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An Online Community Peer Support Intervention to Reduce Anxiety: A Randomized Controlled Trial

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Abstract

Objective: A 6-week study was conducted to test the effectiveness of the Harnessing Online Peer Education (HOPE) intervention on (a) rates of anxiety (b) help-seeking for an electronic resource (e-resource) on anxiety reduction, and (c) online engagement.

Methods: 300 participants with moderate to severe anxiety (Generalized Anxiety Disorder 7-item scale, GAD score 10) were randomly assigned to a Facebook group, with or without peer leaders. The study was conducted from 4/5/20 to 5/17/20. GAD scores, E-resource requests, and online engagement were measured at baseline, weeks 2, 4, and 6.

Results: GAD scores improved among both intervention and control groups, with no difference between conditions. Participants in the intervention group were more likely to request the e-resource (OR = 10.27, 95% CI = 4.52 – 23.35), and engage online (OR = 2.8, 95% CI = 1.70 – 4.76).

Conclusions: The HOPE intervention appears to be effective in promoting mental health help-seeking behaviors.

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Introduction

The COVID-19 pandemic has raised concerns about subsequent adverse mental health outcomes worldwide. Nearly half of American adults have experienced increased stress and worsened mental health (1). Furthermore, one third of Americans have experienced an increase in anxiety and depression symptoms, and one in four have experienced exacerbated trauma/stressor-related disorder symptoms (2).

Peer-led online support communities may serve as tools for anxiety management through the psychology of social support (3) Online interventions, however, require high engagement for efficacy (4). Peer-led online interventions offer the advantage of a moderator who can encourage participation. Given the alarming rise in anxiety symptoms during the COVID-19 pandemic, peer-led online health interventions that previously showed beneficial effects (for other health outcomes) may be adapted to current and future public health problems.

The Harnessing Online Peer Education (HOPE) intervention has successfully led to behavior change across multiple geographic regions and medical conditions (5,6). This intervention utilizes trained peer leaders, who have overcome personal health-related barriers, to provide support to others, and may be adapted to help individuals experiencing high anxiety during the pandemic. Within HOPE studies, peer leaders (unknown to the participants) are tasked with engaging participants online through various modes of communication, including group wall, direct messaging, and real-time chat. Each peer leader is assigned a certain number of participants with whom to attempt to communicate at least three times per week. Discussion topics are primarily chosen by the peer leaders and can range from friendly and supportive messages to messages about knowledge and addressing stigma (details in online supplement).

This study tested the effectiveness of the HOPE peer-led social media intervention on (a) rates of anxiety (b) help-seeking requests for an electronic resource (e-resource) about anxiety reduction, and (c) online community engagement.

Methods

This randomized controlled trial was deemed exempt by the University of California, Irvine's Institutional Review Board (IRB).

Participants were recruited through online advertisements on Facebook, Google, and Reddit from 3/15/20 to 4/4/20. Ads targeted those with anxiety and invited them to complete surveys and join an online community (details in online supplement). Participants were screened online for the following criteria: 18 years or older, U.S. resident, English speaker, not currently taking anxiety medication, uses social media greater than twice per week, accepts a group invitation from our Facebook page, and has moderate to severe Generalized Anxiety Disorder based on GAD-7 scores of 10 or greater in relation to COVID-19 (i.e. participants completed a modified GAD-7 questionnaire, (7), responding to "During the past 2 weeks, how often have you been bothered by the following problems related to the coronavirus?"

Eligible and consenting participants were routed to the baseline survey, and after completion, were randomly assigned to intervention or control arms. Each arm consisted of 5 private and hidden Facebook community groups (CONSORT chart online). Each group consisted of 30 participants. 300 participants were enrolled by 3/31/20, randomized into groups, and sent online community group invitations. The study officially started on 4/5/20, once 300 participants were in their respective groups.

Twenty-nine peer leaders (to allow for 4–5 peer leaders per group based on prior studies) were recruited using online advertisements and referrals from mental health providers (6,8,9). Advertisements targeted people who reported being social online and had overcome health anxiety or COVID-19. Potential peer leaders were screened online for eligibility: 18 years or older, US resident, previously visited a health provider or paraprofessional for anxiety or recovered from COVID-19, able to manage their anxiety, and experienced with social media or willing to learn. Eligible peer leaders were called by our study team to gauge leadership skills and experience overcoming health anxiety or COVID-19. Peer leaders were excluded if they couldn't attend our training sessions. Enrolled peer leaders participated in 3 Zoom training sessions of approximately 3 hours each (see online supplement). Peer leaders were compensated $20 per week in Amazon gift cards for attempting to communicate with participants each week. Peer leader weekly effort ranged from 30 minutes to 3 hours, depending on the amount of time they chose to commit.

