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Reducing Occupational Stress and Improving Coping Strategies among Nursing Home Nurses: Implementation of the BREATHE web-based program.

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Reducing Occupational Stress and Improving Coping Strategies Among Nursing Home Nurses: Implementation of the BREATHE web-based program

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This project was supported with funding from the Sara Rosenbalm- Croley Endowed Deans Chair Fund from the college of Nursing at UTK

Introduction

- Occupational stress (OS) according to the National Institute of Occupational Safety and Health (NIOSH) is ”the harmful physical and emotional responses that occur when the job requirements do not match the capabilities, resources or needs of the worker”.

- Nurses working in the nursing home are one face with severe OS due inadequate nurse patient ratio

- Evidence based interventions have been shown to effectively reduce OS

- My scholarly project aims to use the web based BREATHE stress management program to reduce OS and improving coping strategies among nurses in a NH setting

Overview of Problem

- Nursing Home (NH) nurses are overworked due to inadequate nurse-resident ratios
- NH population is not just geriatric but getting more complex with higher levels of acuity and the needs that call for an increasing wide array of nursing competencies and staff.
- Increases in the aging population with more than one chronic illness is an ongoing public health challenge that requires more nurses
- NH nurses are faced with occupational stress and poor coping strategies
- This negatively impacts nurses' quality of life and patient care

Harrington et al., 2016, 2020; Wofford, 2019;Nuaim et al., 2021, Chang et al., 2020

Clinical Significance

- NH nurses faced with occupational stress, which is a negative experience due inability to cope with expected job demands
- Occupational stress negatively impacts:
  - (A) Patients
    - Decrease in nurses' caring behaviors
    - Increase rate of treatment and medication errors
    - Increase hospital readmission rates of NH resident
  - (B) Healthcare systems
    - High nurse turnover and low retention rates
    - High economic burden of about $20 to $48K per nurse
- (C) Nurses
- Psychological: irritability, depression, job dissatisfaction
- Behavioral: absenteeism, substance abuse, alcohol, drug misuse, smoking
- Physical health: elevated BP, muscle pain, Headache, Stomach upset

Duffield et al., 2014; Gandhi et al., 2021; Elsayed et al., 2017; NIOSH, 2008; Milutinović et al., 2012

Clinical problem

- NHs residents now have higher levels of acuity requiring increased numbers of nursing staff mix
- 75% of NHs are understaffed and 25% are severely understaffed
- Office of Health Care Facilities (OHCF) in TN received several healthcare deficiencies from the 319 licensed NHs in the state. 9 out of the top 15 deficiencies could be associated to nurses' occupational stress
  e.g. Quality of care, infection control, treatment and prevention of pressure ulcers.
- The Implementation of evidence-based interventions to alleviate occupational stress, increase coping strategies, and improve nurses' quality of work-life, patient quality of care is lacking in NHs

Harrington et al., 2016, 2020; Chesak et al., 2019; Wofford 2019; TN Department of Health, 2021

