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Pilot Study on the Impact of Gratitude Journaling or Cognitive Strategies on Health Care Workers

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Introduction: The COVID-19 pandemic has significantly impacted the mental well-being of health care workers (HCWs). This study assessed the feasibility, acceptability, and preliminary efficacy of two psychological interventions, gratitude journaling or cognitive strategies, on pediatric HCWs.

Method: A pilot randomized parallel repeated measures design was used, with a convenience sample of 59 HCWs. Data were collected before and after the intervention period, 2 weeks after, and again 6 months later. Outcomes included depression, anxiety, meaning and purpose, feasibility, and acceptability.

Results: Thirty-seven participants completed the study. The majority were nurses (registered nurses and advanced practice registered nurses) and physicians. In both groups, depression and anxiety scores diminished, but changes were not statistically significant. The study was feasible to conduct, and subjects reported high acceptability.

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Discussion: Gratitude journaling and cognitive strategies may help mental well-being in HCWs; however, future studies with larger samples are needed. *J Pediatr Health Care.* (2023) XX, 1–11

KEY WORDS

Health care workers, mental health, gratitude, cognitive strategies, COVID-19

INTRODUCTION

The COVID-19 pandemic profoundly changed personal and professional aspects of everyday life for health care workers (HCWs), with increasing concern for adverse psychological outcomes in HCWs (Albott et al., 2020; U.S.

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Conflicts of interest: None to report.

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Department of Health and Human Services, Assistant Secretary for Planning and Evaluation, Office of Health Policy, 2022). Studies, including systematic reviews, explored the psychological impact of COVID-19 on HCWs, including anxiety, depression, burnout, posttraumatic stress disorder, and sleep disorders (Carmassi et al., 2022; Cénat et al., 2021; Duffy et al., 2022; Marvaldi et al., 2021). Even in pediatric centers with a significantly lower burden of COVID-19-positive patients, HCWs reported significant anxiety, depression, and burnout (Robba et al., 2022). Similar outbreaks, such as the 2003 Sudden Acute Respiratory Syndrome outbreak and the 2014–2016 Ebola epidemic, demonstrated short and long-term psychological effects on HCWs (Jalloh et al., 2018; Maunder et al., 2006). These findings highlight the need for interventions to address the psychological impact of COVID-19 on HCWs.

A qualitative study of 20 community service workers in Australia found that participation in a mindfulness-based intervention program increased their perceived ability to cope with the COVID-19 pandemic (Klockner et al., 2021). Similarly, in a sample of 38 HCWs, completing an online resilience training program resulted in decreased emotional distress at months one and two and increased resilience 2 months postintervention (DeTore et al., 2022). Otared and colleagues (2021) studied the effects of an online acceptance and commitment therapy program on HCWs with depression and anxiety during the COVID-19 pandemic and found that participants in the intervention group demonstrated an increased quality of life and lower depression and anxiety symptoms. Therefore, psychological interventions may help offset the negative mental health outcomes among HCWs related to the COVID-19 pandemic.

Additional interventions that may facilitate adaptive coping during the COVID-19 pandemic include gratitude and cognitive interventions. Gratitude is the ability to value and appreciate the positive aspects of one's life (Wood et al., 2010), defined by the understanding that one's life has been positively influenced by another's kindness (Chaplin et al., 2019; McCullough et al., 2002). Past studies have consistently linked gratitude interventions to more positive emotional functioning and social relationships in various populations, including in HCWs, as well as to decreased depressive symptoms (Cheng et al., 2015; Cook et al., 2018; Dickens, 2017; Emmons & McCullough, 2003; Killen & Macaskill, 2014; Redwine et al., 2016). Past research has also shown correlations between gratitude, increased meaningfulness in life, and sustained positive effects past the intervention period (Jans-Beken et al., 2020; Killen & Macaskill, 2014).

Brief interventions such as cognitive strategies are ideal in the context of crises, such as the current COVID-19 pandemic, when HCWs may be experiencing increased distress not only in the workplace but also in their daily lives and may not be able to access traditional care (Greenberg et al., 2020). Cognitive interventions are an integral component of cognitive-behavioral therapy and are commonly used to treat a variety of psychological disorders, including depression,

anxiety, and posttraumatic stress (Hollon & Dimidjian, 2014; McGinn, 2000; Olatunji et al., 2010; Sijbrandij et al., 2007). These interventions address dysfunctional thoughts and attitudes contributing to and maintaining emotional distress.

