Psychological Burden Surveillance for Disaster Workers

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Abstract

Problem: Approximately 30% of emergency first responders develop behavioral health conditions such as depression and posttraumatic stress disorder (PTSD) compared with 20% in the general population. Behavioral health services within the disaster response group are typically only offered when disasters and public health emergencies have a significant number of disaster workers deployed, leaving workers responding to smaller scale disasters potentially in need but without access. **Purpose:** This quality improvement project intervention applied the Centers for Disease Control and Prevention (CDC) Policy Process to draft a policy to provide mental health surveillance for intermittently deployed disaster workers within a disaster response entity. **Methods:** Environmental scans were conducted by the Project Lead with expert mental-health stakeholders within a disaster response group using the *CDC Policy Analysis: Key Questions* to obtain information to inform possible policy. Information generated from the scans were analyzed and synthesized with published evidence to draft three policy options for consideration. The options were then prioritized using the *CDC Policy Audit Tool* and presented to agency leadership for advancement feasibility. A policy of best fit was presented by the Project Lead to higher-ranking agency leadership for an adoption decision. **Results:** Seven out of ten desired scans were completed to elicit data regarding the need for a mental health policy within the agency for first responders. Recurring themes include the importance of mental health and concern about being seen as unfit for duty. Those candidates that did not schedule scans were due to current deployments, maternity leave, or limited email access. **Conclusions:** The scans revealed support for a policy requiring the deployment of a mental health specialist on disaster teams. Results suggest that most stakeholders have a positive opinion for the creation of a new mental health policy within the disaster response entity.

Keywords: mental health, policy analysis, disaster management

Psychological Burden Surveillance for Disaster Workers

A disaster response group is comprised of a team of trained medical professionals tasked with providing emergency-level medical care to those in need following disaster events (Amatya & Khan, 2023). This group of first responders encounters natural and man-made disasters frequently undertaking potentially life-threatening tasks to save lives. Over the past decade, 300+ natural disasters have occurred yearly around the world affecting millions and costing billions (Prasad & Francescutti, 2017). The impact of witnessing such events first-hand over an extended period is a significant burden on providers and impacts mental health. It is estimated that 30 percent of first responders develop behavioral health conditions such as depression and posttraumatic stress disorder (PTSD) compared with 20 percent in the general population (Abbot et al., 2015). Behavioral health team members within a national disaster response group have identified the necessity to change the current approach to addressing the mental health needs of this population. To the issue, a window for affecting change through policy is open as a problem has been identified that the government should address. This problem is likely to capture the attention of high-ranking decision-makers in the disaster response entity that responds to national disasters to improve mental health surveillance.

Root causes associated with the problem of psychological burden on disaster workers were examined by disaster response group leadership and team leader identifying the most relevant causes as procedures, the environment, and cost (Appendix A). Procedurally, the agency structures itself to where only mass casualty event responder are provided a telephonic follow up after the event from a mental health provider. Although this strategy can address many individuals' mental health needs, it neglects the ethical duty to provide services to all responders. The cost associated with expanding mental health services without offsetting revenue is a

contributing factor to offering limited services. Lastly, there remains a stigma around seeking mental health services, contributing to inaction among staff to appeal to the disaster response group for services and resources. The disaster response group that serves as the site for this project is receptive to policy options to improve psychological surveillance for disaster workers- an opportunity exists.

Aims/Knowledge

The goal of this project is to produce a policy creating a procedure for mental health evaluation and intervention among disaster care workers. The policy aims to address three components specifically: cost, procedural, and environmental factors. To further investigate the root causes of disaster workers' exposure to high mental health risk factors, an evidence review was conducted. Literature synthesis was performed on five high-level research studies, one systemic review, and one randomized control trial as seen in Appendix B. Alshahrani et. al's 2022 level 1 systematic review of RCTs with meta-analysis concluded that a variety of psychological interventions are effective in reducing PTSD, depression, and anxiety symptoms in first responders. While five other level 2 studies found similar results, Wild et. al (2020), Mahaffey et. al (2020), and Joyce et. al (2019) looked at different resilience training strategies within disaster workers. They found that resiliency in disaster workers improved with the use of mental health resources. Fiol-DeRoque et. al (2021) and Gupta et. al (2021) both investigated the effect of electronic mental health resources on DASS-21 (depression, anxiety, and stress scale) scores and determined they could be effective in improving all three categories. Finally, a 2016 level 3 study by Sifaki-Pistolla et. al found that rescue workers who provided substantial aid to the refugees and migrants in Levos, Greece, experienced significant psychological distress. The

excess burden of probable PTSD among rescue workers and the identified risk factors indicates the need for further intervention and research. Evidence synthesis as shown in Appendix C.

The evidence demonstrates that disaster workers are at a higher risk for mental health issues and surveillance has been shown to identify those in need. Based on the evidence and policy window, the purpose of this quality improvement project is to advance a policy to improve mental health resources for disaster workers. The process goals for this project are to conduct an environmental scan framing the issue, identify policy options, analyze policy options to determine the most feasible policy, and advance to the disaster response group decision-makers. The outcome goal for the project is a decision to adopt the policy by the disaster response group decision makers.

Rationale

The Promoting Action on Research Implementation in Health Services framework is composed of three predictors of successful implementation including evidence, context, and facilitation (Kitson et. al, 1998). This framework was selected to facilitate implementation due to its healthcare-focused design and emphasis on evidence as a stimulus for change (Appendix D). The creation of a psychological burden surveillance policy has a high-level body of evidence to support the need for change. Project context involves a highly motivated government agency that is ready for change after the Covid-19 pandemic. Additional context factors considered during the planning and implementation phases included the cost of mental health care and the surrounding stigma. Facilitation was achieved through communication and building relationships with key stakeholders whose feedback was continuously incorporated throughout the process.

Methods

Context

The disaster response group that served as the site for project implementation functions to supplement the nation's public health and medical resources and mobilizes human and material resources via specialized teams during times of need. Requests for aid are made through local authorities to the state or federal agencies through government agreements. During the COVID pandemic, mental health care workers were removed from the teams dispatched to natural disasters, primarily due to the cost of employing full-time mental healthcare workers. Instead, a telephone call system was put in place to contact rescue workers for large scale disaster responses. The process included behavioral health professionals sending two text messages to each disaster worker aiming to set up a telephone call to inquire about mental health and offer mental health resources as needed. If no response to text was received, the worker received an email, and the case was closed (Appendix E).

The Chief Nursing Officer (CNO) and behavioral health team members of the disaster response group have shown interest in mental health awareness and outreach. They have stated that the modified mental health outreach was less successful than anticipated and the team welcomed new ideas and a potential new policy to improve mental health outreach. A close relationship with the behavioral health team and the CNO will allow for project progression and provide the necessary resources for change.

The project aimed to develop a policy that will maintain cost controls while ensuring that the mental health care delivery system is not bound by either geography or size of the disaster. By addressing the overhead, travel, and per diem costs associated with on-site care – the costs of such mental health services may be contained without compromising the quality of care.

Assuming that mental health services may be rendered via telemedicine – the threshold for needing a large quantity of workers to be deployed prior to allocating mental health services is mitigated. Thus, it will allow all disaster workers to receive equal treatment as shown in Appendix F.

Intervention

This quality improvement project applied the Centers for Disease Control and Prevention (CDC) Policy Process to create a policy to provide mental health surveillance for the disaster response group. The full CDC Policy Process involves identifying the problem, establishing policy options, identifying the strategy to get the policy adopted, development of the policy, and policy enactment and implementation (CDC, 2022). For the purposes of this project and due to time constraints, completed components included identifying the problem, establishing policy options through environmental scans, discussing strategies for adoption, and policy development. Data generated from the environmental scans will be analyzed utilizing the *CDC Policy Audit Tool* to identify policy options (CDC, 2022). The team leader in collaboration with the CNO identified ten key stakeholders within the disaster response entity for the environmental scans. The environmental scans incorporated stakeholder feedback while also implementing a key project intervention with the interview process. Each participant was asked a standard set of 15 questions pertaining to a mental health policy impact on public health, feasibility, economic and budgetary concerns within the disaster response group as reflected in Appendix G. Responses were imported into REDCap, a HIPAA compliant, password and VPN protected encrypted server, and the data was then evaluated based on trends and themes as summarized in Appendix H. All questions were answered in entirety except for the question regarding potential impacts on

other sectors and high priority issues, wherein two out of seven candidates answered the question.

Once the environmental scans were completed, frequent touchpoints with the team were conducted to build trust, collaborate, consult, and communicate. The *CDC Policy Audit Tool* (Appendix I) was used to analyze scan responses and determine a policy solution of best fit (CDC, 2022). Options included remaining with the current practice, adjusting current practice, or creating an entirely new policy. A policy could be crafted based on input and feedback and presented to key stakeholders and disaster response group leadership via video conference. The desired outcome of this project is the adoption of a policy by key stakeholders and leadership to better address mental health needs among disaster responders.

Measures

Throughout project implementation, measures were taken to ensure project progress, completion, and success. Environmental scans with seven of the key stakeholders were conducted virtually using the *CDC Policy Analysis: Key Questions Tool* (Appendix E), adapted to reflect psychological burden surveillance. Stakeholders were identified by the Chief Nursing Officer and contact information provided to the team leader to initiate correspondence and schedule environmental scans. The team leader transcribed stakeholders' responses via a Word document during the virtual discussion and then entered the information into REDCap database for confidentiality.

To maintain privacy and confidentiality, scans were conducted 1:1 in a private and virtual location, with manual recording of responses by the team leader, without collecting identifiers. Completed transcripts were stored on a password protected computer and then immediately transcribed into REDCap, accessible only to the team lead and project faculty. Project data risks

are mitigated by the team lead being the only individual electronically entering all data into REDCap with deletion of all data at the conclusion of the project. Data collected during project implementation was disseminated to the disaster response group leadership at project conclusion and externally with site permission.

