NK2 – RESEARCH

COVID-19 HEALTHCARE PROVIDER SURVEY STUDY

Provide a synopsis of one completed nursing research study conducted in the applicant organization that is institutional review board-approved (IRB-approved) or determined exempt by organizational review.
- *Use format provided*

Study Overview

Title of study: **COVID-19 Healthcare Provider Survey Study**

IRB approval date and type of review: **April 13, 2020; Expedited Review**

Study start date: **April 13, 2020**

Study completed date: **June 1, 2020**

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Study Aim(s)

Study purpose, what new knowledge will be generated, or both

The purpose of this Institutional Review Board-approved study was to describe the effects of the COVID-19 pandemic on the mental health of healthcare workers at the NewYork-Presbyterian Hospital. The mental health effects on healthcare workers during the height of the COVID-19 pandemic have not yet been well described. This study generated new knowledge about healthcare workers' psychological distress related to COVID-19, coping strategies, and preferences for wellness resources.

Significance of the Literature Review

Key references to support the significance

Chen, Q., Liang, M., Li, Y., Guo, J., Fei, D., Wang, L., He, L., Sheng, C., Cai, Y., Li, X., Wang, J., & Zhang, Z. (2020). Mental health care for medical staff in China during the COVID-19 outbreak. *The Lancet. Psychiatry*, *7*(4), e15–e16. https://doi.org/10.1016/S2215-0366(20)30078-X

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., Li, R., Tan, H., Kang, L., Yao, L., Huang, M., Wang, H., Wang, G., Liu, Z., & Hu, S. (2020). Factors Associated With Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. *JAMA Network Open*, *3*(3), e203976. https://doi.org/10.1001/jamanetworkopen.2020.3976

Maunder, R. G., Lancee, W. J., Balderson, K. E., Bennett, J. P., Borgundvaag, B., Evans, S., Fernandes, C. M., Goldbloom, D. S., Gupta, M., Hunter, J. J., McGillis Hall, L., Nagle, L. M., Pain, C., Peczeniuk, S. S., Raymond, G., Read, N., Rourke, S. B., Steinberg, R. J., Stewart, T. E., VanDeVelde-Coke, S., … Wasylenki, D. A. (2006). Long-term Psychological and Occupational Effects of Providing Hospital Healthcare during SARS Outbreak. *Emerging Infectious Diseases*, *12*(12), 1924–1932. https://doi.org/10.3201/eid1212.060584

McAlonan, G. M., Lee, A. M., Cheung, V., Cheung, C., Tsang, K. W., Sham, P. C., Chua, S. E., & Wong, J. G. (2007). Immediate and Sustained Psychological Impact of an Emerging Infectious Disease Outbreak on Health Care Workers. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie*, *52*(4), 241–247. https://doi.org/10.1177/070674370705200406

Shanafelt, T., Ripp, J., & Trockel, M. (2020). Understanding and Addressing Sources of Anxiety Among Health Care Professionals During the COVID-19 Pandemic. *JAMA*, *323*(21), 2133–2134. https://doi.org/10.1001/jama.2020.5893

Why the study is important to nursing

The COVID-19 global pandemic created unprecedented circumstances for healthcare workers, particularly in New York City, which was the global epicenter of the pandemic in April-May 2020. Nurses, as the largest segment of the United States (U.S.) healthcare workforce, are likely to have been highly affected by caring for patients during the pandemic and in the context of shortages of personal protective equipment (PPE), lack of available testing, and lack of national guidelines about COVID-19 treatment. In addition, many healthcare workers had to work additional hours or in settings outside their specialty to meet the healthcare needs during the pandemic. Furthermore, since COVID-19 is highly contagious, healthcare workers were at higher risk of contracting the virus and transmitting it to family and friends. Previous large-scale viral outbreaks have been demonstrated to have negative mental health effects on healthcare workers (Maunder et al., 2006; McAlonan et al., 2007).

What is currently known about the topic

Emerging literature from China suggested that healthcare workers' mental health was severely affected by the COVID-19 pandemic (Chen et al., 2020). A cross-sectional survey of healthcare workers in China found that more than 50 percent reported depression and more than 70 percent reported distress (Lai et al., 2020).

