finally registered 2,450 behaviors about the managing mental health symptomatology and psychoactive substance use - 53.4% of symptoms explanation, 53.4% of action planning, 63.7% of social-educational-economical-recreational- occupational activity guidance, 54.8% of healthy sleeping, 62.6% of physical activity, 50.9% of healthy nutritional routines, and 41.6% of coping stress (relaxation techniques, problem-solving) direction. The implementation skill average of mental health risk management was 52.91% ( $SD=28.48\%$ ), ranging from zero to 100.00%.

Therefore, we analyzed the impact of the brief intervention -77.4% recovered their mental health, 12.8% have interrupted their process, 5.40% are still in treatment, and 4.4% failed to be contacted. After analyzing the leading indicators of brief intervention success, we found that establishing operational goals for therapy, a treatment plan, and beneficiaries' participation in the plan design were essential to recovering well-being. For instance, we observed participants reported changes from 46.85 ( $SD=22.53\%$ ) to 82.31% ( $SD=18.78\%$ ) on their skills communication when their intervention goals were established versus 47.78% ( $SD=21.64\%$ ) to 72.22% ( $SD=15.55\%$ ) when they were not.

Globally, thus, Figure 5 shows the skill average reported by representative participants before and after treatment. The communication skills increased from 46.27% before the intervention ( $SD=22.40\%$ ) to 80.87% ( $SD=18.63\%$ ) after the treatment ( $t[145]=-17.490, p<0.001$ ). Regarding decision-making, participants reported 41.62% ( $SD=20.61\%$ ) before versus 81.53% ( $SD=18.93\%$ ) after the brief intervention ( $t[125]=-17.950, p<0.001$ ). About interactional skills, beneficiaries reported 48.70% ( $SD=23.12\%$ ) before against 81.30% ( $SD=17.93\%$ ) after treatment ( $t[104]=-13.881, p<0.001$ ). Regarding stress coping skills, they reported 38.92% ( $SD=23.47\%$ ) before and 82.69% ( $SD=16.62\%$ ) after the intervention ( $t[103]=-15.381, p<0.001$ ). About sadness management, they reported 40.19% ( $SD=21.29\%$ ) before and 81.89% ( $SD=16.80\%$ ) after treatment ( $t[120]=-17.539, p<0.001$ ). Regarding anxiety management skills, participants reported 34.73% ( $SD=18.78\%$ ) before and 81.53% ( $SD=18.62\%$ ) after treatment ( $t[148]=-22.268, p<0.001$ ). Finally, about family interaction skills, beneficiaries reported 39.05 ( $SD=22.09\%$ ) before and 75.00% ( $SD=23.66\%$ ) after the brief intervention ( $t[85]=-12.090, p<0.001$ ).

Finally, regarding the satisfaction of participants with the program, it was found that 100% of those who completed the intervention described the quality of the services received as excellent; 100% indicated that the service received was helpful; 100% said that they would recommend the psychological services received; 93.75% reported that the services helped them cope better with their problems (while 6.25% said that they had helped them); and 93.75% reported being very satisfied with the services received (with 6.25% reporting that they were satisfied).



Note. Crossing the orange line indicates established risk criteria. Percentages refer to participant proportion over that risk.