Participants were individually randomized to 1 of 10 groups. Groups were randomly assigned to intervention or control arms, with participants blind to condition. Approximately 5 peer leaders were randomly assigned to each intervention group. Randomization was done using a random number generator with all possible assignments of subjects to groups being equally likely. Similarly, all possible peer leader assignments to the intervention groups were equally likely.

Participants in the intervention arm were assigned to a group with peer leaders, with each participant assigned to 2 peer leaders. Those in the control arm were assigned to a similar group, but without peer leaders. The intervention took place over 6 weeks, from 4/5/20 to 5/17/20. Participants were told to use the group as they wanted and to continue using Facebook as they normally would. They were aware that there could be peer leaders but were not told who they were. They could use all the features of the online community, including wall posts, direct messaging, and chatting (see online supplement). Peer leaders were assigned to attempt to communicate with participants each week and were free to post/comment about whatever they wanted but were given guidance on weekly topics during training. Every 2 weeks through the end of the study, participants in both conditions were invited to complete a survey and to email us if they wished to receive information (e-resource) about cognitive behavioral therapy and related resources for reducing anxiety (this announcement was posted in all Facebook groups). Participants were paid $15 in Amazon gift cards for each completed survey.

The GAD-7 questionnaire was used to assess anxiety (7). Participants' requests for e-resources and online engagement (e.g., commented, posted, or "liked" posts) were also

recorded. Online engagement was measured by recording whether a participant consistently commented, posted, reacted or voted in their respective Facebook group every two weeks.

Three regression analyses were conducted (with standard errors clustered by study groups) to examine (a) odds of requesting self-coping e-resources in the intervention compared to control arm at study week 6 (logistic regression), (b) odds of consistent online engagement in the intervention compared to control arm, and (c) GAD scores at study week 6 in the intervention arm compared to control arm, controlling for baseline GAD scores (ordinary least squares regression). All analyses were conducted in Stata (SE) version 14.2 (10).

Results

Baseline demographic attributes are shown in Table 1. Tests of means and variance showed no statistically significant difference in baseline GAD scores across intervention and control arms. Mean age of the intervention and control groups was 39.0±13.1 and 39.3±12.4 respectively. 80.7% (N= 121) of the participants in the intervention arm, and 82.0% (N= 123) of participants in the control arm were female. 95.3% (N=143) and 98.0% (N=147) of the participants completed the week 6 survey in intervention and control arm respectively (CONSORT diagram online).

During the study period, GAD score dropped from 16.9 (16.3 – 17.4) to 9.6 (8.6 – 10.5) in the intervention arm, and from 17.5 (17.0 – 18.0) to 9.6 (8.7 – 10.6) in the control arm. The overall decline in the GAD score was statistically significant (p<0.001) but the change in the GAD score was not statistically significant between study groups (figure online). Participants in the intervention arm were more likely to request the e-resource (OR = 10.27, 95% CI = 4.52 – 23.35) (figure online). Similarly, online engagement was more likely in the intervention arm (OR = 2.8, 95% CI = 1.70 – 4.76) (figure online).

Discussion

The HOPE intervention was found to be an effective platform for increasing mental health resource requests and had significantly higher rates of engagement compared to a control group. GAD scores declined in both groups, however, we did not find group differences in GAD score reduction. This may be because the intervention began at the peak of anxiety related to the COVID-19 pandemic (11). It is also common for anxiety symptoms (including GAD) to fluctuate over time in the absence of treatment, and as a combined result of the inclusion criteria for the study (requiring a minimum level of severity of GAD symptoms) and the greater tendency for people to seek help when their symptoms are more distressing, individuals may have joined the study during a particularly severe point in the course of their disorder, and naturally experienced some degree of improvement over time. Future research may seek to replicate this study during times of less volatility around mental health. Findings, however, show promise as a potential first step towards initiating demand for mental health care as help-seeking is widely regarded as a key milestone towards improving mental health (12). Future studies will need to explore if increased help-seeking corresponds with greater contact with mental health care providers. We encourage future research to

build upon our work and extend the evaluation to initiation of formal contact with mental health care professionals.

