

Original Research Article

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Stress, coping and resilience in times of COVID-19: an online psychological intervention for women

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ABSTRACT

Background: In the COVID-19 pandemic, women are a vulnerable group because they are more prone to suffering mental health problems. The objective of this research was to evaluate the effect of an online Cognitive-Behavioral intervention on stress, coping, and resilience in a group of women during the COVID-19 pandemic in Mexico.

Methods: Employing a single-group pre-test and post-test design and an intentional non-probabilistic sampling, 43 participants received training in cognitive-behavioral techniques, during five synchronous sessions on a videoconferencing platform.

Results: Participants reported moderate perceived stress before and after the intervention (Mdn =15). Changes were observed in four of the five dimensions of the Mexican resilience scale ($p\leq 0.05$; $r\geq 0.442$) as well as, in the distancing and positive appraisal subscales of the ways of coping questionnaire ($p\leq 0.05$; $r\geq 0.456$).

Conclusions: Telepsychology is a low-cost, feasible, and effective remote intervention modality to promote more adaptive coping and resilience behaviours during a health emergency.

Keywords: COVID-19, Stress, Coping, Resilience.

INTRODUCTION

The COVID-19 pandemic has caused an abrupt change in the lifestyle of people of all ages. Prolonged confinement, the closure of schools and work centers, the unexpected death of loved ones, the fear of getting infected or not receiving the vaccination before returning to face-to-face activities are part of the difficulties faced by the population in the so-called "Nueva Normalidad". Some psychological problems derived from this pandemic are stress, anxiety, depression, sleep disorders, and substance abuse.¹⁻⁴

According to Connor et al and Nicolini, the most vulnerable social groups in times of COVID-19 pandemic were elderly, children, indigenous communities, and women. In this health emergency, women have shown a greater risk of manifesting psychological conditions compared to men, they are even more likely to contract COVID-19 if they have a history of a mental disorder such as depression, in addition to experiencing other problems such as domestic violence, poor access to health services and social inequality even before the pandemic.^{1, 5-8} These conditions are added to daily stress (childcare, housekeeping, work, and schoolwork), generating in them a certain vulnerability to develop alterations in mood and, consequently, change in how they face problems.⁹⁻¹⁰

In this regard, the United Nations reported that there are differences between genders regarding mental health.¹¹ For example, in the Americas region, women were 50% more likely than men to suffer from a depression disorder and are twice as likely to suffer from anxiety disorders, and in countries like India, 66% of women have shown stress symptoms during the pandemic, compared to 34% reported by men. Likewise, in a study in the United Kingdom of a sample of 17,452 people, 33.3% of women reported psychological distress due to COVID-19, while only 20.4% of men reported it.¹²

Due to the prevalence of mental disorders and abuse of addictive substances, online care strategies (telehealth) have been designed as a viable, reliable, and powerful alternative.^{13,14} This model of care consists of offering medical or psychological (telepsychology) care services remotely through information and communication technologies, smartphones, laptops and desktops, videoconferences, email, and applications for mobile devices.¹⁵ Telepsychology reduces travel times, usually has a lower cost, is effective, and in addition, it allows the clinician to reach their patients regardless of their location, despite the null face-to-face contact and the possible effects on the therapeutic relationship.¹⁶

For Cognitive Behavioral Therapy (CBT) and considering the use of new technologies, it has been possible to offer psychological care during the COVID-19 pandemic, for example, there is a report of a randomized controlled study carried out in the United States where the effects of CBT (six sessions with an animated virtual therapist) and an educational treatment via email were compared in 208 patients with a diagnosis of insomnia (Experimental group $M_{age}=44.6$, $SD=\pm 14.1$; Control group $M_{age}=44.7$, $SD=\pm 14.2$). The results revealed a higher decrease in stress levels ($b=-0.2$, $SD=\pm 0.1$, $p=0.055$), depression ($b=-1.3$, $SD=\pm 0.5$, $p=0.01$) and insomnia ($b=-2.9$, $SD=\pm 0.8$, $p=0.001$) in the group that received the CBT intervention, as opposed to the group that received educational treatment.¹⁷

