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A Short-term Psychological Intervention for People Living with HIV During the First Wave of COVID-19

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Abstract

Research on the psychosocial impact of COVID-19 has found significant levels of distress among the general population, and among those especially vulnerable due to chronic social or health challenges. Among these are individuals aging with HIV infection, who are encountering COVID-19 as a new infectious threat to their health and wellbeing. In a longitudinal observational study of the psychosocial impact of COVID-19 in middle-aged and older people living with HIV, we identified a subset of participants who expressed heightened levels of distress and were referred for clinical intervention. This paper describes the supportive and contemporary cognitive-behavioral interventions that were provided and presents data on changes in distress in this case series. This work provides a model for identifying people in at-risk groups in acute need of psychological intervention and for implementing an individualized clinical response that can be safely delivered in the context of COVID-19 and future crisis situations.

Keywords Cognitive-behavior therapy · Psychological first aid · Anxiety · Depression · COVID-19 · HIV

The onset of the COVID-19 pandemic and public health measures to reduce risk of transmission have been associated with high rates of anxiety, stress, and depression among various populations world-wide (Ettman et al., 2020; Mazza et al., 2020; Qiu et al., 2020). A recent international position paper addressed the challenges to mental health posed by the COVID-19 pandemic (Moreno et al., 2020). Among the issues highlighted were the need to adapt mental health services to ensure continuity of mental health care, to ensure equity in delivery of service, and to focus on screening for mental health disorders in at-risk populations. Assessment of health

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outcomes and service use in clinical mental health care was identified as critical for determining which practices should be maintained into the future.

Pre-pandemic research supports the effectiveness of cognitive-behavior therapy for treating depression in people living with HIV (Lofgren et al., 2018) and also of telephone-delivered interventions for overcoming barriers to participating in psychotherapy among people with HIV (Moitra et al., 2020). Although specific interventions for COVID-related psychological distress in at-risk groups have been described, evidence to date of their uptake and efficacy at reducing symptoms has been limited to a handful of studies conducted almost exclusively in health care workers (Blake et al., 2020; Cheng et al., 2020; Geoffroy et al., 2020; Sanadgol et al., 2020) or patients with COVID-19 (Gharaati Sotoudeh et al., 2020; Li et al., 2020; Liu et al., 2020; Shaygan et al., 2020; Wei et al., 2020; Zhou et al., 2020).

Along with frontline health care workers and their patients, individuals made vulnerable by a chronic health condition, such as HIV, may also experience high levels of distress. Early in the pandemic, people living with HIV were suggested to be at increased risk of physical, social, and emotional consequences of COVID-19 (Shiau et al., 2020), for several reasons.

At the onset of the COVID-19 pandemic, it was speculated that people living with HIV were at increased risk of contracting the novel coronavirus and experiencing worse outcomes, due to their abnormal immune response. Early outcomes data did not initially support this assumption, while evolving research suggested increased risk in subgroups of people whose HIV is not well controlled despite adherence to medication. A review by Ambrosioni and colleagues (Ambrosioni et al., 2021) details this evolving risk portrait and highlights research that still underway to understand how HIV infection, COVID-19 infection, and their respective treatments that may combine and interact. It is also suggested (Ambrosioni et al., 2021) that the increased prevalence of comorbid health conditions among people living with HIV might contribute to worse outcomes in those who become infected with COVID-19. These conditions of uncertainty and fear are hypothesized to increase anxiety that still further in a population is already known for elevated levels of emotional distress (Hays & Morales, 2001; Robertson et al., 2014).

Societal factors might also contribute to worsen the impact of COVID-19 on the psychological wellbeing of people living with HIV. Already, low levels of social functioning and loneliness were reported in our longitudinal cohort study of middle-aged and older Canadians living with well-controlled HIV (Positive Brain Health Now (+BHN) ((Mayo et al., 2020){Harris, 2020 #3872}. Self-isolation is a coping mechanism used by some people living with HIV seeking to avoid stigma and discrimination related to their HIV status (Audet et al., 2013). We hypothesized that the new restrictions on social gatherings and stay-at-home orders being promoted on a massive scale in an attempt to control the spread of COVID-19 might reactivate previously lived negative experiences of stigma related to an infectious disease, further increasing a sense of distress and personal vulnerability, and escalating social isolation. Population-based research on social distancing during the COVID-19 pandemic shows that although anxiety is lower among those who comply with social distancing measures, depressive symptoms increase with the number of days spent at home (Zhao et al., 2020).

Finally, health care services across many levels were disrupted by the onset of the COVID-19 pandemic, even in Quebec's publicly funded health care system. Many mental health care clinics closed their doors to in-person visits or otherwise reduced their services due to concerns about transmission of COVID-19 and the absence of service providers, while community-based support services and informal peers supports were disrupted completely by restrictions on gatherings in public or private spaces. Thus, both formal and informal supports that people living with HIV typically rely on for their mental, social, and physical wellbeing were no longer available to them.

This prompted an investigation by our group into the time course of psychological distress over the first wave of the pandemic in a cohort of individuals aging with HIV, and the associations of distress with risk and resilience factors (Brouillette et al., 2021). Participants were already being followed as part of the Positive Brain Health Now (+BHN) cohort, a longitudinal study of cognition and mental health in middle-aged and older people living with HIV in Canada. Longitudinal data on anxiety, depression, social support, and other relevant outcomes were therefore available for these individuals prior to the onset of the COVID-19 pandemic (Mayo et al., 2020). During the period of confinement associated with the regional onset of the COVID-19 pandemic, members of this cohort living in the Montreal area were invited to complete weekly online questionnaires assessing mental health and social variables for a study on predictors of increased psychological distress during the acute stages of the pandemic, and the evolution of symptoms over time. The results of that observational study are published elsewhere (Brouillette et al., 2021). Briefly, one-third of participants experienced an increase in distress over their pre-COVID baseline levels, with financial insecurity, feelings of loneliness, and not having someone to confide in emerging as predictors of increased distress, while age > 65 was protective.

Participants in this COVID observational study who were identified as experiencing high levels of distress were offered clinical follow-up by a psychological intervention team. The current paper focuses on those meeting criteria for intervention. The aims are to describe the process for assembling and training the psychological intervention team, the characteristics and intensity of individualized interventions offered, and their effects on participants.

Methods

Study Design

This interventional study used a repeated measures, within-person, sequential design to quantify the changes occurring following an individually tailored psychological intervention for people living with HIV and participating in an observational study of predictors of distress and resilience in response to the COVID-19 pandemic. Clinical intervention was offered to participants reporting high levels of psychological distress at any point during the data collection period for the observational study. While assignment to intervention was not random, the data from participants who

were eligible for the intervention but declined the offer of psychological intervention are presented for comparison purposes.