Given the potential risk of negative mental health outcomes for HCWs during the COVID-19 pandemic, the objective of this parallel pilot study was to examine the feasibility, acceptability, and preliminary efficacy of two psychological interventions (gratitude journaling or cognitive strategies) on anxiety, depression, and psychological well-being of pediatric HCWs during the first year of the COVID-19 pandemic.

METHODS

A feasibility parallel two-arm randomized repeated measures design was used. The two arms were (1) gratitude journaling and (2) cognitive strategies. The organization's institutional review board approved this study, conducted at a midsize urban, Magnet-designated pediatric academic medical center in the Northeast.

Participants

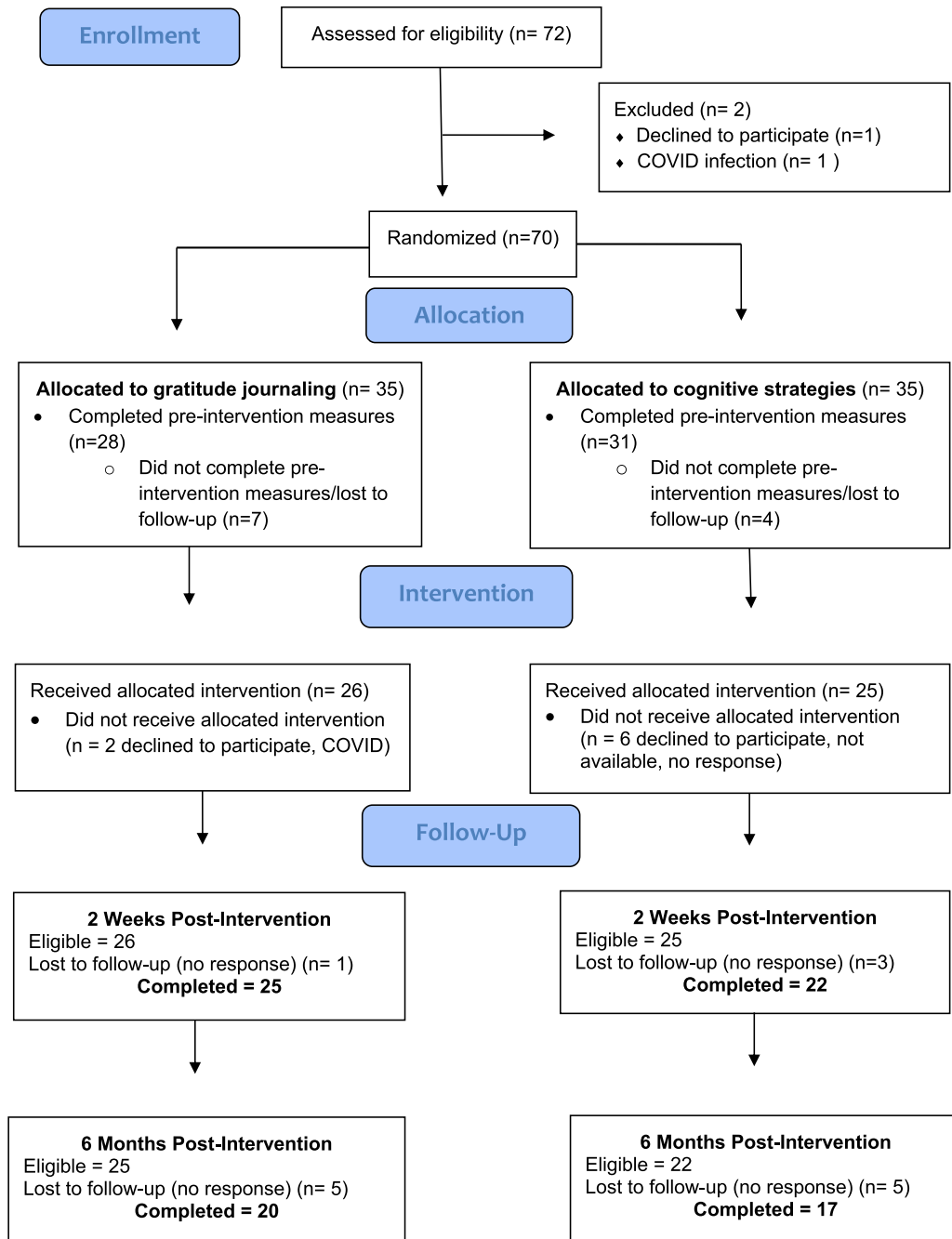
This study employed convenience sampling. Inclusion criteria were aged > 18 years, employed by the medical center or medical residents on rotation for at least 20 hr/week, and fluent in English. Recruitment occurred through face-to-face conversations, email communications, and flyers distributed electronically and posted in designated employee common areas. Snowball sampling was a secondary recruitment method.