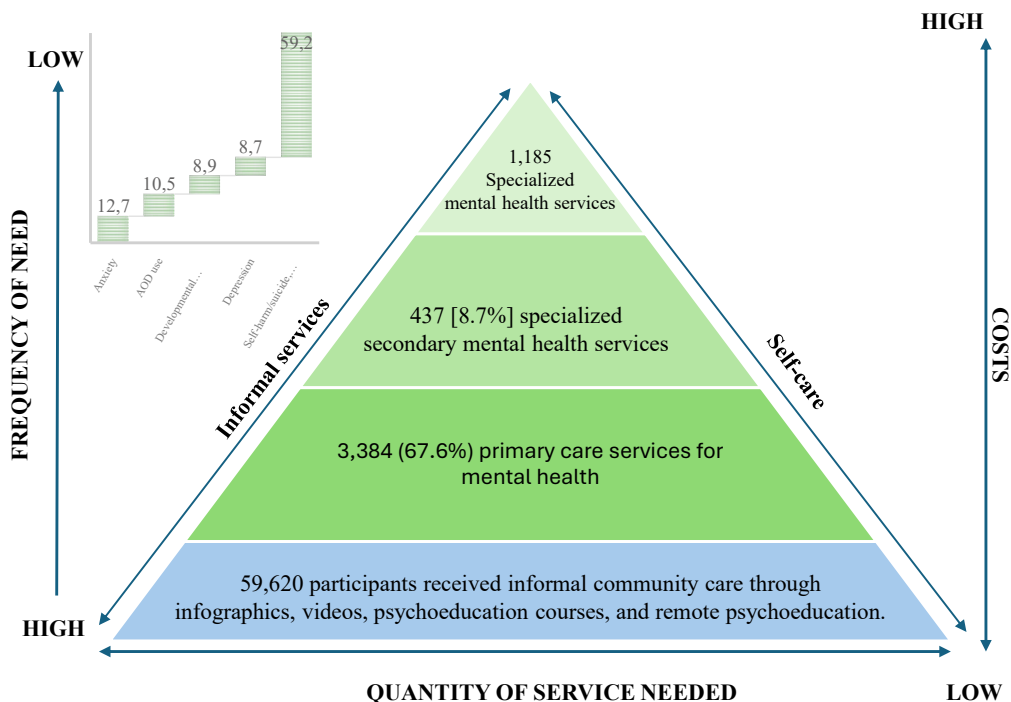
**Figure 2.** Participant distribution according to the average percentage of mental health risks, average punctuation of violence, self-harm/suicide, and psychoactive substance use risks during the three years of the pandemic.

## DISCUSSION

The purpose of the article was to describe the action program designed to (1) reduce the mental health care gap, (2) screen mental health symptoms, and (3) implement scientific-based remote brief interventions. The opportunity to implement the program seems improved actions between 2021 and 2023,

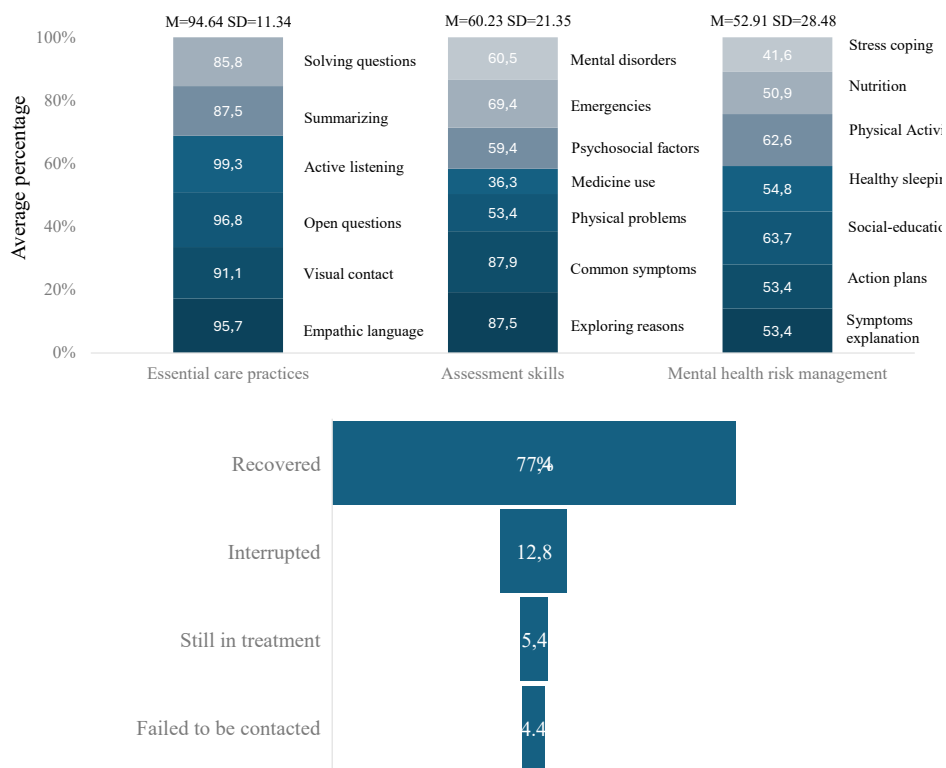
based on the community's and health professionals' active involvement.

