

Official Title: Nurses Taking on Readiness Measures – Mercer County, NJ

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Research Protocol:
Nurses Taking On Readiness Measures – Mercer County, New Jersey

Tara Heagele, PhD, RN
Hunter College School of Nursing
Hunter College, The City University of New York

Abstract

Nurses Taking On Readiness Measures (N-TORM) is an innovative nurse-driven household emergency preparedness (HEP) intervention modeled after an existing community intervention provided by emergency management personnel. The proposed pilot study will describe the implementation and effectiveness of N-TORM in the community setting, but provided by nurses. The aims of this implementation study are to: (a) increase the reach of N-TORM to vulnerable populations; (b) evaluate the effectiveness of N-TORM for increasing HEP knowledge and behavior; (c) implement N-TORM in a community located in an area at increased risk for disasters, measuring consistency of delivery, time, and cost of N-TORM; (d) describe the factors necessary to maintain and expand N-TORM, and; (e) pilot test a new HEP instrument in order to perform psychometric testing on the instrument and generate reliability and validity data.

Keywords: disasters, disaster planning, hazard, emergency, preparedness, planning, readiness, kit, vulnerable populations

Personnel

Tara Heagele, PhD, RN

Principal Investigator (PI)

Hunter-College School of Nursing, Hunter College, The City University of New York

- Heagele curriculum vitae
- Heagele Collaborative Institutional Training Initiative (CITI) Human Subjects Research for Social & Behavioral Faculty, Graduate Students & Postdoctoral Scholars

Research Sites**Name**

Mercer County, New Jersey

Site Principal Investigator

Tara Heagele, PhD, RN

Role of the Site in Research

Recruitment, screening, obtaining consent, interacting with subjects, performing the intervention, data collection, data analysis

Has IRB

Yes

Permission Granted

Yes

CUNY Site

Hunter College

Funding**Grant Title**

Cycle 51 PSC-CUNY Research Award

Grant Number

63040-00 51

Funding Status

\$3,330.00

Grant PI

Tara Heagele, PhD, RN, EMT

Funding Category

Research

Funding Source

PSC-CUNY Research Award Program through the New York State budget

Do the protocol and funding proposal match?

Yes

Is CUNY PI the lead PI?

Yes

The PI Heagele will maintain the following records for this study:

- Documentation of current IRB approval, signed consent forms, completed household emergency preparedness instruments, participant demographic data forms, participant experience surveys, disaster kit distribution list (per PSC-CUNY mandate), participant list (participant identification number and first and last name initials only)

Research Design

Purpose and Hypothesis

As more chronically ill people are living in the community and disasters are occurring frequently, the elderly and the medically frail vulnerable populations are experiencing significantly more disaster-related morbidity and mortality than the rest of the population. Lack of knowledge on how best to prepare for disasters and lack of means to purchase supplies are significant barriers to adequate household emergency preparedness (HEP). Community-based HEP interventions present a unique opportunity to address these barriers and disaster-related morbidity and mortality disparities in vulnerable populations. Modeled after a community intervention targeting healthy seniors (Golden, 2013) and residents (New York State, n.d.), Nurses Taking On Readiness Measures (N-TORM) is a nurse-driven HEP intervention that will be offered in the community to older adults, individuals with chronic illnesses, pregnant women, and caregivers of medically frail individuals. The Federal Emergency Management Agency (FEMA) Emergency Management Institute (2014) states that these individuals have access or functional needs during disasters and are considered vulnerable populations. The proposed study develops, tests, and evaluates the N-TORM intervention for the purpose of contributing to generalizable knowledge about the nurses' role in the HEP of vulnerable community members. The proposed pilot study will specifically target independently living community members with access and functional needs. The N-TORM intervention will enable the household to meet the FEMA recommendations for HEP, to safely shelter in place, and evacuate quickly with their supplies if needed. Measurable outcomes of the proposed study include the nurse's impact on the participants' level of HEP post-intervention and participant satisfaction with the intervention. Multi-disciplinary collaboration with engagement of community and government organizations will be demonstrated by the proposed study. Community resources provided by the New Jersey Office of Emergency Management will be incorporated into N-TORM. Local utility companies will be queried about priority restoration registries, and the police and fire departments about evacuation assistance and shelters. It is plausible that the long-term impact of the N-TORM intervention would be lives saved and resources conserved. Because the N-TORM intervention uses an all-hazards approach, it is possible to replicate nationally and with different vulnerable populations. The investigator will disseminate the findings via a peer-reviewed scholarly research journal article and at a nursing conference so that other institutions, clinicians, and community members may learn from this pilot study.