Population

Study procedures and clinical interventions were based at McGill University Health Centre and its Research Institute, in Montreal, Quebec, Canada. The sample for the COVID-19 observational study was drawn from participants in a longitudinal cohort study of aging with HIV (+BHN) (Mayo et al., 2016). Eligibility criteria for that study were adults age ≥ 35 diagnosed as HIV positive for at least 1 year, able to communicate adequately in French or English, and able to give informed consent. Participants were excluded if they had dementia, life expectancy of < 3 years or other, non-HIV-related neurological disorder, known active CNS opportunistic infection or hepatitis C requiring interferon treatment, psychotic disorder, or current (within the past 12 months) substance dependence or abuse. Recruitment was carried out at five HIV clinics across Canada; participants completed up to four study visits, 9 months apart. This cohort was selected for the COVID-19 observational study because the availability of data on pre-pandemic levels of anxiety, depression, and social support provided the opportunity to study change in response to the pandemic. Additional eligibility criteria for this intervention study were a place of residence in the Montreal area and access to the Internet. The residence criterion was to ensure access to the psychological intervention team.

Recruitment, Data Collection, and Referral Procedures

The implementation of confinement measures for COVID-19 in the province of Quebec occurred on March 13, 2020. Approval by the Research Ethics Board was granted on April 14 and recruitment for the COVID-19 observational study took place from April 28 to June 9, 2020. Data collection began, on average, 28 months after the participants' last pre-COVID (+BHN) assessment.

After providing informed consent, participants completed a brief questionnaire assessing social support and various indicators of, and risk factors for psychological distress, including the Hospital Anxiety and Depression Scales (HADS, (Zigmond & Snaith, 1983). To document the evolution of symptoms, the same questionnaire was sent out electronically weekly from the time of enrolment until the termination of data collection on June 30. The observational study was intended to provide information on the short-term psychological impact of the first wave of the pandemic, including the confinement measures designed to prevent its spread. Data collection ended at a time when COVID incidence in Quebec was falling and lockdown measures were loosened. All interactions between research personnel, clinical personnel, and research participants occurred remotely via an internet-based research platform (REDCAP), email, telephone and video-teleconferencing, where available.

Incoming responses to the questionnaires were monitored daily to ensure rapid identification of individuals in severe psychological distress, as defined by a score of ≥ 11/21 on either the anxiety or the depression subscale of the Hospital Anxiety

and Depression Scale, or extreme responses to two HADS "red flag" items (McKenzie et al., 2018) (sum of ratings = 6 for the items *Something awful is going to happen* and *Worrying thoughts go through my mind,* each rated on a scale of 0–3). Participants flagged as being in distress were then contacted by study personnel and offered follow-up with the psychological intervention team. Those who accepted the offer were asked questions to determine their interest in and ability to receive services via an online video-teleconferencing platform or by telephone, and were asked about best times to be contacted by clinical personnel. With the participant's consent, their name, contact information, and medical record number were sent to the psychological intervention team for clinical follow-up. Study personnel also indicated to the psychological intervention team when a participant who had been referred previously was red-flagged again by their responses to a later questionnaire. Participants who accepted to be referred for clinical follow-up are referred to hereafter as Accepters, while those who did not accept referral are referred to as Refusers.

Interventions

The interventions were organized according to a series of steps that aimed to adapt the duration, intensity, and goals of intervention based on individual needs assessment. Thus, the first contact between therapist and participant followed the principles and approaches of Psychological First Aid but was combined with an assessment of intensity of need that determined the structure and content of further intervention sessions.

Psychological First AID

The initial session with the participant followed the Look, Listen, and Link procedures for providing psychological first aid to individuals in crisis and was based on information and manuals developed by the Red Cross and Red Crescent Societies (Akasha, 2020), the World Health Organization (WHO, 2011), and the Quebec Public Health Research Network (Lessard & Lafond, 2020). PFA is described as a method for (1) providing supportive interventions directed at adaptive coping with reported challenges, (2) discussing informed decision-making to improve management of difficulties, and (3) normalizing worry and other emotions. It is typically delivered in a brief (20–30 min) intervention and its aims are to enhance the individual's sense of control, reinforce adaptive personal choices and coping strategies, and encourage seeking support from others in their social network. At the end of the initial session, all participants were offered a follow-up call to "check-in" within a week of the first intervention.

Assessment of Need for Further Intervention

During the initial session and the follow-up call, severity of distress and the need for further intervention were assessed based on clinical judgment. The need for further intervention was indicated for those with reported intense psychological distress

and/or dysfunction such as excessive time spent in bed, lengthy periods of ruminative worry, increased substance use, heightened situational stressors, or suicidal ideation. When distress at the end of the initial session was low and the patient reported not needing further intervention, the clinical intervention ended; however, participants could be referred back if their data were flagged again during their weekly research follow-up.

Cognitive-Behavioral Interventions

When the risk of ongoing distress was moderate or high, patients were offered a course of short-term psychotherapy. The number and frequency of these sessions was determined collaboratively with each participant. Decisions about the duration of intervention took into account factors such as the severity of symptoms (e.g., presence of suicidal ideation), evolution in the situational stressors contributing to exacerbation of symptoms, and the time needed to experiment with new strategies for symptom relief. When suicidal ideation was present, the study psychiatrist was notified and kept informed of any worsening in symptoms, and liaison with the participant's regular health care team was carried out if clinically indicated.

Interventions that extended beyond the boundaries defined by the psychological first aid model used the models and methods of contemporary cognitive-behavior therapy (CBT), including "third-wave" CBT (Hayes & Hofmann, 2017). Examples included behavioral activation, cognitive restructuring, distinguishing productive vs. nonproductive rumination, fostering resilience, suicidal risk management, and process-oriented work (mindfulness, values). Intervention providers were surveyed to identify the core presenting problems and specific interventions used in psychotherapy. Specific goals for individual therapies and the techniques employed are presented in the "Results."

Intervention providers

The first author assembled a psychological intervention team for this project by recruiting students in clinical and counseling psychology doctoral programs who were receiving formal clinical training in the Psychology Department of the McGill University Health Centre. Pandemic-associated shifts in work activities, including limits on out-patient clinical activities during the first wave of COVID-19 infections facilitated the rapid assembly of a team who were motivated to develop additional therapeutic skills for delivering mental health care within a telehealth framework. The team included a supervising psychologist (LK) who developed the framework for training the intervention providers and supervising their work, a consulting psychologist with expertise in psychological interventions for individuals with serious health conditions (D. Sinyor), and a third psychologist (D. Sookman) who provided weekly consultation on supervision issues to the supervising psychologist.