Project purpose and goal

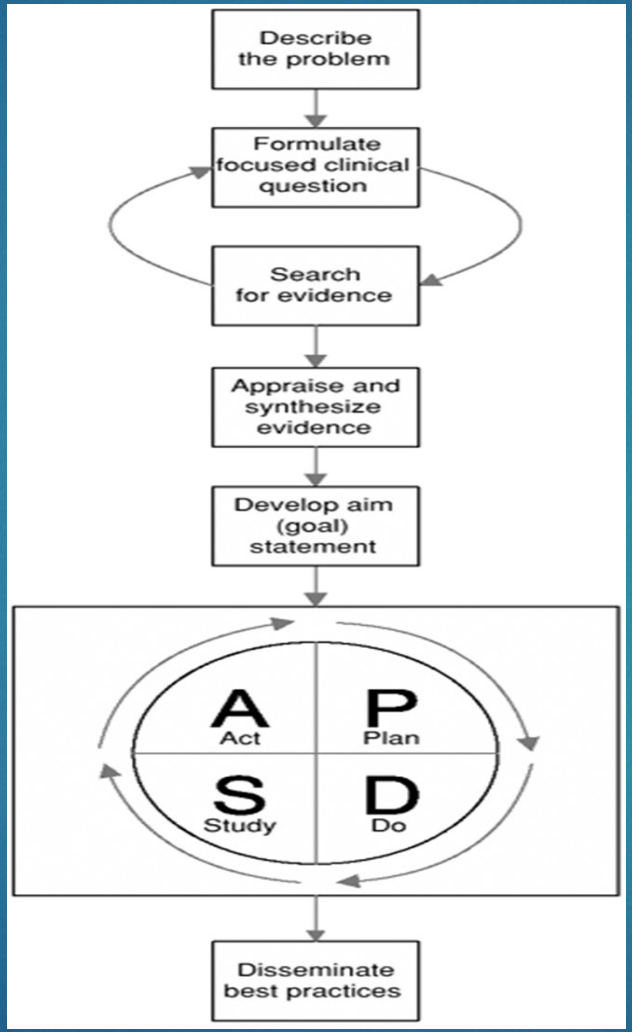
Purpose

- To implement an evidence based online stress management program (BREATHE) on nurses at a nursing home in Southeastern United States.

Goal

- To decrease nurses' occupational stress and improve their coping strategies.

Guiding Framework Process



From "Evidence-based Practice Improvement: Merging 2 Paradigms," by R. F. Levin, J. Keefer, J. Marren, M. Vetter, B. Lauder, and S. Sobolewski, 2010, Journal of Nursing Care Quarterly, 25, p. 122. Reprinted with permission.

Guiding Framework: Theoretical

- Examine the current state
- Prepare and convince people for change from their old ways

- Implement change
- Progress to new state
- Encouragement for a new paradigm
- Seek assistance from leadership

- Integrate change into the culture
- Change becomes new norm

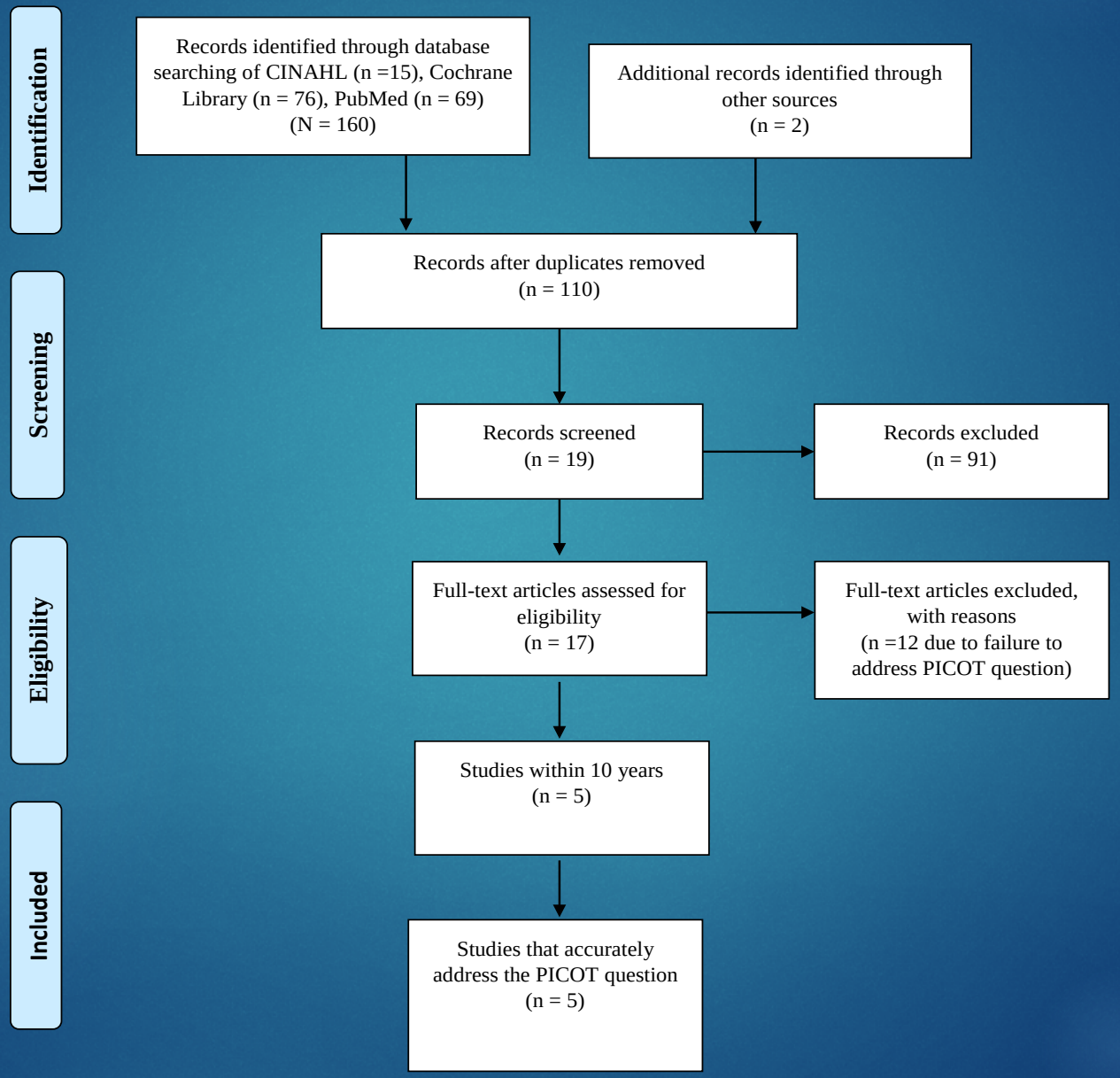
Zaccagnini, M. & Pechacek, J. M. (2021). *The doctor of nursing practice essentials* (3rd ed.). Jones and Bartlett.