Enrolled participants were randomized via computer-generated random numbers to one of the two intervention groups: gratitude journaling or cognitive strategies (Figure 1). Participants completed electronic surveys at a personally convenient time and location via REDCap software. Participants completed the preintervention measures and a demographic instrument before intervention (T1). Immediately following the intervention (T2), at 2 weeks (T3), and at 6 months (T4), participants completed the same measures plus feasibility and acceptability measures. Study psychologists confidentially contacted participants with moderate or greater depression or anxiety, conducted a suicide risk assessment, and provided professional support resources.

Interventions

Gratitude journaling

Participants randomized to the gratitude group received a 14-page gratitude journal and attended one 15-min Zoom (Zoom Video Communications, Inc) meeting of their choosing. They were offered six possible live sessions over 3 days, and if they could not attend any of those, they were sent a link to a video recording of the session (Table 1). The content was consistently presented at each meeting by the same person (i.e., K.R.). Participants were instructed on how to use the gratitude journal by writing three things they

FIGURE 1. Consolidated Standards of Reporting Trials 2010 flow diagram of study participants.

This figure appears in color online at www.jpmedhc.org.

were grateful for at the beginning of each day and three things that went well during the day at the end of each day for 14 days. Participants were notified at the onset of the study that the research team would not review or collect journals.

Cognitive strategies

Participants assigned to the cognitive strategies group received instruction and guided practice in cognitive

restructuring skills via a live Zoom session. A seminar format was used to protect participants' privacy and confidentiality in which participant names and videos were not visible during the training sessions. Participants could anonymously ask questions during the session. This group completed at least one entry in the provided thought record after sessions one and two. Participants were notified at the onset of the study that the research team would not review or collect thought records.

TABLE 1. Description of interventions with transcripts/verbal prompts for gratitude and cognitive strategies

Intervention	Session plan
Gratitude journal	Instructed on how to use the journal: <ul style="list-style-type: none"> • At the start of each day, write 3 things you are grateful for that morning • At the end of each day, write 3 things that went well during the day Describe each entry in a few detailed words, which would encourage more time spent on these positive. For example, instead of writing “health,” using “my health so that I can care for my family.”
Cognitive strategies	<p>Session 1:</p> <ul style="list-style-type: none"> • Psychoeducation on the cognitive model: the difference between thoughts, feelings, and behaviors? (5 min) • Identifying automatic negative thoughts (5 min) • Practice exercises identifying automatic negative thoughts (8 min) • Introduction to Socratic questions for modifying automatic negative thoughts (8 min) • Homework assignment: at least one entry in simple thought record to identify automatic negative thoughts (4 min) <p>Session 2:</p> <ul style="list-style-type: none"> • Review homework assignment and information from session 1 (5 min) • Evidence for and against automatic thoughts: how to develop more functional thoughts (10 min) • Practice exercise in Socratic questioning to examine the evidence for and against automatic negative thoughts (10 min) • Homework assignment: at least one entry in the thought record to practice cognitive reframing and to develop alternative thoughts. (5 min) <p>Session 3:</p> <ul style="list-style-type: none"> • Review homework and information from sessions 1–2 (10 min) • Additional practice on using Socratic questioning to examine automatic negative thoughts and developing more functional thoughts (15 min)

Measures

Demographic questionnaire

Participant demographics, including the participant’s age, gender, education level, and primary role within the institution, were assessed with a researcher-designed demographic questionnaire. Demographics were assessed at T1 only.

Patient Health Questionnaire-9

Depressive symptoms were assessed using the Patient Health Questionnaire-9 (PHQ-9), a validated and widely used survey for adults in public and health care populations (Kroenke & Spitzer, 2002; Kroenke et al., 2001). Participants rated their experience of nine symptoms over the past 2 weeks. Depression symptom severity categories were 0–4 none/minimal; 5–9 mild; 10–14 moderate; 15–19 moderately severe; and 20–27 severe (Kroenke et al., 2001). In the previous studies, Cronbach α for this instrument was reported as 0.86–0.89 (Barbe et al., 2018; Kroenke et al., 2001) and 0.91 in this study. The PHQ-9 was assessed at all four-time points.

