Project Determination

Nurse Fatigue-Mitigation Education Does it Change Nurse Sleep Behavior

Project ID:	0900f3eb81ce0f40
Accession #:	NIOSH-SSTRB-3/30/21-e0f40
Project Contact:	Beverly Hittle
Organization:	NIOSH
Status:	Pending Clearance
Intended Use:	Project Determination
Estimated Start Date:	10/01/20
Estimated Completion Date:	09/30/24
CDC/ATSDR HRPO/IRB Protocol#:	
OMB Control#:	

Description

Priority

Standard

Date Needed

07/01/21

Determination Start Date

03/30/21

Description

The NIOSH online training program, “Training for Nurses on Shift Work and Long Work Hours” published in 2015, provides information for nurses about health and safety risks associated with nonstandard work hours and strategies for improving sleep and reducing fatigue-related risks within the healthcare setting. The no-cost, publicly assessable training program training has been mentioned on over 45 different webpages, and over 6000 nurses have received credit from the CDC for taking this course. Our proposed project will evaluate the NIOSH Training for Nurses for dissemination reach since 2015 and improving registered nurse (RN) sleep health and well-being. Results of this project will be used to improve outreach efforts to the national nursing population and provide evidence of effectiveness about the online training on nurses’ sleep and wellbeing.

IMS/CIO/Epi-Aid/Chemical Exposure Submission

No

IMS Activation Name

Not selected

Select the primary priority of the project

Not selected

Select the secondary priority(s) of the project

Not selected

Select the task force associated with the response

Not selected

CIO Emergency Response Name

Not selected

Epi-Aid Name

Not selected

Assessment of Chemical Exposure Name

Not selected

Goals/Purpose

This purpose of this project is to evaluate an established NIOSH online training program, “Training for Nurses on Shift Work and Long Work Hours” for: 1) dissemination reach among the national nurse population and 2) improving nurse sleep and fatigue. Evaluation of this established online program can provide evidence the training improves nurses’ sleep and fatigue. Project results will identify: 1) if enhancements to the training are needed; 2) evidence of the training’s effectiveness at improving nurse sleep.

Objective

Primary Objectives: 1) Evaluate the effectiveness of the established online NIOSH “Training for Nurses on Shift Work and Long Work Hours” on objective and subjective sleep health (composite and separate components [i.e., duration, efficiency, timing, quality, daytime sleepiness]) and wellbeing from baseline over 1, 3, and 6-months post-training. 2a) Explore the relationship between nurse characteristics and behavioral intention, and 2b) Explore the relationship between behavioral intention and sleep health post-training (1-month, 3-months, and 6-months). Secondary Objectives: 1) Provide a descriptive characterization of RNs (e.g. educational background, type of healthcare workplace, geographic location) who have completed the online training (N≈6,000).

Does this project include interventions, services, or policy change work aimed at improving the health of groups who have been excluded or marginalized and/or decreasing disparities?

Not Selected

Project does not incorporate elements of health equity science

Not selected

Measuring Disparities

Not selected

Studying Social Determinants of Health (SDOH)

Not selected

Assessing Impact

Not selected

Methods to Improve Health Equity Research and Practice

Not selected

Other

Not selected

Activities or Tasks

New Collection of Information, Data, or Biospecimens; Secondary Data or Specimen Analysis

Target Population to be Included/Represented

General US Population; Healthcare Provider

Tags/Keywords

Sleep; Fatigue; Education; Actigraphy; Nurses

CDC's Role

Activity originated and designed by CDC staff, or conducted at the specific request of CDC, or CDC staff will approve study design and data collection as a condition of any funding provided; CDC employees or agents will obtain data by intervening or interacting with participants; CDC employees or agents will obtain or use identifiable (including coded) private data or biological specimens; CDC employees will participate as co-authors in presentation(s) or publication(s); CDC employees will provide substantial technical assistance or oversight; CDC is providing funding; CDC is the sole institution conducting activity

Method Categories

Biomonitoring; Health Education; Prospective Cohort Study; Secondary Data Analysis; Survey

