ORIGINAL ARTICLE

INTERNET-DELIVERED LOW-INTENSITY CBT FOR PEOPLE WITH SOCIAL ANXIETY DISORDER IN A PERIOD OF COVID-19: RESULTS OF PILOT RESEARCH

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Oleksandr Avramchuk[1], Oleksandra Nizdran-Fedorovych[1], Pavlo Blozva[1], Oksana Plevachuk[2]
[1]UKRAINIAN CATHOLIC UNIVERSITY, LVIV, UKRAINE
[2]DANYLO HALYTSKY LVIV NATIONAL MEDICAL UNIVERSITY, LVIV, UKRAINE

ABSTRACT

The aim: The study aims to provide evidence of the effectiveness of online low-intensity CBT-based psychological interventions on the psychological well-being of people with social anxiety disorders and related impairments in the COVID-19 pandemic.

Materials and methods: 222 volunteers aged 18-35 years included in study: low-intensity CBT group (n=106) and control group (n=116). To assess the mental health problems were used International Neuropsychiatric Interview (MINI) and a set of IAPT scales. Analyses considered levels of pre-post intervention effect sizes and clinically significant improvement of symptoms of social anxiety disorder, generalized anxiety disorder, depression, and distress in maintaining general and work activity scores.

Results: Comparisons between the low-intensity interventions group and control (self-help guide psychological care as usual) indicated more reduction in the severity of symptoms of social anxiety disorder and comorbid impairments associated with depression or generalized anxiety disorder. Changes for social phobia and other outcomes indicate that the odds of relapse or exacerbation of symptoms in the control group are more significant than those after a CBT-based low-intensity psychosocial care program. Analysis showed a significant interaction between outcomes scores and the number of sessions: more than five online sessions and homework with a self-help guide improved outcome.

Conclusions: This pilot trial provides initial evidence that low-intensity online interventions based on CBT result in reductions in psychological problems for persons with a social anxiety disorder during the COVID-19 pandemic.

KEY WORDS: unguided online therapies; quarantine restrictions; social impairment

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INTRODUCTION

With the onset of the pandemic and the introduction of quarantine restrictions, there has been an increase in mental health problems and psychological well-being. WHO reports and research data for 2020-2021 show that the symptoms of depression and anxiety disorders are twice the prevalence compared to the pre-epidemic period [1, 2]. O. Ebrahimi and colleagues point out that people who mostly adhered to social distancing showed significantly higher symptoms and levels of psycho-emotional distress compared to others [2]. Thus, the establishment of quarantine restrictions and the global pandemic situation have become significant challenges for the psychosocial adaptation of people, and socio-economic aspects are an additional factor of vulnerability. Such as, some people with high social anxiety may feel relief by physical distancing, but a lack of interaction can also maintain social anxiety and raise the risk of relapse symptoms and associated distress after alleviated restrictions.

Research on available methods to alleviate the effects of such changes on the mental health and stress response of vulnerable groups in a pandemic can be a key component in addressing complex issues in the progression of mental illness and preventing maladaptive strategies for stress management and suicide risk [3]. In recent decades, more controlled studies have shown that online psychological treatment under the guidance of a mental health professional is as effective for a wide range of psychiatric and physical conditions as offline interventions, and leads to sustainable improvements, work in a setting with limited face-to-face meetings, and be considered cost-effective [4]. According to the proposed definition of R. Shafran and colleagues, the use of self-help materials, the total duration of contact time is six hours or less and the possibility to be provided by specialists providing supportive psychosocial care in mental health characterizes low-intensity CBT programs [5].

Concerning support for people with social anxiety disorders, there is evidence that psychological care provided online (including access to self-help manuals, weekly online meetings or expert feedback, and an online discussion forum) has had a persisted throughout the year positive effect on the severity of social anxiety symptoms, general worries, depression, and quality of life [6, 7]. Recent research demonstrates that guided and unguided self-help can increase access to social phobia treatment in the

population [8]. At the same time, there are warnings that in social anxiety disorder, concomitant comorbid anxiety and depressive symptoms and high levels of avoidance of corrective emotional experience suggest an insufficient or poor response to treatment, especially online [9].