Generalized Anxiety Disorder-7

Anxiety symptoms were assessed using the Generalized Anxiety Disorder-7 (GAD-7), a valid and reliable instrument used with adults in public and health care populations (Spitzer et al., 2006). Participants rated their experience of seven symptoms over the past 2 weeks on a Likert scale. Anxiety severity categories included: 0–4 (none-to-minimal), 5–9 (mild), 10–14 (moderate), and 15–21 (severe). Cronbach α for this instrument was 0.92 (Spitzer et al., 2006) and 0.91 in this study. The GAD-7 was assessed at all four-time points.

National Institute of Health Toolbox Meaning and Purpose Fixed Form

Psychological well-being was assessed using the National Institute of Health Toolbox Meaning and Purpose Fixed Form (version 2.0). The meaning and purpose measure is a well-established assessment of positive affect and well-being (Slotkin et al., 2012). Participants rated their level of agreement with seven items on a Likert scale. Raw scores are converted into t scores (Slotkin et al., 2012) with a mean of 50 and cutoff scores of ≤ 40 (low meaning and purpose) and ≥ 60 (high meaning and purpose). Reliability and validity, reported by Salsman and colleagues (2014), included a Cronbach alpha of 0.89 and a convergent validity of 0.64 with the Satisfaction with Life Scale. The Cronbach alpha for this study was 0.91. The Meaning and Purpose Fixed Form was assessed at all four-time points.

Assessment and sustenance of the intervention measures

To assess the feasibility of the intervention and participants’ reported compliance, the investigators developed the Assessment of Intervention (AOI) and Sustenance of Intervention (SOI) measures for this study. The AOI, a 5-item self-report questionnaire, was completed at T2 only. The SOI, a 2-item self-report questionnaire completed at T3 and T4, explore the use of the intervention and the perceived worth of learning their assigned intervention. Two psychologists (i.e., S.M and L.A.V) reviewed these tools for content, format, and readability. The AOI and SOI were not beta-tested before use in the current study because of time constraints.

COVID-19-related statistics

To provide context for the study, several data sources captured the severity of the pandemic, including the number of patients with COVID-19 and pediatric COVID-related hospitalizations in Connecticut during the study period. Publicly available data from The COVID-19 Hospitalization Surveillance Network determined the number of pediatric COVID-related hospitalizations (Centers for Disease Control and Prevention, 2022a). Publicly available data from the Centers for Disease Control and Prevention's COVID Data Tracker provided the number of weekly cases of COVID-19 in Connecticut (Centers for Disease Control and Prevention, 2022b).

Statistical Methods

Descriptive statistics were calculated for participant demographics. Paired samples *t* tests were conducted to assess differences in mean ratings on the PHQ-9, GAD-7, and National Institute of Health Toolbox Meaning and Purpose

Fixed Form from baseline to each of the three study time points. One-way analysis of variance was used to compare various subgroups. Comparisons were also conducted to assess differences between intervention groups at each study time point using multiple comparisons, corrected *t* tests, and nonparametric median-based tests and multivariate analysis of variance. Differences in counts or percentages across groups were assessed using χ^2 or Fisher exact tests. Analyses were completed with R software (version 3.6.1). Statistical significance was set at $p < .05$.

RESULTS

Participant Demographics

Although 59 HCWs completed baseline measures, the final sample consisted of 37 HCWs, including 20 in the gratitude group and 17 in the cognitive strategies group. There were no statistically significant differences in demographic variables or baseline measures (PHQ-9, GAD-7, and Meaning and Purpose Fixed Form) between those who did and did

TABLE 2. Demographic profile and baseline measures of participants ($n = 37$) by study arm

Variables	Gratitude arm 1 ($n = 20$)	Cognitive arm 2 ($n = 17$)	<i>p</i> Value ^a
Age, years	44.3 ± 13.8	43.8 ± 11.8	.91
Years' experience ($n = 16$ and $n = 11$)	18.2 ± 14.3	13.1 ± 13.1	.27
Gender			.46
Male	1 (5.0)	2 (11.8)	
Female	19 (95.0)	15 (88.2)	
Race			0.35
Asian	0 (0)	0 (0)	–
Black or African American	2 (10.0)	1 (5.9)	–
White	16 (80.0)	16 (94.1)	–
More than one	2 (10.0)	0 (0)	–
Ethnicity			0.67
Hispanic/Latino	4 (20.0)	2 (11.8)	–
Non-Hispanic/Latino	16 (80.0)	15 (88.2)	–
Primary role			
Advanced practice nurse	3 (15.0)	1 (5.9)	–
Medical assistant	2 (10.0)	1 (5.9)	–
Patient care assistant	0 (0)	1 (5.9)	–
Physician	7 (35.0)	4 (23.5)	.5
Physician assistant	1 (5.0)	1 (5.9)	–
Registered nurse	4 (20.0)	3 (17.7)	.86
Other	3 (15.0)	6 (35.2)	.15
Level of education			
Doctorate (MD, PhD, PsyD, EdD, DNP)	7 (35.0)	6 (35.3)	1.0
Masters	3 (15.0)	2 (11.8)	1.0
Some Grad School	0 (0)	0 (0)	–
Bachelor's	5 (25.0)	4 (23.4)	1.0
Associate's	1 (5.0)	1 (5.9)	–
Some college (no degree)	3 (15.0)	2 (11.8)	1.0
High school diploma	0 (0)	2 (11.8)	–
Other	1	0 (0)	–
Baseline measures (time 1)			
Depression (PHQ-9)	5.0 ± 4.2 (0–13)	3.5 ± 2.3 (0–7)	.17
Anxiety (GAD-7)	4.7 ± 4.1 (0–14)	4.6 ± 3.9 (0–14)	.94
Meaning and Purpose Fixed Form	29.0 ± 2.9 (24–35)	29.3 ± 4.2 (17–35)	.75