In another study conducted in China the effects of CBT plus routine treatment and routine treatment were compared in 93 patients with COVID-19 (Experimental group $M_{age}=48.3$, $SD=\pm 12.2$; Control group $M_{age}=47.1$, $SD=\pm 10.6$). The CBT-based intervention consisted of psycho-education on the disease, cognitive restructuring, relaxation techniques and training in problem solving and communication.¹⁸ The results indicate that in the experimental group there was a greater decrease in stress symptoms ($M=-3.72$, $SD=\pm 3.52$, $p<0.001$), anxiety ($M=6.81$, $SD=\pm 5.16$, $p<0.001$) and depression ($M=-3.06$, $SD=\pm 3.68$, $p<0.001$).

Considering that mental health in times of a pandemic is a priority, authors such as Weiner et al are designing an online intervention for stress reduction and reinforcement of adaptive coping behaviours in health workers, while Vink and Vink-Niese and Bogucki et al propose an

intervention to reduce fatigue syndrome in patients with COVID-19 and promote resilience to the ravages of the pandemic, respectively.¹⁹⁻²¹

In México protocols should be developed in favour of mental health, considering that it is ranked fourth in Latin America and fifteenth worldwide in the number of COVID-19 cases.²² Addressing the psychosocial needs derived from the pandemic in Latin American countries will make it possible to limit health emergencies related to mental disorders and prevent their increase through time. For this reason, influencing psychological variables such as resilience or coping strategies becomes essential in the treatment of mood disorders in vulnerable populations, such as women. It is precisely in the transition process between the end of confinement and the beginning of the Nueva Normalidad that women are required to develop skills in resilience to face the stressful situations that occur in their day-to-day lives. The aim of this research was to evaluate the effect of an online Cognitive-Behavioral intervention on stress, coping, and resilience in a group of women during the phase called Nueva Normalidad of the COVID-19 pandemic in Mexico.

METHODS

A single group pre-test and post-test study was carried out²³ recommended design to observe changes after an intervention in a group of people with specific characteristics or criteria. This kind of design has been widely used in the health field.²⁴

Participants

For the study, an intentional non-probabilistic sampling was used. An initial sample of 386 women met the selection criteria (Mexican nationality, of legal age, with email and internet access), of which 33.4% ($n=129$) were followed up. Given that the intervention program was designed to improve the areas of stress, coping, and resilience, inclusion criteria were established: scores higher than the theoretical mean on the perceived stress scale ($M=14$) and attend with 60% of the asynchronous training sessions leaving a final sample of 43 cases (Figure 1). The average age of the participants was 37.8 ($SD=14.07$, $Min=19$, $Max=71$), 44.2% were single, and 32.6% married; a significant portion had college education (60.5%, $N=26$). Finally, 65.1% ($N=28$) had not received psychological support prior to confinement (Table 1).

Instruments and materials

Socio-demographic data card: set of five items that collect information on age, marital status, educational level, occupation, and location.

Perceived stress scale (PSS-14): adapted and tested in the Mexican population by González and Landero, used in

the evaluation of Mexican women by Becerra et al during the COVID-19 pandemic, showing adequate reliability properties ($\alpha=0.837$ and $\Omega=0.837$) and validity ($\chi^2(13)=39.493$, $p=0.000$; $\chi^2/gl=3.0$, $RMSEA=0.073$, $(IC=0.047-0.099)$; $CFI=0.971$; $TLI>0.952$), through a unifactorial structure of seven items with five response options on a Likert-type scale (never, rarely, occasionally, often, and very often).²⁵⁻²⁶