Summarize the gap in current knowledge about the topic being addressed by the study

Very little was currently known about the mental health effects of the COVID-19 pandemic on healthcare workers in the U.S. (Shanafelt et al., 2020). In addition, little was known about their coping strategies and interest in wellness resources to support them during this global crisis. This study aimed to be among the first to explore these factors in a sample of healthcare workers at NewYork-Presbyterian Hospital.

Innovation

This study is innovative because there was very little known about how the COVID-19 pandemic has affected the mental health of the healthcare workforce. In addition, this study examined different groups within the healthcare workforce (nurses, physicians, residents/fellows) in order to understand how the pandemic affected each group uniquely.

How the study will produce actionable information for nursing

This study will produce actionable information for nursing by providing data about the current mental health of nurses at NewYork-Presbyterian/Columbia University Irving Medical Center (NYP/Columbia), what kind of coping strategies they are using, and what kind of wellness resources they are interested in. NewYork-Presbyterian Hospital could use this information to inform the development of services to support the health and well-being of nurses and other healthcare providers.

Study Design

This study is a quantitative cross-sectional descriptive study.

Research question

What are the levels and types of psychological distress that healthcare workers are experiencing related to COVID-19, their coping behaviors, and their preferences for wellness resources?

Sample Description

Type of sample

This was a convenience sample recruited from healthcare workers at NewYork-Presbyterian Hospital (to include NYP/Columbia).

Inclusion and exclusion criteria

Inclusion criteria were people who were working as registered nurses, advanced practice providers (nurse practitioners, physician assistants), or physicians (including residents/fellows) providing care at NYP/Columbia during the COVID-19 pandemic.

Sample size

974 participants started the survey, and 657 completed all questions on the survey during the time data collection took place. Therefore, the final sample size was N = 657.

Location of Study (within the applicant organization)

The study was conducted at NYP/Columbia among healthcare workers treating patients during the COVID-19 pandemic.

Study Procedures

Recruitment and data collection

An email with a link to an online survey was sent inviting employees to participate in the study. The email was sent to physicians, advanced practice providers (nurse practitioners and physician assistants), house staff (interns/residents/fellows), and nurses. The first recruitment email was sent on April 9, 2020. The first participant enrolled in the study on the same day the email was sent. The survey was administered through Qualtrics and remained open until April 24, 2020, for the purposes of this cross-sectional study.

Measures

Participants completed several measures to assess the topics of interest in this study. The assessment included demographics, clinical roles, psychological measures (described below), distress due to COVID-19, coping behaviors, and wellness resources of interest to healthcare workers. Measures also included single items to assess sleep duration and disturbances, loneliness, and optimism. Sleep duration and disturbances were assessed using items from the Pittsburgh Sleep Quality Index (Buysse et al., 1989) and Insomnia Severity Index (Morin et al., 2011). Loneliness was assessed with a single item based on previous research (Aartsen et al., 2011; Gruenewald et al., 2020; Theeke, 2009). Optimism was assessed with an item from the Life Orientation Test-Revised (Scheier et al., 1994).

Psychological measures consisted of:

- Primary Care Post-traumatic Stress Disorder (PTSD) screen for acute stress, 4 items (range 0–4; score ≥ 3 indicates a positive screen for acute stress) (Prins et al., 2004)

- Patient Health Questionnaire-2 for depression, 2 items (range 0–6; score ≥ 3 indicates a positive screen for depression) (Kroenke et al., 2003)

- Generalized Anxiety Disorder scale for anxiety, 2-item version (range 0–6; score ≥ 3 indicates a positive screen for anxiety) (Kroenke et al., 2007)

References for instruments used:

Aartsen, M., & Jylhä, M. (2011). Onset of loneliness in older adults: results of a 28 year prospective study. *European Journal of Ageing, 8*, 31-38. https://doi.org/10.1007/s10433-011-0175-7

Buysse, D. J., Reynolds, C. F., 3rd, Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh sleep quality index: A new instrument for psychiatric practice and research. *Psychiatry Research*, *28*(2), 193-213. https://doi.org/10.1016/0165-1781(89)90047-4