PICOT Question

In nurses working in nursing homes (P), how does stress management intervention (I) compared to no stress management intervention (C) affect occupational stress and coping strategies (O) over an eight-week period (T)

Evidence

Literature Search



Critical Appraisal

- All studies were systematically appraised using the Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) Research Evidence Appraisal Tool

- Five articles relevant to the PICOT question published within the last 10 years were selected and were evaluated for validity, reliability, and applicability.

- Evidence level and quality grades were assigned to all selected studies

  - Three studies had level I evidence (Randomized Control Trial study)
  - One study had level II evidence (Quasi-experimental study)
  - One study had level V evidence (Quality Improvement Project study)
  - Three studies were assigned quality grade A
  - Two studies were assigned quality grade B

- All selected studies had good or high quality evidence

Dang & Dearholt, 2018

Synthesis

- Hersch et al. (2016) showed that a web-based stress management program, known as BREATHE program, can reduce stress and improve coping strategies amongst nurses in a hospital environment

- Dutton et al. (2020) used the web-based program in a qualitative improvement study to show that it reduce stress amongst nurses and nursing assistants in a Long Term Care (LTC) geriatric hospital.

- All stress management and coping strategy intervention tools used in these selected studies were very reliable with a Cronbach alpha level ≥ 0.85

Synthesis

- Emotion regulation training significantly decreased occupational stress using an expanded nursing stress scale, coping strategy not evaluated (Saedpanah et al., 2016).

- Mindfulness-based training in a MINDFUL Gym stress management intervention study used a reliable depression, anxiety, and stress scale (DASS-21) tool to show that the intervention significantly decreased depression, anxiety, and occupational stress and improved coping strategies over time in the intervention group compared to controls (Ghawadra et al., 2020).

Synthesis

- Nurses Stress intervention management program (SMIP) was used to show that the levels of occupational stress and coping strategies over three data collection points using the Coping Orientation to Problem Experienced (COPE) scale were significantly improved ($p < 0.05$) in the nurse stress intervention management program group compared to the control group (Alkhawaldeh et al., 2020)

Synthesis Table Outcomes

Outcome	Hersch et al., 2016	Dutton and Kozachik, 2020	Alkhawaldeh et al., 2020	Ghawadra et al., 2020	Saedpanah et al., 2016
Stress perception	↓s	↓s	∅	∅	∅
Occupational stress	↓c	↓s	↓c, s	Ψs	↓s
Coping strategies	↑s	↑s	↑ c, s	↑s	∅
Any other outcomes of interest					
Sample Size	104 nurses	56 nurses	170 nurses	224 nurses	60 nurses
Level of Evidence	I	V	I	I	II
Quality of Evidence	A	B	A	A	B

Legend: ↓=decrease; ↑=increase; ∅=not discussed in study; s=statistical significance; c=clinical significance
Ψ=Stress over time

Strength of Recommendation(s)