Ethical Considerations

Non-human Subject's Research determination from the Human Research Protections Office (HRPO) of the UMSOM Institutional Review Board (IRB) was obtained prior to implementation of this quality improvement project. To maintain the confidentiality of the information obtained during the project, interviews were conducted in a private location. The responses were de-identified through assigning a stakeholder number to each participant. The lead investigator conducted the interviews and, in turn, cannot be blinded to the data. However, the lead investigator honored the confidentiality and privacy of participants. The aggregated data will be stored in REDCap which is VPN and password protected.

The sponsoring disaster response group completes an internal ethics review of all quality improvement initiatives, directed by a team including the CNO and the Senior Medical Director for the agency. As this project does not involve human testing, the CNO and the Senior Medical Director for the agency have reported that an internal IRB process by the agency is not required.

Results

Ten key stakeholders were contacted to complete environmental scans and seven participated. Environmental scans were completed as planned with these seven stakeholders. All participants provided professional anecdotes in response to the questions regarding historical context and personal experiences with mental health surveillance. All seven also identified the importance and need for mental health specialists as they were previously deployed on disaster

teams. This provided insight to their backgrounds and experiences within the disaster response group. The amount of hands-on knowledge between the participants increased the reliability and validity of the statements and viewpoints. Themes from the scans were evaluated using *CDC Policy Analysis: Key Questions* categories (Appendix H). Several stakeholders stated that they would like to bring a mental health specialist back to the deployed disaster teams and that a new or revised mental health policy may serve to fill the gap in the current practice. One stakeholder stated, "*personally as a nurse it was great to have someone there with me to check on me in real time*." Responses to the question involving impact on health disparity and health equity varied greatly with no consistent themes identified. This information and trends were compared to other environmental scans to build support in favor or against a mental health policy within the disaster response group. Many responses did have similarities in cadence with pro-mental health policy replies.

The *CDC Policy Audit Tool* was used to analyze each policy option for its public health impact, feasibility, economic impact, and budgetary impact (Appendix J). Policy options include keep current practice, alter current practice, or create a new policy for implementation. Results indicate that from a public health impact, stakeholders believe that more deployed mental health team members would increase the ability to treat disaster responders more efficiently. It was also noted that stakeholders think that little research has been conducted in regard to disaster relief and mental health treatment. Since there is currently no policy on mental health resources within the disaster response group, a new policy was highly recommended in order to have a larger reach and effect size on the population.

From a budgetary and economic standpoint, stakeholders believe that there would be little cost due to a previous budget including mental health providers on each deployed team. A

new policy would be a favorable option as opposed to keeping the current workflow or adjusting current policy. Lastly, when looking at the overall feasibility of policy change, stakeholders believe that there are more supporters than opponents to policy change. The *CDC Policy Audit Tool* suggests a medium likelihood of new policy enaction.

Discussion

The findings of this quality improvement project highlight a critical issue within disaster response organizations: the lack of adequate mental health support for intermittently deployed first responders. With approximately 30% of emergency first responders developing behavioral health conditions, such as depression and PTSD, compared to 20% in the general population, it is evident that there is a pressing need for intervention. The quality improvement project supports the evidence in literature that validates a mental health surveillance policy will benefit disaster workers.

The environmental scans provided valuable insights into the current state of mental health services within the disaster response group. Despite challenges such as limited availability due to deployments, maternity leave, or limited email access, the majority of stakeholders expressed support for the implementation of a mental health policy. Analysis indicated that a new mental health surveillance policy would be the most feasible change, resulting in the greatest and most economical impact. Enactment would provide greater access to mental health resources, and decrease long-term behavioral needs if attention placed, providing a strong force for public health impact. Support from team members will help promote policy change. With the assistance of leadership, a successful policy may be enacted, implemented, and enforced with a realistic time frame of several months to a year. Considering the advantage of having a mental health provider on each team, the benefit would outweigh the cost due to benefits to employee health,

satisfaction, and the ability to stay in the current position. Though the actual costs of implementation are unknown, a new policy would be a favorable option as opposed to keeping the current workflow or adjusting current policy. Involvement of a larger number of respondents in the environmental scans would strengthen future inquiry and policy development work.

Policy work, while crucial for shaping and implementing effective solutions to societal issues, is fraught with challenges that can hinder its development, adoption, and implementation. Some of these challenges include complexity, political and power dynamics, resource constraints, stakeholder buy-in, and regulatory requirements. Despite the complexities and obstacles, this policy work has the potential to drive positive change. Addressing these challenges will require commitment to intentional work to sustain the initiative. Moving forward, it is imperative to continue engaging with stakeholders and agency leadership to finalize and implement a proposed policy. By prioritizing the mental health and well-being of first responders, disaster response organizations can better support their personnel and ensure their effectiveness in responding to disasters, ultimately promoting equity, and leading to improved outcomes for both responders and the communities they serve.

Conclusion

In conclusion, the need to provide mental health surveillance and resources for disaster workers is essential and lifesaving. This quality improvement project demonstrated the potential to improve the quality of healthcare, advance safety, and better outcomes for those who respond to traumatic disaster events. Capitalizing on the “openness” of numerous policy streams allowed a significant and timely opportunity to highlight the need for comprehensive behavioral health services and address the issue of mental health support for first responders deployed during a disaster. Application of the Centers for Disease Control and Prevention Policy Process provides a

robust and evidence-based approach to policy development, increasing the likelihood of adoption and sustainability.

This work sets a precedent for proactive healthcare interventions within high-stress environments by emphasizing the importance of mental health surveillance and support for disaster workers. Furthermore, its methodology and findings provide valuable insights for similar initiatives in other disaster response organizations, paving the way for broader systemic improvements in mental health support across the sector. In summary, this quality improvement project represents a significant step forward in addressing the mental health needs of emergency first responders. By advocating for policy change and promoting a culture of mental health awareness and support, it stands to make a lasting and meaningful impact on the well-being of those who dedicate themselves to disaster response efforts.

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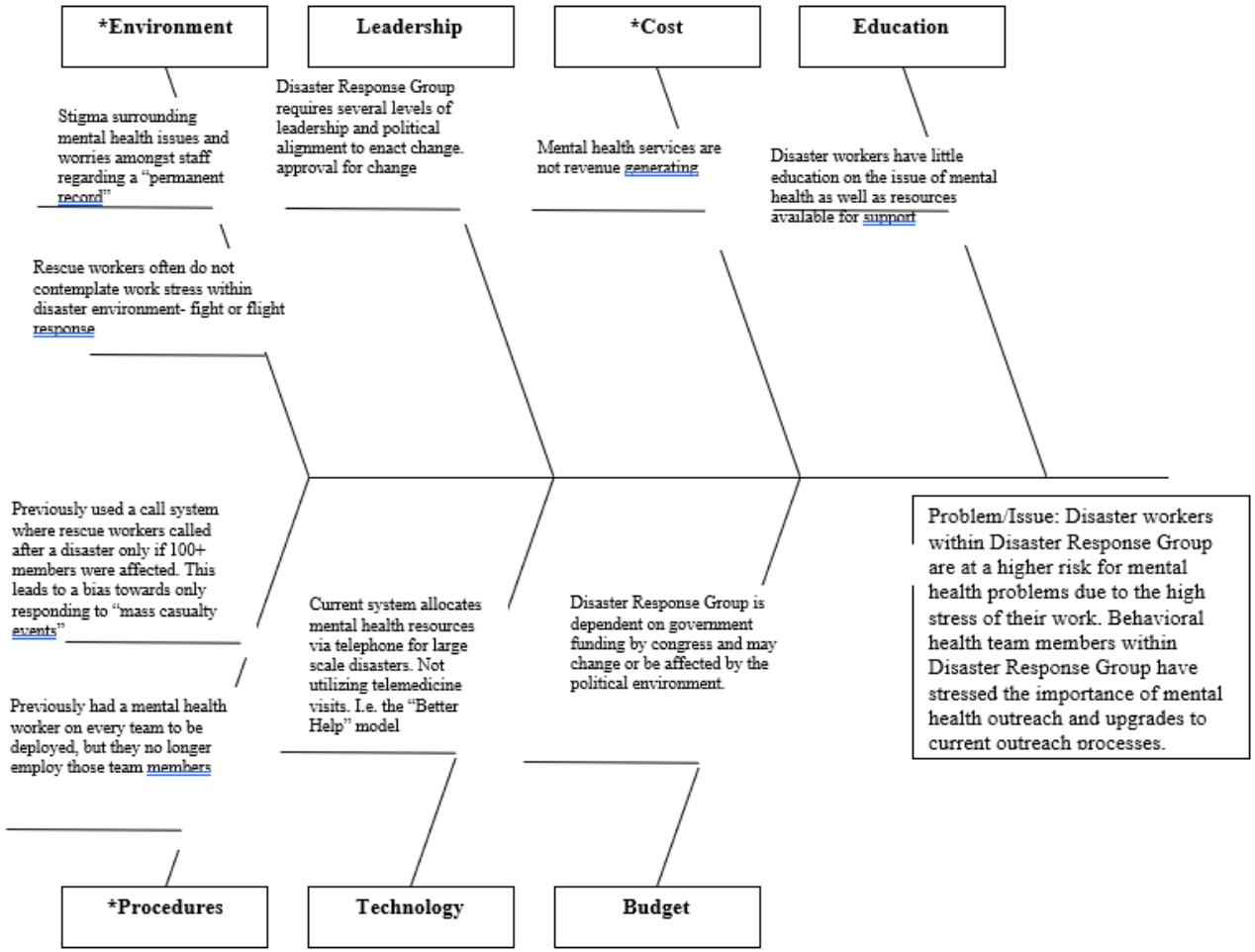
Appendix A