In the weeks prior to the start of participant recruitment, the intervention providers were trained as a group in a series of video-conferenced teaching sessions. These sessions covered the principles and methods of psychological first aid, assessing

need for further intervention, and role-playing in the perspectives of intervention provider and recipient. Weekly 60 to 90-min group meetings for supervision of interventions with individual participants were held for the duration of the study. In supervision, providers presented summaries of their active cases and received feedback and specific suggestions from their peers as well as from the supervising psychologist.

Data collection and analysis

Variables recorded included total numbers of participants in the observational and intervention studies, and those accepting and refusing clinical referral. For each participant in the intervention study, we recorded demographic and clinical characteristics, date of entry into the study, date of each assessment, score on the HADS anxiety subscale and the HADS depression subscale for each assessment, and the number of intervention sessions completed. The anxiety and depression scores were extracted for specific time-points of interest. *Pre-COVID*: The mean score across three to five time-points was obtained from + BHN data collected prior to the onset of the COVID-19 pandemic. *Entry:* The score obtained at first assessment for the COVID-19 observational study. *Red flag*: The score at which the participant first met criteria for clinical referral due to a high level of psychological distress, thereby becoming eligible for this intervention study. *Last visit*: The score obtained at the last available assessment point for the intervention study.

Descriptive statistics (frequencies, means, standard deviations) were used to characterize the Accepter and Refuser groups. As the total sample was small, differences between groups were considered of interest when they exceeded 10% for categorical variables or > 0.5 standard deviations for continuous variables. For continuous variables showing effects of interest, we calculated the 95% confidence limits (CL) of the group mean differences or within-subject changes based on 2-tailed *t*-tests.

Graphs and tables were used to illustrate, for individual participants, the timing of specific events (assessments, interventions, entry, red flag, last visit) and the evolution of HADS anxiety and depression scores over time. For each participant, HADS anxiety and depression scores were regressed on time to obtain the slope of change and its standard error. Individual participants were classified as improved if their score from red flag to last visit improved by two points, which is the cut-off used to define a clinically important difference on the HADS subscale scores in studies of patients with chronic health conditions (Curtis et al., 2014; Wynne et al., 2020).

Results

Characteristics of Study Participants

A total of 73 participants were enrolled in the observational COVID study, of whom 25 were red-flagged on at least one assessment and became eligible for this intervention study. Of these, 12 (48%) accepted referral for clinical follow-up

(Accepters) and 13 refused referral (Refusers). Characteristics of the Accepters and Refusers are shown in Table 1.

Demographic and Risk Factors

Four participants identified as female; the rest as male. The mean age was late 1950s and the mean level of educational attainment was post-secondary. Male participants were slightly less likely to accept referral for intervention (75% of Accepters vs. 92.3% of Refusers). One-third of Accepters (33.3%) reported having no one to trust and confide in vs. only 7.7% of Refusers. No other demographic variables or risk factors met criteria for an effect size of interest, including pre-COVID ratings of anxiety and depression from the + BHN study.

Table 1 Demographic and clinical characteristics of Accepters and Refusers

	Accepters $N=12$	Refusers $N=13$
Male sex—*N* (%)[a]	9 (75.0)	12 (92.3)
Age in years—mean (*SD*)	57.9 (5.0)	59.9 (7.3)
Education in years—mean (*SD*)	14.8 (2.6)	14.7 (2.8)
Live alone *N* (%)	5 (41.7)	6 (46.2)
Talk < 1/week *N* (%)	1 (8.3)	0 (0)
Trust/confide no one *N* (%)[a]	4 (33.3)	1 (7.7)
Lost work due to COVID *N* (%)	4 (33.3)	4 (30.8)
Seriousness of COVID—mean (*SD*) [c]	8.0 (3.0)	7.9 (2.7)
Eligible for intervention at 1st visit *N* (%)[a]	8 (74.0)	3 (23.1)
HADS #3: something awful *N* (%)[a]	5 (41.7)	3 (23.1
HADS #5: worrying thoughts *N* (%)[a]	3 (25.0)	1 (7.7)
HADS (#3 + #5) = 6, *N* (%)	2 (16.7)	1 (7.7)
HADS anxiety—pre-COVID, mean (*SD*)	8.6 (4.0)	6.8 (2.4)
HADS anxiety—study entry, mean (*SD*) [b]	12.7 (4.1)	8.3 (2.6)
HADS anxiety—red flag, mean (*SD*) [b]	13.9 (2.8)	10.8 (3.1)
HADS depression—pre-COVID, mean (*SD*)	4.8 (2.7)	4.2 (3.2)
HADS depression—study entry, mean (*SD*)	9.1 (4.5)	7.3 (3.3)
HADS depression—red flag, mean (*SD*)	9.8 (4.3)	10.3 (2.7)

Data are from the time point at which the participant became eligible for intervention (red flag), with the exception of pre-COVID HADS, which corresponds to the mean score across visits for the + BHN study, and entry HADS, which is the score obtained at first assessment for the COVID-19 observational study

[a]Group difference in distribution > 10%

[b]Group difference in means > 0.5 *SD*

[c]Scale of 0–10

Psychological Distress in Accepters and Refusers of Intervention

On average, anxiety ratings at entry into the COVID observational study were 4.3 points (> 1 *SD*) higher in the Accepters than the Refusers (95% confidence interval: − 7.3 to − 1.4), while depression ratings differed by only 1.8 points (95% confidence interval, − 5.1 to + 1.5). Participants became eligible for this intervention study when they met at least one of the pre-specified criteria for clinical referral: Compared with Refusers, Accepters more often met these criteria at their very first observational assessment (75% vs. 23%). On the date when each participant's responses made them eligible for intervention, Accepters rated their anxiety on average 3.1 points (1 *SD*) higher than Refusers (95% confidence interval, 5.5 to 0.6.), while their depression ratings differed by less than one point (95% confidence interval, − 2.5 to + 3.6). On the date of entry into the intervention study, more Accepters than Refusers endorsed high levels of worrying thoughts and a feeling like something awful was going to happen.

Emergent Psychological Distress

Compared to their pre-COVID baseline (+ BHN), anxiety scores among the Accepters were on average 4.1 points higher (> 1 *SD*; *CL*, 0.8 to 7.3) at entry into the COVID-19 observational study, and 5.3 points higher (CL 2.4 to 8.2) at the red flag visit when they became eligible for intervention. Depression scores were 4.3 points higher (CL, 1.7 to 7.0) and 5.0 points higher (*CL*, 2.4 to 7.6), respectively.