Recommendation	Strength of Evidence for Recommendation	References in Support of Recommendation
I strongly recommend the implementation of the web- based stress management interventional programs to decrease stress and improve coping strategies	The JHNEBP appendices D and H level of evidence (level I) and quality ratings (A, high quality) were strong. The evidence in RCT working with nurses in hospital settings showed that stress management intervention programs decreased stress and improved coping strategies. The evidence of both studies supports practice change	Hersch et al., 2016 Alkhawaldeh et al., 2020 Dutton and Kozachik, 2020
I strongly recommend mindfulness-based training to decrease occupational stress in nurses	The JHNEBP appendices D and H level of evidence (level I) and quality ratings (A, high quality) were strong. The evidence in RCT showed that mindfulness-based training decreased stress in nurses working in a hospital setting. The evidence presented supports practice change	Ghawadra et al., 2020
I recommend emotion regulation training to decrease occupational stress in nurses	The JHNEBP appendices D and H level of evidence (level II) and quality ratings (B, good quality) were good. The evidence in this quasi-experimental study with control and intervention groups showed using ENSS that emotion regulation training decreased stress in nurses working in a hospital setting.	Saedpanah et al., 2016

Table of Recommendation(s) for Practice Change

Recommendation	References in Support of Recommendation	Rationale	Level of Evidence (JHNEBP)	Quality Rating (JHNEBP)
Implementation of stress management interventional programs (BREATHE) to decrease stress and improve coping strategies	Hersch et al., 2016 Alkhawaldeh et al., 2020 Dutton and Kozachik, 2020	Nurses had decreased stress and increased coping strategies. The levels of occupational stress and coping strategies over three data collection points using COPE were significantly improved ($p < 0.05$) in the intervention group compared to the control group (Alkhawaldeh et al., 2020). Hersh et al., (2016) showed that the level of nurses' stress in the BREATHE web-based intervention group was significantly reduced compared to the control on the full Nursing Stress Scale ($t = -2.95$; $p = .00$). BREATHE was supported by qualitative improvement studies (Dutton and Kozachik, 2020)	Level I	A (High quality)
Mindfulness-based training to decrease occupational stress in nurses	Ghawadra et al., 2020	Nurses showed a decrease in occupational stress following the intervention. Over time, there was a significant effect on stress, anxiety, depression, and mindfulness level in the intervention group compared to the control group ($p < .05$); my interest is focused on the stress result.	Level I	A (High quality)
Emotion regulation training to decrease occupational stress in nurses	Saedpanah et al., 2016	Nurses showed a decrease in occupational stress. The emotion regulation training intervention group (136.6 ± 24.6) was significantly lower than the control group 113.02 ± 16.2 ($p = 0.001$) using the ENSS.	Level II	B (Good quality)

JHNEBP = Johns Hopkins Nursing Evidence-Based Practice; ENSS = Expanded Nursing Stress Scale.

Patience Preference and Values Evidence

- Shared decision-making between provider, patient and family is essential to translate evidence into practice
- Integration of patient and family preferences with EBP decisions while ensuring quality patient care
- Family, patient preferences, and values are important in providing care, which is respectful of that individual patient's preferences, needs, and values.
- This ensures that the patient values guide all clinical decisions

Melnyk & Fineout-Overholt, 2019

Recommendations for Practice Change

- Evidence supporting the fact that stress management intervention strategies significantly improved occupational stress and coping strategy is good and consistent.
- The BREATHE program is user friendly without interrupting nurses work schedules
- The web-based BREATHE program is a tool that best meets the needs of the stakeholders

Aims of recommended Practice Change

- To decrease nurses occupational stress within 8 weeks of intervention using the BREATHE program
- To increase nurses coping strategies within 8 weeks of intervention with the BREATHE program
- These together will improve nurses' quality of life, patient care, and family satisfaction.