Fishbone Diagram



Appendix B

Evidence Review Table

Citation: Alshahrani, K. M., Johnson, J., Prudenzi, A., & O'Connor, D. B. (2022). The effectiveness of psychological interventions for reducing PTSD and psychological distress in first responders: A systematic review and meta-analysis. *PloS One*, *17*(8), e0272732. https://doi.org/10.1371/journal.pone.0272732	
Purpose or Hypothesis	The purpose of this study was to synthesize the evidence for the effectiveness of psychological interventions for improving mental health symptoms in first responders. And to then compare the effectiveness of different types and formats of interventions for reducing symptoms of PTSD, depression, anxiety, stress, and burnout.
Design	Systematic review and meta-analysis
Sample	**Sampling Technique:** No sampling technique. **Eligible Participants:** Studies that looked at first responders who work at the sites of critical incidents including police officers, firefighters, search and rescue personnel, and emergency and paramedic teams. Studies with an individual or group psychological intervention designed to reduce PTSD, anxiety, depression, burnout, and/or stress symptoms that were delivered by registered clinicians and non-clinicians. Any type of control group was included. The primary outcome was PTSD symptoms as rated by an observer (e.g., doctor or researcher) using validated scales such as PTSD checklist or self-reported PTSD symptoms measured using validated scales such as, PTSD symptoms scale self-report PSS-SR. Secondary outcomes were stress, anxiety, depression, and burnout also measured via observer ratings or self-report, using validated scales (e.g., the Hospital Anxiety and Depression scales HADS, for anxiety and depression and the Maslach Burnout Inventory MBI, for burnout). Studies that used randomized controlled trial (RCTs) designs or controlled before-after designs (CBAs). Studies that investigated any treatment effects of psychological interventions in the first responders that were published in the English language were included. **Excluded:** Studies were excluded if they were conducted on other types of first responders, such as in-hospital health care workers (e.g., emergency room doctors and nurses) or military first responders (e.g., peacekeepers and soldiers). And all studies that used different types of interventions, such as physical or pharmacological interventions rather than psychological interventions were excluded, as were non-English language studies and gray literature. **Accepted:** 15 studies included in quantitative meta-analysis. **Control:** No true control. **Intervention:** N/a **Power analysis/Achieved:** None reported

	Group Homogeneity: As I^2 values shown above, the heterogeneity between the studies in the PTSD analysis was high indicating the need to consider the role of potential moderators. Therefore, the following 6 moderators were considered: risk of bias, gender, mean age, sample size, session number and the length of treatments.
Intervention	Studies' control and intervention variables varied by study. 15 studies included in analysis.
Outcomes	**Dependent Variable:** Post-intervention scores measuring PTSD, stress, anxiety and depression. **DV Measure:** Validated scales such as PTSD checklist or self-reported PTSD symptoms measured using validated scales such as, PTSD symptoms scale self-report PSS-SR. Secondary outcomes were stress, anxiety, depression, and burnout also measured via observer ratings or self-report, using validated scales (e.g., the Hospital Anxiety and Depression scales HADS, for anxiety and depression and the Maslach Burnout Inventory MBI, for burnout).
Results	**Statistical Results:** The main meta-analysis results found psychological interventions led to a significant reduction in PTSD and depression at $p<0.01$ level (10 comparisons: SDM = -0.86; 95% CI = -1.34 –-0.39; I^2 = 88.97%, (10 comparisons: SDM = -0.63; 95% CI = -0.94 –-0.32; I^2 = 72.48%; respectively, and a significant reduction in anxiety symptoms at the $p<0.05$ level (7 comparisons: SDM = -0.38; 95% CI = -0.71–0.05; I^2 = 67.12%; but no significant reduction for stress (7 comparisons: SDM = -0.13; 95% CI = -0.51–0.25; I^2 = 71.67%**.** **Conclusions**: Psychological interventions are effective in reducing PTSD, depression and anxiety symptoms but not stress in first responders. Further research is needed using high quality randomised designs over longer periods of follow-up.
Level/Rational	Level 1 according to Melnyk hierarchy. Rationale; Evidence from a systematic review and meta-analysis on randomized control trials of good quality.

Citation: Fiol-DeRoque, M. A., Serrano-Ripoll, M. J., Jiménez, R., Zamanillo-Campos, R., Yáñez-Juan, A. M., Bennasar-Veny, M., Leiva, A., Gervilla, E., García-Buades, M. E., García-Toro, M., Alonso-Coello, P., Pastor-Moreno, G., Ruiz-Pérez, I., Sitges, C., García-Campayo, J., Llobera-Cánaves, J., & Ricci-Cabello, I. (2021). A mobile phone–based intervention to reduce mental health problems in health care workers during the COVID-19 Pandemic (PsyCovidApp): Randomized controlled trial. *JMIR MHealth and UHealth*, *9*(5), e27039. https://doi.org/10.2196/27039	
Purpose or Hypothesis	The purpose of this trial is to evaluate the effectiveness of a psychoeducational, mindfulness-based mHealth intervention to reduce mental health problems in health care workers during the COVID-19 pandemic.

Design	Randomized control trial
Sample	**Sampling Technique:** Purposive sampling. **Eligible Participants:** Participants were eligible for the study if they were health care workers aged >18 years who had provided health care to patients with COVID-19 during the viral outbreak in Spain. They must also have access to a smartphone. We included health care workers who had provided direct, face-to-face health care to patients with a diagnosis of infection with COVID-19. **Excluded:** Healthcare workers were excluded if they were not able to download and activate the app used to deliver the intervention during the next 10 days following the baseline assessment. **Accepted:** 482 participants were randomized to the either the PsyCovidApp or the control app. **Control:** 234 participants received the control app. **Intervention:**248 participants received the PsyCovidApp. **Power analysis:** The sample size and power calculations estimated that 440 participants (220 per group, allowing for 10% attrition) would be required to detect at least an effect size of 0.25 (standardized between-group mean difference) on DASS-21 with 80% power and 5% α (one-sided). **Group Homogeneity**: Group homogeneity is important in research studies because it ensures that the primary intervention is the main factor in the dependent variable instead of outside bias from individual differences.
Intervention	**Control Protocol:** Participants in the Control App group had access through the Clinicovery app to brief written information about the mental health care of health care workers during the COVID-19 pandemic (adapted from a set of materials developed by the Spanish Society of Psychiatry). **Intervention Protocol:** Self-managed psychoeducational intervention, based on cognitive-behavioral therapy and mindfulness approaches, included written and audiovisual content targeting four areas: emotional skills, healthy lifestyle behavior, work stress and burnout, and social support. Additionally, the intervention included daily prompts (notifications) that included brief questionnaires to monitor mental health status, followed by short messages offering tailored information and resources based on the participants´ responses **Treatment Fidelity:** All participants who continued with the study into the follow up phase received the same active intervention. All control group members received the same control group app.
Outcomes	**Dependent Variable:** Post-intervention scores measuring depression, anxiety and stress. **DV Measure:** The primary outcome was an overall index of depression, anxiety, and stress (overall score of the Spanish version of the Depression, Anxiety, and Stress Scale [DASS-21] instrument) assessed at 2 weeks. Secondary

	outcome measures were the difference between the intervention and control groups in the mean scores of the following instruments: DTS, MBI-HSS, ISI, GSE, DASS-21, and the usability of PsyCovidApp postintervention survey.
Results	**Statistical Results:** In the subgroup of health care workers consuming psychotropic medications (n=79) (Figure 3), the PsyCovidApp group presented significantly lower DASS-21 overall scores (suggesting improved mental health) at 2 weeks than the Control App group (adjusted standardized mean difference –0.29; 95% CI –0.48 to –0.09; *P*=.004). Compared to the control app, the PsyCovidApp intervention significantly improved symptoms of anxiety (–0.26; 95% CI –0.45 to –0.08; *P*=.004), stress (–0.30; 95% CI –0.50 to –0.09; *P*=.003), posttraumatic stress (–0.20; 95% CI –0.37 to –0.03; *P*=.01), and insomnia (–0.16; 95% CI –0.30 to –0.02; *P*=.01). **Conclusions**: No significant differences were observed between the intervention and control groups at 2 weeks in the primary outcome and in the rest of the outcomes. However, significant improvements were observed among health care workers who were consuming psychotropic medications or receiving psychotherapy in the primary outcome, as well as in posttraumatic stress, insomnia, anxiety, and stress. PsyCovidApp may therefore improve mental health among health care workers who are already using other effective interventions, such as psychotherapy or pharmacological treatments.
Level/Rationale	Level 2 according to Melnyk hierarchy. Rationale; Randomized Control Trial

Citation: Gupta, S., Kumar, M., Rozatkar, A. R., Basera, D., Purwar, S., Gautam, D., & Jahan, R. (2021). Feasibility and effectiveness of telecounseling on the psychological problems of frontline healthcare workers amidst COVID-19: A randomized controlled trial from Central India. *Indian Journal of Psychological Medicine*, *43*(4), 343–350. https://doi.org/10.1177/02537176211024537	
Purpose or Hypothesis	Primary purpose of this study was to investigate the feasibility and the effectiveness of telecounseling (vs. general education) on the psychological problems of the fHCW over three time-points (baseline vs. end-of-session and at two and four weeks after the intervention).
Design	Single-blind randomized control trial
Sample	**Sampling Technique:** Convenience. **Eligible Participants:** Participants were eligible for the study if they were doctors or nursing staff working actively in working in Covid-19 or non-covid 19 areas or currently in quarantine. They have scored within the mild-severe range on the depression, anxiety or stress scales or in range of possible PTSD. And willing to provide informed consent.

