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Evaluation of a telepsychological intervention guide during COVID-19 pandemic: evidence from a pilot study with mexican population

Evaluación de una guía de intervención telepsicológica durante la pandemia COVID-19: evidencia de un estudio piloto con población mexicana

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Abstract
The Virtual Psychological Care Guide (VPCG_COVID-19) has been designed as a tool for orientation and urgent attention to psychological conditions and symptoms during the SARS-CoV-2 pandemic. Objective. To assess the psychological impact on the levels of depression, anxiety and stress associated with the implementation of a telepsychology intervention based on the VPCG_COVID-19. A single group repeated measures design was used to assess depression, anxiety and stress before (T0 = pretest), after (T1 = posttest) and 14 days after its implementation (T2 = retest). A sample of 117 adults participated (mean age = 37.69; SD = 12.07; 62.4 % male) and received telepsychology care and were channeled according to VPCG_COVID 19 criteria: Level 2 psychoeducation and orientation (n = 46), level 3 = psychological first aid (n = 24) and level 4 = brief cognitive behavioral therapy-brief (n = 47). Significant differences were found in depression, anxiety and stress, for the three levels of attention (pre, post and retest measurements).
Keywords: COVID-19; telepsychology; stress; cognitive behavioral therapy; psychoeducation; psychological first aid; depression; health; mental healt; attention; pandemic

Resumen
La Guía de Atención Psicológica Virtual (GAPV_COVID 19) se ha diseñado como una herramienta de orientación y atención urgente a padecimientos y síntomas psicológicos presentes durante la pandemia por SARS-CoV-2. En el presdente estudio, se buscó evaluar el impacto psicológico en los niveles de depresión, ansiedad y estrés asociados a la implementación de una intervención en telepsicología basada en la GAPV_COVID 19. Se diseñó un grupo único de medidas repetidas para evaluar depresión, ansiedad y estrés antes (T0 = pretest), después de la intervención (T1 = posttest) y 14 días después de su implementación (T2 = retest). Participaron 117 adultos (edad promedio = 37.69; DE = 12.07; 62.4 % varones) que recibieron atención por telepsicología y que fueron canalizados según los criterios de la GAPV_COVID 19 para la atención de sus necesidades psicológicas: nivel 2 psicoeducación y orientación (n = 46), nivel 3 = primeros auxilios psicológicos (n = 24) y nivel 4 = terapia cognitiva conductual breve (n = 47). Se encontraron diferencias significativas en depresión, ansiedad y estrés, para los tres niveles de atención con respecto a las mediciones pre, post y retest, con una magnitud considerable.
Palabras clave: COVID-19; telepsicología; estrés; terapia cognitiva conductual breve; psicoeducación; primeros auxilios psicológicos; depresin; salud; salud mental; atención; pandemia

1. Introduction

COVID-19 pandemic has made a catastrophic impact. SARS-CoV-2 cases reported worldwide until August (2021) were 209,807,613 and the death toll was of 4 400 248 (World Health Organization [WHO], 2021). In Mexico, the number reached 3 404 837 cases with more than 264 899 deaths (Gobierno de Mexico, 2021). This impact has led to social, economic, educational, health and psychological effects at unprecedented levels.

To reduce the spread of COVID-19 outbreak, countries have introduced lockdown measures to enforce social distancing. This situation has brought a deep impact in daily routines making huge changes in people's lifestyle such as working from home, unemployment, home-schooling experiences, and lack of physical contact with others.

Common symptoms of self-reported stress, anxiety and depression are linked to psychological reactions to the COVID-19 pandemic (Pedrosa et al., 2020). During February 2020, an online survey applied to 1,210 respondents from 194 Chinese cities was developed to evaluate the levels of anxiety, depression, and stress levels during the initial stage of the COVID-19 outbreak. Results show that 16.5 % of the participants reported moderate to severe depressive symptoms, 28.8 % moderate to severe anxiety manifestations and 8.1 % moderate to severe stress levels (Wang et al., 2020). Similar findings were reported in Northern Spain by Ozamiz, Dosil, Picaza and Mondragon (2020). Using the Depression Anxiety Stress Scale (DASS), the authors detected higher levels of symptoms related to depression, anxiety, and stress after the lockdown measures implemented during the COVID-19 outbreak. In Mexico, Cortés-Álvarez, Piñero-Lamas and Vuelva-Olmos (2020) evaluated the levels of psychological distress, anxiety, depression, and stress during the first COVID-19 wave. The authors reported that 15.7 % of the sample showed moderate-severe depressive symptoms; 22.6 % reported moderate-severe anxiety symptoms and 19.8 % reported moderate-severe stress levels.