Among those who refused intervention, anxiety scores were on average only 1.5 points higher than their mean pre-COVID score (*CL*, − 1.1 to 4.0) at entry into the COVID-19 observational study, but 4.0 points higher (*CL*, 1.7 to 6.3) when they became eligible for intervention. At entry into the COVID-19 observational study, depression scores for Refusers were on average 3.2 points higher (CL, − 0.2 to 6.5), increasing to 6.2 points higher (CL, 4.1 to 8.2) when they became eligible for intervention.

Timeline of Study-related Activities

Table 2 shows the timing of entry into the observational COVID study, assessments (x), first eligibility for the intervention study (check-mark), and clinical interventions (I) for each participant. Timing is truncated for participants who remained in clinical follow-up beyond 16 weeks after the start of the intervention study, represented only by the number of X's and I's in the right-most column. From the time of eligibility for intervention (marked as ✓), the number of assessment time-points for the Accepters ranged from 3 to 9, while the number of time-points for Refusers ranged from 1 to 8. The average number of assessments was 6.3 for Accepters and 4.5 for Refusers.

Table 2 Individual timelines for study entry, assessments and interventions

Week of:	Apr 27	May 04	May 11	May 18	May 25	Jun 01	Jun 08	Jun 15	Jun 22	Jun 29	Jul 06	Jul 13	Jul 20	Jul 27	Aug 03	Aug 10	Aug 17	Aug 24	Aug 31 > >
Accepters																			
	✓I	x-I	x	x	x	x-I	x-I	x-I											
	✓	x-I	x-I	x-I	I	x	x	x	x										
	✓I					x	x	xI											
	✓	x	x	x-I	x	x-I	x	x-I	x	I		I	x						
		✓I	x-I	x	x		x	x	x										
			✓I	x		x			x										
			✓I	x-I	x-II		x-I		x-I		I	I	x	x-I	I	x	I		x
			x	✓			x	I			x								
			x	✓I	x	x-I	I	x-I	x-I	I	I		I	I		x-I	I		xIx
				✓I	x-I	x-I	x	xI	x										
				✓	I	I	I	x-II	x-I	I	I			I	x-I	x-I	I	I	xxIIIIII
	x	x	x	x	x	x	x	x	✓I	I	I	I	I	x		x	x-I		x
Refusers																			
	✓	x		x	x	x	x	x											
	✓	x	x		x	x	x	x	x										
	x	✓	x	x	x	x	x	x	x										
	x	✓	x	x		x	x	x											
	x			✓															
			x	x	✓	x	x	x											
			x	x	✓	x	x	x											
			x	x	✓	x	x	x	x										
				x	✓	x	x	x											

Table 2 (continued)

Week of:	Apr 27	May 04	May 11	May 18	May 25	Jun 01	Jun 08	Jun 15	Jun 22	Jun 29	Jul 06	Jul 13	Jul 20	Jul 27	Aug 03	Aug 10	Aug 17	Aug 24	Aug 31 > >
					✓			x	x										
	x	x	x	x	x	✓		x	x										
					x	✓		x	x										
	x	x	x	x	x	x		✓	x										

Clinical Intervention

Eight of the 12 Accepters received clinical follow-up by video-teleconference and four by telephone only. Most participants received between one and five sessions, while three were followed for more than 10 sessions (see Table 2).

Three participants responded well and had completed their intervention but were red-flagged again during study follow-up, so were referred a second time. Of these, one received a single psychological first aid intervention on two separate occasions; one had responded after three sessions and returned 3 weeks later for a single intervention session; and one responded to two sessions but returned 4 weeks later for three additional sessions.

Presenting Problems

The primary presenting problems among recipients of intervention included relationship distress related to confinement, sense of loss of control, fear of uncertainty, sense of powerlessness, loneliness and isolation, and not feeling supported by the system/lack of services. Most identified their psychological state as more anxious than depressed; however, those with depression and suicidal ideation received more sessions of therapy. Two recipients of intervention were struggling with issues that predated the COVID-19 pandemic and that triggered a red flag alert that appeared unrelated to the specific context of the pandemic. Most were asking for help managing distress caused by or exacerbated by the pandemic context. Specific concerns included anxiety specifically related to risk and consequences of contracting COVID-19, loved one hospitalized for COVID-19, job loss, loss of formal support groups for themselves or their dependents, social isolation leading to depression, and confinement leading to a spike in preexisting relationship conflict.

Specific Interventions

Therapy delivered in a single session or one session plus a follow-up "check-in" consisted primarily of interventions derived from the principles of psychological first aid. This always included validation of the participant's lived experience as well as psychoeducation about symptoms of anxiety, sleep hygiene, and diet, and the mind–body connection. In some cases, techniques for relaxation (e.g., controlled breathing) were explicitly taught. The goal of intervention in the first session was to increase the participant's sense of mastery over their situation, by discussing strategies that have worked for them in the face of past challenges. Even interventions consisting of a single session always included a behavioral activation component based on the identification of a SMART goal within the session (Specific, Measurable, Achievable, Relevant, Timely). For some individuals, the SMART goal was to reach out to a personal or community source of help; for others, it was to take a walk in the park or to practice a relaxation technique.

In addition to the above, the more prolonged psychotherapeutic interventions drew from a variety of contemporary cognitive-behavioral techniques, as well as acceptance and commitment therapy (ACT). Components of ACT included

cognitive defusion (recognizing and distancing from symptoms of anxiety), contact and connection with the present moment, values clarification, and committed action. Participants in longer term intervention were encouraged to select a personalized outcome measure to assess their progress, e.g., ratings of confidence in decision-making or frequency of suicidal ideas.

Change in HADS Scores Over Time

Figure 1 shows the HADS Anxiety scores for individual participants at each assessment, beginning with the visit at which they became eligible for intervention. As can be seen, both Accepters and Refusers showed a general downward trend in their levels of anxiety and distress, with most of the change occurring over the next one or two assessments. One participant in the Accepters group (denoted by *) required no further follow-up after two intervention sessions and showed a marked decrease in anxiety and depression scores. A later increase in his depression score triggered his referral for an additional three sessions, with a subsequent decrease in depression.