- RQ 1: What is the baseline level of HEP of the participants?
- RQ 2: How much of the variance in HEP is explained by the Household Emergency Preparedness Instrument (HEPI)?
- RQ 3: Is there a significant difference in HEP level after receiving the N-TORM intervention?
- RQ 4: What are the facilitators and barriers of nurses delivering and participants receiving the N-TORM intervention?

Finally, the proposed study will also pilot test a new household emergency preparedness instrument (Heagele et al., 2020) in order to perform psychometric testing on the instrument and generate reliability and validity data. There is support for face, content, and criterion validity of this instrument.

Design and Methodology

This is a non-randomized, non-blinded, quasi-experimental, pre- and post-test design pilot study.

Only approved research personnel will be involved in the research procedures. Principal Investigator Dr. Tara Heagele is employed at Hunter College (Assistant Professor) and her duties in this study will be conducted under her role as an employee of Hunter College.

The study start date is dependent on IRB approval. Recruitment and data collection are projected to start in March of 2022 and conclude by the end of March 2023. Data analysis is projected to conclude within two months after data collection is concluded.

The N-TORM intervention is not being offered in any other in-patient, out-patient, or community setting at this time. However, the N-TORM intervention was pilot tested with new parents in the neonatal intensive care unit and newborn nursery of Maimonides Medical Center in New York in 2020 (Heagele & Nurse-Clarke, 2022).

One participant per household will be eligible to participate. Inclusion criteria for the participants in the proposed study will:

- be aged 18 years or older
- be English-speaking
- have access and functional needs during disasters or are caregivers of individuals with access and functional needs
- live independently within Mercer County, New Jersey (i.e., not in a rehabilitation facility, long-term care facility, halfway house, or prison)
- consent to participate

Participants with cognitive impairments will be excluded because they are not responsible for their household emergency preparedness activities. However, their primary caregivers will be eligible to participate. Participants less than 18 years of age will also be excluded because children are generally not responsible for their household emergency preparedness activities. Non-English speaking and non-English reading families will be excluded from the study because the principal investigator does not speak a language other than English.

No more than 70 participants will be invited to participate in this study, with recruitment ceasing at 31 successful completions of the N-TORM intervention.

Potential Participants will be recruited from a private Facebook group called “Hamilton Twp. Mercer County NJ.” The principal investigator will also utilize the Snowball Sampling technique where participants suggest other potential participants. The principal investigator will provide flyers to the participants with the hope that they will share them with other potential participants.

Per the administrator guidelines of the private Facebook group “Hamilton Twp. Mercer County NJ,” the principal investigator will post the recruitment message once per week until 31 successful completions of the N-TORM intervention are completed. The administrators must approve the post for it to display to the members. Interested group members will be instructed to contact the principal investigator via private message on Facebook or via the principal investigator’s work e-mail at th1591@hunter.cuny.edu. If any questions are asked in the comments section of the recruitment post, the principal investigator will answer via private message to the potential participant and delete the comment.

The principal investigator will then perform the online screening. The participant will be informed of this screening immediately before they receive it. This will only occur once per potential participant. Participants will be screened in a private message on Facebook. The principal investigator will determine if the participant is eligible to participate by determining

- a. the participant’s self-reported age is 18 years or older.
- b. the participant’s self-reported lack of preparedness for disasters.
- c. the participant’s ability to speak and read the English language.
- d. if the participant lives independently in Mercer County, New Jersey.
- e. if the participant has access or functional needs during disasters according to the Federal Emergency Management Association’s definition.
- f. if the participant is alert and oriented (the participant can correctly identify him/herself, the year, and the current president of the United States).