Internet self-guided psychological support based on low-intensity CBT has already proven itself in treating depression. As one that has the potential to increase access to evidence-based psychological care and reduce the cost of treating depression [10]. Recent studies indicate that CBT effectively treats pandemic-related anxiety and depression. Studies in Australia and the United Kingdom noted that most participants found the intervention helpful. And that the intervention group showed a significant reduction in anxiety and depression compared with the control [11]. Post-treatment and follow-up outcomes in a pilot study of intensive 7-day internet-based cognitive behavioral therapy for social anxiety disorder demonstrated substantial reductions in social anxiety and depressive symptom severity and functional impairment [12].

THE AIM

The study aims to provide evidence of the effectiveness of online low-intensity CBT-based interventions on the psychological well-being of people with social anxiety disorders and related impairments in the COVID-19 pandemic.

MATERIALS AND METHODS

The search participants and studies were conducted in 2020-2021. All procedures followed the ethical standards of research with human participants and were performed according to the Declaration of Helsinki. The institutional board of the Faculty of Health Science, Ukrainian Catholic University, approved all study procedures. All participants gave informed consent to participate in the study. Participants didn't receive any financial donations. In the future, they engaged in a low-intensity CBT program free or got free psychological counseling from psychologists of the Center of mental health and trauma-therapy.

Inclusion criteria in the study were: a) persons aged 18-35 years; b) significant subjective complaints of psycho-emotional distress associated with social restrictions due to quarantine conditions and/or avoidance of social contacts due to social anxiety (including anxiety before negative evaluation and censure); c) duration at least six months.

Psychopathological conditions caused by a) chronic somatic pathology; b) use of psychoactive substances or medications; c) head injuries or the result of significant traumatic stress such as loss of loved ones or participation in hostilities; were used as general exclusion criteria. Additional criteria were d) receiving psychotherapeutic care at the time of participation in the study; e) lack of access to the Internet to receive interventions in the format of video conferencing. In addition, the risk of suicide was assessed, and psychotherapy would be recommended if necessary to prevent suicide attempts or referred to specialized psychological or psychiatric care services. All participants confirmed the absence of active COVID disease symptoms.

The first (initial) stage of the study (2020-2021) was aimed at screening and forming groups according to the criteria for inclusion among people who sought psychological help from the Center of mental health and trauma-therapy at UCU Institute of Mental Health. Respondents' participation was voluntary. All applicants who consented completed online self-report questionnaires of their social-demographic information: age, gender, employment status, marital status, education, and diagnosed mental health problems in anamnesis. After that, with eligible participants qualified clinical psychologists conducted individual structured diagnostic interviews based on MINI: International Neuropsychiatric Interview by Sheehan D.V. and Lecrubier Y. (adapted by I. Ushtan, 2011) in the Center for Mental Health UCU [13].

At the second (interventions) stage, according to the initial diagnostic interview and confirming consent about participating in the study, 106 people formed the primary sample (intervention group). Randomly, the intervention group was divided into two subgroups of 53 persons. The first subgroup engaged in low-intensity CBT program; the participants of the second subgroup were assigned to the waiting list. Upon completing the course with the first subgroup, the participants of the second subgroup received the same course of psychosocial assistance. The low-intensity psychosocial care program included reading materials and seven online sessions twice a week, lasting up to 50 minutes for four weeks (six hours of contact time). The control group (n=116) received one initial individual consultation with a psychologist and access to self-help materials. After four weeks, which corresponded to the intervention term and after one month at the "follow-up" stage, they have had one individual consultation at a time.

To achieve the goals of the study, all participants completed self-report measures prior to session 1 (initial individual consultation for control group), 4 weeks post-intervention, ("posttest") and one month later ("follow-up"). We used online questionnaires from guidance The Improving Access to Psychological Therapies (NICE, 2018): measuring the severity of depression – PHQ-9 (Kroenke, Spitzer, Williams, 2001), generalized anxiety disorders – GAD-7 (Spitzer, Kronke, Williams, et al., 2006), social anxiety disorders - SPIN (Connor, 2000), distress in maintaining general and work activity – W&SAS (Mundt, Marks, et al., 2002) [14]. The above methods were translated and adapted by the Ukrainian Institute of Cognitive Behavioral Therapy in 2006-2013.