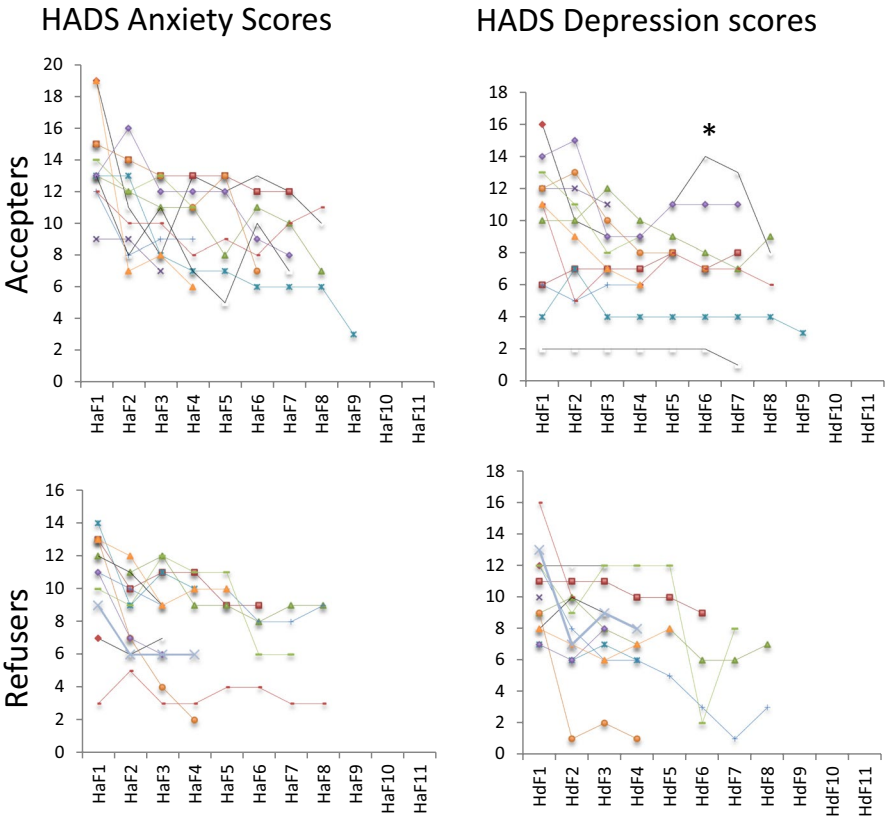

Fig. 1 Individual symptoms trajectories among Accepters and Refusers from time of eligibility for intervention

Table 3 shows for each individual their values on HADS anxiety and HADS depression at their red flag visit and at their last visit. Each person's linear change over time standardized to a 4-week period is also presented as well as the effect size using the *t*-value (critical value: 1.96). A change of negative 2 points is considered clinically meaningful improvement on the HADS subscales. On average,

Table 3 Individual slopes and HADS scores at key assessment points

HADS anxiety				HADS depression			
Red flag	Last visit [*n* visits]	β (*4 weeks)	t	Red flag	Last visit	β (*4 weeks)	*t*
Accepters				**Accepters**			
19	10 [8]	−2.04	−1.09	16	8	−1.12	−0.65
15	12 [7]	−1.43	−5.67	6	8	0.78	2.80
13	7 [8]	−0.78	−2.15	10	9	−0.64	−2.56
9	7 [3]	−1.20	−2.26	12	11	−0.59	−0.21
13	3 [9]	−2.04	−4.87	4	3	−0.42	−1.67
15	7 [6]	−4.90	−3.24	12	7	−4.54	−4.91
12	9 [4]	−1.20	−1.43	6	6	0.06	0.17
12	11 [8]	−0.48	−0.63	11	6	−0.81	−0.85
14	11 [4]	−1.32	−2.14	13	9	−2.44	−3.00
13	8 [7]	−1.37	−3.27	14	11	−0.73	−1.30
13	7 [7]	−2.16	−1.38	3	1	−0.42	−2.50
19	6 [4]	−7.22	−1.71	11	6	−3.42	−11.09
		Mean (*SD*) −2.18 (1.94)				Mean (*SD*) −1.19 (1.52)	
Refusers				**Refusers**			
7	7 [3]	0.00	0.00	12	12	0.00	0.00
13	9 [6]	−2.30	−2.73	11	9	−1.43	−4.64
12	9 [8]	−2.04	−3.32	9	7	−1.85	−3.30
13	13 [a] [1]			10	10 [a]		
14	10 [4]	3.67	1.01	7	6	−0.73	−0.67
13	2 [4]	−13.27	−5.64	9	1	−8.57	−1.75
11	9 [8]	−1.20	−2.69	12	3	−4.84	−5.97
3	3 [2]	0.00		16	10	−24.00	
10	6 [7]	−1.90	−1.36	12	8	−2.74	−1.24
11	6 [3]	−5.07	−18.10	7	8	0.45	0.24
12	9 [3]	−4.79	−3.35	8	9	1.90	0.72
13	10 [5]	−2.88	−2.06	8	8	0.06	
9	6 [4]	−3.36	−0.17	13	8	−4.82	−1.13
		Mean (*SD*) −2.76 (4.05)				Mean (*SD*) −3.88 (6.96)	

β estimated linear trend over 4 weeks; β/standard error = *t* (critical value 1.95).

[a]No further visits after red flag: value carried forward.

Gray-shading denotes improvers defined by $\beta < -2.0$ indicating clinical relevant reduction in HADS values from red flag to last visit.

anxiety scores in the Accepters declined by 2.18 points (median, − 1.4; range − 0.48 to − 7.22), while depression scores declined by 1.19 points (median, − 0.69; range, + 0.78 to − 4.54). Five of 12 Accepters (41.7%) showed clinically meaningful improvement in anxiety and three (25%) showed improvement in depression.

On average, anxiety scores in the 13 Refusers declined by 2.76 points (median, − 2.17; range, + 3.67 to − 13.27), while depression scores declined by 3.88 points (median, − 1.64; range, + 1.90 to − 24.00). Seven Refusers (53.8%) showed clinically significant decline in anxiety and five (38.5%) showed decline in depression.

Discussion

We present a protocol for clinical intervention aimed at reducing markers of psychological distress during COVID-19 in a well-characterized cohort of HIV + individuals who are being followed longitudinally on multiple indicators of brain health and quality of life. The intervention was incorporated into a study of the psychological effects of the first wave of the COVID-19 pandemic, to meet what the research team perceived as an ethical obligation to treat participants reporting high levels of distress. Beginning in mid-March with the local onset of the pandemic in Montreal, the research team designed the protocols for data collection and analysis, identification and clinical referral of participants in high distress, and delivery of care. A psychological response team was assembled and trained and institutional approvals obtained prior to initiation of the data collection less than 6 weeks later. This work was facilitated by strong institutional support for research initiatives among its clinical staff and for the rapid transition to remote delivery of care through a videoteleconferencing platform made available to all therapists.