Findings thus suggested valid direct and indirect assessment tools, accord to operational previous descriptions of the latent variables (American Psychiatric Association [APA] 2022; Blevins *et al.*, 2015; Goldberg *et al.*, 2017) that let us describe a decreasing prevalence for acute stress (22.6% in



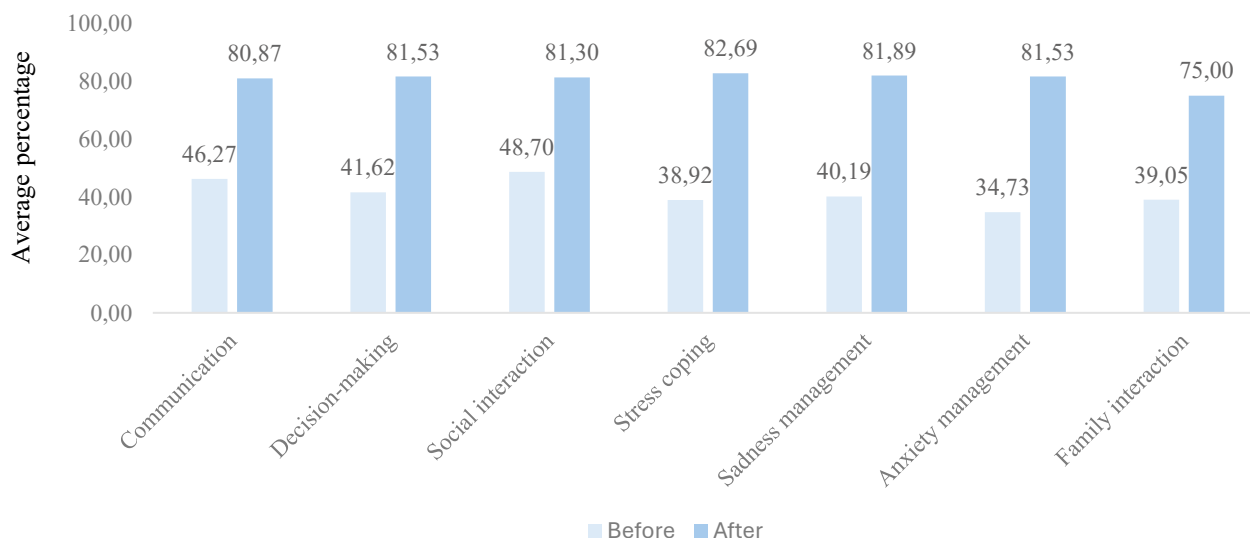
Note. The upper-left graphic refers to main seeking psychological care reasons.

**Figure 3.** The brief intervention pyramid for a mix of mental health services is based on the WHO service organization (mhGAP, 2019) and the main reasons for seeking care.



Note. The down graphic refers to discharge condition of brief intervention participants.

**Figure 4.** Brief intervention implementation levels from the analysis of 7,420 interactional behaviors among participants and seven mental health professionals by mhGAP recommendation process (essential care, assessment, and management) and discharge condition.



**Figure 5.** Skill average percentage reported by participants before and after the brief intervention.

2021, 13.6% in 2022, and 10.8% in 2023) and avoidance (13.2%, 9.6%, and 8.8%, respectively) during the COVID-19 pandemic. Bourmistrova et al. reported similar prevalences of mental health symptoms at follow-up assessment in 2022 associated with contracting COVID-19, indicating a 17.68% prevalence of severe stress symptoms, and a 12.19% and 18.99% prevalence, at one- and three-month follow-up, respectively. They declared such reductions might be expected after controlling the pandemic.

However, we found stable prevalences from suffering distancing – anger (32.4%, 32.4%, and 31.0%), anxiety -sadness (44.2%, 46.6%, and 49.9%), health-related anxiety (36.5%, 32.5%, and 33.7%), and somatization symptoms during the three years (12.2%, 9.8%, and 10.0%, respectively). Findings also suggested a slight increase in violence (47.4%, 53.5%, and 59.8%) and self-harm/suicide (20.0%, 26.2%, and 29.6%, respectively), and a high prevalence of risky AOD use (99.5%) during the study. Our prevalences in such symptoms were like what several authors predicted, before or during the pandemic, such as Layman et al. (2022) about substance use, Farooq et al. (2021) about self-harm/suicide or Bourmistrova et al. (2022) anxiety and depression symptoms for low-income countries. Nevertheless, our program seems to be related to a reduced set of symptoms as a reduced gap for treatment if considering an increase from 17.7% in 2021 and 26.4% in 2022 to 37.4% in 2023 of those participants who requested primary-level remote psychological service at the program.