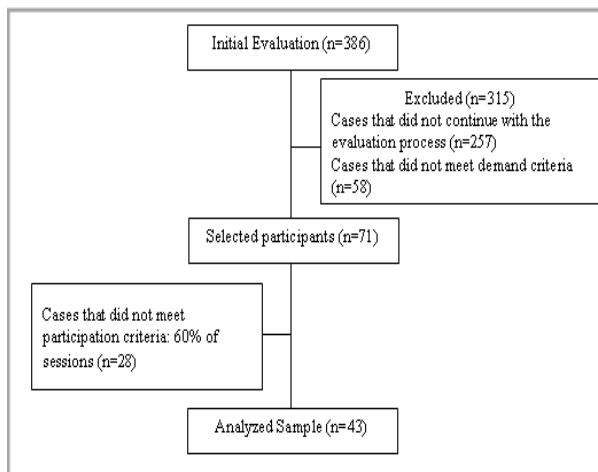


Figure 1: Flowchart of the selection and permanence of participants in the intervention.

Table 1: Demographic characteristics.

Parameters	N (%)
Marital Status	Single 19 (44.2)
	Married 14 (32.6)
	In a consensual union 5 (11.6)
	Separated 4 (9.3)
	Divorced 1 (2.3)
Educational Level	University Level 26 (60.4)
	High school 7 (16.3)
	Postgraduate 7 (16.3)
	Secondary school 2 (4.7)
	Primary school 1 (2.3)
Occupation	Student 14 (32.6)
	Employee 12 (27.9)
	Professional Activity 9 (20.9)
	Unemployed 4 (9.3)
	Self-employment 2 (4.7)
	Housewife 1 (2.3)
	No data 1 (2.3)
Location	Mexico City 21 (48.9)
	Mexico State 17 (39.5)
	Oaxaca 3 (7)
	Baja California 1 (2.3)
	Chihuahua 1 (2.3)

Ways of coping questionnaire (WCQ): scale developed by Zavala et al to evaluate coping styles in the face of stress produced by daily life situations, through five factors: evasive confrontation, positive appraisal,

distancing, denial, and reflexive-cognitive analysis.²⁷ It has four response options on a Likert-type scale (never, not at all, to some extent, generally, usually, and always) and was used in the evaluation of Mexican women by Becerra et al during the COVID-19 pandemic, showing adequate reliability properties ($\alpha=0.771$ and $\Omega=0.905$) and validity ($\chi^2(192)=199.564$, $p=0.000$; $\chi^2/gl=2.2$, $RMSEA=0.055$, $(IC=0.045-0.066)$; $CFI=0.926$; $TLI=0.904$), with 16 items.²⁶

Mexican resilience scale: scale created by Palomar and Gómez to measure resilience in Mexican population, made up of 43 items grouped into five factors (strength and self-confidence, social competence, family support, social support, and personal structure). The instrument is answered on a four-point Likert-type scale (totally disagree, disagree, agree, and totally agree). In the analysis by Becerra et al during the COVID-19 pandemic and applied to Mexican women, the instrument showed adequate reliability properties ($\alpha=0.963$ and $\Omega=0.980$) and validity ($\chi^2(845)=1778.186$, $p=0.000$; $\chi^2/gl=2.1$, $RMSEA=0.054$, $(IC=0.050-0.057)$; $CFI=0.915$; $TLI=0.909$).

Training manual entitled facing a new reality, an emotional support program for women in the face of COVID-19. Digital resource in pdf format with a total of 110 pages with information related to the disease, risk factors, symptoms, and hygiene and social coexistence measures adjusted to the epidemiological traffic light for México. This manual also included information on the cognitive-behavioral techniques used in asynchronous training. Its content, relevance of the information, language, images, and typography were subjected to a judge by non-experts, made up of five women with the same characteristics as the sample of this study.