While in-person psychotherapy sessions represent an issue of health security due to the risk of infection for both patients and psychotherapists, on-line mental health assistance has been promoted as an option to guarantee the follow-up of psychological treatments (Brog, Hegy, Berger, & Znoj, 2021). In the face of this pandemic, care in the field of mental health has chosen to use distance psychology also called telepsychology or the use of telecommunication technologies to provide psychological services (APA, 2013). Recent studies show that during COVID-19 outbreak, a significant number of psychotherapists (e.g. reported at USA) used a wide range of telecommunication technologies to meet up with their patients including video conferences, texting and even virtual reality (Sampaio, Haro, De Sousa, Melo, & Hoffman, 2021).

The brief cognitive-behavioral therapy (brief CBT) is a psychotherapy that promotes the change of previous obstructive thinking and behavior patterns in order to develop a more positive view of the problems and to acquire a set of appropriate behavioral responses (Beck, 2011). As seen by "the gold standard of psychological treatments" (David, Cristea, & Hofmann, 2018), brief CBT has been acknowledged as the most popular form of research in psychotherapy and as an integrated scientific psychotherapy with the most solid evidence of clinical efficiency (both effectiveness and efficacy) (Fordham et. al., 2021). A set of studies agree that brief CBT interventions through telepsychology represents a cost-effective strategy with important success in the treatment of depression (Kim, Gellis, Bradway, & Kenaley, 2019) and anxiety (Carpenter, Pincus, Furr, & Comer, 2018). In spite of the aforementioned advantages, the effectiveness of brief CBT interventions through telepsychology at the COVID-19 outbreak has been evaluated systematically only by a reduced set of studies (Sheridan et al., 2021; Wright & Caudill, 2020). In addition to brief CBT, a couple of useful models in emergency situations are the theory of resource conservation (TRC; Hobfoll, 1989) and psychological first aid (PFA). The TRC has been developed as an alternative to understand the psychological stress and trauma during the COVID-19 pandemic (Wanberg, Csillag, Douglass, Zhou, & Pollard, 2020). According to TRC, people strive to retain, protect and build resources, where the potential or actual loss of these resources is what threatens them. The TRC provides a framework to understand and predict psychological well-being (e.g. depressive symptoms and life satisfaction) related with the socioeconomic disparities at public health crises (Galama & van Kippersluis, 2019). Meanwhile, the PFA constitutes a set of skills applied to limit distress and negative behavior responses that negatively impact the rehabilitation of people from crisis (Red Cross -UNICEF, 2020). Since its introduction

in the mid-twentieth century, PFA has been applied through several models and frameworks. PFA intervention has been evaluated to support mental health in the COVID-19 pandemic at the distress emanating from infection's hazards and the negative implications of disease outbreak like paranoia, helplessness, stress, etc. (Shah, Bedi, Onyeaka, Singh, & Chaudhari, 2020). The potential benefits of the PFA efficacy in mitigating acute distress have been evidenced in several studies (e.g. Despeaux, Lating, Everly, Sherman, & Kirkhart, 2019; Everly, Lating, Sherman & Goncher, 2016). Finally, while brief CBT and PFA are therapeutic interventions that involve different clinical strategies focused on several aspects of psychological distress, psychoeducation refers to a short-term strategy whose objective is to provide a complementary treatment that seeks the participation of the user in what is scientifically known about his/her own problem. It uses techniques and methods with a didactic and educational focus enhancing the motivation for the participant to improve his/her personal development (Barter, 1984). Currently, there are some incipient studies on the effectiveness of psychoeducation intervention on mental health of communities affected by the COVID-19 pandemic (e.g. Akena, et al., 2021; Shaygan, Yazdani, & Valibeygi, 2021), thus experimental data on their practical utility and effectiveness regarding this scenario needs to be spread out.

In summary, based on the previous studies, it can be observed that telemental health interventions are an effective and acceptable way of attention to psychological health. In spite of the expanding role of the provision of services through telecommunication technologies (Sampaio et al., 2021), there is a recognition that in Latin American countries, such as Mexico, the degree of research and technological interventions used in the field of clinical psychology, is not fully developed (De la Rosa, Moreyra & De la Rosa, 2020). In view of support people's mental health condition that it's getting vulnerable because the socio physical restrictions of the COVID-19 outbreak, a telepsychological intervention denominated "Guide for Virtual Psychological Care - GVPC_COVID 19 was designed (for a full access to the guide see Argüero et al., 2020). GVPC_COVID-19 was designed with the purpose of preventing and treating possible psychological effects derived from the COVID-19 outbreak. The structure of the guide includes: (a) background and theoretical foundation that support the intervention model, (b) a technical and detailed description of the guide that establishes a set of levels of care (see Fig. 1), (c) establishment of referral pathways: psychoeducation, PFA, and brief CBT, all of them focused in helping to restore emotional balance and develop protective factors and (d) ethical considerations and recommendations to the guide's users.