	Excluded: Healthcare workers were excluded if they scored below the mild range or higher than the severe range of depression, anxiety, stress or PTSD or they were previously diagnosed with psychiatric disorders. **Accepted:** 35 participants were randomized into the control/intervention groups. **Control:** 17 participants received the control-arm intervention. **Intervention:** 18 participants received the active intervention. **Power analysis:** The initial sample size was calculated by considering the small to medium effect size of the telecounseling (vs. control intervention). Keeping the power of 80% and an α-error of 5%, the total sample size of 58 (n = 29 in each arm) was found to be adequate. **Group Homogeneity**: The majority of the participants in both the arms were of age <30 years, unmarried, and staying with their families, with a slight preponderance of females and postgraduate trainees. No significant baseline differences were found between the two groups.
Intervention	**Control Protocol:** The control-arm received information on COVID-19 prevention, standard treatment guidelines, common psychological problems that fHCW experience during COVID times, dietary measures, positive role of social interactions, involvement in recreational activities, and a potential source of self-help tools. **Intervention Protocol:** The active intervention involved three sessions of eclectic counseling that involved expressing empathy, emphasizing the strengths among the clients, psychoeducation about myths and facts about the psychological problems and COVID-19, relaxation training, motivational interviewing, life skill training, and problem-solving training. **Treatment Fidelity:** All participants who continued with the study into the follow up phase received the same active intervention.
Outcomes	**Dependent Variable:** Scores on depression, anxiety and stress scales. **DV Measure:** The level of depression, anxiety, and stress were measured by DASS-21. It is a set of three self-report scales; each of the three sub-scales contains seven items, with item scores ranging from 0 to 3. IES-R was used to assess the symptoms of stress related to COVID-19 in fHCW. It is a short and self-administered questionnaire having 22 items and enquires about the recent events. It also has Likert-scoring: 0 = Not at all; 1 = A little bit; 2 = Moderately; 3 = Quite a bit; 4 = Extremely.

Results	**Statistical Results:** There were no baseline group differences (telecounseling group, active arm, *n* = 9; general education group, control arm, *n* = 10). A significant time-effect (P = 0.044 to <.001) was found on DASS-21 on intention-to-treat analysis. Per-protocol analysis, additionally, found a significant group effect on Impact of Event Scale-Revised (IES-R; P = 0.036). A significant random effect of the participants was also found (P <.001). **Conclusions**: Digital methods such as telephone-based psychological interventions could be a feasible and effective way of mental health service delivery to the fHCW with common psychological problems amidst the COVID-19 pandemic, albeit with some roadblocks. A brief counseling or general psychoeducation can also positively affect the depression, anxiety, and stress of the HCWs, particularly in a resource-constrained set-up.
Level/Rational	Level 2 according to Melnyk hierarchy. Rationale; Randomized Control Trial

Citation: Joyce, S., Shand, F., Lal, T. J., Mott, B., Bryant, R. A., & Harvey, S. B. (2019). Resilience@Work mindfulness program: Results from a cluster randomized controlled trial with first responders. *Journal of Medical Internet Research*, *21*(2), e12894. https://doi.org/10.2196/12894	
Purpose or Hypothesis	This study aimed to determine whether a mindfulness-based RTP (the Resilience@Work [RAW] Mindfulness Program) delivered via the internet can effectively enhance resilience among first responders.
Design	Randomized control trial
Sample	**Sampling Technique:** Cluster sampling. **Eligible Participants:** Potential participants had to be full-time firefighters working in the 24 Primary Rescue and Hazmat Stations. **Excluded:** Potential participants who were currently engaged in any form of regular psychological therapy with a psychologist and/or psychiatrist were excluded from this study. **Accepted:** 143 firefighters were randomized to either the control or intervention groups. **Control:** 83 participants consented to the control group. **Intervention:** 60 participants consented to the RAW program. **Power analysis:** As this study's power analysis was based on our primary outcome of resilience, it may have been underpowered to detect a difference on measures of mindfulness and acceptance skills.

	Group Homogeneity: Group homogeneity is important in research studies because it ensures that the primary intervention is the main factor in the dependent variable instead of outside bias from individual differences.
Intervention	**Control Protocol:** The Healthy Living Program was offered to the control group and included 6 modules that provide helpful information on a range of health and well-being topics, such as, healthy skin, healthy home environment, and mobile phone use. The self-paced program was available on tablets (iPads) within the station, with each module taking about 20 min to complete. **Intervention Protocol:** The RAW program is a mindfulness-based intervention, which also draws on ACT and has a significant emphasis on self-compassion and acceptance skills. The intervention comprises 6 online training sessions. Each session takes about 20 to 25 min to complete. A combination of interactive exercises, audio, and animation is used to teach resilience skills. **Treatment Fidelity:** All participants who continued with the study into the follow up phase received the same active intervention. All control group members received the same Healthy Living Program.
Outcomes	**Dependent Variable:** Post-intervention scores measuring resilience. **DV Measure:** Connor-Davidson Resilience Scale (CDRISC) and the Brief Resilience Scale (BRS) utilized at baseline and 6-month follow-up in our study to examine 2 inherent constructs of resilience: (1) successful adaptation to stressful life events and circumstances and (2) bounce-back resilience.
Results	**Statistical Results:** The overall test of group-by-time interaction was significant (*P*=.01), with the intervention group increasing in resilience over time. Although the intervention group increased in resilience at 6 weeks, the difference compared with the control group at this time point fell short of significance (*P*=.09). However, at 6-month follow-up, the intervention group continued to improve in resilience and was significantly different from the control group (*P*=.002). **Conclusions**: In conclusion, the RAW Mindfulness Program is an effective, scalable, and practical means of delivering online resilience training to high-risk groups such as first responders. With the benefit of further research and development, this form of online resilience training may serve to enhance mental health on a broad scale, protecting workers who perform some of our society's most challenging roles.
Level/Rationale	Level 2 according to Melnyk hierarchy. Rationale; Randomized Control Trial

Citation: Mahaffey, B. L., Mackin, D. M., Rosen, J., Schwartz, R. M., Taioli, E., & Gonzalez, A. (2020). The disaster worker resiliency training program: A randomized clinical trial. *International Archives of Occupational and Environmental Health*. https://doi.org/10.1007/s00420-020-01552-3	
Purpose or Hypothesis	The goal of this study was to evaluate the efficacy of the DWRT program for promoting resilience and preventing the development of mental health symptoms in a sample of active disaster workers who responded to Hurricane Sandy.
Design	Randomized control trial
Sample	**Sampling Technique:** Cluster sampling, participants were divided into different clusters (stations) then randomly selected. **Eligible Participants:** Participants were eligible for the study if they were active disaster workers stationed in the Long Island and New York metropolitan area, specifically from 8 local agencies. **Excluded:** Participants were excluded if they were no longer active-duty disaster workers or they declined participation. **Accepted:** 167 disaster workers were randomized into the control and intervention groups and completed the initial online assessment. **Control:** 89 participants were randomized into the control group. **Intervention:** 78 participants were randomized into the Disaster Worker Resilience Training (DWRT) program. **Power analysis:** Power analysis not measured. **Group Homogeneity**: The participant sample was heterogeneous in terms of occupation and volunteer versus professional responder status. As such, degree of disaster exposure, amount of formal disaster response training, and risk for subsequent disaster/trauma exposures likely varied substantially across the sample.
Intervention	**Control Protocol:** No training program, continued work as disaster worker. **Intervention Protocol:** The Disaster Worker Resilience Training (DWRT) Program includes a 4-hour workshop consisting of a participant training manual, an instructor training manual, and a digital presentation. It uses adult training techniques that emphasize active participation in individual and group experiential learning activities. **Treatment Fidelity:** All participants randomized to the DWRT group received the intervention and were given all 4-hour workshop. All control group members continued work as disaster worker without intervention.

Outcomes	**Dependent Variable:** Change in symptoms after DWRT workshop. **DV Measure:** HPLP II, PSS, PCL-5, PHQ-9, LEC-5 scales were all used to measure change in
Results	**Statistical Results:** Participants in the workshop condition, as compared to those in a waitlist control, reported significantly greater improvements from pre-intervention (T1) to 3-month follow-up (T2) in healthy lifestyle behaviors ($\eta^2 = .03$; $p = .03$), stress management ($\eta^2 = .03$, $p = .04$), and spiritual growth ($\eta^2 = .03$, $p = .02$). Among participants reporting subsequent trauma exposures between T1 and T2 ($n = 101$), participants in the waitlist condition, were more likely to report significant increases in perceived stress ($\eta^2 = .07$, $p < .01$), PTSD ($\eta^2 = .05$, $p = .03$), and depression ($\eta^2 = .07$, $p < .01$) symptoms. **Conclusions**: Results of the investigation suggest that at 3 months post-randomization, those completing the DWRT, as compared to waitlist, reported significantly greater improvements in physical activity, spiritual growth and stress management coping skills. Further research is needed to evaluate the long-term health effects of participation in the program.
Level/Rational	Level 2 according to Melnyk hierarchy. Rationale; Randomized Control Trial

Citation: Sifaki-Pistolla, D., Chatzea, V.-E., Vlachaki, S.-A., Melidoniotis, E., & Pistolla, G. (2016). Who is going to rescue the rescuers? Post-traumatic stress disorder among rescue workers operating in Greece during the European refugee crisis. *Social Psychiatry and Psychiatric Epidemiology*, *52*(1), 45–54. https://doi.org/10.1007/s00127-016-1302-8	
Purpose or Hypothesis	The study aimed to assess the prevalence of PTSD and potential differences between different categories of rescuers within the search, rescue, and first aid services.
Design	Cross-sectional study