Note. GAD-7, Generalized Anxiety Disorder; PHQ-9, Patient Health Questionnaire. Values are presented as mean ± SD, *n* (%), or mean ± SD (range).

^aStatistical significance was analyzed using *t* tests, Fisher exact tests, and χ^2 tests, when appropriate.

TABLE 3. Participants with none-to-minimal and mild or greater depression and anxiety scores

Variables	Baseline	Immediately postintervention	Two weeks postintervention	Six months postintervention
PHQ-9 (depression)				
Gratitude				
None-to-minimal	10 (50)	18 (70)	12 (60)	15 (75)
Mild or above	10 (50)	6 (30)	8 (40)	5 (25)
Cognitive				
None-to-minimal	10 (59)	12 (71)	14 (82)	13 (76)
Mild or above	7 (41)	5 (29)	3 (18)	4 (24)
GAD-7 (anxiety)				
Gratitude				
None-to-minimal	10 (50)	10 (50)	13 (65)	12 (60)
Mild or above	10 (50)	10 (50)	7 (35)	8 (40)
Cognitive				
None-to-minimal	10 (59)	13 (76)	13 (76)	13 (76)
Mild or above	7 (41)	4 (24)	4 (24)	4 (24)

Note. GAD-7, Generalized Anxiety Disorder; PHQ-9, Patient Health Questionnaire. Values are presented as n (%).

not complete the study. Most of the sample was White and female. Although a wide variety of professions was represented, most participants were physicians and nurses (registered nurses and advanced practice nurses). There were no significant differences in demographic variables or baseline measures between participants in either group (Table 2).

Depression (PHQ-9)

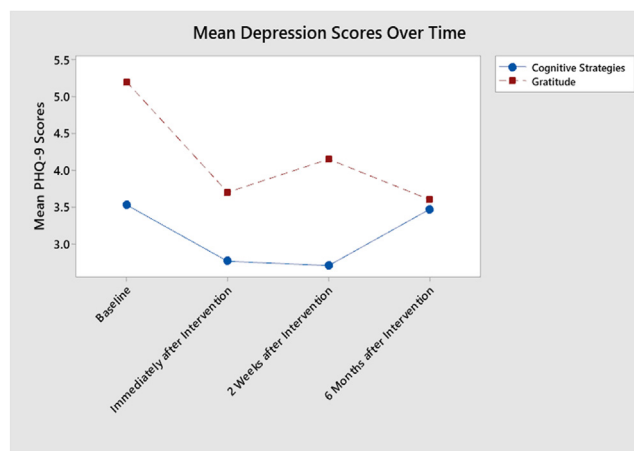
PHQ-9 scores at T1 in the gratitude group included none-to-minimal and mild to moderate depression scores (Table 3). Scores trended toward none-to-minimal throughout the study, although this was not statistically significant ($p > .05$; Figure 2). Over time, there was a steady decline in the gratitude group subjects who reported mild or greater symptoms (PHQ-9 scores > 5 ; Table 3). There was a 50% reduction in the gratitude subjects who reported symptoms at or above the mild depression category over time.

In the cognitive strategies group, PHQ-9 scores at T1 revealed none-to-minimal or mild depressive symptoms (Table 3). No subjects had moderate or severe scores (> 10) at baseline. Similarly to the gratitude group, scores trended toward the none-to-minimal category; however, these changes were not statistically significant ($p > .05$; Figure 2). There was a 40% reduction in scores at or above mild depression from T1 to T3 and a 30% reduction in scores from T1 to T4. There were no significant differences in PHQ-9 scores between or within the two groups over time ($p > .05$). Although depression severity trended toward the none-to-minimal category, there may be too few subjects to see a significant difference.