This is not the first study to report on outcomes of telehealth psychological services offered to individuals living with HIV (Heckman et al., 2017). However, it is among the first to measure the impact of a psychological intervention in people with a chronic health condition who are acutely distressed by the experience of the COVID-19 pandemic and its associated public health interventions. The remote delivery format allowed patients to receive care without the increased risk of exposure to the COVID-19 virus associated with the use of public transit to attend in-person therapy appointments. At the outset of this study, we had some concerns about being overwhelmed by requests for clinical referral: This was not the case. Of 77 participants enrolled in the study on COVID-19 distress, 25 (31%) were identified as being in high distress on at least one of their assessment time-points. Of these, more than half refused the offer of referral for clinical follow-up. As reported in our companion paper (Brouillette et al., 2021), the majority of participants in the full research cohort ($n = 77$) showed either a decrease in distress or a modest increase associated with the first wave of the pandemic that subsided over the course of the next 2 months. This observation suggests the feasibility of offering similar brief, but timely, interventions for participants in research studies who are identified as being in greater need of psychological intervention.

We believe that the accessibility of psychological services was an important component of the protocol. That research personnel contacted participants immediately on receipt of survey data indicating a high level of distress may itself have served as a form of psychological first aid, by reassuring research participants that their distress was being noted and responded to swiftly and empathically. We speculate that this may have contributed to the somewhat low rates of acceptance of psychological intervention (< 50%) among highly distressed participants. It is also possible that participants recognized when their increase in symptoms was a transient response to a situation that was expected to improve and judged well whether or not psychological intervention was needed.

Greater severity of anxious symptoms was an important distinguishing characteristic of those who accepted referral for intervention. Accepters were more anxious than Refusers when first assessed in the COVID-19 observational study and also when they met criteria for referral for clinical intervention. Accepters were more likely to report having no one to trust or confide in, which may explain their willingness to confide in a member of the psychological intervention team.

Accepters were also more symptomatic at the time of their entry into the COVID-19 observational study than during their participation in the longitudinal + BHN cohort study prior to the onset of the COVID-19 pandemic. This implies that their distress emerged as a consequence of COVID-19 and its associated public health measures. Refusers tended to be flagged for high levels of distress later in the course of follow-up. For some Refusers, the assessment at which they were red-flagged appears as a high peak in a profile of otherwise low or fluctuating levels of distress.

Strengths of this study include the availability of pre-pandemic measures of psychological distress and the inclusion of outcome measures collected in a comparison group of participants who were identified as experiencing high psychological distress but who refused clinical referral. By embedding our intervention study within a larger observational study, we had access to outcome data even on patients who were not immediately identified as experiencing high levels of distress (Brouillette et al., 2021) and on those who refused the offer of clinical intervention.

To date, few studies on psychological interventions for COVID-related distress have used validated tools to measure distress outcomes, and fewer still included a comparison group. Some preliminary evidence supports the use of psychosocial interventions to reduce distress among some health care workers or patients with active COVID-19 infection. Shaygan et al. (Shaygan et al., 2020) showed greater improvements in resilience and perceived stress among COVID-19 patients receiving 2 weeks of daily intervention that included elements of CBT, mindfulness-based stress reduction, and positive psychology. Patients receiving internet-based training in relaxation, mindfulness, and self-care showed a significantly greater reduction in severity of depression that was not seen in patients receiving only supportive care (Wei et al., 2020). Intensive care unit nurses receiving a group intervention consisting of 90 min of guided imagery showed a reduction in death anxiety that was not seen in those who did not receive the intervention. Finally, one study conducted among university students in COVID-19 lockdown demonstrated significantly greater reductions in multiple measures of distress in those who received four

sessions of koru mindfulness training than in those randomized to a waitlist control group (Weis et al., 2020).

In the context of the current project, the psychological intervention team consisted of clinicians with formal education and training in mental health care. However, the procedures followed to match intensity of intervention to the needs of the individual health care recipient could be implemented in other contexts and on a larger scale with less time commitment from specialized mental health workers. Psychological first aid is intended to be delivered by a layperson after a brief training program, which can be completed online or in a mixed format of instructor-led group and self-led online learning (Cross, 2020). Limitations of exclusive reliance on this system of training in a real-world context have been described previously (Horn et al., 2019), and emphasize that trained mental health specialists should remain implicated in overseeing the quality of care offered. The use of a semi-structured interview can identify persons requiring low, moderate, and high levels of mental health intervention, with specialized mental health workers intervening only for those with moderate to high needs.

Drawing from research obtained during previous pandemics and other crises, a panel of experts from 15 member countries of the World Health Organization published a protocol for responding with telehealth interventions to the increased need for mental health care during the pandemic (Ramalho et al., 2020). The protocol includes a set of useful procedures that mental health workers can use for initial triage as well as a list of intervention types matched to the severity of need that can be adapted to the individual client. These recommendations closely match the approach we developed for this study, which combined the rapid responsiveness and task-shifting delivery components (Grant et al., 2018) of psychological first aid with a psychological assessment of the level of intervention required. This allowed for a seamless transition to delivery of more traditional CBT interventions in short-term follow-up that was tailored to the individual participant, which we believe is unusual in the clinical literature.

A recent study of psychologists' practices in the US spoke of a telepsychology "revolution," concluding that there was an immediate need to incorporate specific training in teletherapy into the curriculum for educating new psychologists (Pierce et al., 2021). Thus, a secondary benefit of this project was the enrichment of the clinical training experience for doctoral candidates interning in the psychology department of the McGill University Health Centre, a tertiary care hospital where clinical training activities were substantially disrupted at the onset of the COVID-19 pandemic. Some university graduate training programs in psychology, concerned about risk to their students, were advising them not to present in-person to their hospital-based internships. These interns responded to the call to provide clinical care remotely to study participants and benefitted from training specific to the use of telecommunication for delivery of mental health care (e.g., enhancement of facial and vocal expressiveness, concerns related to privacy and confidentiality). They also received specialized instruction and practice in delivery of care using the Psychological First Aid model, in the psychological assessment of mental health needs, and in the development of short-term interventions based on cognitive-behavioral models of psychotherapy.

We acknowledge some important limitations of this study. First, the study should be seen as descriptive because the small sample size limits confidence in inferential statistics. Second, the assessments continued longer for participants who stayed in clinical follow-up beyond the initial period of regular weekly data collection for the COVID-19 observational study. We cannot say whether the HADS scores of Refusers at their last visit may have declined still further had they been followed out into the period of time in which Montreal was experiencing a lull in COVID-19 cases. Third, this is a naturalistic study that did not randomly assign participants to intervention vs. control groups. This is a common limitation of studies on psychological interventions in a crisis situation, where ethical considerations preclude random assignment to experimental and control groups. Mental health interventions during the COVID-19 pandemic and other crisis situations have been described as "evidence-informed" rather than evidence-based (Hobfoll et al., 2007). Here, those who accepted vs. refused the offer of clinical intervention differed in their degree of psychological distress, limiting any conclusions that might be drawn from direct comparison of outcomes. Finally, recruitment methods for our study yielded a sample of predominantly older and male participants with well-controlled HIV, which may limit the generalizability of our findings to the broader population of persons living with HIV. Although some of our participants chose telephone over teleconferencing software as their preferred method of service delivery, all had access to a computer. Therefore, our study does not address issues of equity of access to mental health services that can be sustained during a pandemic.