Sample	**Sampling Technique:** Convenience sampling. **Eligible Participants:** Participants in Lesvos, Greece were included if they were professional or volunteer rescuers operating in Lesvos during the under study period, operating in the island for at least four weeks before the survey, affiliated as official members of a Greek or an international foundation or committee of rescuers, offering search and rescue services to boat refugees coming ashore and/or first aid services to those rescued and may be in urgent need. **Excluded:** Offering other types of services, such as provision of food or cloth, was considered as major exclusion criterion. **Accepted:** 217 participants were enrolled in the study. **Control:** No true control **Intervention:** 217 participants **Power analysis:** Not provided. **Group Homogeneity**: Group homogeneity is important in research studies because it ensures that the primary intervention is the main factor in the dependent variable instead of outside bias from individual differences.
Intervention	**Control Protocol:** N/a **Intervention Protocol:** N/a **Treatment Fidelity:** All participants receive the same disaster work and completed PTSD Checklist.
Outcomes	**Dependent Variable:** PTSD scores. **DV Measure:** The Post-traumatic Stress Disorder Checklist-Civilian Version (PCL-C) was selected to assess the development of probable PTSD in the selected rescue workers.
Results	**Statistical Results:** A total of 37 (17.1%) participants reported symptoms consistent with probable PTSD. The average probable PTSD proportion per rescuer's category varied significantly; 23.1% in GPR, 11.8% in IPR, and 14.6% in VR ($p = 0.02$). **Conclusions**: The present study supports that rescue workers who operate at the island of Lesvos, providing substantial aid to the refugees and migrants, experience significant psychological distress. The excess burden of probable PTSD among rescue workers and the identified risk factors indicate the urgent need for targeted interventions.
Level/Rationale	Level 3 according to Melnyk hierarchy. Rationale; Cross-sectional non-experimental quantitative study

Citation: Wild, J., El-Salahi, S., Degli Esposti, M., & Thew, G. R. (2020). Evaluating the effectiveness of a group-based resilience intervention versus psychoeducation for emergency responders in England: A randomised controlled trial. *PLOS ONE*, 15(11), e0241704. https://doi.org/10.1371/journal.pone.0241704	
Purpose or Hypothesis	Primary purpose of this study was to investigate the feasibility and the effectiveness of telecounseling (vs. general education) on the psychological problems of the fHCW over three time-points (baseline vs. end-of-session and at two and four weeks after the intervention).
Design	Randomized control trial
Sample	**Sampling Technique:** Voluntary response sampling **Eligible Participants:** Participants were eligible for the study if they were police, ambulance, fire and/or search and rescue personnel who scored below 10 on the PHQ-9, below 33 on the PCL-5, and 0 on question nine of the PHQ-9, which assesses suicidal ideation. If participants scored above these cut-off points, they had a telephone call with the researchers to discuss whether their symptoms interfered with their lives and whether they wished treatment. They were re-included in the study if their symptoms had little impact on their lives and they did not want treatment. **Excluded:** Participants excluded if they scored higher on the PHQ-9 and/or PCL-5 questionnaires and their symptoms had significant effect on their daily lives. They were provided psychological therapies services outside of the study. **Accepted:** 430 participants were randomized into the control and intervention groups. **Control:** 113 participants were given psychoeducation only. **Intervention:** 314 participants were given the resilience intervention. **Power analysis:** A sample size calculation was performed for a superiority trial with continuous outcome. Using an alpha of 0.05, 90% power, a standard deviation for the CD-RISC of 14, and a group difference of 5 points (which equates to $d = 0.34$ from the previous study), would require a total of 330 participants. Allowing for 20% attrition, a total sample size of N = 398 would be required, suggesting that the target sample size was large enough to detect an effect. **Group Homogeneity**: Intervention/Control homogeneous based on NS p values on Table 1 for demo and clinical characteristics

Intervention	**Control Protocol:** The control intervention included psychoeducation about six topics: sleep, stress, depression, anger, mindfulness, and post-traumatic stress disorder. Each topic was delivered as an online module, one released each week for six weeks during the same six-week period that the resilience intervention took place**.** Modules could be completed at any time during the six weeks. **Intervention Protocol:** The resilience intervention was a six-week, group-based course developed for Mind by Shaun Goodwin, a psychotherapist with expertise in transpersonal counselling. The intervention included information about mental health and experiential exercises drawn from stress management and mindfulness, with the overarching aim to improve wellbeing and use of adaptive coping strategies, such as social support. **Treatment Fidelity:** 281 participants that were randomized to the resilience intervention group completed the six week treatment, post-intervention, and 3 month follow up. 35 participants were lost to follow up.
Outcomes	**Dependent Variable:** PHQ-9 and PCL-5 scores after resilience intervention. **DV Measure:** Measured using PHQ-9 and PCL-5 questionnaires.
Results	**Statistical Results:** There were no significant differences between the intervention groups on any of the primary outcome measures at either the post-intervention or three-month follow-up timepoints. The groups did not differ in the number of days off work due to illness they had taken at post (Mann-Whitney U = 11,684.00, p = 0.892) or at follow-up (Mann-Whitney U = 13,715.00, p = 0.754). **Conclusions**: There were no significant differences between the interventions on any of the primary or secondary outcome measures at the post-intervention or follow-up timepoints although participants receiving the resilience intervention rated it as more helpful than those receiving psychoeducation.
Level/Rational	Level 2 according to Melnyk hierarchy. Rationale; Randomized Control Trial

Appendix C

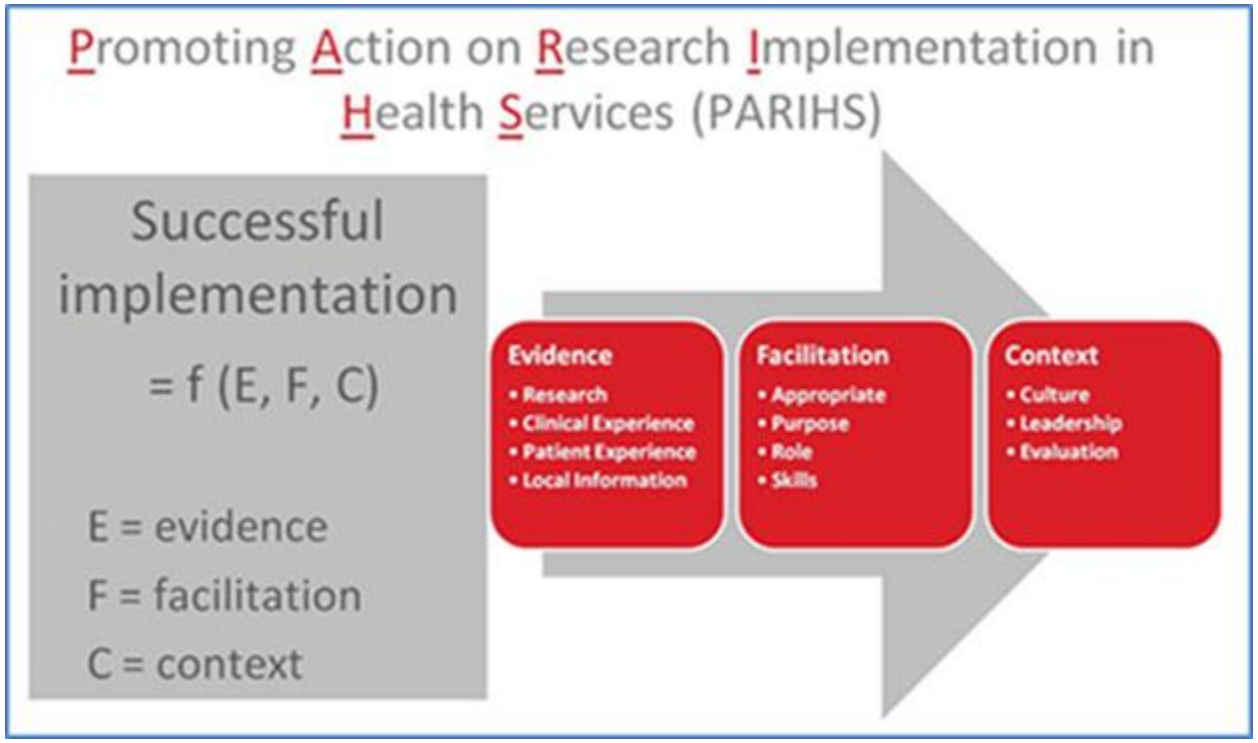
Evidence Synthesis Table

Title: Disaster Management Workforce Recruitment			
JHNEBP Model Level	**Total Number of Sources**	**Author and Quality Rating of each study**	**Synthesis of Findings**
Level 1 Experimental study · Randomized Controlled Trial (RCT) · Systematic review of RCTs with or without meta-analysis	1- Systematic review of RCTs with or without meta-analysis Alshawrani et. al (2022)	Alshawrani et. al A	Psychological interventions are effective in reducing PTSD, depression and anxiety symptoms but not stress in first responders. Further research is needed using high quality randomized designs over longer periods of follow-up.
Level II Quasi-experimental studies · Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis	5- Randomized Control Trials (Fiol-DeRoque et. al 2021, Gupta et. al 2021, Joyce et. al 2019, Mahaffey et. al 2020, Wild et. al 2020)	Fiol-DeRoque et. al A Gupta et. al A Joyce et. al A Mahaffey et. al A Wild et. al A	Wild et. al (2020), Mahaffey et. al (2020) and Joyce et. al (2019) looked at different resilience training strategies, with similar findings that some improvements were seen in resilience after intervention, but more studies are needed to strengthen evidence. Fiol-DeRoque et. al (2021) and Gupta et. al (2021) both investigated the effect of electronic intervention on DASS-21 scores and determined they could be effective in improving anxiety, depression and stress in addition to other coexisting treatments.
Level III Non-experimental study · Systematic review of a combination of RCTs, quasi-experimental, and non-	1-Sifaki-Pistolla et. al (2016)	Sifaki-Pistolla et. al B	The study found that rescue workers who provide substantial aid to the refugees and migrants in Levos, Greece, experience significant psychological distress. The excess burden of probable PTSD among rescue

experimental studies, or non-experimental studies only, with or without meta-analysis · Qualitative study or systematic review of qualitative studies with or without meta-synthesis			workers and the identified risk factors indicate the urgent need for further intervention and research.
Level IV Opinion of respected authorities and/or reports of nationally recognized expert committees/consensus panels based on scientific evidence			
Level V Evidence obtained from literature reviews, quality improvement, program evaluation, financial evaluation, or case reports · Opinion of nationally recognized expert(s) based on experiential evidence			
Overall Quality Rating w/rational and Recommendation: Based on Evidence Synthesis: A; Strong, compelling evidence, consistent results: solid indication for a practice change.			