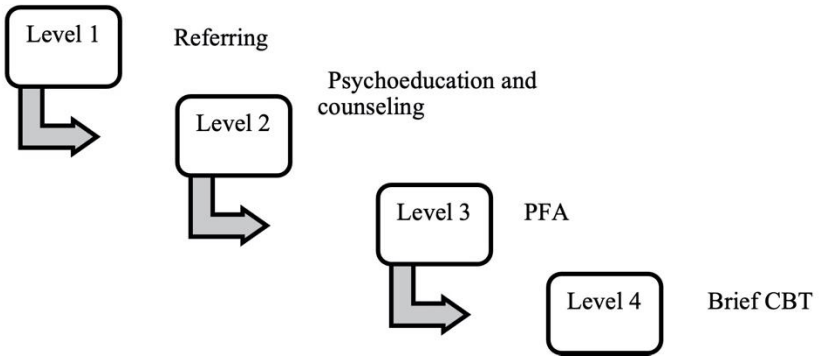

Figure 1. *Phases (levels of care) of the VPCG_COVID-19.*

Because pandemics comprise a set of stressors that may strain the people's psychological well-being (e.g. psychological distress, and experiences of depressive and anxiety symptoms) and that psychoeducation, PFA and brief CBT interventions with telepsychology targeting psychological distress are considered as suitable interventions (Shah et al., 2020; Wang et al., 2020), in the present study it has been proposed the assessment of the clinical effectiveness of the VPCG_COVID-19. Contrasting this background, the aim of this study was to evaluate the efficacy and feasibility of the telepsychology-based program for people with psychological distress at the first wave of the COVID-19 pandemic in Mexico. The objectives of the study are:

1) To evaluate the psychological effects on depression, anxiety and stress after the VPCG_COVID-19 intervention considering a within-subject design with pretest, posttest and follow-up assessments.
2) To evaluate the acceptance and satisfaction of the VPCG_COVID-19 intervention program and to draw conclusions for further developments of the program.

We use follow-up measurements to examine whether the short term effects of the telepsychology-based interventions are sustained within groups. In that sense, we hypothesized the following:
1) VPCG_COVID-19 intervention will be associated with significant improvements in depression, anxiety and stress symptoms.
2) High participant retention rates will be observed.

2. Methods, techniques, and instruments

Because of the pressing situation related to the first wave of COVID -19 pandemic, we wanted to give all the participants a quick and effective opportunity to be enrolled in psychological support as fast as possible. Thus, under such context, a non-waiting control condition was not considered under such circumstances. Instead of these, a single group repeated measures design was used in the present pre experimental study (T_0 = pretest; T_1 = posttest, and T_2= retest) (Roberts & Ilardi, 2003) to evaluate the effects of a VPCG_COVID-19 intervention on measures of depression, anxiety, and stress.

Participants

Members of the SATEP-UAN clinical team referred participants if they were eligible for the research.

Inclusion criteria

Patients who made a call to the Telepsychological Service of the Autonomous University of Nayarit (SATEP-UAN) from September to October 2020, of both sexes, aged between 18 and 59 were included.

Exclusion criteria

Patients who received the first level of psychological care were excluded because in the protocol, the instrument was not applied to these people. Additionally, people who did not agree to participate in the study or those who did not complete the three consecutive measurements in time (T_0 = pretest, T_1 = posttest, and T_2 = retest) and those that presumably reported previous diagnosis of bipolar or psychotic disorder were excluded. Individuals interested in participating received detailed study information and a written informed consent form.

Study setting

The single study center belongs to the Telepsychological Service of the Autonomous University of Nayarit (SATEP-UAN). Through this center, a telephone line remotely connects the university with the volunteers' cell phones.

Intervention description

VPCG_COVID-19 is a counseling guide developed during the COVID-19 context. The guide includes information and worksheets related to each treatment session. It comprises four levels (figure 1). The intervention is a four-week telephone-based program with guidance of the VPCG_COVID-19 (see table 1). Participants receiving the intervention were allowed to start any concomitant psychological or psychiatric treatment. A team of clinical professionals qualified in clinical psychology and psychology students were trained to perform on-line therapy according to the VPCG_COVID-19 standards (APA, 2013). Clinical psychologists worked at the level 4 and psychology students were collaborators at 1 to 3 attention levels.