The final stage of the study was data processing and concluding the effectiveness of the proposed program. We used a linear analysis of variance (ANOVA) to determine changes in mental health state (i.e., the dependent variable: severity of depression, generalized anxiety disorders, social anxiety disorders, distress in maintaining general and work activity) concerning the type of "psychosocial intervention" (i.e., low-intensity CBT and self-help guide psychological care as usual) and "time" (i.e., after four weeks and one

Table I. Change in baseline mental health states following posttest (4 week) and follow-up (1 month) of comparing with control

Outcomes	Time	ISgr1 (n=47)	ISgr2 (n=41)	Control (n=98)	Difference in LS mean (95% CI)[a, b]	*p* value
		M (SD)	M (SD)	M (SD)		
SPIN	Baseline	33.60 (7.04)	35.12 (11.70)	35.67 (10.69)		
	4-week	25.96 (6.15)	30.71 (9.52)	35.79 (10.94)	9.7 (8.2 to 11.1)a	0.000
					5.1 (0.6 to 9.6)b	0.027
	1 month	24.09 (6.16)	26.83 (8.32)	36.71 (12.17)	12.6 (8.6 to 16.6)a	0.000
					9.9 (5.3 to 14.4)b	0.000
PHQ-9	Baseline	13.72 (3.84)	13.47 (3.78)	14.38 (3.70)		
	4-week	10.70 (2.95)	12.04 (3.04)	14.09 (4.28)	4.2 (2.7 to 5.7)a	0.000
					2.9 (1.2 to 4.5)b	0.001
	1 month	9.85 (2.41)	10.14 (2.62)	15.16 (4.42)	5.3 (3.8 to 6.8)a	0.000
					5.0 (3.4 to 6.6)b	0.000
GAD-7	Baseline	11.82 (2.33)	12.02 (2.29)	11.95 (2.25)		
	4-week	8.40 (1.58)	9.98 (1.67)	12.00 (2.27)	3.6 (2.8 to 4.4)a	0.000
					2.0 (1.2 to 2.9)b	0.000
	1 month	8.02 (1.39)	8.46 (1.47)	12.02 (2.27)	4.0 (3.2 to 4.8)a	0.000
					3.6 (2.7 to 4.4)b	0.000
W&SAS	Baseline	25.36 (2.74)	26.27 (3.41)	26.26 (3.36)		
	4-week	19.70 (6.75)	20.85 (2.82)	26.26 (3.36)	6.6 (4.3 to 8.8)a	0.000
					5.4 (4.1 to 6.8)b	0.000
	1 month	17.68 (2.12)	17.15 (2.48)	26.36 (3.41)	8.8 (7.5 to 9.9)a	0.000
					9.2 (7.9 to 10.5)b	0.000

SPIN (total score range: 0-68; higher scores indicate more severe dysfunction by social anxiety disorder); PHQ-9 (total score range: 0-27; higher scores indicate elevated more severe depression); GAD-7 (total score range: 0-21; higher scores indicate more severe worry); W&SAS (total score range: 0-40; higher scores denoting higher levels of disability or functional impairment work and social functioning); a compared intervention subgroup 1 to control; b compared intervention subgroup 2 to control

month). Between-group differences were assessed using p-values and least-squares mean. Within-group effect sizes for the pre-post change outcome measures were calculated using a partial eta-squared model, with 95% confidence intervals from ANOVA. Statistical analyses were conducted using SPSS Version 23.0 (SPSS Inc., 2019).

RESULTS

At the start of study, the intervention group included participants aged between 18 and 33 years (M = 23,3, SD = 5,25), 72,6% (n=77) of female participants and 59,4% (n=63) were students. 60,4% (n=64) of the intervention group noted that they live alone or are not in a long-term relationship. All participants met diagnostic criteria for social anxiety disorder according to data from structured diagnostic interviews based on MINI: International Neuropsychiatric Interview, and 69,8% (n=74) had moderate or higher-level symptoms on the SPIN that were impacting their daily functioning. Eighty-four participants (79,2%) also had a comorbid symptom of Major Depressive Disorder, and eighty-one participants (76,4%) had signs of Generalized Anxiety Disorder. Clinical signs in all comorbid indicators did not exceed moderately severe severity, which allowed participants to engage in low-intensity CBT without medication. To assess compliance with the psychological support protocol, we recorded sessions: participants were given access to session records individually and were removed at the end of the intervention period. The checklist confirmed that 89% of the sessions complied with the protocol.

The initial evaluation of the results after four weeks was performed for 49 (92.4%) participants of the first subgroup of the intervention and 42 (79.2%) participants of the second, one month later: 47 (88.7%) and 41 (77.4%) respectively. At the 4-week stage, 17 people (14.6%) from the control group dropped out of the study, 11 of whom due to the need to start medical treatment in a hospital. At the follow-up stage, one more person dropped out in 1 month due to a deteriorating mental state and the need to start medical treatment. Study completion rates were 83% for a low-intensity CBT program group (n = 88) and 84% for the control group (n = 98).