Reducing the care gap resulted in early identification and the initial triage of mental health risk levels. It means that based on the WHO service organization pyramid, we have described the optimal mix of services for mental health – 100% received informal community care tools, 67.6% formal first-level care, 8.7% secondary care services, and 23.7% specialized third-level care (WHO, 2019). As diagnostic verification actions, findings

indicated that 12.7% of participants accepted treatment because they suffered from anxiety, 10.5% from substance use, 8.9% from developmental disorders, 8.7% from depression, and 59.2% from other conditions such as self-harm/suicide, violence, stress, or family problems. Findings support what Brohan et al. (2023) referred as a reduced gap and escalating up care for people with mental health symptoms. Our psychological intervention emphasizes a digitally delivered intervention across PAHO recommendation on the mhGAP (WHO, 2023b).

In this context, with the program we were able to implement behaviors related to essential care practices (94.64%), assessment (60.23%), and management skills of mental health and drug use conditions (52.91%; WHO, 2016/2023b). Findings thus suggest that brief intervention has involved setting goals to change behavioral patterns, action-support plans to achieve these goals, and acquisition of life skills to cope with the severity of a mental health condition (Félix et al., 2018; WHO, 2016/2023b; Palafox et al., 2017). Increasing communication skills, decision-making, problem-solving, social interaction, anger, sadness, and anxiety management, and better family relationships were components related to successfully discharge from the brief scientific-based intervention - 8 out of 10 participants; without leaving aside that findings indicated a high satisfaction with the quality of the services.

As a result, implementing the program was related to reducing the care gap for remote psychological services, addressing participant mental health by risk levels. The program for closing the care gap made it possible to detect risk early in the Mexican community and interrupt the progression towards severity. The algorithms for anxiety, substance use, developmental disorders, depression, and other conditions like self-injury/suicide made it easier to discriminate between cases requiring specialized brief evidence-based intervention



**Table 1.** Chi-square analysis, degrees of freedom, *p*-values, fit indices, and Cronbach's alpha, by scales for the total group of participants and each pandemic year.