Appendix D

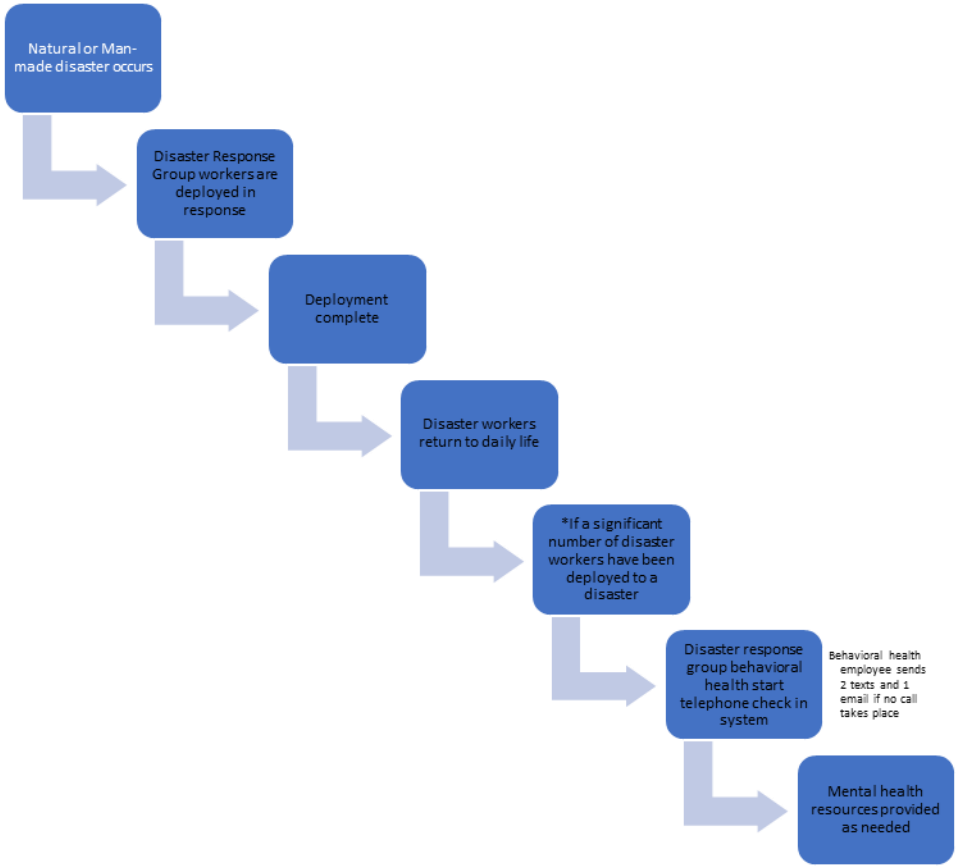
PARIHS Framework



Source: Adapted from (Kitson et. al, 1998)

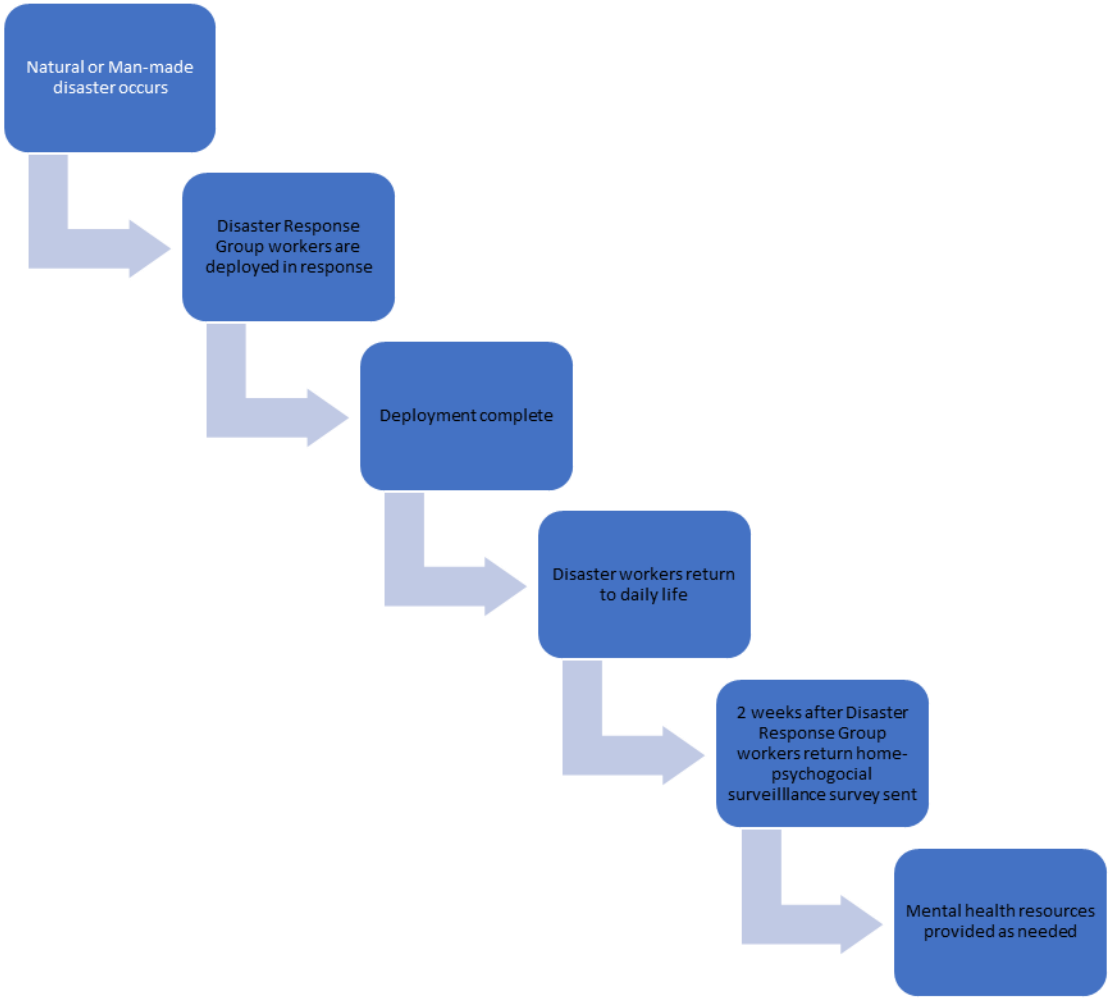
Appendix E

Current Process Map



Appendix F

Desired Process Map



Appendix G

Policy Analysis Tool

1) What has been the historical context of mental health surveillance within the disaster response group?

2) What has been your personal experience with mental health surveillance within the disaster response group?

3) Are you aware if a policy on mental health surveillance within the disaster response group has been discussed previously?

4) In your view, where are there gaps in the current data around mental health surveillance following a disaster?

5) How would developing a policy on mental health surveillance help address these gaps?

6) What do you think are some of the expected short, intermediate, and long-term outcomes of a mental health surveillance policy within the disaster response group?

7) Would a policy on mental health surveillance impact health disparities/health equity?

8) What are the costs and benefits associated with a mental health surveillance policy, from a budgetary perspective?

9) What are the potential impacts of a mental health surveillance policy on other sectors and high priority issues (e.g., sustainability, economic impact)?

10) Who do you think are the stakeholders, including supporters and opponents of a mental health surveillance policy?

11) What might be unintended negative outcomes from a mental health surveillance policy within the disaster response group?

12) What are the potential social, educational, and cultural perspectives associated with the policy option (e.g., lack of knowledge, fear of change, force of habit)?

13) What might be some of the resource, capacity, and technical needs for developing, enacting, and implementing a mental health surveillance policy?

14) How much time do you think is needed for a mental health surveillance policy to be enacted, implemented, and enforced?

15) How scalable, flexible, and transferable is a mental health surveillance policy?

Appendix H

Categorical Results Chart

CDC Policy Analysis Questions	Thematic Analysis
Framing Questions: 1. What has been the historical context of mental health surveillance within the disaster response group? 2. What are your experiences with mental health surveillance within the disaster response group? 3. Are you aware if a policy on mental health surveillance within the disaster response group has been discussed previously? 4. What are the short, intermediate, and long-term outcomes of a mental health surveillance policy? 5. What might be unintended negative outcomes from a mental health surveillance policy within disaster response group?	• Mental health specialist previously deployed alongside first responders • Many mental health specialists left disaster response group after deployments stopped • Mental health call back system started since covid- does not reach all team members • May have high demand for mental health resources and not enough bandwidth at beginning stages of policy • Some responders may be deemed unfit for duty from mental health concerns
Public Health Impact Questions: 1. Would a policy on mental health surveillance impact health disparities/health equity? 2. In your view, where are there gaps in the current data around mental health surveillance following a disaster? 3. How would developing a policy on mental health surveillance help address these gaps?	• Mental health specialists on team would help treat undertreated • More team members more treatment provided • Little research regarding disasters and mental health • Policy puts a system in place for those to follow- “measurable criteria”