Methods

Study 1 is a secondary analyses of CDC administrative data of RNs (N = 6000) who have previously obtained CEs from the CDC for completing the online training. Study team will anonymize data prior to analyses. Characteristics of this cohort (employment type, education level) will be compared with the national nurse population to gain a better understanding of the online training program’s reach across all nursing populations (e.g. nursing specialty, worksite type). Study 2 will evaluate nurses' sleep health (i.e., duration, efficiency, timing, quality, daytime sleepiness) and wellbeing at 1-month, 3-month and 6-months post-training. Sleep will be measured subjectively with an online survey (see Appendix A), sleep diaries (see Appendix B), and objectively with actigraphy over 7-days at each follow-up period (1, 3 and 6-months post-training). Wellbeing will be ascertained with self-reported survey at post-training follow-up periods (see Appendix A). Post-training questions will be asked to provide descriptive evaluation of the training program, sleep behavior strategies adopted post-training, behavioral intention, and facilitators and barriers to change (see Appendix A). Data collection procedures: 1) Baseline measures: Participants will complete an online survey collecting demographics, workplace characteristics, sleep quality, daytime sleepiness, wellbeing, complete online daily sleep diaries, and activate actigraphy watches for 7-days. Actigraphy watches will be distributed via registered mail with training provided via videoconferencing. 2) Online training (1 month after baseline measures): Participants will take the NIOSH online nurse training. The training is free, readily accessible online, and takes approximately 3.5-hours to complete. Participants can

take the training at a location and time convenient to them. Following training completion, data will be collected via REDCap for two questions regarding behavioral intention and two open-ended questions requesting feedback on the training. 3) Post-training measures (1 month, 3 month and 6 month): At each follow-up period (1 month, 3 month and 6 month) study team members will distribute actigraphy watches via mail. Participants will follow the same sampling protocol completed at baseline, two behavioral intention questions, and three open-ended questions to describe strategies adopted to improve sleep, and facilitators and barriers to adoption. The 6-month follow-up will exclude behavioral intention measures. During all data collection periods, the study team will be in contact with participants via preferred method to schedule actigraphy delivery and answer any questions. For Recruitment, Inclusion/Exclusion Criteria, and Screening Procedures, please see attached file “Wong Methods Supplemental Information.”

Collection of Info, Data, or Bio specimens

Study 1: This study will not collect data but use existing CDC-collected data of RNs who have received credit for taking the online training. These data include: Name Address Employment type (i.e., CDC or uniformed service employee) Employer name Education level Work setting (multiple choice) Primary profession Two study team members (Drs. Hittle and Wong) will strip data of personally identifiable information prior to use. Data will be stored within an encrypted folder on secure CDC server accessible only by password protected CDC laptops/computers, with folder access limited to only three study team members (Drs. Caruso, Hittle, and Wong). Only aggregate statistics will be reported on: Employment type Education level Work setting Primary profession Study 2: Data collected will include survey, qualitative, and actigraphy. Study team will assign participants a unique study identifier. The study identifier will be used for all data collection platforms (i.e., REDCap, actigraphy). The key connecting participants to study identifiers will be stored on a government issued encrypted thumb drive, in a locked filing cabinet, in a locked office within continuously guarded and secure NIOSH premises. Survey and qualitative data (see Appendix A and B) will be collected via REDCap, a CDC approved online data collection and management system. Participants will be emailed a personalized, encrypted link for accessing the survey via a mobile device or web-browser. REDCap is password protected and data will only be accessed by study team members via a password protected CDC issued laptop. By default, REDCap presets data export as de-identified of any participant personal identifiers. Actigraphy data will be collected via an actigraphy watch, a wristwatch style device measuring sleep. Actigraphy are FDA approved devices for measuring sleep in the field and is recommended by the American Academy of Sleep Medicine for use with adult and pediatric populations. The device size and wearability is similar to wearing a wristwatch, posing minimal risks. Participants will wear actigraphy watches for the entire duration of each 7-day data collection period. Actigraphy watch data are stored in the watch and can only be extracted via computer software from the actigraphy watch manufacturer. This software will be stored on the study team’s CDC password protected laptop/computers. Participants will be identified in actigraphy data and software using study identifiers only.