<b>Total</b>	<b>X<sup>2</sup></b>	<b>df</b>	<b><i>p</i>≤</b>	<b>RMSEA</b>	<b>Confident Interval</b>	<b>SRMR</b>	<b>CFI</b>	<b>TLI</b>	<b>Cronbach Alpha</b>
Acute stress	3012,78	12	0,000	0,065	0.063-0.067	0,018	0,988	0,979	0,905
Avoidance	0,000	0	0,000	0,000	0.000-0.000	0,000	1,000	1,000	0,731
Distancing-anger	3664,012	12	0,000	0,071	0.070-0.073	0,019	0,983	0,970	0,894
Anxiety and sadness	2099,033	8	0,000	0,066	0.064-0.069	0,010	0,994	0,989	0,948
Health-related anxiety	98,252	1	0,000	0,040	0.034-0.047	0,003	0,999	0,996	0,889
Somatization	1.280,36	5	0,000	0,065	0.062-0.068	0,018	0,984	0,968	0,793
Psychoactive substance use	3097,126	35	0,000	0,038	0.037-0.039		0,964	0,953	0,616
Violence	2503,918	9	0,000	0,068	0.066-0.070		0,964	0,939	0,634
Self-harm/suicide	2248,857	9	0,000	0,065	0.062-0.067		0,997	0,994	0,849
<b>2021</b>	<b>X<sup>2</sup></b>	<b>df</b>	<b><i>p</i>≤</b>	<b>RMSEA</b>	<b>Confident Interval</b>	<b>SRMR</b>	<b>CFI</b>	<b>TLI</b>	<b>Cronbach Alpha</b>
Acute stress	2497,18	13	0,000	0,073	0.070-0.075	0,020	0,983	0,973	0,903
Avoidance	0	0	0,000	0,000	0.000-0.000	0,000	1,000	1,000	0,705
Distancing-anger	2202,106	12	0,000	0,071	0.068-0.073	0,020	0,983	0,971	0,894
Anxiety and sadness	1385,199	8	0,000	0,069	0.066-0.072	0,011	0,993	0,988	0,947
Health-related anxiety	72,743	1	0,000	0,044	0.036-0.053	0,004	0,999	0,995	0,894
Somatization	819,094	5	0,000	0,067	0.063-0.071	0,019	0,984	0,967	0,794
Psychoactive substance use	1601,466	27	0,000	0,040	0.038-0.042		0,967	0,956	0,607
Violence	1382,51	9	0,000	0,065	0.062-0.068		0,966	0,943	0,629
Self-harm/suicide	1132,77	9	0,000	0,059	0.056-0.062		0,997	0,995	0,842
<b>2022</b>	<b>X<sup>2</sup></b>	<b>df</b>	<b><i>p</i>≤</b>	<b>RMSEA</b>	<b>Confident Interval</b>	<b>SRMR</b>	<b>CFI</b>	<b>TLI</b>	<b>Cronbach Alpha</b>
Acute stress	1010,676	13	0,000	0,073	0.069-0.077	0,021	0,982	0,971	0,900
Avoidance	0	0	0,000	0,000	0.000-0.000	0,000	1,000	1,000	0,750
Distancing-anger	910,516	12	0,000	0,072	0.068-0.076	0,018	0,983	0,970	0,898
Anxiety and sadness	502,983	8	0,000	0,066	0.061-0.071	0,010	0,994	0,989	0,950
Health-related anxiety	18,078	1	0,000	0,035	0.022-0.049	0,003	0,999	0,997	0,884
Somatization	308,419	5	0,000	0,065	0.059-0.071	0,019	0,984	0,967	0,783
Psychoactive substance use	702,39	27	0,000	0,042	0.039-0.045		0,966	0,955	0,619
Violence	636,17	9	0,000	0,070	0.065-0.074		0,962	0,937	0,633
Self-harm/suicide	697,25	9	0,000	0,073	0.069-0.078		0,997	0,994	0,858
<b>2023</b>	<b>X<sup>2</sup></b>	<b>df</b>	<b><i>p</i>≤</b>	<b>RMSEA</b>	<b>Confident Interval</b>	<b>SRMR</b>	<b>CFI</b>	<b>TLI</b>	<b>Cronbach Alpha</b>
Acute stress	487,652	13	0,000	0,064	0.059-0.069	0,021	0,987	0,979	0,904
Avoidance	0	0	0,000	0,000	0.000-0.000	0,000	1,000	1,000	0,814
Distancing-anger	591,368	12	0,000	0,073	0.068-0.078	0,020	0,982	0,969	0,897
Anxiety and sadness	254,015	8	0,000	0,059	0.053-0.065	0,009	0,995	0,991	0,949
Health-related anxiety	8,76	1	0,003	0,029	0.014-0.049	0,003	1,000	0,998	0,875
Somatization	175,768	5	0,000	0,062	0.054-0.070	0,017	0,987	0,973	0,799
Psychoactive substance use	403,127	27	0,000	0,039	0.036-0.043		0,975	0,967	0,640
Violence	238,729	8	0,000	0,057	0.051-0.063		0,978	0,959	0,638
Self-harm/suicide	435,689	9	0,000	0,073	0.067-0.079		0,996	0,993	0,850
<b>Brief Intervention Checklist</b>	<b>X<sup>2</sup></b>	<b>df</b>	<b><i>p</i>≤</b>	<b>RMSEA</b>	<b>Confident Interval</b>	<b>SRMR</b>	<b>CFI</b>	<b>TLI</b>	<b>Cronbach Alpha</b>
Essential care practices	28,217	19	0,079	0,044	0.000-0.076		0,978	0,967	0,685
Assessment	102,827	62	0,001	0,054	0.035-0.072		0,954	0,967	0,770
Management	41,884	24	0,013	0,055	0.025-0.083		0,986	0,978	0,803
Total	654,870	395	0,000	0,057	0.049-0.065		0,914	0,906	0,874

and participants who would benefit from psychoeducation and community intervention alone (WHO, 2019).