Gruenewald, T. L., Crosswell, A.D., Epel, E., Mayer, S. & Lee, J. (2020). Measures of stress in the Health and Retirement Study and the HRS Family of Studies User Guide: Available from https://164f89be-6459-4649-bea5-b3d3fcc248ee.filesusr.com/ugd/890fda_66d3318e858045559cfd85cccbd92724.pdf

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2003). The Patient Health Questionnaire-2: Validity of a Two-Item Depression Screener. *Medical Care*, *41*(11), 1284-1292. https://doi.org/10.1097/01.MLR.0000093487.78664.3C

Kroenke, K., Spitzer, R. L., Williams, J. B., Monahan, P. O., & Löwe, B. (2007). Anxiety Disorders in Primary Care: Prevalence, Impairment, Comorbidity, and Detection. *Annals of Internal Medicine*, *146*(5), 317-325. https://doi.org/10.7326/0003-4819-146-5-200703060-00004

Morin, C. M., Belleville, G., Bélanger, L., & Ivers, H. (2011). The Insomnia Severity Index: Psychometric Indicators to Detect Insomnia Cases and Evaluate Treatment Response. *Sleep*, *34*(5), 601-608. https://doi.org/10.1093/sleep/34.5.601

Prins A, Ouimette P, Kimerling R, et al. (2003). The primary care PTSD screen (PC-PTSD): development and operating characteristics. *Primary Care Psychiatry,* 9(1), 9-14. https://psycnet.apa.org/doi/10.1185/135525703125002360

Scheier, M., Carver, C., & Bridges, M. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology, 67 6*, 1063-78. https://doi.org/10.1037/0022-3514.67.6.1063 [published Online First: 1994/12/01].

Theeke, L. A. (2009). Predictors of Loneliness in U.S. Adults Over Age Sixty-Five. *Archives of Psychiatric Nursing, 23*(5), 387-396. https://doi.org/10.1016/j.apnu.2008.11.002

Results

Analyses were conducted using IBM SPSS Statistics version 26.

Description of sample characteristics

Demographic and clinical role characteristics are shown in Table NK2.1. The largest single group of study participants was nurses (47.6% of the sample). Attending physicians (21.5%) and residents/fellows (21.5%) were the next largest groups in the sample. Advanced practice providers, which included nurse practitioners and physician assistants, made up 7.3% of the sample. "Other" clinical role was reported by 2.1% of the sample. For purposes of the analyses, advanced practice providers were combined with nurses since the sample size of advanced practice providers was small and they were found to be similar to nurses overall. The sample was majority women (70.9%), White (59.6%), and non-Hispanic or Latino (71.1%).

Table NK2.1 Participant Characteristics (N = 657)

Demographic Characteristics	N (%)
Age Range	
18-24	11 (1.5)
25-34	336 (46.8)
35-44	150 (20.9)
45-54	86 (12.0)
55-64	64 (8.9)
65-74	3 (0.4)
≥ 75	2 (0.3)
No answer	5 (0.7)
Gender	
Woman	509 (70.9)
Man	143 (19.9)
Genderqueer	1 (0.1)
Prefer not to answer	4 (0.4)
Race	
White	438 (59.9)

|	
Asian	103 (14.3)
Black	58 (8.1)
Hawaiian/Pacific Islander	4 (0.6)
American Indian/Native	2 (0.3)
American	17 (2.4)
Other	22 (3.1)
More than one race	45 (6.3)
Prefer not to answer	-
Non-Hispanic or Latino	539 (71.1)
Hispanic or Latino	80 (11.1)
Prefer not to answer	38 (5.3)
Number of Household Members (including participant)	
1	132 (18.4)
2	244 (34.0)
≥ 3	281 (39.1)
Living with a family member who is a healthcare provider	171 (23.8)
Clinical Role	
Attending Physician	141 (21.5)
Resident or Fellow	141 (21.5)
Nurse	
Registered Nurse	313 (47.6)
Advanced Practice Provider	48 (7.3)
Other	14 (2.1)
Practice Setting for Majority of Shifts since March 1, 2020	
Emergency Department	74 (11.2)
Intensive Care Unit	262 (39.9)
Inpatient (non-ICU): COVID-focused	126 (19.2)
Inpatient (non-ICU): not COVID-focused	61 (9.3)
Outpatient: COVID-focused	25 (3.8)
Outpatient: not COVID-focused	74 (11.2)
Other	35 (5.9)