Table 1. *Outline of the VPCG_COVID-19 intervention.*

Level	Aims
1. Channelization	To channelize the user who requests a specific service and who is not in a vulnerable emotional situation or in a state of crisis.
2. Psychoeducation and guidance	To provide information and psychological guidance regarding a particular issue that causes emotional distress, without reaching a state of crisis. (e.g. sleep hygiene habits, healthy routine).
3. PFA	To reestablish emotional balance, potentiate psychological resources for problem solving and satisfy immediate needs of users in a state of crisis.
4. Brief CBT	To establish strategies to generate significant progress in accordance with the objective. To reinforce the advances found to prevent relapse risks. To assess the effectiveness of the change and the procedure, generating continuity mechanisms in the user's personal process.

Outcome's variables

All assessments were carried out by telephonic interviews. Measures of depression, anxiety and stress were evaluated with the Depression Anxiety Stress Scale (DASS-21; Henry & Crawford, 2005), a well identified instrument used in previous research on the psychological impact of the COVID-19 outbreak (Cortés-Álvarez et al., 2020; Wang et al., 2020). The DASS-21 consists of 21 items on a 4-point format scale (0 = *did not apply to me* to 3 = *applied to me most of the time*). Levels of depression, anxiety and stress are generated through the sum of subscale's scores in symptomatology according to normal (0-4 depression, 0-3 anxiety, 0-7 stress), mild (5-6 depression, 4 anxiety, 8-9 stress), moderate (7-10 depression, 5-7 anxiety, 10-12 stress), severe (11-13 depression, 8-9 anxiety, 13-16 stress), and extremely severe (14 or more depression, 10 or more anxiety, 17 or more stress) (Cortés-Álvarez et al. 2020). The psychometric properties of the DASS-21 in Mexican population have been reported satisfactorily in Gurrola, Balcázar, Bonilla & Virseda (2006).

Adherence and overall satisfaction with the telepsychological service were measured in those participants that refused to participate during the post and retest follow-up. Additionally, a rating scale ranging from 5 to 10 (5 = *terrible* to 10 = *excellent*) was used for the participants to evaluate the degree of satisfaction with the telepsychological service.

Additionally, to the psychological measures, sex, age and state of residence were evaluated. Participant timelines are shown in figure 2.