The principal investigator will deliver the recruitment script to eligible participants (see attachment).

Participants will be consented only once when they enroll in the study. The consent form will be provided during the online screening/recruitment for the potential participant to read. The consent form will be signed at the in-person meeting at a public place of the participant’s choice within Mercer County, New Jersey, after the principal investigator has answered any questions that the participant has.

Once a potential participant is either screened out or completes the intervention,

the private message in Facebook or the e-mail will be deleted.

After informed consent is obtained, the principal investigator will perform the N-TORM intervention with the participant.

The principal investigator's role in the N-TORM intervention is to:

- a. screen participants for eligibility.
- b. deliver the recruitment script to the participants.
- c. obtain informed consent from the participants.
- d. administer the demographic data form to the participants (gender, age, race/ethnicity, relationship status, employment status, education, income, daily prescription medication use, special medical equipment use, disability status, military experience, English as a first language, zip code, home ownership, years lived in home, years lived in the community, type of home, children in the home). Demographic variables were chosen on the basis of previous HEP literature.
- e. administer the Household Emergency Preparedness Instrument (HEPI) to the participants before and after the intervention. The participant's baseline HEP level will be assessed with the HEPI. The HEPI is two standard letter-size papers, double-sided and will be completed with a pen or pencil. The participant will be asked to check off which preparedness actions they have completed and what disaster supply kit items they have in their home. It will take approximately 5 minutes to complete this questionnaire. Feedback will not be given to the participants based on their questionnaire results. The pre- and post-survey data will be linked by a number, but the number will not be linked to the consent form.
- f. perform the N-TORM intervention, which consists of educating the participants about HEP via the *Family Disaster Plan* booklet, and checking for completion of the *Family Disaster Plan* booklet. The intervention will begin with instructing the participant to complete the *Family Disaster Plan* booklet. The principal investigator will talk about the different sections of the booklet and instruct the participants how to fill out their emergency plans in the booklet. Participants will write their medical history, medications, physician, next of kin, pharmacy contact information, evacuation plan information, family communication plan, and insurance policy numbers and contact information. The booklet includes household emergency preparedness recommendations, evacuation zone information, a disaster supply kit contents list, local utility company contact information, shelter locations, and special needs and priority utility restoration registry information.
- g. The education portion of the intervention will take place at a public place of the participant's choice within Mercer County, New Jersey. The participant's portion

of the intervention will take place immediately after the education portion of the intervention, also at the public place of the participant's choice.

- h. administer the participant experience survey. The participant experience survey will be administered after the second HEPI is completed. The participant experience survey is one standard letter-size paper, single-sided, and will be completed with a pen or pencil.
- i. securely store research documents during and after data collection.
- j. analyze the data.
- k. disseminate the results.

The completed *Family Disaster Plan* booklets will not be copied, collected, stored, or used for research purposes. The booklets are for the participants to keep; they are the participants' household emergency preparedness plans and they will also serve as a community disaster resources information source. The participants will be provided with a disaster supply kit after successful completion of the booklet. The disaster supply kit, valued at \$111.60 on September 18, 2020, is part of the intervention and is not considered compensation.

As this is a pilot study, it is unknown how long the N-TORM intervention will take to complete. It is estimated that the education portion will take approximately 5 minutes. It is estimated that the completion of the booklet by the participant will take approximately 25 minutes.

There is no need for follow-up with the participants after they have completed the intervention.

There is no more than minimal risk for participation in this study. Little to no feelings of discomfort are expected. When completing the HEPI and the *Family Disaster Plan* booklet, participants may experience unpleasant memories, anxiety, or respondent burden. To mitigate this risk, participants will be able to skip HEPI questions or stop the HEPI at any time if they become uncomfortable. Participants will also be able to stop filling out the *Family Disaster Plan* booklet at any time. In addition, the informed consent includes an assurance of the participant's right to choose not to participate or to terminate participation at any time during the intervention and states that, should the participant decide not to participate in this research study, his or her relationship with the study team will not change and he or she will not lose any benefits to which he or she is otherwise entitled.