Anxiety (GAD-7)

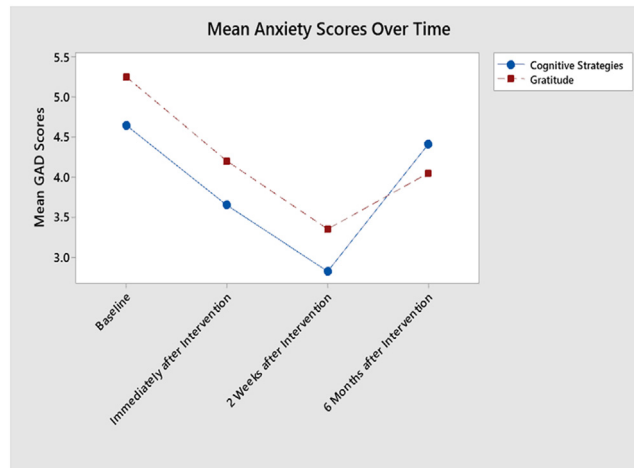
In the gratitude group, participants were evenly divided into the none-to-minimal and mild or above anxiety symptoms (Table 3). There was a nonsignificant trend in anxiety scores

FIGURE 2. Mean depression scores over time.



Mean depression (Patient Health Questionnaire-9 [PHQ-9]) scores over time per study group. This figure appears in color online at www.jpmedhc.org.

FIGURE 3. Mean anxiety scores over time.



Mean anxiety (Generalized Anxiety Disorder-7 [GAD-7]) scores over time per study group. This figure appears in color online at www.jpmedhc.org.

toward the none-to-minimal category ($p > .05$; Figure 3). Subjects that reported mild or greater symptoms (GAD-7 scores > 5) declined over time (Table 3). There was a 30% reduction in the gratitude group subjects that reported at or above the mild depression symptoms from T1 to T3 and a 20% reduction from T1 to T4.

In the cognitive strategies group, more participants indicated none-to-minimal anxiety than mild or above (Table 3). Scores trended toward none-to-minimal depressive symptoms over time; however, this was not significant ($p > .05$; Figure 3). The number with mild or greater symptoms (GAD-7 scores > 5) declined throughout the study (Table 3). There was a 43% reduction in the number of subjects who reported symptoms at or above the mild depression symptoms from T1 to T2, which was sustained through T4.

Psychology Well-Being (Meaning and Purpose Fixed Form)

Both groups demonstrated average to high psychological well-being throughout the study (Table 4). There were no significant differences over time.

Assessment of Intervention

All participants reported the intervention was easy to follow immediately after the interventions. Fewer participants in the gratitude group (15/20) than the cognitive strategies group (17/17) thought the intervention was easy to apply ($p = .01$). Similarly, significantly fewer participants in the gratitude journaling group (8/20) completed the intervention as intended as opposed to the cognitive strategies group (14/17). There were no differences between the groups regarding prior experience with the intervention or anticipated future use of either gratitude journaling or cognitive strategies.

Feasibility and SOI

Feasibility of the intervention revealed a significantly higher reported use of cognitive strategies at T3 and T4 ($p = .01$). At T4, a greater number of participants in the cognitive group intended to continue the use of the intervention ($p = .03$). Despite this, there was no difference in both groups as they consistently reported their respective interventions useful and worth learning.

TABLE 4. Participant Meaning and Purpose Fixed Form *t* scores

Variables	Baseline	Immediately postintervention	Two weeks postintervention	Six months postintervention
Gratitude				
Low (< 40)	3 (15)	2 (10)	2 (10)	1 (5)
Midrange	13 (65)	12 (60)	13 (65)	12 (60)
High (> 60)	4 (20)	6 (30)	5 (25)	7 (35)
Cognitive strategies				
Low (< 40)	0 (0)	0 (0)	1 (6)	2 (12)
Midrange	12 (71)	12 (71)	13 (76)	11 (65)
High (> 60)	5 (29)	5 (29)	3 (18)	4 (23)

Note. Values are presented as *n* (%).

COVID-19 Statistics

To provide historical context, the study team examined the number of statewide COVID-19 cases (Figure 4) and pediatric COVID-related hospitalizations (Figure 5). At T1 (pre-intervention), pediatric hospitalizations were high. Connecticut had close to 2,500 reported cases, the highest number of cases throughout the study period. From a study attrition standpoint, the pandemic context aligned with participant loss early in the study.