## LIMITATIONS

Although the program has contributed to reducing the care gap through the community, findings point to the need of implementing actions to encourage access and ensure the permanent availability of mental health care services. It is striking that participants may need more information technology for remote care or the knowledge to use these tools. These barriers interrupt first contact, maintaining the care gap for these participants or affecting the continuity of the evidence-based intervention.

Future studies should also implement and evaluate the effect of strategies to reduce the stigma, discrimination, and social exclusion that characterize the approach to mental health in the community and primary health care. In this respect, it is necessary to evaluate the impact of health promotion strategies on reducing these barriers, in which the Mexican community, the general population, health promoters, and non-specialized professionals in the field participate.

## REFERENCES

- American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). <https://doi.org/10.1176/appi.books.9780890425787>
- Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress, 28*, 489-498. <https://doi.org/10.1002/jts.22059>
- Bourmistrova, N. W., Solomon, T., Braude, P., Strawbridge, R., & Carter, B. (2022). Long-term effects of COVID-19 on mental health: A systematic review. *Journal of Affective Disorders, 299*, 118-125. [doi.org/10.1016/j.jad.2021.11.031](https://doi.org/10.1016/j.jad.2021.11.031)
- Brohan, E., Chowdhary, N., Dua, T., Barbui, C., Thornicroft, G., Kestel, D. (2023). The WHO Mental Health Gap Action Programme for mental, neurological, and substance use conditions: the new and updated guideline recommendations. *Lancet Psychiatry*. [https://doi.org/10.1016/S2215-0366\(23\)00370-X](https://doi.org/10.1016/S2215-0366(23)00370-X)
- Eysenbach, G. (2004). Improving the quality of web surveys: The checklist for reporting results of internet W-Surveys (CHERRIES). *Journal of Medical Internet Research, 6*, e34. <http://doi.org/10.2196/jmir.6.3e3438>
- Farooq, S., Tunmore, J., Wajid Ali, M., & Ayub, M. (2021). Suicide, self-harm and suicidal ideation during COVID-19: A systematic review. *Psychiatry research, 306*, 114228. <https://doi.org/10.1016/j.psychres.2021.114228>
- Félix, R. V., Morales, C. S., & Santoyo, V. C. (2018). Implementación de procedimientos conductuales: efectos en alta post tratamiento del usuario de drogas. *Health and Addictions. Salud y Drogas, 19*(1). 127-137.
- Goldberg, D. P., Reed, G.M., Robles, R., Minhas, F., Razzaque, B., Fortés, S., Mari, J.J., Lam, T. P., García, J. A., Gask, L., Dowell, A. C., Rosendal, M., Mbatia, J. K., & Saxena, S. (2017). Screening for anxiety, depression, and anxious depression in primary care: A field study for ICD-11 PHC. *Journal of Affective Disorders, 213*, 199-206. <https://doi.org/10.1016/j.jad.2017.02.025>
- Layman, H. M., Thorisdottir, I. E., Halldorsdottir, T., Sigfusdottir, I. D., Allegrante, J. P., & Kristjansson, A. L. (2022). Substance use among youth during the COVID-19 pandemic: A systematic review. *Current Psychiatry Reports, 24*, 307-324. <https://doi.org/10.1007/s11920-022-01338-z>
- Li C. H. (2021). Statistical estimation of structural equation models with a mixture of continuous and categorical observed variables. *Behavior research methods, 53*(5), 2191-2213. <https://doi.org/10.3758/s13428-021-01547>
- Morales Chainé, S., López Montoya, A., Bosch Maldonado, A., Beristain Aguirre, A., Robles García, R., Garibay Rubio, C. R., Astudillo García, C. I., Lira Chávez, I. A., & Rangel Gómez, M. G. (2021). Mental Health Symptoms, Binge Drinking, and the Experience of Abuse During the COVID-19 Lockdown in Mexico. *Frontiers in Public Health, 9*, 656036. <https://doi.org/10.3389/fpubh.2021.656036>
- Morales Chainé, S., Robles García, R., Bosch, A., & Treviño Santa Cruz, C. L. (2022). Depressive, Anxious, and Post-Traumatic Stress Symptoms Related to Violence during the COVID-19 Pandemic, by Sex, COVID-19 Status, and Intervention-Seeking Conditions among the General Population. *International Journal of Environmental Research and Public Health, 19*(19), 12559. <https://doi.org/10.3390/ijerph191912559>
- Morales-Chainé, S., Bacigalupe, G., Robles-García, R., López-Montoya, A., Félix-Romero, V., & Imaz-Gispert, M. A. (2023). Interpersonal and intimate violence in Mexican youth: Drug use, depression, anxiety, and stress during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health, 20*(15), 6484. <https://doi.org/10.3390/ijerph20156484>
- Morales-Chainé, S., Palafox-Palafox, G., Robles-García, R., Arenas-Landgrave, Paulina, López-Montoya, A., Félix-Romero, A., & Imaz-Gispert, M. (2024). Pathways of depressive symptoms to self-harm and suicide warning signs during COVID-19 pandemic: The role of anxiety and related distress, dysfunction, and somatization. *Journal of Affective Disorders, 35*, 476-484. <https://doi.org/10.1016/j.jad.2023.12.077>
- Palafox, P. G., Morales-Chaine, S., Félix, R. V., López, C. F., Martínez, K., & Vázquez, M. J. L. (2017). *Knowledge transfer on Brief Interventions for Relapse Prevention in Addiction*. <https://www.oas.org/cicaddocs/Document.aspx?id=4756>
- Pan American Health Organization (2020). *Burden of Non-fatal Interpersonal Violence: trends over time*. <https://www.paho.org/en/enlace/burden-other-forms-interpersonal-violence>
- Pan American Health Organization. (2021). *The burden of mental disorders in the Region of the Americas, 2000-2019*. <https://www.paho.org/en/enlace/burden-mental-disorders>
- United Nations Office on Drugs and Crime. (2022). *World Drug Report 2022*. [https://www.unodc.org/res/wdr2022/MS/World\\_Drug\\_Report\\_2022\\_Exsum\\_and\\_Policy\\_implications\\_Spanish.pdf](https://www.unodc.org/res/wdr2022/MS/World_Drug_Report_2022_Exsum_and_Policy_implications_Spanish.pdf)