In conclusion, this study provides a description of the psychological interventions provided to individuals living with HIV who experienced high levels of anxiety and depression in the context of the first appearance of the COVID-19 pandemic and related public health measures. We learned that distress that is linked to the onset of the COVID-19 pandemic increased the acceptability of psychological intervention. Moreover, the longitudinal assessment data presented here inform our understanding of the evolution of symptoms over time in the context of treatment. Thus, our study responds to the call from the international community (Moreno et al., 2020) to demonstrate the feasibility of identifying and responding to increased psychological distress in an at-risk population, using telehealth modalities to circumvent the limitations imposed by systemic and self-selected infection control measures.

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Declarations

Conflict of Interest The authors declare no competing interests.

References

Akasha, E. S. (2020). *Remote psychological first aid during Covid-19*. Copenhagen: IFRC Reference Centre for Psychosocial Support

Ambrosioni, J., Blanco, J. L., Reyes-Uruena, J. M., Davies, M. A., Sued, O., Marcos, M. A., … Investigators, C.-i. H. (2021). Overview of SARS-CoV-2 infection in adults living with HIV. *Lancet HIV, 8*(5), e294-e305. https://doi.org/10.1016/S2352-3018(21)00070-9

Audet, C. M., McGowan, C. C., Wallston, K. A., & Kipp, A. M. (2013). Relationship between HIV stigma and self-isolation among people living with HIV in Tennessee. *PLoS ONE, 8*(8), e69564. https://doi.org/10.1371/journal.pone.0069564

Blake, H., Bermingham, F., Johnson, G., & Tabner, A. (2020). Mitigating the psychological impact of COVID-19 on healthcare workers: A digital learning package. *International Journal of Environmental Research and Public Health, 17*(9), 2997.

Brouillette, M. J., Koski, L. M., Scott, S. C., Austin-Keiller, A., Fellows, L. K., & Mayo, N. E. (2021). This ain't my first pandemic: resilience to psychological distress during the first wave of the COVID pandemic in people aging with HIV *AIDS Research and Human Retroviruses, Special Issue: Covid-19*.(in press)

Cheng, W., Zhang, F., Liu, Z., Zhang, H., Lyu, Y., Xu, H., … Liu, J. (2020). A psychological health support scheme for medical teams in COVID-19 outbreak and its effectiveness. *General psychiatry, 33*(5), e100288. https://doi.org/10.1136/gpsych-2020-100288

Cross, C. R. (2020). Psychological First Aid Courses. Retrieved from https://www.redcross.ca/training-and-certification/course-descriptions/psychological-first-aid

Curtis, M., Kon, S. S., Canavan, J., Jones, S., Nolan, C., Clark, A., & Man, W. (2014). The minimum important difference of the hospital anxiety and depression scale in COPD. *European Respiratory Journal, 44*, 4829.

Ettman, C. K., Abdalla, S. M., Cohen, G. H., Sampson, L., Vivier, P. M., & Galea, S. (2020). Prevalence of depression symptoms in US adults before and during the COVID-19 pandemic. *JAMA Network Open, 3*(9), e2019686. https://doi.org/10.1001/jamanetworkopen.2020.19686

Geoffroy, P. A., Le Goanvic, V., Sabbagh, O., Richoux, C., Weinstein, A., Dufayet, G., & Lejoyeux, M. (2020). Psychological support system for hospital workers during the Covid-19 outbreak: Rapid design and implementation of the Covid-Psy Hotline. *Front Psychiatry, 11*, 511. https://doi.org/10.3389/fpsyt.2020.00511

Gharaati Sotoudeh, H., Alavi, S. S., Akbari, Z., Jannatifard, F., & Artounian, V. (2020). The effect of brief crisis intervention package on improving quality of life and mental health in patients with COVID-19. *Iranian Journal of Psychiatry, 15*(3), 205–212. https://doi.org/10.18502/ijps.v15i3.3812

Grant, K. L., Simmons, M. B., & Davey, C. G. (2018). Three nontraditional approaches to improving the capacity, accessibility, and quality of mental health services: An overview. *Psychiatric Services (washington, D. C.), 69*(5), 508–516. https://doi.org/10.1176/appi.ps.201700292

Hayes, S. C., & Hofmann, S. G. (2017). The third wave of cognitive behavioral therapy and the rise of process-based care. *World Psychiatry, 16*(3), 245–246. https://doi.org/10.1002/wps.20442

Hays, R. D., & Morales, L. S. (2001). The RAND-36 measure of health-related quality of life. *Annals of Medicine, 33*(5), 350–357. https://doi.org/10.3109/07853890109002089

Heckman, T. G., Heckman, B. D., Anderson, T., Lovejoy, T. I., Markowitz, J. C., Shen, Y., & Sutton, M. (2017). Tele-interpersonal psychotherapy acutely reduces depressive symptoms in depressed HIV-infected rural persons: A randomized clinical trial. *Behavioral Medicine, 43*(4), 285–295. https://doi.org/10.1080/08964289.2016.1160025

Hobfoll, S. E., Watson, P., Bell, C. C., Bryant, R. A., Brymer, M. J., Friedman, M. J., … Ursano, R. J. (2007). Five essential elements of immediate and mid-term mass trauma intervention: Empirical evidence. *Psychiatry, 70*(4), 283–315; discussion 316–269. doi:https://doi.org/10.1521/psyc.2007.70.4.283

Horn, R., O'May, F., Esliker, R., Gwaikolo, W., Woensdregt, L., Ruttenberg, L., & Ager, A. (2019). The myth of the 1-day training: The effectiveness of psychosocial support capacity-building during the Ebola outbreak in West Africa - ADDENDUM. *Glob Ment Health (camb), 6*, e12. https://doi.org/10.1017/gmh.2019.10

Lessard, L., & Lafond, A. (Producer). (2020). Webinaire: Les premiers secours psychologiques en cas de désastre: une réponse pour réduire la détresse liée aux inondation et au Covid-19".