DISCUSSION

This parallel pilot study examined the relationship between two interventions (gratitude journaling and cognitive strategies) on depression, anxiety, and psychological well-being among pediatric HCWs during the first year of the COVID-19 pandemic. The utility, feasibility, and sustainability of these interventions were explored. Overall, the study and interventions were feasible, well-received by the participants, and highlighted possible strategies HCW found useful during the COVID-19 pandemic. One interesting finding of this study was the appeal of the intervention beyond those in traditional clinician roles. The study team extended the intervention to groups beyond clinically orientated staff (e.g., other supportive and organizational roles) with the suspicion that COVID-19 affected all team members, regardless of role. Despite this, most participants were nurses and physicians, and the sample lacked racial and ethnic diversity.

Framing the study regarding the COVID-19 pandemic in Connecticut, we explored pediatric COVID-19-related hospitalizations and statewide COVID-19 cases. A posteriori, the study team did not assess individual study participants' experiences

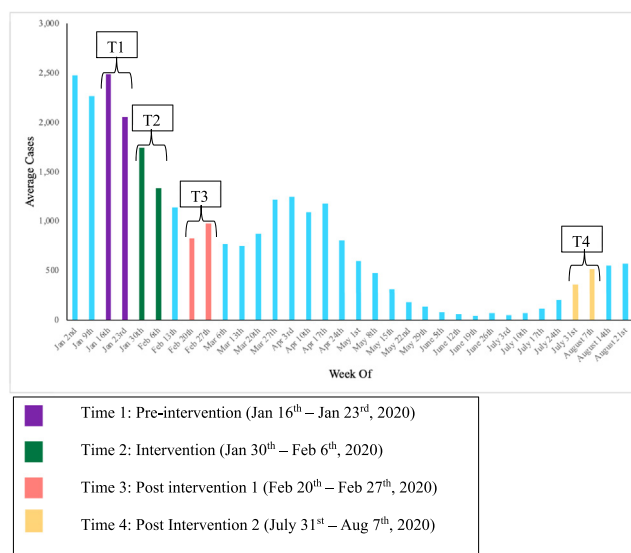
and exposures to COVID-19, hospitalizations, illnesses, or deaths of friends and loved ones. In retrospect, it would have been valuable to measure these variables. Early in the study period, the elevated number of cases and hospitalizations may also have influenced participant attrition and potentially impacted levels of anxiety and/or depression in some participants. When the COVID-19 pandemic was at its highest, the stress and burden on the health care system led to critical staffing shortages and work-related COVID-19 illness and contributed to HCWs' stress and burnout (U.S. Department of Health and Human Services, Assistant Secretary for Planning and Evaluation, Office of Health Policy, 2022). Future studies should consider the burden of COVID-19 unique to study participants and sites as potential mediators and moderators of HCW well-being.

Depression and Anxiety

Depression and anxiety were two key outcomes of this study. At baseline and throughout the study, some participants had some anxiety and depression, but many did not. This was not an anticipated finding as the literature suggests that the COVID-19 pandemic had profound effects on the psychological well-being of HCWs, with increased depression, anxiety (Pappa et al., 2020), and burnout (U.S. Department of Health and Human Services, Assistant Secretary for Planning and Evaluation, Office of Health Policy, 2022). Increased levels of depression and anxiety have also been reported in the pediatric nursing population (Robba et al., 2022).

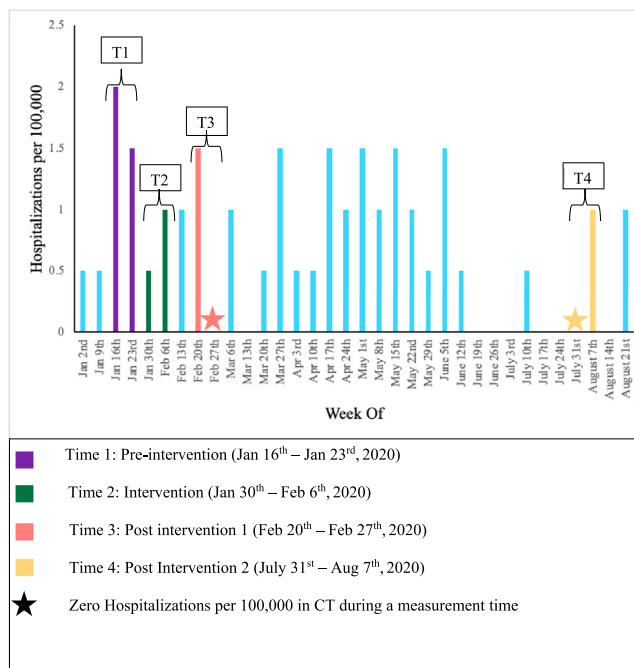
Although not achieving statistical significance, this study demonstrated a decrease in reported symptoms of depression and anxiety over time. The lack of statistical significance may be attributed to the small sample size. In the gratitude group, depression and anxiety scores trended toward the

FIGURE 4. Average cases per week in Connecticut in 2020.