- United Nations Office on Drugs and Crime. (2023). *UNODC Research - Data Portal - Violent and Sexual Crime*. <https://dataunodc.un.org/dp-crime-violent-offences>
- West, S. G., Wu, W., McNeish, D., & Savord, A. (2023). Model fit in structural equation modeling. In R. H., Hoyle (Eds), *Handbook of Structural Equation Modeling* (2nd ed., pp. 184-205). Guilford Press
- World Health Organization. (2016). *mhGAP intervention guide for mental, neurological, and substance use disorders in non-specialized health settings: mental health Gap Action Programme (mhGAP), version 2.0* <https://iris.who.int/handle/10665/250239>
- World Health Organization. (2019). *Field test version: mhGAP community toolkit: Mental Health Gap Action Programme (mhGAP)*. World Health Organization. <https://iris.who.int/handle/10665/328742>.
- World Health Organization. (2022). *Mental health and COVID-19: Early evidence of the pandemic's impact*. [https://www.who.int/publications/i/item/WHO-2019-nCoV-Sci\\_Brief-Mental\\_health-2022.1](https://www.who.int/publications/i/item/WHO-2019-nCoV-Sci_Brief-Mental_health-2022.1)
- World Health Organization. (2023a). *Intimate partner violence*. <https://apps.who.int/violence-info/intimate-partner-violence>
- World Health Organization. (2023b). *Mental Health Gap Action Programme (mhGAP) guideline for mental, neurological and substance use disorders*. <https://www.who.int/publications/i/item/9789240084278>

---

**Article submitted on:** March 28, 2024.

**Article Accepted on:** August 18, 2024.

**Article published online on:** October 24, 2024.

**Funding source:** We thank the University for the support from the DGAPA-IV300121.

**Institutional Review Board Statement:** The National Autonomous University of Mexico Ethics Committee reviewed and approved studies involving human subjects with the code FPSI/422/CEIP/157/2020. The participants provided their written informed consent to participate in the study.

**Responsible Editor:**

Jennifer Morales Cruz

**Other relevant information:**

This article was submitted to RBTC GNPapers code 492.