Expected Use of Findings/Results and their impact

Evaluation findings will be used internally at NIOSH for improving the training content and dissemination. The findings will be presented at nursing and healthcare conferences and published in peer-reviewed and trade journals to 1) improve dissemination to targeted nurse groups, and 2) provide information of the value of the training, and potential benefits of integration of the training into existing organizational occupational health and safety programming.

Could Individuals potentially be identified based on Information Collected?

Yes

Will PII be captured (including coded data)?

Yes

Does CDC have access to the Identifiers (including coded data)?

Yes

Is an assurance of confidentiality in place or planned?

No

Is a certificate of confidentiality in place or planned?

No

Is there a formal written agreement prohibiting the release of identifiers?

No

Funding

Funding Type	Funding Title	Funding #	Original Fiscal Year	# of Years of Award	Budget Amount
CDC Funding Intramural	NIOSH Small NORA	9390FZW	2020	4	

HSC Review

HSC Attributes

Program Evaluation

Yes

Additional Ethical Considerations

The purpose of this project is to evaluate an established NIOSH online training program. This is an evaluation activity determined to be non-research. Ethical guidelines will be followed.

Regulation and Policy

Do you anticipate this project will be submitted to the IRB office

No

Institutions

Institution	FWA #	FWA Exp. Date	IRB Title	IRB Exp. Date	Funding #

Staff

Staff Member	SIQT Exp. Date	Citi Biomedical Exp. Date	Citi Social and Behavioral Exp. Date	Citi Good Clinical Exp. Date	Staff Role	Email	Phone #	Organization/ Institution
Beverly Hittle	07/31/2023		11/11/2023		Co-Investigator	nnx3@cdc.gov	513-533-8355	SOCIAL SCIENCE AND TRANSLATION RESEARCH BRANCH
Claire Caruso	04/30/2023		08/06/2022		Co-Investigator	zhl1@cdc.gov	513-533-8535	SOCIAL SCIENCE AND TRANSLATION RESEARCH BRANCH
Imelda Wong	07/30/2023		06/25/2022		Principal Investigator	kwn0@cdc.gov	513-533-6847	SOCIAL SCIENCE AND TRANSLATION RESEARCH BRANCH
Rebecca Guerin	03/27/2023		12/22/2021		Co-Investigator	hlb3@cdc.gov	513-533-8435	SOCIAL SCIENCE AND TRANSLATION RESEARCH BRANCH

DMP

Proposed Data Collection Start Date	11/01/21
Proposed Data Collection End Date	05/31/23
Proposed Public Access Level	Non-Public
Reason for not Releasing the Data	Other- 1.“Other” - Data use agreement(s) or other formal agreement(s) prevent sharing the data- Data set for study 1 is owned by the CDC Training and Continuing Education Online system. 2. “Other” - Direct
Public Access justification	1.“Other” - Data use agreement(s) or other formal agreement(s) prevent sharing the data- Data set

	for study 1 is owned by the CDC Training and Continuing Education Online system. 2.“Other” - Direct reading sensor and other monitoring data are large, need specialized software and require expertise to interpret - Actigraphy data obtained for study 2 requires specialized software for analyzing data.
How Access Will Be Provided for Data	The data collected will be used to inform the internal development of NIOSH products. Every attempt will be made to publish results in peer-reviewed journals. It is CDC/NIOSH policy that the results of the activities that it funds should be made available to the public, if possible. The study staff will ensure all mechanisms used to share data will include proper plans and safeguards for the protection of privacy, confidentiality, and security for data dissemination and reuse. Plans for archiving and long-term preservation of the data will be implemented, as appropriate. This study will comply with the CDC Data Management and Sharing Policy.
Plans for archival and long-term preservation of the data	Optional- N/A

Spatiality (Geographic Location)

Country	State/Province	County/Region
United States		

Determinations

Determination	Justification	Completed	Entered By & Role
HSC: **Does NOT Require HRPO Review**	Not Research / Other *45 CFR 46.102(l)* Program Evaluation	04/27/21	MacMahon_Kathleen (kqm1) Division HSC
PRA: **PRA Applies**		04/27/21	Sawyer Deloney_Tamela (tqs7) OMB / PRA