Feasibility Questions: 1. Who do you think are the stakeholders, including supporters and opponents of a mental health surveillance policy? 2. What might be some of the resource, capacity, and technical needs for developing, enacting, and implementing a mental health surveillance policy? 3. What are potential social, educational, and cultural perspectives associated with the policy option? 4. How much time do you think is needed for a mental health surveillance policy to be enacted, implemented and enforced? 5. What are the potential impacts of a mental health policy on other sectors? 6. How scalable, flexible, and transferable is the policy?	• Supporters: Team commanders, assistant commanders, executive branch, congress, deployed team members • Opponents: Anti-mental health team members and commanders • Need leadership champions to roll out policy • Mental health specialists need to record data on policy impact • Time answers vary- from one month to one year • Implementation challenges within federal government- many steps to process • Transferability polarizing responses- must be all of government sectors with policy vs. policy very specific to disaster response group
Economic and Budgetary Impacts Questions: 1. What are the costs and benefits associated with a mental health surveillance policy, from a budgetary perspective?	• Answers vary • Little cost due to previous mental health specialists on staff • Benefits outweigh the cost

Appendix I

Policy Audit Tool

Public Health Impact
Scoring Definitions:
Low: small reach, effect size, and impact on disparate populations
Medium: small reach with large effect size or large reach with small effect size
High: large reach, effect size, and impact on disparate populations

	Low	Medium	High	
Policy 1: Keep current work flow	○	○	○	reset
Policy 2: Adjust current policy	○	○	○	reset
Policy 3: New Policy	○	○	○	reset

Feasibility
Scoring Definitions:
Low: No/small likelihood of being enacted
Medium: Moderate likelihood of being enacted
High: High likelihood of being enacted

	Low	Medium	High	
Policy 1: Keep current work flow	○	○	○	reset
Policy 2: Adjust current policy	○	○	○	reset
Policy 3: New Policy	○	○	○	reset

Economic Impact
Scoring Definitions:
Less favorable: High costs to implement
Favorable: Moderate costs to implement
More favorable: Low costs to implement

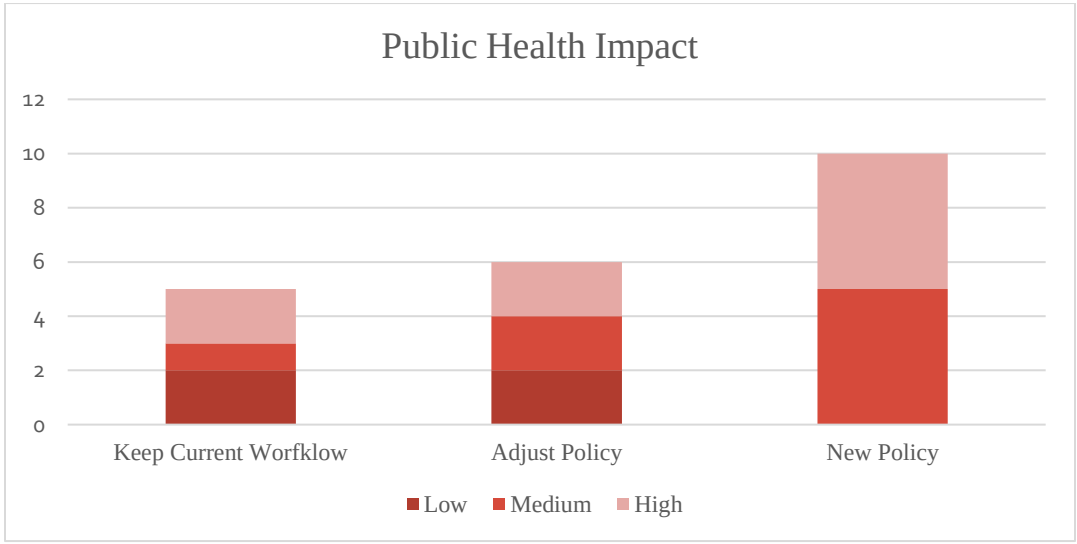
	Less favorable	Favorable	More favorable	
Policy 1: Keep current work flow	○	○	○	reset
Policy 2: Adjust current policy	○	○	○	reset
Policy 3: New policy	○	○	○	reset

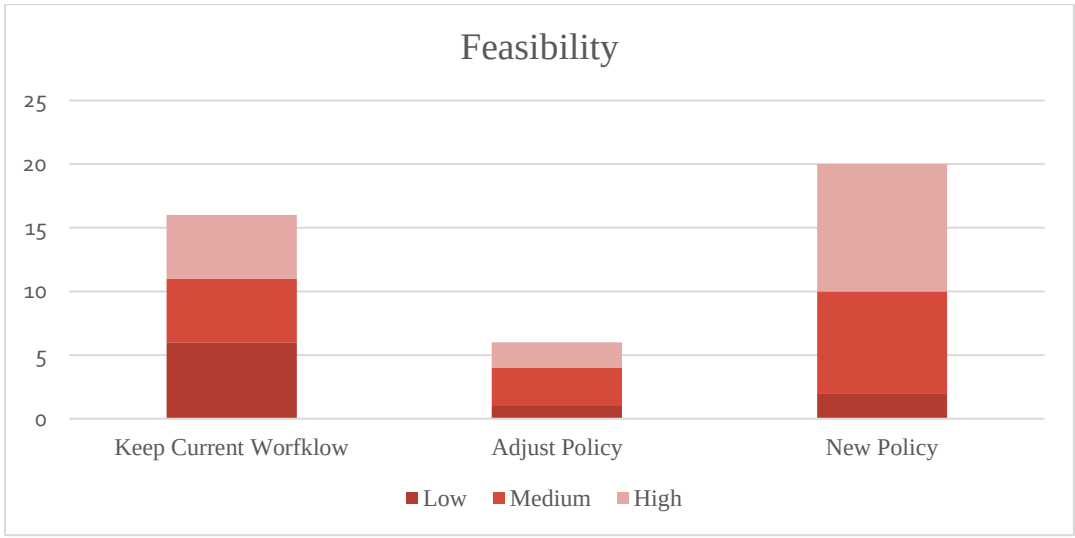
Budgetary Impact
Scoring Definitions:
Less favorable: costs are high relative to benefits
Favorable: costs are moderate relative to benefits (benefits justify costs)
More favorable: costs are low relative to benefits

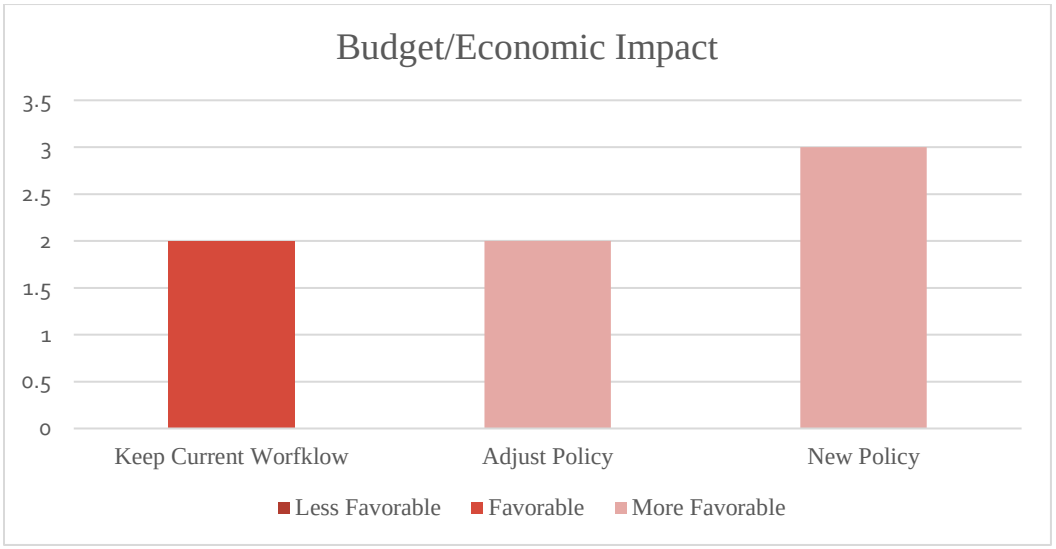
	Less favorable	Favorable	More favorable	
Policy 1: Keep current work flow	○	○	○	reset
Policy 2: Adjust current policy	○	○	○	reset
Policy 3: New policy	○	○	○	reset

Appendix J

CDC Policy Audit Tool Analysis






Budget/Economic Impact
3.5
3
2.5
2
1.5
1
0.5
0
Keep Current Worfklow
Adjust Policy
New Policy
Less Favorable
Favorable
More Favorable

Appendix K

Measurement Plan

Measurement Plan		
Project Goals	Data Collection Procedures (who, how, when)	Name of Data Collection Tool
Establish a methodology to evaluate policy options to address psychological burden in disaster response group disaster workers	Team leader selected CDC Policy Analysis survey and Project Audit tool to evaluate policy options	Yes/no – methodology selected
A Psychological Burden Surveillance policy	Team leader to use current research and environmental scan results to write a psychological burden surveillance policy for the disaster response group	Yes/no- policy established
Identify key stakeholders and conduct environmental scan in accordance with the identified methodology	Team leader to build relationships with 10 key stakeholders within disaster response group and submit environmental scan interview questions via REDCap distribution during the implementation phase. Responses requested by December 15, 2023.	Policy Analysis Survey and Project Audit Tool
Propose recommendation for psychological burden policy change for disaster workers	Team leader to propose Psychological Burden Surveillance Policy after environmental scan and policy analysis complete	Yes/no- policy proposed
Adoption of the Psychological Burden Surveillance policy	Chief Nursing Officer and disaster response group leadership to vote on Psychological Burden Surveillance policy approval	Yes/no- policy adopted