Procedure

Flyers were created with the information on the psychological care program (dates, times, number of sessions, and registration link), which were disseminated two weeks before starting the intervention on the social networks Facebook® and WhatsApp®. Once the participants registered, they offered their informed consent to participate and solved the socio-demographic data questionnaire and the evaluation instruments in a form on the Google forms® platform. Intervention was replicated five times in the phase Nueva Normalidad. This phase is characterized by a gradual return to activities in public spaces considering the advance of the COVID-19 pandemic in Mexico. The application dates for these five groups were from July 11 to November 21, 2020, at two times 10:00 to 12:00 and 12:00 to 14:00. All sessions were given on Saturday mornings through the Zoom® platform. The intervention consisted of five weekly sessions lasting two hours. Each session had a particular theme and objective (Table 2).

Therapists' characteristics

Four psychologists with experience in cognitive behavioral therapy oversaw teaching the sessions in the groups. Before starting the intervention, they were trained in the content of the sessions and in the use of psychoeducational material. The sessions were videotaped to analyze the dynamics and progress of each group.

Data analysis

The statistical analysis was carried out through the SPSS® program for Windows® version 25. Normality

tests were carried out, however, due to the size of the sample and the specific characteristics of the participants, the use of non-parametric statistics was chosen.^{29,30} Descriptive statistics (mean and median) were obtained for variables on a numerical scale. To evaluate the changes observed before and after the intervention, a Wilcoxon rank test was performed. The Rosenthal *r* effect size was calculated with the next formula:

$$r = z/\sqrt{n}$$

Considering the following cut-off points: small effect (0.1 to <0.3); moderate effect (0.3 to <0.5); and large effect (≥ 0.5).³¹

Table 2: Description of the intervention techniques.

Session	Technique/procedure	Session objective
1	Psychoeducation	Offer reliable and scientific information related to the origin of SARS-CoV-2, the symptoms of COVID-19, and hygiene and coexistence measures according to the staggered return indicated in the epidemiological traffic light designed for Mexico.
2	ABC model (specifically training in the identification of covert responses resulting from specific situations derived from the pandemic), brief training in self-instructions and verbal modeling and shaping in deep diaphragmatic breathing.	Train to participants in active coping strategies focused on controlling responses associated with stress at a cognitive, behavioral, and physiological level.
3	Problem Solving Therapy (elements)	Train to participants in solving problems derived from the COVID-19 pandemic (family, economic, and work).
4	Training in communication skills and assertiveness	Offer to the participants information related to communication styles (assertive, aggressive, passive-aggressive, and passive). Train to participants in techniques that favor the expression of emotions, desires, and requests, as well as defensive techniques to deal with conflicts with others due to confinement.
5	Psychoeducation	Present a summary of the trained techniques. Report the usefulness of training to promote active coping and resilience.

RESULTS

Participants reported moderate perceived stress before and after the intervention (Mdn=15). In the coping scale, it is observed that in all the subscales the participants scored below the theoretical mean, even in the positive reassessment factor. Statistically significant changes were obtained in the distancing factor and positive appraisal ($p<0.05$) and with a moderate effect size. Finally, in the resilience variable, scores above the mean were obtained in all subscales, these results translate into a high resilient self-perception. Despite this, it was possible to increase this resilient self-perception, mainly in the factors of strength and self-confidence, social competence, family

support, and personal structure, being statistically significant ($p<0.05$) and with a moderate effect size (Table 3).

DISCUSSION

The aim of this research was to evaluate the effect of an online Cognitive-Behavioral intervention on stress, coping, and resilience in a group of Mexican women during the Nueva Normalidad for COVID-19. The results indicate that the intervention did not affect the stress symptoms in the participants, since they remained at a moderate level during both evaluations (pre-test and post-test). It is believed that these results are derived from two

points, the first has to do with the instrumentation, specifically with the presentation of the Google Form® for the Perceived Stress Scale, since the responses to the items were designed in a non-random list format, which could have caused tunnel vision when responding by checking in the same box and without clearly reading the reagent. The second has to do with the history and maturation, this due to all the events that occurred throughout the aftershocks of the intervention (changes in epidemiological traffic light, spikes in the number of

deaths and infections, increase in unemployment, lack of economic resources at the community and national level) and personal situations through time (participants with COVID-19 in relapse or treatment, reported deaths of relatives due to COVID-19, experienced domestic violence or lived a greater work or school burden).^{1,7,8} Regarding this second element, it is believed that the situations perceived as stressful changed according to the evolution of the pandemic and its psychosocial demands.