Analysis for research questions

Aim 1: Psychological Screening

In terms of psychological measures, high numbers of participants screened positive for acute stress, depression, and anxiety (Figure NK2.1). Differences among the groups indicated that nurses and advanced practice providers were significantly more likely to screen positive for acute stress (64% vs. 40%, p < 0.001) and depressive symptoms (53% vs. 38%, p = 0.004) than attending physicians, and were also more likely to

screen positive for anxiety than both attending physicians and residents/fellows (40% vs. 15% [p = 0.001] and 17% [p = 0.001], respectively).

Figure NK2.1 Percentage of participants who screened positive for acute stress, depressive symptoms, and anxiety by clinical role
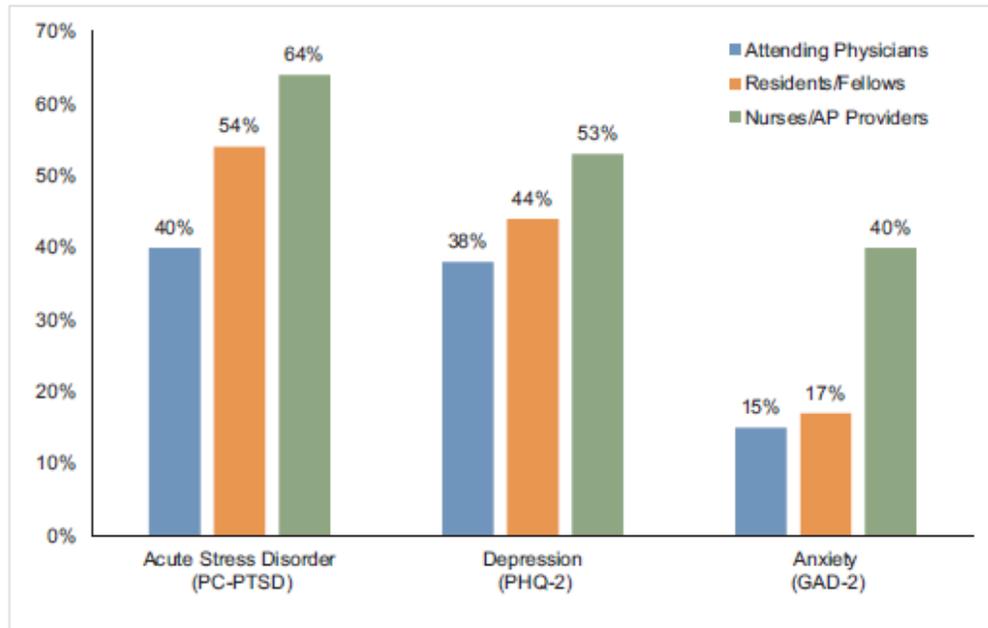
The top three most stressful aspects of caring for patients during the COVID-19 pandemic were concerns about transmitting COVID-19 to their family (74% of sample), the health of family and friends (71%), and lack of control at work (70%). The next most highly rated concerns were about lack of COVID-19 testing (68%) and lack of PPE (68%) (Figure NK2.2).

Sleep

The overall average sleep duration (± standard deviation) for the entire sample was 5.89 ± 1.21 hours/day, however, there were differences by group of healthcare workers. Physicians (6.24 ± 0.10) and residents/fellows (6.30 ± 0.10) reported significantly longer sleep duration than nurses and advanced practice providers (5.62 ± 0.06, ($F_{2,654}$ = 26.44, p < 0.001). Moderate sleep problems were reported by 45% of the sample and 26% reported severe or very severe sleep problems. Again, differences were observed by group such that nurses and advanced practice providers reported the worst sleep problems compared to physicians and residents/fellows ($F_{2,654}$ = 17.51, p < 0.001).

Loneliness

Sixty-five percent of the sample reported loneliness with nurses and advanced practice providers, and residents/fellows reporting more loneliness than physicians ($F_{2,654}$ = 6.54, p = 0.002).

Optimism and sense of meaning/purpose

Forty-eight percent of the sample endorsed optimism and 61% reported an increased sense of meaning/purpose. There were no significant differences between groups on either of these items.