Implementation

Setting and Population

- Vibrant, reputable, and accredited NH in the South East of USA
- 126-bed long-term care facility
- The facility has a Health service administrator, an RN-level Director of Nursing (DON), 2 part-time physicians, 2 Nurse Practitioners, about 16 RNs, Licensed Practical Nurses (LPN), and about 34 Certified Nurse Technicians (CNTs).
- Approval has been granted by site clinic administrator for implementation of this project proposal

Project Team and Stakeholders

- Key project site team members
  - DNP student
- DNP project committee members
  - Chair
  - Community member
- Director of Nursing
- Participants (Nursing staff)
  - CNTs, LPNs and RNs
- Statistician of UTK
- Stakeholders not directly involved project team
  - Patients and families

Barriers and Facilitators

Category	Stakeholder	Description of Barrier/Facilitator	Barrier Mitigation
Inadequate EBP knowledge and skills **Resistance to change**	Nurses. Certified Nurse Technicians (CNT), Licensed Practical Nurses (LPN), and Registered Nurses (RN).	• Nurses providing care to NH residents, usually LPNs and CNTs, have inadequate EBP knowledge and skills. • Some nurses do not believe in the value of EBP and are resistant to implementing any EBP changes in the facility.	Nurses provide adequate knowledge on EBP about stress management by using contemporary electronic technology such as zoom, WhatsApp, FaceTime, text messages. Encourage nurses to acquire continuous education on current EBP knowledge on the different aspects of their practice scope.
Lack of EBP mentors	Nursing supervisors. Director of Nursing (DON)	• RNs working in NH often have a supervisory function. • It is difficult for them to efficiently act as EBP mentors to the many CNTs and LPNs they supervise.	Provide EBP leadership skills and knowledge to the supervisory RN who will act as EBP mentors to LPNs and CNT. DNP students will include the DON in the leadership training module of the Project (Hersch et al., 2016).
Resources	Organizational and administration	• The administrator supports the EBP project on stress management amongst nurses working in the NH and thus will facilitate its implementation.	Educate and convince the leadership in the organization on how stress management training of nurses can improve occupational stress and coping strategies. The EBP education will make the nurses more efficient at executing their functions with patients and families and that will benefit the organization and the community.
	Financial	• Nurses may not wish to participate because there is no financial incentive. • The financial burden is partially on the DNP student.	Financial assistance for this EBP scholarly project was from the Croleys Awards from CON UTK for licensing the BREATHE stress management program.
	Time	• Nurses are overwhelmed with the workload and have no time allocated to participate in the project	A web-based training platform will be used in the Project (Hersch et al., 2016). The questionnaire will be brief. Participants will receive reminder messages.

BREATHE Program

A six-module web-based educational intervention program that teaches nurses about stress, how to manage it, and how to develop coping strategies.

Module 1: Describes how stress attacks the body and impacts daily activities.

Module 2: Provide tools to assess nurses' stress and coping levels in other to determine the overall stress profile.

Module 3: Identifies stressors by recognizing symptoms of nurses' stress and simultaneously keeps track of it.

Module 4: Recommends the performance of some activities that can manage stress by changing the nurses view or response to stress and even changing the stressful situation.

Module 5: Educates nurses how to avoid negative coping strategies, such as alcohol, and drug misuse, and substance abuse.

Module 6: Provides educational information on anxiety, depression, and how to seek help when necessary.

Implementation Timeline

OCT-NOV 2022
Seek IRB determination

NOV-DEC 2022
Recruitment of Participants

JAN-FEB 2023
Implementation of intervention

FEB-MAR 2023
Data collection and analysis

MAR-APRIL2023
Dissemination of findings to stakeholders and TRACE

Evaluation

Outcome Measures

- Occupational stress
- Coping strategies

Data Evaluation

- **Data variables**
  - Personal demographics including
  - Sex
  - Age
  - Ethnicity
  - Level nursing education
  - Type of position
  - Period of time working at the NH

- **Data Collection**
  - Pre- and post-intervention and follow up surveys.
  - NSS and Brief COPE questionnaire responses will be collected on a Likert Scale using Qualtrics software

Data Analysis using SPSS software

- Descriptive statistics for all demographic data variables
- Analysis of variance for the pre, post-test, and Follow-up surveys of NSS and Brief COPE intervention entries
- Means, standard deviations, and probability values (p-value) were computed.
- Computed values will be analyzed using Analysis by the statistician at UTK using the the SPSS software

Data Security

- Online questionnaire is developed on Qualtrics, a secure UTK software
- Data was collected in a coded, password-protected and encrypted in UT OneDrive
- Data shared and stored with UTK statistician using the UT Vault
- UT Vault is a secure and encrypted file transfer tool that is HIPAA/PHI certified

Participants

- Number of participants 5
- 10 nurses signed up to participate but 5 consented and completed the demographics and pre-survey
- 4 females and 1 male
- Age range from 26 to 65 years
- 3 participants completed all surveys and BREATHE intervention that is Pre, post, and follow-up.

