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14. ABSTRACT

The overarching aim of this proposal is to develop, deliver, and investigate the efficacy of MBAT-Team (MBAT-T) as a tool to promote individual cognitive performance, resilience, interpersonal interactions, and team-level operational performance. The MBAT-T program will be tested and compared to the standard MBAT for individuals (MBAT-I) and a no-training control group. We hypothesize that MBAT-T will benefit squads across all 3 key domains: cognitive performance and resilience, interpersonal interactions, and team-level operational performance. We have received approval from the University of Miami IRB and HRPO (Army), have secured a site for the project, and are on track regarding the coordination with the testing sites, research consultants and delivery of the practicum to the trainers who will be delivering the MBAT program. The creation of the MBAT-Team course materials and trainer materials are near completion, and significant progress has been made on the preparation and development of the neurobehavioral testing battery for the project. In summary, our timely success reaching our project milestones over this past year leave us well positioned for continued success in the execution of this project in the coming year(s).

15. SUBJECT TERMS

NONE LISTED

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1. INTRODUCTION: *Narrative that briefly (one paragraph) describes the subject, purpose and scope of the research.*

For the U.S. Army and the U.S. Department of Defense (DOD), the 9 to 12-person infantry squad is considered the "most fundamental formation" for its close combat activities (Roper, 2018). Thus, there is strong interest and need in providing innovative evidence-based training to small teams to "strengthen the combat lethality, resiliency, and readiness of infantry squads" (Secretary of Defense, 2018). Mindfulness is a mental mode characterized by attention to present moment experience without conceptual elaboration and emotional reactivity. Mindfulness training (MT) programs provide guided exercises, didactic information, and discussions to promote greater mindfulness in trainees. MT has been found to protect against psychological illness and promote psychological health. It is a form of attention and resilience training shown to yield cognitive and emotional benefits in civilians and military service members (Jha et al., 2010; Jha et al., 2015). Yet, no studies to date have investigated the putative benefits of MT for the effectiveness of small teams. Herein, we investigate if mindfulness-based attention training (MBAT) contextualized for small unit infantry squads (MBAT-Team) might benefit squads in three key domains: 1) individual cognitive (attention and working memory) and resilience skills, 2) interpersonal skills such as team cohesion, interpersonal situation monitoring and emotional awareness, 3) and team-level operational performance related to lethality– the ability to shoot, move, and communicate. Thus, we aim to investigate the utility of mindfulness training to improve individual, interpersonal, and operationally relevant skills in support of small teams (i.e., *the squad*). If effective, MBAT-Team could bolster the U.S. Military's capacity to further train and support infantry squads.

2. KEYWORDS: *Provide a brief list of keywords (limit to 20 words).*

Attention, Cognitive Performance, Interpersonal Skills, Mindfulness Training, Resilience, Small Teams, Team Cohesion, Operational Performance, Working Memory

3. ACCOMPLISHMENTS: *The PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency grants official whenever there are significant changes in the project or its direction.*

What were the major goals of the project?

List the major goals of the project as stated in the approved SOW. If the application listed milestones/target dates for important activities or phases of the project, identify these dates and show actual completion dates or the percentage of completion.

The Deliverables Table from the approved SOW is provided below with details regarding the major Tasks and corresponding sub-tasks, along with their target execution timeline in quarters and current completion status.