Figure NK2.2. Percentage of participants who endorsed distress due to clinical work environment; family and concerns outside clinical environment; and national guidelines and policies
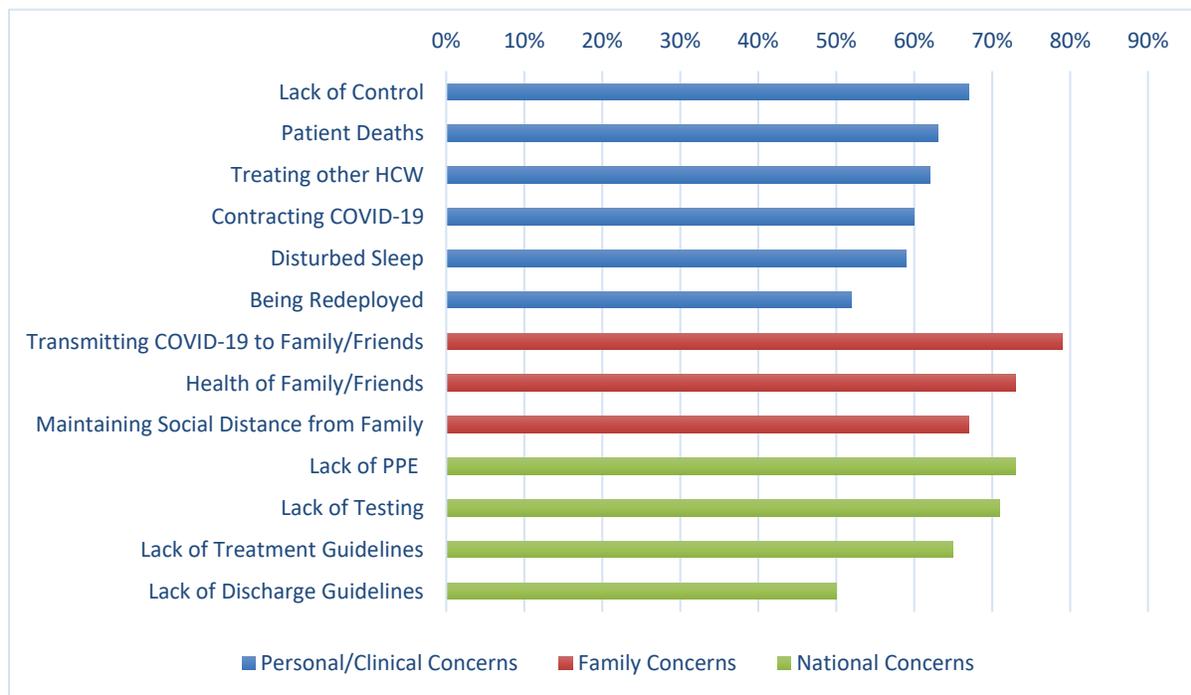

Abbreviations: HCW = healthcare workers, PPE= protective personal equipment

Aim 2: Coping Behaviors

In terms of coping behaviors, 81% of the participants reported that they engage in at least one coping behavior (1.7 ± 1.3 types, Figure NK2.3). The three most commonly reported coping behaviors were physical activity/exercise (59%), talk therapy (26%),

and yoga (25%). Fourteen percent of participants did not engage in any of the coping behaviors listed. People who screened positive for acute stress engaged in more coping behaviors (2.1 ± 1.3) than those who screened negative (1.6 ± 1.2, F1, 655 = 4.84 p < 0.001).

Figure NK2.3 Participants Coping Behaviors
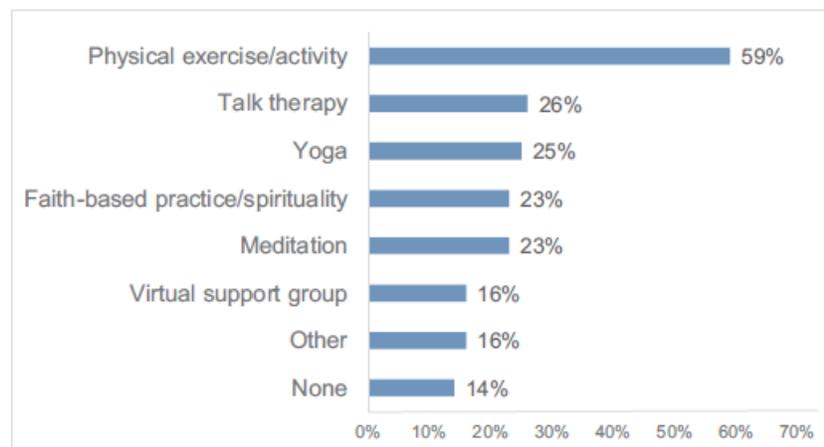
Aim 3: Potential Wellness Resources