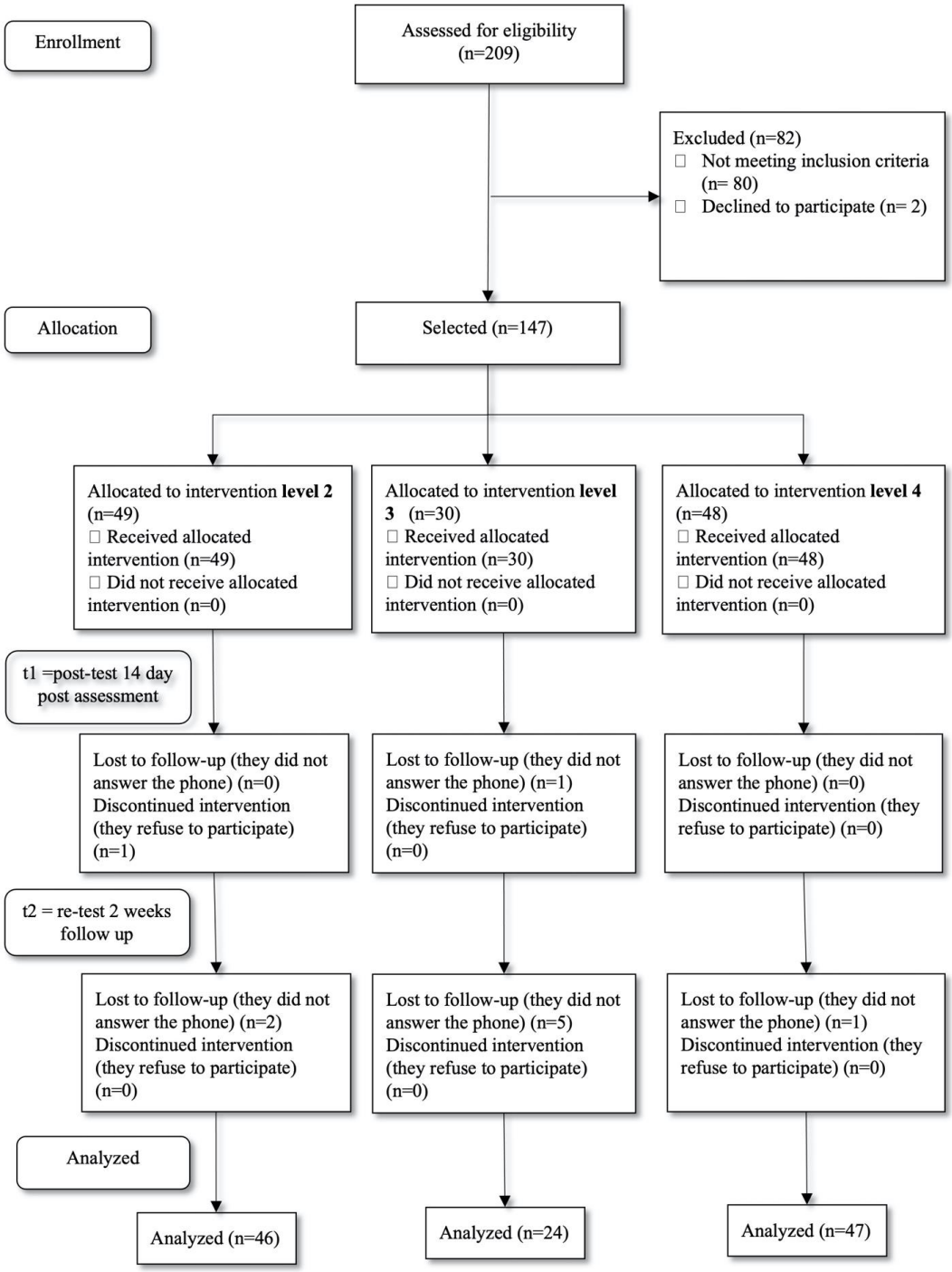

Figure 2. *Participant flow.*

Procedure

Dissemination of the telepsychology service was carried out across social networks and media. People who requested the service were canalized to the corresponding level of care (see figure 1). They were initially evaluated (level 1) by the psychologist's team to promote their interest in taking part and to be involved in a screening assessment, where it was used standardized exploratory questions and The Triage Assessment. According to responses' users were canalized to the corresponding level of care (see figure 1). For level 1, those who sought information on public services or problems not related to the theme of the guide were channeled, for example serious cases that require more attention time. In level 2, people with minor discomforts and with non-critical indicators in the evaluation remained. For level 3, users who presented criticality in the exploration and evaluation of the test were referred, in questions such as suicidal ideation, anxiety crises and emotional lack of control. And to level 4 people came who were proposed or requested follow-up according to the intervention, these could be both level 2 and 3. For levels 2 and 3, psychology students assisted people in a single session of PFA or psychoeducation and counseling with a time duration of 90 min after which a follow-up call was made after 14 days and a final call at day 28. Patients from levels 2, 3 and 4 were invited to participate in the research. Participants were asked to complete the outcome measures on three timepoints: before the intervention (T_0), immediately after intervention (T_1) and at follow-up 28 days after the treatment started (T_2). Post-treatment measures also include a single measure of satisfaction with the telepsychology service, which was completed by the participants. Formal consent was obtained from each participant during the telephone screening. Those who applied the instruments, captured the data and evaluated the results were different people within the research team, to ensure blinding.

Statistical analyses

Considering the non-normal distribution of variables, a contrast of depression, stress and anxiety values (pretest, posttest and retest) was carried out in each intervention level using Friedman's ANOVA test. In addition, Wilcoxon tests were used to track comparisons between measures alongside reporting the effect size using the *r* coefficient. Effect size estimates will also be used to power future randomized controlled trials and to inform further treatment development efforts for this group.

Ethical considerations

This study is considered a minimal risk investigation, in accordance with Article 17 of the Mexican General Law of Health in Research Matters for Health (Diario Oficial de la Federacion, 1987), because it involved a psychological procedure in human beings. The authors based their application of moral rules and professional codes of conduct according to the recommendations for Conduct, Reports, Edition and Publication of Academic Papers in Medical Journals (ICMJE, 2019). The Comisión Estatal de Bioética de Nayarit (CEBN/07/2020) provided the ethical approval for the study.

3. Results and discussion

A total of 117 interventions were made by telepsychology service (M_{age} = 37.69; SD = 12.07; 62.4 % male). Participants were inhabitants of Mexico, mainly Nayarit (49.6 %), Mexico State (13.7 %), Mexico City (8.5 %), Baja California (5.1 %), Jalisco (3.4 %), Nuevo Leon (3.4 %), Michoacán (2.6 %) and Aguascalientes (2.6 %). The rest of the participants called from other states. Approximately two-thirds attended higher education, and 78 % reported having a remunerated occupation (however, most frequently middle-paid and informal). From the cases, 46 were treated at level 2 (39.3 %), 24 at level 3 (20.5 %), and 47 at level 4 (40.2 %) (see figure 2). Table 2 refers to the key components of emotional, behavioral, and relational problems presented at the time of consultation.