Adapted from Centers for Disease Control and Prevention (2022b). This figure appears in color online at www.jpedhc.org.

FIGURE 5. Number of hospitalizations in children aged < 18 years because of COVID-19 per 100,000 in Connecticut in 2020.



Adapted from Centers for Disease Control and Prevention (2022a). This figure appears in color online at www.jpedhc.org.

none-to-minimal category. There was a decrease in the overall number of participants with mild or greater symptoms. Studies related to gratitude interventions demonstrated reduced depression and anxiety with sustained improvements over time (Bohlmeijer et al., 2021; Cheng et al., 2015; Feng & Yin, 2021; Sexton & Adair, 2019). Similar results were seen in the cognitive strategies group, in which depression and anxiety scores trended toward the none-to-minimal category over time. Research supports that cognitive-behavioral interventions help reduce or offset anxiety and depression in HCWs (Cole et al., 2021; Melnyk et al., 2020). The results of this study did not indicate the magnitude of the effect of the respective interventions, which should be considered for larger, future studies.

Meaning and Purpose

Another unexpected finding of the study was the consistency in reported meaning and purpose data in this study sample. Most study participants demonstrated midrange positive affect and psychological well-being at baseline. This was sustained throughout the study.

Feasibility, Acceptability, and Sustainability of Interventions

This study was relatively easy to conduct and did not require a large budget. Study participants also reported that the study was acceptable (i.e., the training was easy to follow, apply, and worth learning). During the intervention period

of the study and at 2 weeks postintervention, most completed their allocated intervention as intended. Study demand, or participant intent to use and actual use of intervention (Bowen et al., 2009), was high immediately after the study. At 6 months postintervention, more participants sustained cognitive strategies over gratitude journaling, possibly because of the number of self-initiated activities. This suggests that HCWs may be more likely to complete ongoing well-being activities that require little time commitment or do not have a component perceived as taxing (e.g., writing).

Study practicality includes the efficiency/quality of implementation, cost, effects on the target population, and ability of participants to complete the intervention (Bowen et al., 2009). Our results suggest that the study is practical to replicate, although some modifications are needed. The interventions were relatively easy to complete and did not require any particular equipment or technology beyond having access to a device that could connect to the internet (phone, tablet, computer) to view the intervention sessions and pen and paper or an electronic journal to write (for the gratitude arm). The major costs to study implementation were related to time and human capital, which the study team donated to conduct this pilot study. The interventions were not costly. There were no negative effects on participants.

Limitations

Significant study attrition suggests that the study was underpowered, likely contributing to the lack of significant

findings. Thus, the findings of this study must be interpreted with caution (Nayak, 2010). Study timing, the current state of the pandemic, and the lack of incentives may have influenced some potential participants not to participate or to drop out of the study. Study enrollment and retention likely could have been offset with participant incentives such as gift cards which could be supported with minimal funding, and using phone calls rather than emails to nonrespondents. In addition, other factors that may have affected anxiety, depression, and meaning and purpose, such as personal or professional issues, were not investigated and should also be considered in future studies.

Other study limitations included the relatively homogeneous sample from a single site. The self-report nature of the study can lead to social response bias when answering mental health-related questions. The use of author-designed measures also is another potential limitation. Because of the feasibility nature of the study, and the intent to explore if these types of interventions were helpful, the study did not include a control group.

Conclusions

Gratitude journaling and cognitive strategies are brief interventions that may provide HCWs with additional tools for support in difficult times. This study was feasible with HCWs, although strategies to prevent attrition are needed. The study participants found the interventions worthwhile, helpful, and feasible. Over time, cognitive strategies seemed to be a sustainable option for those remaining in the study. Future research is needed to conduct a randomized controlled trial with a larger, more racially and ethnically diverse population to determine the efficacy of these interventions. Despite the limitations, the study suggests that brief, mostly self-paced independent coping strategies may help HCWs maintain their sense of meaning and purpose during challenging times. This study may help inform the development of evidence-based HCW wellness initiatives and hospital-based programs and supports the need for investment in HCW mental health as the COVID-19 pandemic continues.

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