Comparing pre-post change on outcomes scores, the results revealed a significant interaction effect for groups by time for interventions (ANOVA: $F_{(2, 87)} = 7,366$, $p = 0,000$,

partial eta-squared 0,36). Statistically significantly reduces were found on all outcome measures: social anxiety severity (SPIN): $F_{(2, 87)} = 11,64$, $p = 0,000$, partial eta-squared 0,15, 95% CI [4,74 to 5,76]; depression severity (PHQ-9): $F_{(2, 87)} = 12,34$, $p = 0,000$, partial eta-squared 0,16, 95% CI [1,98 to 2,95]; general anxiety severity (GAD-7): $F_{(2, 87)} = 26,66$, $p = 0,000$, partial eta-squared 0,29, 95% CI [2,00 to 2,86]; functional impairment (W&SAS): $F_{(2, 87)} = 40,13$, $p = 0,000$, partial eta-squared 0,39, 95% CI [5,14 to 5,99]).

Including the amount of attended sessions in analysis indicated significant interaction between outcomes scores and the number of sessions, $F_{(2, 87)} = 158,146$, $p = 0,000$, partial eta-squared 0,96. More than five online sessions and homework with a self-help guide generally improved outcome. In our opinion, the interaction between low-intensity CBT psychological support and number of sessions can preserve the effect directing to reduce the relapse.

After 4 weeks of low-intensity CBT program, indicates a reduction in severe dysfunction by social anxiety disorder of a SPIN point in both subgroups of interventions (ANOVA: ISgr1: mean difference 9.7 [95% CI, 8.2 to 11.1], $p = 0.000$; ISgr2: 5.1 [95% CI, 0.6 to 9.6], $p = 0.027$), compared to control participants groups (Table I). From the point of view of comorbid pathology, at the stage of "posttest" (4 weeks) the participants of the intervention subgroups achieved a reduction in the level of depression (ISgr1: 4.2 [95% CI, 2.7 to 5.7], $p = 0.000$; ISgr2: 2.9 [95% CI, 1.2 to 4.5], $p = 0.001$) and generalized anxiety (ISgr1: 3.6 [95% CI, 2.8 to 4.4], $p = 0.000$; ISgr2: 2.9 [95% CI, 1.2 to 4.5], $p = 0.001$), compared to control participants groups (Table I). Considering a need to adapt to the conditions of quarantine restrictions associated with COVID-19, the impact of the intervention showed a more significant decrease in levels of disability or functional impairment on work and social functioning than among those who were in the control group (all p-values <0.000).

After 1 month follow-up, there was a greater reduced in the primary results of severe dysfunction by social anxiety disorder (ISgr1: 3.6 [95% CI, 2.8 to 4.4], $p = 0.000$; ISgr2: 2.9 [95% CI, 1.2 to 4.5], $p = 0.001$). The intervention led to reduced negative mood and vital impairments in the clinical picture of comorbid depression, levels of worries, and disability or functional impairment in work and social interactions (Table I).

There were no side effects throughout the study. After one month (for participants who completed the assessment), fewer participants in the intervention group than those in the control group achieved or maintained the threshold values of the severity of probable mental health severe impairment and symptoms associated with adjusting for pandemic settings. Changes for social phobia indicate the odds of relapse or exacerbation of symptoms in the control group are 7.7% times greater than the odds after low-intensity CBT program. We are 95% confident that the true odds ratio (OR) is between 0.01 and 5.62. For depression symptoms 50.2% against 88.1%, odds ratio 0.21 [95% CI, 0.09 to 0.51], $p < 0.05$, and generalized anxiety disorder 19.8 vs. 85.7%, OR 0.19 [95% CI, 0.09–0.41], $p < 0.05$. There were slightly more participants in the control group than in the interventions, which reported worsening depression during the 1-month assessment and anxiety and were forced to withdraw from the study and be referred for medical treatment. However, that differences weren't significant, $p = 0.07$.

DISCUSSION

Our study is a pilot and aims to provide evidence that the use of low-intensity CBT-based psychological interventions delivered online can positively impact the psychological well-being of people with social anxiety disorders and related problems in the COVID-19 pandemic. The COVID-19 pandemic forced self-isolation and fear for one's own life, which has triggered the inability to socialize among people with social anxiety disorders. Loneliness, avoiding distress (anxiety) feelings, and depressive thoughts, as modifier factors, could decrease faith in their abilities and personal well-being, social support, and security.