Table 2. *Motives for consultation.*

Consultation issues	***f***
Specific psychological problems for pandemic affectation[a]	37
Anxiety symptoms	24
Couple problems	18
Problems with interpersonal relationships	9
Emotional dysregulation	7
Depressive symptoms	6
Addictive behavior	4
Sleep disturbances	4
Undetermined	3
Low self-esteem	3
Suicidal ideation	2

Note: [a] Included obsessive-compulsive behaviors, paranoia, uncertainty, feelings of guilt and loss of loved ones, etc. (Pedrosa et al., 2020).

Before starting the telepsychological intervention, results showed that 70.1 % reported mild to moderate depressive symptoms, 63 % mild stress levels and mostly (41.9 %) moderated anxiety symptoms.

3.1. Feasibility outcomes

Of the 49 participants who started attention at level 2, three cases were eliminated because they refused to participate (n = 1), or they didn't answer to the telephonic calls within the follow-up (n = 3). From level 3 and 4, 7 participants were discarded because they didn't answer the phone. In total 258 teletherapy sessions were completed with a very low range of discontinued interventions.

3.2. Overall satisfaction with the telepsychological service

A mean overall of service satisfaction was reported as 8.97 (DE = .83).

3.3. Negative emotional states outcomes

Tables 3, 4 and 5 show the depression, stress and anxiety scores pre-intervention, post-intervention and at the two weeks regarding follow-up. As it can be seen, there were significant changes in the depression, stress and anxiety reports over the three measure timepoints (pretest, posttest and retest) in the three levels of care: psychoeducation and counseling, PFA and brief CBT. It appeared that levels of depression, stress and anxiety significantly change from pretest to posttest measures and to pretest to retest conditions. In most cases, there were no significant differences in the posttest and retest conditions, suggesting a significant and sustained reduction of the levels of emotional distress after the telepsychological intervention. In addition, table 6 shows the classified results, that is, the frequencies and percentages of the depression, stress and anxiety variables in each measurement. It can be seen that the percentage of severity and extreme severity are considerably reduced in all cases.

Table 3. *Statistical differences between the time conditions of the telepsychology intervention and the affective measures in psychoeducation and counseling level.*

Measure	Time			χ^2	Intra-groups significance[a]	Effect size[b]
	T_0	T_1	T_2			
Depression (n = 46)	*Mdn* = 12.5 (12.02, *SD* 4.04)	*Mdn* = 7 (7.32, *SD* 1.95)	*Mdn* = 7 (6.65, *SD* 2.27)	29.40**	P_1 (z = -5.06, p = <. 05) P_2 (z = -1.21, p = .22) P_3 (z = -5.30, p = <. 05)	P_1 = -.53 P_2 = -.13 P_3 = -.55
Stress (n = 46)	*Mdn* = 14 (13.41, *SD* 3.34)	*Mdn* = 8 (7.73, *SD* 2.09)	*Mdn* = 7 (6.71, *SD* 2.02)	60.10**	P_1 (z = -5.57, p = <. 05) P_2 (z = -2.57, p = <. 05) P_3 (z = -5.73, p = <. 05)	P_1 =-.58 P_2 = -.27 P_3 = -.60
Anxiety (n = 46)	*Mdn* = 11 (12.73, *SD* 4.00)	*Mdn* = 7 (7.02, *SD* 2.28)	*Mdn* = 7 (6.54, *SD* 2.08)	51.44**	P_1 (z = -5.31, p = <. 05) P_2 (z = -0.73, p = .46) P_3 (z = -5.31, p = <. 05)	P_1 = -.55 P_2 = -.08 P_3 = -.55

Note: T_0 = pretest. T_1 = posttest. T_2 = retest condition. χ^2 (Chi Square) Friedman´s ANOVA test statistic. [a] Wilcoxon tests were used to follow up comparisons between the measures T_0, T_1, T_2. A Bonferroni correction was applied and so all effects are reported at a .0167 level of significance. P1 = T_0-T_1, P2 = T_1-T_2 y P3 = T_0-T_2. [b] Size effects are reported as a function of the *r* coefficient. ** p <. 00.