Paired sample statistics summary for the NSS factors

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	NSS Factors Total - Post	86.7500	4	31.35150	15.67575
	NSS Factors Total - Pre	81.7500	4	17.89553	8.94777
Pair 2	NSS Factors Total - Follow Up	96.3333	3	25.54082	14.74600
	NSS Factors Total - Post	76.6667	3	29.39955	16.97384
Pair 3	NSS Factors Total - Follow Up	96.3333	3	25.54082	14.74600
	NSS Factors Total - Pre	75.3333	3	15.27525	8.81917

Paired Samples Test statistical analysis output for the NSS scores

		Paired Differences					t	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	NSS Factors Total - Post - NSS Factors Total - Pre	5.00000	15.59915	7.79957	-19.82172	29.82172	.641	3	.284	.567
Pair 2	NSS Factors Total - Follow Up - NSS Factors Total - Post	19.66667	14.97776	8.64741	-17.54015	56.87349	2.274	2	.075	.151
Pair 3	NSS Factors Total - Follow Up - NSS Factors Total - Pre	21.00000	10.44031	6.02771	-4.93516	46.93516	3.484	2	.037	.073

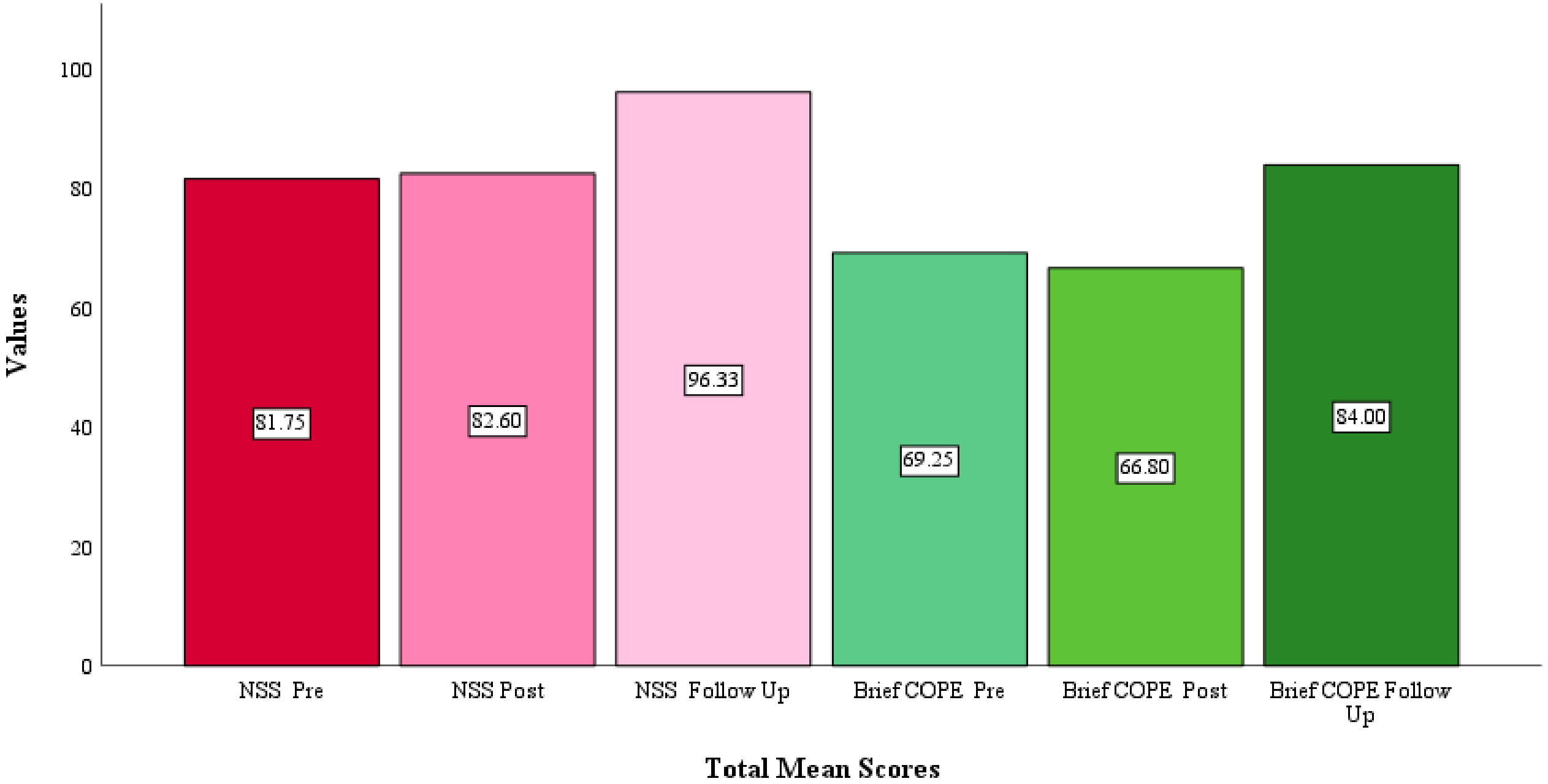
Paired Samples Statistics summary from the Brief COPE survey