Previous research suggests that low-intensity CBT may help sustain people with common anxiety disorders and depression [4, 9]. The reduction of psycho-emotional distress can be considered a transdiagnostic indicator of the effectiveness of psychological support in periods of adjustment to global or local changes or challenges. Although the conclusion of the current study has its limitations, we consider the results to be significant evidence that the organization and implementation of psychological support to people with psychiatric diagnoses during a pandemic is an urgent challenge today.

The proposed psychological care program aims to restore psychological resources during the period of adaptation to the requirements of quarantine restrictions and distancing forms of human interaction during a pandemic. The proposed program aims to help prevent the worsening comorbid impairments of adaptation and prevent relapses of social anxiety disorder after quarantine restrictions. Providing access to psychological help online and engaging in at least 5 of the seven sessions allows us to conclude about the acceptability of the proposed method of providing psychological support.

This research has shown a significant reduction in the severity of symptoms of social anxiety disorder on the SPIN and comorbid impairments associated with depression or generalized anxiety disorder (in terms of PHQ-9 and GAD-7 scores) among participants who received a low-intensity CBT program, emphasizing the potential benefits of the intervention. The modules of the online sessions covered: 1) psychoeducation of anxiety, social anxiety, and anxiety of adjustment related to the pandemic COVID-19; 2) strategies of normalization and coping worries in pandemic periods; 3) psychoeducation about the impact of maladaptive beliefs and social avoidance on anxiety; 4) training in mindfulness and problem-solving techniques on reducing using of safety behavior, including avoidance and procrastination; 5)

psychoeducation about comorbid depressive states and reducing by behavioral activation, challenging negative thinking with behavioral experiments and thought records; 6) promoting the development of skills of social support and assertive communication. Changes among the intervention group participants showed a reduction in maladaptive beliefs, the level of distress, and the tendency to avoid social situations in maintaining general and work activity (in terms of SPIN and W&SAS scores). Upon completion, conducted a session on relapse management and support for implementing corrective experience of social interaction. After one-month, fewer participants in the intervention group than those in the control group achieved or maintained the threshold values of the severity of probable mental health severe impairment and symptoms associated with adjusting for pandemic settings. Changes in social phobia scores and other outcomes indicate that the odds of relapse in the control group are more significant than after a CBT-based low-intensity psychosocial care program. Analysis showed a significant interaction between outcomes scores and the number of sessions: more than five online sessions and homework with a self-help guide, improved outcomes. The results of our study are generally consistent with the results of previous studies [6, 7, 11, 12].

Despite the results, our study has several limitations. First, the study was conducted on the Ukrainian sample under the quarantine restrictions imposed on its territory. COVID-19 infection rates (including hospitalizations and deaths) and the socio-economic aspects can also impact the severity of distress, which differs from experience in other countries. Secondly, the participants are primarily women, so expanding the sample is a prospect for further research. Limitations of diagnosis should also include using self-reported methods to track the dynamics of changes in the results of structured interviews only at the stage of involving participants. We also see the challenge that the results demonstrated had a more significant effect in the early stages of the study and see the benefits of obtaining data within six months after interventions.

CONCLUSIONS

In conclusion, the presented pilot study highlights the efficacy of using online low-intensity CBT psychological support in the context of restriction of corrective social interaction experiences and challenges to adjustment to new circumstances during the COVID-19 pandemic in people with social anxiety disorder. These data demonstrated clinically significant improvement of symptoms of social anxiety disorder, generalized anxiety disorder, depression, and distress in maintaining general and work activity scores. Initial results can be offered as a rationale for further scaling up and longer-term studies of the effectiveness of mental health interventions during life's challenges. The proposed program also will promote psychological support for people with social anxiety disorders in conditions of limited access to psychotherapy.

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ORCID and contributionship:
Oleksandr Avramchuk: 0000-0001-8512-7817[A-D,F]

Oleksandra Nizdran-Fedorovych: 0000-0001-9676-9698[A,B,E,F]
Pavlo Blozva: 0000-0002-2494-9750[A-C,E,F]
Oksana Plevachuk: 0000-0003-0164-8549 [A,B,E,F]

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CORRESPONDING AUTHOR
Oleksandr Avramchuk
Ukrainian Catholic University
17 Ilariona Svientsitskoho st., 79000 Lviv, Ukraine
e-mail: avramchuk.md@ucu.edu.ua

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