Table 4. *Statistical differences between the time conditions of the telepsychology intervention and the affective measures in PFA level*

Measures	Time			χ^2	Intra-groups significance[a]	Effect size[b]
	T_0	T_1	T_2			
Depression (n = 24)	*Mdn* = 14 (12.62, *SD* 4.68)	*Mdn* = 6.5 (6.50, *SD* 2.24)	*Mdn* =7 (7.16, *SD* 1.90)	22.37**	P_1 (z = -3.76, p = <. 05) P_2 (z = -0.93, p = .35) P_3 (z = -3.73, p = <. 05)	P_1 = -.54 P_2 = -.13 P_3 = -.54
Stress (n = 24)	*Mdn* = 14 (12.33, *SD* 5.20)	*Mdn* = 7 (7.41, *SD* 1.86)	*Mdn* = 8 (7.66, *SD* 2.35)	15.71**	P_1 (z = -3.24, p = <. 05) P_2 (z = -0.56, p = .57) P_3 (z = -2.90, p = <. 05)	P_1 =-.47 P_2 = -.08 P_3 = -.42
Anxiety (n = 24)	*Mdn* = 13 (11.25, *SD* 4.83)	*Mdn* = 7 (7.04, *SD* 2.19)	*Mdn* = 7.5 (7.54, *SD* 2.06)	16.71**	P_1 (z = -3.07, p = <. 05) P_2 (z = -.736, p = .46) P_3 (z = -2.63, p = <. 05)	P_1 = -.44 P_2 = -.11 P_3 = -.38

Note: T_0 = pretest, T_1 = posttest, T_2 = retest condition. χ^2 (Chi Square) Friedman´s ANOVA test statistic. [a] Wilcoxon tests were used to follow up comparisons between the measures T_0, T_1, T_2. A Bonferroni correction was applied and so all effects are reported at a .0167 level of significance. P1 = T_0-T_1, P2 = T_1-T_2, P3 = T_0-T_2. [b] Size effects are reported as a function of the *r* coefficient. ** p < .00.

Table 5. *Statistical differences between the time conditions of the telepsychology intervention and the affective measures in brief* CBT *intervention level*

Measures	Time			χ^2	Intra-groups significance[a]	Effect size[b]
	T_0	T_1	T_2			
Depression (n = 47)	*Mdn* =11 (10.72, *SD* 5.52)	*Mdn* = 5 (5.44, *SD* 3.24)	*Mdn* = 7 (7.12, *SD* 2.03)	28.56**	P_1 (z = -4.65, p = <. 05) P_2 (z = -2.64, p = <. 05) P_3 (z = -3.46, p = <. 05)	P_1 = -.48 P_2 = .27 P_3 = -.36
Stress (n = 47)	*Mdn* = 11 (10.59, *SD* 4.84)	*Mdn* = 6 (6.17, *SD* 2.22)	*Mdn* = 7 (7.14, *SD* 2.59)	24.84**	P_1 (z = -4.36, p = <. 05) P_2 (z = -2.01, p = <. 05) P_3 (z = -3.65, p = <. 05)	P_1 =-.45 P_2 = -.21 P_3 = -.38
Anxiety (n = 47)	*Mdn* = 8 (8.57, *SD* 4.62)	*Mdn* = 6 (5.70, *SD* 2.69)	*Mdn* = 7 (6.65, *SD* 2.72)	11.40**	P_1 (z = -3.46, p = <. 05) P_2 (z = -1.81, p = .070) P_3 (z = -2.17, p = <. 05)	P_1 = -.36 P_2 = .19 P_3 = -.22

Note: T_0 = pretest, T_1 = posttest, T_2 = retest condition. χ^2 (Chi Square) Friedman's ANOVA test statistic. [a] Wilcoxon tests were used to follow up comparisons between the measures T_0, T_1, T_2. A Bonferroni correction was applied and so all effects are reported at a .0167 level of significance. P1 = T_0-T_1, P2 = T_1-T_2 , P3 = T_0-T_2. [b] Size effects are reported as a function of the r coefficient. ** p <. 00.

Table 6. *Frequencies and percentages of depression, anxiety and stress in temporary conditions*

Measures	Time	Levels									
		Normal		Mild		Moderate		Severe		Extremely severe	
		n	%	n	%	n	%	n	%	n	%
Depression (n = 47)	T_0	11	9.4	13	11.1	16	13.7	26	22.2	51	43.6
	T_1	25	21.4	30	25.6	57	48.7	5	4.3	0	0.0
	T_2	19	16.2	25	21.4	68	58.1	5	4.3	0	0.0
Stress (n = 47)	T_0	19	16.2	11	9.4	27	23.1	42	35.9	18	15.4
	T_1	65	55.6	35	29.9	16	13.7	1	0.9	0	0.0
	T_2	66	56.4	32	27.4	18	15.4	1	0.9	0	0.0
Anxiety (n = 47)	T_0	9	7.7	5	4.3	18	15.4	8	6.8	77	65.8
	T_1	12	10.3	13	11.1	52	44.4	28	23.9	12	10.3
	T_2	9	7.7	13	11.1	49	41.9	32	27.4	14	12.0

Note: T_0 = pretest, T_1 = posttest, T_2 = retest condition.