All efforts will be made to keep participants' personal information in their research record confidential, but total confidentiality cannot be guaranteed. To mitigate this risk, no personal identifying information will be asked on the HEPI or the demographic data form. Each participant will be given a number by the principal investigator, which will be

on both the HEPI and the demographic data form. The participants will be instructed to record this number. They will need it if they would like their data removed from the study. Only the principal investigator will know which numeric identifier is linked to which participant. Signed consents will not be numbered. The consents will be kept in a locked file in the principal investigator's office at Hunter College.

To comply with the funding agency's auditing requirements, the principal investigator will keep a Disaster Kit Distribution List that includes the following information: participant identification number, date the kit was distributed, and person who distributed the kit. The principal investigator is the only person who will have access to this list. The list will be stored in the principal investigator's locked office at Hunter College.

There are no direct benefits to participating in this study. This research does not claim to present a therapeutic benefit to the participants. Participants who successfully complete the intervention may be self-sufficient for up to 72-hours post-disaster, but the association between disaster preparedness level and disaster resilience has not been empirically tested. It is anticipated that this study will benefit society. The study data can build evidence for a promising individual and community HEP intervention. This HEP intervention can also be used in longitudinal studies to determine whether there is an association between being prepared for a disaster and surviving the disaster without the need for rescue or outside assistance. For medically frail community members, it can be determined whether there is an association between being prepared for a disaster and surviving the disaster without an acute exacerbation of a chronic illness and with no change in baseline functional status.

The participants will not incur any research-related costs. The participants will not be compensated for their participation.

After the participant data collection is completed, the participant will complete a 1-page, paper and pencil, anonymous survey about their experience with the implementation of the N-TORM intervention.

The data from the HEPIs, demographic data forms, and surveys will be transcribed by the principal investigator into electronic documents. This deidentified data will be stored on a password-protected, encrypted server (The City University of New York Dropbox), which complies with the City University of New York's *Computer Use and Internet-Based Research Policy*. The data will be stored in one password-protected, shared Dropbox folder that only the investigator has access to. Study data will not be downloaded or stored on personal or work desktop or laptop computers. The data will be stored in the password-protected Dropbox folder for three years after the study is completed and closed out with the IRB. After the three years are completed, the study data will be deleted from the Dropbox folder. The paper copies of the HEPIs, demographic data forms, and surveys will be shredded after they are transcribed. The principal investigator will store the consent documents in a locked filing cabinet in her office at Hunter College for three years after the study is completed and closed out with

the IRB. After the three years are completed, the documents will be destroyed. The data will not be stored or distributed for future research studies.

The principal investigator will analyze the quantitative and qualitative data. The principal investigator may utilize a statistician to assist with analyzing deidentified quantitative data.

Descriptive statistics of the sample will be analyzed. Regression analyses will be conducted to examine the associations between the study variables. The change in level of HEP will be evaluated with the pre- and post-intervention scores on the HEPI. The improvement from pretest to posttest will be computed by subtracting each participant's pretest score from his or her posttest score. If the gain score is positive, it will indicate that the level of household emergency preparedness is greater after the N-TORM intervention. In addition, the change in score will be evaluated with a matched pairs t-test. Finally, the mean household emergency preparedness pretest score for all of the participants will be compared to the mean posttest score with a percentage change calculation. Qualitative data obtained from the participants' surveys will be analyzed via content analysis methods.

The reliability of the HEPI will be measured by looking at the internal consistency of the items. Polychoric correlations will be used to examine the factor structure of the HEPI. Known-group validity of the HEPI will be assessed by comparing the scores of the participants who self-reported that they were unprepared for a disaster before and after the N-TORM intervention.

This pilot study has been awarded grant funding via Cycle 51 PSC-CUNY Research Award grant in the amount of \$3,330.00. The grant will fund the intervention materials (disaster supply kits and the *Family Disaster Plan* booklets).

References

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