Prior research involving online, mental health interventions has found that online engagement reduces perceptions of social isolation, a psychological key problem during the pandemic (13). Other studies have shown that engagement is key to effective online interventions (4). Taken together, these studies support the importance of the current research in demonstrating an online intervention with high rates of engagement with potential for influencing mental health outcomes. Future research can expand upon the methods in this study to further test ways to use online communities to reduce anxiety.

Strengths of this study include its randomized controlled design and use of a proven online intervention adapted to the current pandemic. As the study used self-report, media outlook about the state of the pandemic could influence responses. Ensuring that participants remained blind to treatment was also difficult and may be difficult in real-world settings, as it is possible that participants may try to guess their condition or to guess which participants are peer leaders. Other limitations include small samples from individual states and certain races/ethnicities, as well as overall low requests from both arms (see online supplement).

Conclusion

This peer-led online intervention appeared effective in increasing help-seeking behavior. A future, larger study powered to detect differences in anxiety is warranted to assess efficacy in reducing anxiety.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Funding:

Role of the Funder:

The funders played no role in the study planning, analysis, or outcomes.

Conflict of Interest:

RG is the Founding Director of ElevateU, an NIH-funded digital health startup that develops products and services in the mental/behavioral health space.

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Highlights:

- A randomized controlled trial was conducted to test the effectiveness of a peer-led social media intervention on anxiety (measured by GAD-7), anxiety-related help-seeking, and online community engagement.

- The intervention increased help-seeking and online engagement in the treatment group.

Table 1:

Baseline Demographic Attributes

	Intervention		Control	
Attributes	**N**	**%**	**N**	**%**
Sample size	150	100.00	150	100.00
GAD score: Mean (SD) †	16.86 ± 3.17		17.45 ± 3.03	
Age groups				
<20 years	1	0.67	2	1.33
20 to 30 years	37	24.67	29	19.33
30 to 40 years	48	32.00	62	41.33
40 to 50 years	35	23.33	27	18.00
50 to 60 years	13	8.67	18	12.00
60 to 70 years	12	8.00	9	6.00
70 years and above	4	2.67	3	2.00
Age: Mean(SD)	38.96 ± 13.09		39.33 ± 12.37	
Race/ethnicity				
Non-Hispanic White	104	69.33	116	77.33
Non-Hispanic Black	19	12.67	6	4.00
Hispanic	18	12.00	14	9.33
Asian	5	3.33	6	4.00
Other	4	2.67	8	5.33
Sex				
Female	121	80.67	123	82.00
Male	29	19.33	27	18.00
Relationship status				
Never Married	64	42.67	47	31.33
Married	58	38.67	74	49.33
Separated	2	1.33	7	4.67
Divorced	24	16.00	15	10.00
Widowed	2	1.33	7	4.67
Education				
Primary	1	0.67	0	0.00
Lower Secondary	1	0.67	1	0.67
Upper Secondary	3	2.00	2	1.33
Diploma or equivalent (GED)	15	10.00	13	8.67
Vocational/Trade School	10	6.67	7	4.67
Some College/Certificate	48	32.00	53	35.33
Bachelor's degree	42	28.00	50	33.33
Some Graduate/Professional School	9	6.00	6	4.00
Completed Graduate/Professional School	21	14.00	18	12.00
Income				
Less than $10,000	14	9.33	6	4.00

Attributes	Intervention		Control	
	N	%	N	%
$10,000--- $24,999	23	15.33	17	11.33
$25,000--- $34,999	15	10.00	20	13.33
$35,000--- $49,999	25	16.67	16	10.67
$50,000--- $74,999	30	20.00	30	20.00
$75,000---$99,999	13	8.67	29	19.33
$100,000--- $149,999	13	8.67	21	14.00
$150,000--- $199,999	6	4.00	3	2.00
$200,000 or more	4	2.67	2	1.33
Prefer not to answer	7	4.67	6	4.00
Employment				
Full-time employment	61	40.67	62	41.33
Part-time Employment	31	20.67	33	22.00
Not employed	58	38.67	55	36.67

[†] *t tests showed no statistical difference in baseline means between intervention and control groups.* Possible scores range from 0 to 21 with higher scores indicating more severe anxiety.