3.4. Discussion

The aims of this study were to evaluate the effects of the VPCG_COVID-19 intervention in a within-subjects design with pretest, posttest and follow up assessments (the primary outcome depressive symptoms and secondary outcomes such as stress and anxiety) and to evaluate the adherence and satisfaction of the VPCG_COVID-199 intervention program and drawing conclusions for further developments of the program. At difference with previous studies (Wang et al., 2020; Ozamiz et al., 2020; Cortés-Álvarez et al. 2020), our data suggest a higher frequency of moderated levels depression and anxiety symptomatology in our sample (47 % and 41 % sample scores respectively) before the initial stages of treatment.

The main results of this one group pretest-posttest design demonstrated the existence of differences between the pretest and posttest conditions attributed to the treatment, suggesting the effectiveness of telepsychology in reducing the levels of depression, anxiety, and stress, without mentioning that the size or magnitude of the differences is large in most of the cases. The aforementioned is in line with the effectiveness of some tele psychological interventions (Karyotaki, et al., 2021; Sampaio, et al., 2021). Additionally, the fact that these differences are maintained between the pretest and the posttest is a good testimony of this. Elsewhere, it is necessary to emphasize that this situation occurred in three levels of care: psychoeducation and counselling, PFA and brief CBT. It is also necessary to indicate that significant differences were found between the retest and the posttest in the depression and stress levels of the patients at the fourth level. Strangely, the scores for these symptoms are moderately higher in the final measurement than in the retest. Although this situation could be due to the completion of the therapeutic process or the ups and downs of the confinement itself, it would be worth considering the integration of an additional subsequent measurement to confirm the durability of the intervention.

As other preliminary telepsychology interventions, our data confirm the effectiveness of the brief CBT intervention through telepsychology at the COVID 19 pandemic (Wright & Caudill, 2020; Sheridan et al., 2021). Additionally, it is supporting the consideration of psychoeducation and PFA intervention as important tools to prepare people psychologically to managing stress and to combat mental issues related with the COVID-19 outbreak (e.g. Akena et al., 2021; Everly et al., 2016; Shah et al., 2020; Wanberg et al., 2020).

On the other hand, our data on the feasibility outcomes suggest that the VPCG_COVID-19 intervention appeared to be a feasible and safe alternative to ordinary face to face psychology. As reported by the participants, overall the satisfaction with the telepsychological service was rated in a range of good to very good. While in development countries like United States a 67 % of psychologists implement the practice of telepsychology during the COVID-19 pandemic, in Latin-American countries, like Mexico (a country particularly affected by high rates of illness and deaths associated with the COVID-19 pandemic) remains a notable uncertainty on the utility of the technological interventions in clinical psychology because this is an area not fully developed (De la Rosa et al., 2020). As suggested by Pierce, Schroeder and Suchecki (2021), limiting factors for the practice of telehealth in Latin America are related to inadequacies in long-term evolution of telecommunication availability and lack of access to digital training for healthcare workers. Thus, the elements of the present study remain as a potential intervention that promotes the practice of telepsychology as a technological intervention for the urgent treatment of mental issues generated by the Covid-19 outbreak and future epidemics.

It is necessary to consider some threats or limitations of the present study. First, it was not possible to contrast the results of the effectiveness of the telepsychology guide through another psychological service center, which could visualize its strengths and weaknesses compared to other ways of application. Second, due to ethical considerations, it was not possible to have a control group to contrast the levels of depression, anxiety, and stress without the researcher´s manipulation, as well as having more time for observing its effect on a prospective view (Roberts & Ilardi, 2003). Thus it is expected that our results must be replicated with further experimental studies, longer time effects and validated with different trial designs.

4. Conclusions

The VPCG_COVID-19 is, to the best of our knowledge, one of the first counseling guides developed for the treatment of psychological distress during the COVID-19 context in a Mexican population. It's application will promote the acceptance of telepsychology programs as a feasible option in a scenario of future pandemics and constrained opportunities for mental health attention services.

Although some limitations that are typical of any model in development were mentioned, it was possible to confirm the effectiveness of the use of the telepsychology guide in improving the symptoms of depression, stress and anxiety. In this sense, due the conditions of the health emergency caused by the COVID-

19 pandemic, the guide at its different levels of intervention: psychoeducation and counseling, PFA and the brief CBT, is an attractive proposal to provide the population with psychological assistance during lockdown.

Additionally, it is recommended that this intervention model could be applied in other contexts and populations to test its effectiveness and, at the same time, provide a quality psychological care service to the population.

5. Supplementary information

No.

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The authors declare that they contributed equaly to the development of this research.

Interest conflict

The authors declare that there is no conflict of interest.

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