Appendix L

Codebook

	#	Variable / Field Name	Field Label *Field Note*	Field Attributes (Field Type, Validation, Choices, Calculations, etc.)
Instrument: **Project Audit Tool** (project_audit_tool) Enabled as survey				
	1	[proj_id]	Project ID	text
	2	[policy_1_keep_current_work]	**Section Header:** *Public Health Impact Scoring Definitions: Low: small reach, effect size, and impact on disparate populations Medium: small reach with large effect size or large reach with small effect size High: large reach, effect size, and impact on disparate populations* Policy 1: Keep current work flow	radio (Matrix) 1 Low 2 Medium 3 High
	3	[policy_2_adjust_current_po]	Policy 2: Adjust current policy	radio (Matrix) 1 Low 2 Medium 3 High
	4	[policy_3_new_policy_public]	Policy 3: New Policy	radio (Matrix) 1 Low 2 Medium 3 High
	5	[policy_1_keep_current_wof]	**Section Header:** *Feasibility Scoring Definitions: Low: No/small likelihood of being enacted Medium: Moderate likelihood of being enacted High: High likelihood of being enacted* Policy 1: Keep current work flow	radio (Matrix) 1 Low 2 Medium 3 High
	6	[policy_2_adjust_current_f]	Policy 2: Adjust current policy	radio (Matrix) 1 Low 2 Medium 3 High
	7	[policy_3_new_policyf]	Policy 3: New Policy	radio (Matrix) 1 Low 2 Medium 3 High
	8	[policy_1_keep_current_woe]	**Section Header:** *Economic Impact Scoring Definitions: Less favorable: High costs to implement Favorable: Moderate costs to implement More favorable: Low costs to implement* Policy 1: Keep current work flow	radio (Matrix) 1 Less favorable 2 Favorable 3 More favorable
	9	[policy_2_adjust_current_e]	Policy 2: Adjust current policy	radio (Matrix) 1 Less favorable 2 Favorable 3 More favorable
	10	[policy_3_new_polie]	Policy 3: New policy	radio (Matrix) 1 Less favorable 2 Favorable 3 More favorable

	11	[policy_1_keep_current_wob]	**Section Header:** *Budgetary Impact Scoring Definitions: Less favorable: costs are high relative to benefits Favorable: costs are moderate relative to benefits (benefits justify costs) More favorable: costs are low relative to benefits* Policy 1: Keep current work flow	radio (Matrix) 1 Less favorable 2 Favorable 3 More favorable
	12	[policy_2_adjust_current_b]	Policy 2: Adjust current policy	radio (Matrix) 1 Less favorable 2 Favorable 3 More favorable
	13	[policy_3_new_polib]	Policy 3: New policy	radio (Matrix) 1 Less favorable 2 Favorable 3 More favorable
	14	[project_audit_tool_complete]	**Section Header:** *Form Status* Complete?	dropdown 0 Incomplete 1 Unverified 2 Complete

#	Variable / Field Name	Field Label *Field Note*	Field Attributes (Field Type, Validation, Choices, Calculations, etc.)
Instrument: **Policy Analysis Survey** (policy_analysis_survey) **Enabled as survey**			
1	[proj_id]	Project ID	text
2	[historical_context]	What has been the historical context of mental health surveillance within the disaster response group?	text
3	[experience]	What has been your personal experience with mental health surveillance within the disaster response group?	text
4	[policy_discussion]	Are you aware if a policy on mental health surveillance within the disaster response group has been discussed previously?	text
5	[what_is_the_value_added_of]	In your view, where are there gaps in the current data around mental health surveillance following a disaster?	text
6	[gaps]	How would developing a policy on mental health surveillance help address these gaps?	text
7	[what_are_the_expected_shor]	What do you think are some of the expected short, intermediate, and long-term outcomes of a mental health surveillance policy within the disaster response group?	text
8	[disparities]	Would a policy on mental health surveillance impact health disparities/health equity?	text
9	[what_are_the_costs_and_ben]	What are the costs and benefits associated with a mental health surveillance policy, from a budgetary perspective?	text
10	[what_are_the_potential_imp]	What are the potential impacts of a mental health surveillance policy on other sectors and high priority issues (e.g., sustainability, economic impact)?	text
11	[who_are_the_stakeholders_i]	Who do you think are the stakeholders, including supporters and opponents of a mental health surveillance policy?	text

12	[negatives]	What might be unintended negative outcomes from a mental health surveillance policy within the disaster response group?	text
13	[what_are_the_potential_soc]	What are the potential social, educational, and cultural perspectives associated with the policy option (e.g., lack of knowledge, fear of change, force of habit)?	text
14	[what_are_the_resource_capa]	What might be some of the resource, capacity, and technical needs for developing, enacting, and implementing a mental health surveillance policy?	text
15	[how_much_time_is_needed_fo]	How much time do you think is needed for a mental health surveillance policy to be enacted, implemented, and enforced?	text
16	[how_scalable_flexible_and]	How scalable, flexible, and transferable is a mental health surveillance policy?	text
17	[policy_analysis_survey_complete]	Section Header: *Form Status* Complete?	dropdown 0, Incomplete 1, Unverified 2, Complete

Appendix M

Gannt Chart

DNP Project Title: Psychological Burden Surveillance for Disaster Workers

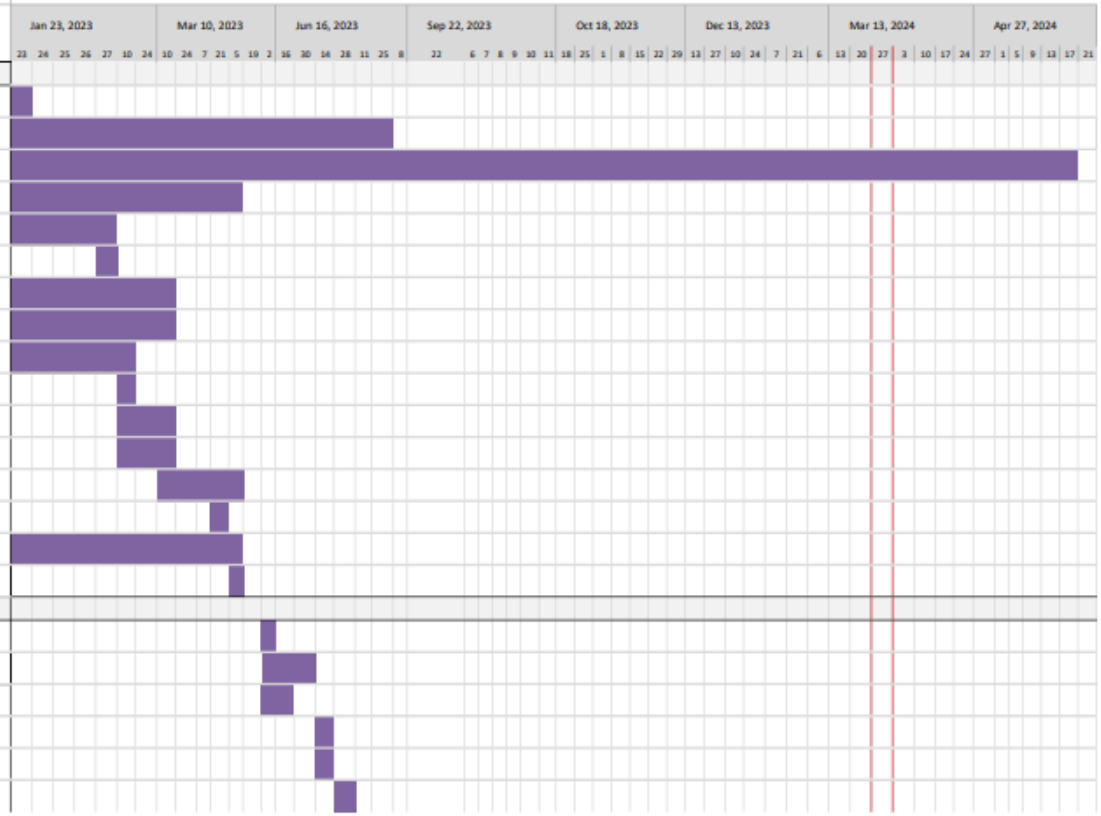
Student: Kaila Spafford, RN, BSN

Project Site: Disaster Response Group

Project Start: Mon, 1/23/2023

Display Week: 1

Project Identification (NDNP810)	Responsible	START	END
Start of Spring Term	K. Spafford	1/23/23	1/23/23
CITI (enter renewal date as end)	K. Spafford	1/23/23	9/3/23
HIPAA (enter renewal date as end)	K. Spafford	1/22/23	1/22/25
Disaster Response Group Team Meetings- every other week	pafford and Dr. Scharf	1/23/23	5/17/23
Root cause analysis	K. Spafford	1/23/23	1/30/23
Milestone: Fishbone Diagram submission	K. Spafford	1/30/23	1/30/23
Identify stakeholders/team	K. Spafford	1/23/23	3/13/23
Identify roles/responsibilities	K. Spafford	1/23/23	3/13/23
0	K. Spafford	1/23/23	2/13/23
Milestone: Literature review and evidence synthesis submission	K. Spafford	2/13/23	2/13/23
Identify scope/goals	K. Spafford	2/13/23	3/13/23
Milestone: Project charter creation and submission	K. Spafford	2/13/23	3/13/23
Milestone: Submit project proposal	K. Spafford	3/13/23	5/10/23
Site IRB Inquiry	K. Spafford	4/24/23	4/24/23
REDcap	K. Spafford	1/23/23	5/10/23
End of Spring Term	K. Spafford	5/17/23	5/14/23
Project Development (NDNP811)			
Start of Summer Term	K. Spafford	6/5/23	6/5/23
Develop implemenation plans	K. Spafford	6/5/23	7/5/23
Develop teaching plan	K. Spafford	6/5/23	6/28/23
MILESTONE: Site Presentation and Approval	pafford and Dr. Scharf	7/21/23	7/21/23
MILESTONE: IRB Determination	pafford and Dr. Scharf	7/26/23	7/26/23
End of Summer Term	K. Spafford	7/28/23	7/28/23



PSYCHOLOGICAL BURDEN SURVEILLANCE