When asked about their interest in five different psychological wellness resources, the most common response was no interest in any of them (49% of participants). However, 51% of the sample reported interest in some wellness resources, with the top three choices being online self-guided counseling with access to a therapist (33%), traditional individual counseling/therapy (28%), and online clinician support group (24%) (Figure NK2.4). The number of wellness resources participants were interested in correlated positively with the number of coping behaviors they reported (r_{655} (656) = 0.18, $p < 0.001$). Similar to the findings about coping behaviors, participants who screened positive for acute stress reported interest in more wellness resources (1.3 ± 1.5) than those who screened negative (0.9 ± 1.3, $F_{1,655}$ = 3.21, p = 0.001).

Figure NK2.4 Participants interest in proposed wellness resources
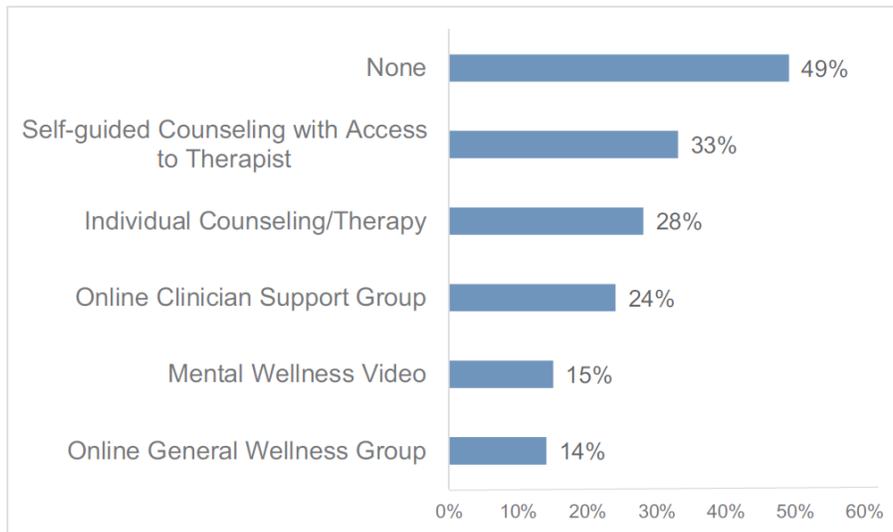
Discussion

Discussion and interpretation of the findings

This study found that the majority of the healthcare workforce at NewYork-Presbyterian Hospital experienced negative psychological effects during the COVID-19 pandemic as evidenced by high levels of positive screenings for acute stress, depression, and anxiety. Nurses were affected more than other healthcare workers, which could be related to the nature of their work since they deliver more direct patient care. In addition to psychological distress, there were high levels of concerns related specifically to COVID-19, including transmitting COVID-19 to others, lack of testing, and limited PPE. Based on studies of the 2003 SARS outbreak, healthcare workers who treated COVID-19 may be at risk of long-term negative mental health repercussions. In addition, their physical health could be adversely affected due to the association between workplace stress and long-term cardiovascular health.

Implications of the findings and recommendations to the organization

Psychological distress among healthcare workers during the COVID-19 pandemic was high and nurses were particularly affected. Understanding the sources of distress, the current coping strategies, and the desired wellness resources will help NYP/Columbia develop services to mitigate the negative psychological effects of the pandemic and support their most affected employees. The organization can encourage and support the coping strategies that employees are already using by increasing access to exercise programs and yoga instruction. Individual therapy or counseling garnered interest so the

organization should make efforts to make accessible psychotherapy resources, including both online and in person, available to employees.