Li, J., Li, X., Jiang, J., Xu, X., Wu, J., Xu, Y., … Xu, X. (2020). The effect of cognitive behavioral therapy on depression, anxiety, and stress in patients With COVID-19: A randomized controlled trial. *Front Psychiatry, 11*, 580827. https://doi.org/10.3389/fpsyt.2020.580827

Liu, K., Chen, Y., Wu, D., Lin, R., Wang, Z., & Pan, L. (2020). Effects of progressive muscle relaxation on anxiety and sleep quality in patients with COVID-19. *Complementary Therapies in Clinical Practice, 39*, 101132. https://doi.org/10.1016/j.ctcp.2020.101132

Lofgren, S. M., Nakasujja, N., & Boulware, D. R. (2018). Systematic review of interventions for depression for people living with HIV in Africa. *AIDS and Behavior, 22*(1), 1–8. https://doi.org/10.1007/s10461-017-1906-3

Mayo, N. E., Brouillette, M. J., Fellows, L. K., & Positive Brain Health Now, I. (2016). Understanding and optimizing brain health in HIV now: Protocol for a longitudinal cohort study with multiple randomized controlled trials. *BMC Neurology, 16*, 8. https://doi.org/10.1186/s12883-016-0527-1

Mayo, N. E., Brouillette, M. J., Scott, S. C., Harris, M., Smaill, F., Smith, G., … and investigators from the Positive Brain Health Now, S. (2020). Relationships between cognition, function, and quality of life among HIV+ Canadian men. *Qual Life Res, 29*(1), 37-55. https://doi.org/10.1007/s11136-019-02291-w

Mazza, C., Ricci, E., Biondi, S., Colasanti, M., Ferracuti, S., Napoli, C., & Roma, P. (2020). A Nationwide Survey of psychological distress among Italian people during the COVID-19 pandemic: Immediate psychological responses and associated factors. *Int J Environ Res Public Health, 17*(9). https://doi.org/10.3390/ijerph17093165

McKenzie, D. P., Downing, M. G., & Ponsford, J. L. (2018). Key hospital anxiety and depression scale (HADS) items associated with DSM-IV depressive and anxiety disorder 12-months post traumatic brain injury. *Journal of Affective Disorders, 236*, 164–171. https://doi.org/10.1016/j.jad.2018.04.092

Moitra, E., Tarantino, N., Garnaat, S. L., Pinkston, M. M., Busch, A. M., Weisberg, R. B., … Uebelacker, L. A. (2020). Using behavioral psychotherapy techniques to address HIV patients' pain, depression, and well-being. *Psychotherapy (Chic), 57*(1), 83-89. https://doi.org/10.1037/pst0000258

Moreno, C., Wykes, T., Galderisi, S., Nordentoft, M., Crossley, N., Jones, N., … Arango, C. (2020). How mental health care should change as a consequence of the COVID-19 pandemic. *Lancet Psychiatry, 7*(9), 813-824. https://doi.org/10.1016/S2215-0366(20)30307-2

Pierce, B. S., Perrin, P. B., Tyler, C. M., McKee, G. B., & Watson, J. D. (2021). The COVID-19 telepsychology revolution: A national study of pandemic-based changes in U.S. mental health care delivery. *Am Psychol, 76*(1), 14–25. https://doi.org/10.1037/amp0000722

Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: Implications and policy recommendations. *Gen Psychiatr, 33*(2), e100213. https://doi.org/10.1136/gpsych-2020-100213

Ramalho, R., Adiukwu, F., Gashi Bytyçi, D., El Hayek, S., Gonzalez-Diaz, J. M., Larnaout, A., … Orsolini, L. (2020). Telepsychiatry during the COVID-19 pandemic: Development of a protocol for telemental health care. *Frontiers in Psychiatry, 11*(999). https://doi.org/10.3389/fpsyt.2020.552450

Robertson, K., Bayon, C., Molina, J. M., McNamara, P., Resch, C., Munoz-Moreno, J. A., … van Wyk, J. (2014). Screening for neurocognitive impairment, depression, and anxiety in HIV-infected patients in Western Europe and Canada. *AIDS Care, 26*(12), 1555-1561. https://doi.org/10.1080/09540121.2014.936813

Sanadgol, S., Firouzkouhi, M., Badakhsh, M., Abdollahimohammad, A., & Shahraki-vahed, A. (2020). Effect of guided imagery training on death anxiety of nurses at COVID-19 intensive care units: A quasi-experimental study. *Neuropsychiatria i Neuropsychologia/Neuropsychiatry and Neuropsychology, 15*(3), 83–88. https://doi.org/10.5114/nan.2020.101290

Shaygan, M., Yazdani, Z., & Valibeigi, A. (2020). *The effect of online multimedia psychoeducational interventions on the perceived stress and resilience of hospitalized patients with COVID-19: A quasi-experimental study*.

Shiau, S., Krause, K. D., Valera, P., Swaminathan, S., & Halkitis, P. N. (2020). The Burden of COVID-19 in people living with HIV: A syndemic perspective. *AIDS and Behavior, 24*(8), 2244–2249. https://doi.org/10.1007/s10461-020-02871-9

Wei, N., Huang, B.-c., Lu, S.-j., Hu, J.-b., Zhou, X.-y., Hu, C.-c., … Hu, S.-h. (2020). Efficacy of internet-based integrated intervention on depression and anxiety symptoms in patients with COVID-19. *Journal of Zhejiang University-SCIENCE B, 21*(5), 400-404. https://doi.org/10.1631/jzus.B2010013

Weis, R., Ray, S. D., & Cohen, T. A. (2020). Mindfulness as a way to cope with COVID-19-related stress and anxiety. *Counselling and Psychotherapy Research, n/a*(n/a). https://doi.org/10.1002/capr.12375

WHO, W. H. O. (2011). *Psychological first aid: Guide for field workers*. Geneva: WHO

Wynne, S. C., Patel, S., Barker, R. E., Jones, S. E., Walsh, J. A., Kon, S. S., … Nolan, C. M. (2020). Anxiety and depression in bronchiectasis: Response to pulmonary rehabilitation and minimal clinically important difference of the Hospital Anxiety and Depression Scale. *Chron Respir Dis, 17*, 1479973120933292. https://doi.org/10.1177/1479973120933292

Zhao, S. Z., Wong, J. Y. H., Wu, Y., Choi, E. P. H., Wang, M. P., & Lam, T. H. (2020). Social Distancing compliance under COVID-19 pandemic and mental health impacts: A population-based study. *Int J Environ Res Public Health, 17*(18). https://doi.org/10.3390/ijerph17186692

Zhou, L., Xie, R. H., Yang, X., Zhang, S., Li, D., Zhang, Y., … Wen, S. W. (2020). Feasibility and preliminary results of effectiveness of social media-based intervention on the psychological well-being of suspected COVID-19 cases during quarantine. *Can J Psychiatry, 65*(10), 736-738. https://doi.org/10.1177/0706743720932041

Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scand., 67*(6), 361–370. https://doi.org/10.1111/j.1600-0447.1983.tb09716.x

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