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Brief COPE Total - Post	72.750	4	10.6888	5.3444
	Brief COPE Total - Pre	69.2500	4	6.18466	3.09233
Pair 2	Brief COPE Total - Follow Up	84.0000	3	9.64365	5.56776
	Brief COPE Total - Post	68.000	3	6.0000	3.4641
Pair 3	Brief COPE Total - Follow Up	84.0000	3	9.64365	5.56776
	Brief COPE Total - Pre	68.0000	3	6.92820	4.00000

Table 19. Paired Samples Test statistical analysis output for the Brief COPE survey

		Paired Differences					t	df	Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			One-Sided p	Two-Sided p
Pair 1	Brief COPE Total - Post - Brief COPE Total - Pre	3.50000	12.36932	6.18466	-16.18234	23.18234	.566	3	.306	.611
Pair 2	Brief COPE Total - Follow Up - Brief COPE Total - Post	16.00000	14.79865	8.54400	-20.76188	52.76188	1.873	2	.101	.202
Pair 3	Brief COPE Total - Follow Up - Brief COPE Total - Pre	16.00000	3.00000	1.73205	8.54759	23.45241	9.238	2	.006	.012

- A paired-samples t-test was used to determine whether there was a statistically significant mean
- There were no statistically significant differences between the two time points in the NSS , $p = .073$.
- The increase in coping strategy was statistically significant
- Participants scored higher after the BREATHE intervention ($M = 84.00$, $SD = 9.64$) as opposed to before the intervention ($M = 68.00$, $SD = 6.93$), a statistically significant mean increase of 16.00, 95% CI [8.55, 23.45], $p = .012$.


Values
100
80
60
40
20
0
81.75
82.60
96.33
69.25
66.80
84.00
NSS Pre
NSS Post
NSS Follow Up
Brief COPE Pre
Brief COPE Post
Brief COPE Follow Up
Total Mean Scores

Practice Implications

Strengths:

- The intervention is based on quality of evidence
- Decrease occupational stress and improved coping strategies will improve resident care
- The intervention improved coping strategies
- The NH administrator/organization was supportive of the project

Practice Implications

Limitations:

- Small sample size
- No incentive for the participants
- Findings cannot be generalized to other populations because it is neither research nor experimental
- Participation was voluntary introducing participation bias
- Some nurses had difficulty accessing the program and could not get immediate assistance

Dissemination plan

- Manuscript submission to Worldviews on Evidence-Based nursing Journal

- Trace submission April 2023
  Final defense project PowerPoint

- Project site
  A copy of the final defense project

CONCLUSIONS AND DISCUSSIONS

- Stress management interventions tools have proven to be effective in reducing occupational stress and increase coping strategies.
- The web-based program BREATHE is a reliable and easy to use stress management program that can be used at the convenience of the participants with a secure source of internet connection.
- Lewin's theory of change and the EBPI model provides an effective framework for implementing identified best intervention programs that can reduce occupational stress and improve coping strategies thus improving patient care.
- The DNP project aligns well with the selected practice site where no such intervention programs has been used to improve nurses stress.

References

Available on request

QUESTIONS ?