Table 3: Pre and post intervention results of the scales.

Parameters	Theoretical M	Pre-test N=43		Post-test N=43		Z	P ^a	R ^b
		M	Mdn	M	Mdn			
PSS-14	14	16.0	15	15.7	15	-0.014	0.989	0.002
WCQ								
Evasive confrontation	7.5	4.2	4	4.8	6	-1.85	0.064	0.282
Positive appraisal	10	6.7	6	7.9	8	-2.992	0.003	0.456
Distancing	7.5	2.6	2	3.3	3	-2.291	0.022	0.349
Denial	7.5	2.5	2	2.6	3	-0.381	0.703	0.058
Reflexive-cognitive analysis	7.5	3.1	3	3.3	3	-0.581	0.561	0.089
Mexican resilience scale								
Strength and self-confidence	47.5	59.9	59	63.9	67	-2.898	0.004	0.442
Social competence	20	24.4	24	25.3	25	-2.694	0.007	0.411
Family support	15	19.0	19	19.9	20	-2.294	0.022	0.350
Social support	12.5	17.1	17	17.7	19	-1.635	0.102	0.249
Personal structure	12.5	15.0	15	15.8	16	-2.813	0.005	0.429

P values derived from Wilcoxon test, effect sizes calculated Rosenthal's test.

In addition, all the participants had already gone through the period of confinement, so it was reasonable that they presented stress during this phase of the pandemic.⁹⁻¹¹ Although these findings do not coincide with what was reported by Cheng et al and Li et al share some methodological similarities, for example, interventions that include elements of CBT (psychoeducation or information adjusted to the characteristics of the population, deep diaphragmatic breathing, and training in problem-solving and assertiveness), and the number of sessions, evidencing the relevance of brief interventions that use new technologies to reach people in times of pandemic.^{17,18}

Another element that must be considered is the psychosocial context in which this study was carried out. In Latin America, greater vulnerability and prevalence of mental disorders are reported, a condition that can be aggravated in women and that is added to other problems such as domestic violence, alcohol consumption, and burden in unpaid domestic work.^{1,10,11} Regarding coping and resilience among the participants, the intervention had a moderate size effect on the distancing dimension for the first scale, as well as on all dimensions of the Mexican resilience scale. This result leads to the

conclusion that the participants perceived themselves to be more resilient after the intervention, in addition to opting for the coping style in the face of stress, distancing, given the characteristics of the Nueva Normalidad phase. This style of coping is characterized by the cognitive efforts made by the person to reduce the meaning of the situation in which they are living, that is, avoid visualizing a catastrophic or not very encouraging future.^{27,28} In other words, the participants perceive that they have the skills to cope with critical events, however, they may not execute the best cognitive or behavioural efforts to cope with them and under the social conditions in which the intervention was carried out, and this is understandable. This finding turned out to be a success, unlike that reported by Coronado et al identified that women during confinement opted for the use of antidepressants as a possible measure of resilience.⁹

CONCLUSION

It is concluded that telehealth as a remote therapeutic alternative turned out to be low cost, feasible and effective, in addition to obtaining an important geographical scope, due to the participation of women from different regions of the country. Although there are

favourable aspects in its application, there are still limitations in access, since not all users have a device with internet access and/or knowledge about the use or access to certain applications.

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Conflict of interest: None declared

Ethical approval: The study was approved by UNWOMEN and was part of a specialized consultancy with number SSA/CI 006-20

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