Deliverables	Year/quarter		Status
	Start	End	29-Sep-20
Task 1. Prepare research protocol for IRB approval and pre-registration			
Hire and train research associates	Y1Q1	Y1Q1	*completed*
Prepare and refine human subjects research protocol for submission to University of Miami IRB	Y1Q1	Y1Q1	*completed*
Secure University of Miami IRB Approval	Y1Q1	Y1Q2	*completed*
Secure HRPO Approval	Y1Q1	Y1Q2	*completed*
Submit continuing review and annual reports, amendements, and protocol deviations as required and neeed	Y1Q1	as needed	*in progress*
Prepare and submit pre-registration of the study on clinicaltrials.gov website	Y1Q1	Y1Q2	*completed*
Task 2. Finalize assessment measures			
Select the team-level operational metrics	Y1Q1	Y1Q2	*completed*
Refine the lab-based cognitive and self-reported interpersonal measures	Y1Q1	Y1Q2	*completed*
Discussion to determine final selection of operational metrics (Conflict Kinetics)	Y1Q1	Y1Q2	*completed*
Task 3. Prepare and develop training materials			
Develop the MBAT-T course materials and corresponding mindfulness exercises	Y1Q1	Y1Q3	*near completion/under refinement*
Refine and finalize the MBAT-I course materials	Y1Q1	Y1Q3	*completed/under refinement*
Develop the MBAT-T practicum and teaching materials	Y1Q3	Y1Q3	*near completion/under refinement*
Record all mindfulness execrcises/training materials	Y1Q4	Y1Q4	*in progress*
Military Leadership/Advisory Group Briefings on MBAT-T materials	Y1Q3	Y1Q4	*in progress*
Task 4. Mobile Application (App) development and piloting			
Coordinate App Development for mindfulness exercise dissemination	Y1Q3	Y1Q3	*completed*
Finalize app development	Y1Q4	Y2Q1	*in progress*
Recruit undergraduates (n = 40) to test the app for 4 consecutive weeks	Y2Q1	Y2Q1	*initiated*
Collect pilot data for app engagement and usage data	Y2Q2	Y2Q2	
Military Leadership/Advisory Team review of app	Y2Q2	Y2Q2	
Task 5. Deliver mindfulness practicum and refresher to trainers			
Provide training 'refresher' for foundational MBAT course to trainers by master trainer	Y1Q3	Y1Q4	*completed*
Deliver MBAT-T practicum to trainers by master trainer	Y1Q4	Y2Q2	*in progress*
Evaluate trainers on their mindfulness teaching skills after practicum	Y2Q2	Y2Q2	
Provide trainers feedback on their mindfulness teaching skills	Y2Q2	Y2Q2	
Task 6. Deliver the MBAT-T and MBAT-I programs to Soldiers over 2 Rounds			*in preparation*
Round 1			
Recruit, schedule, and assign participants to the MBAT-T and MBAT-I programs	Y2Q2	Y2Q2	
Deliver the MBAT-T to 5 squads (n = 50 soldiers)	Y2Q3	Y2Q4	
Deliver the MBAT-I to 5 squads (n = 50 soldiers)	Y2Q3	Y2Q4	
Round 2			
Recruit, schedule, and assign participants to the MBAT-T and MBAT-I programs	Y2Q4	Y2Q4	
Deliver the MBAT-T to 5 squads (n = 50 soldiers)	Y3Q1	Y3Q2	
Deliver the MBAT-I to 5 squads (n = 50 soldiers)	Y3Q1	Y3Q2	
Task 7. Compare and contrast MBAT-T and MBAT-I programs			
Round 1			
Collect cognitive tasks and operational measures data before (T1) and after (T2) MBAT-T and MBAT-I courses from participants in the training groups (n = 100)	Y2Q3	Y2Q4	
Collect cognitive tasks and operational measures data at T1 and T2 from no-training participants (n = 50)	Y2Q3	Y2Q4	
Perform interim analyses on Round 1 data	Y2Q4	Y2Q4	
Round 2			
Collect cognitive tasks and operational measures data before (T1) and after (T2) MBAT-T and MBAT-I courses from participants in the training groups (n = 100)	Y3Q1	Y3Q2	
Collect cognitive tasks and operational measures data at T1 and T2 from no-training participants (n = 50)	Y3Q1	Y3Q2	
Analyze Round 1 and Round 2 data	Y3Q2	Y3Q3	
Task 8. Disseminate results			
Present interim and final results at conferences	Y2Q4	Y3Q4	
Prepare manuscripts	Y3Q2	Y3Q4	

What was accomplished under these goals?

For this reporting period describe: 1) major activities; 2) specific objectives; 3) significant results or key outcomes, including major findings, developments, or conclusions (both positive and negative); and/or 4) other achievements. Include a discussion of stated goals not met. Description shall include pertinent data and graphs in sufficient detail to explain any significant results achieved. A succinct description of the methodology used shall be provided. As the project progresses to completion, the emphasis in reporting in this section should shift from reporting activities to reporting accomplishments.

Summary: In Year 1, (i) we completed **Task 1** and **Task 2** by securing approval from UM IRB and HRPO, registering the study on ClinicalTrials.gov, as well as determining the assessment measures. (ii) We made substantial progress toward completing **Task 3** involving the development of the training materials. (iii) Progress was also made on **Task 4** in regards to the development of the Mindfulness Measuring Application and planning of a pilot study with a 'convenience' sample to evaluate the feasibility of the app. (iv) Furthermore, we made steady progress on **Task 5** by delivering the training refresher to the trainers and coordinating with the trainers in the delivery of the practicum. (v) Finally, **Task 6** was initiated during this year by confirming involvement in the project with military leadership at Fort Drum and establishing general dates for the delivery of the program.

Detailed descriptions for each of the major tasks and corresponding sub-tasks are provided below.

Task 1. Prepare research protocol for IRB approval and pre-registration:
In Year 1, all the sub-tasks of Task 1 were completed as anticipated and described below in detail.

(i) Hire and train research associates: *Completed*
As described in Y1Q1, research associates were hired and trained (IRB, SOP of the lab; project description and aims) to assist with administrative and clerical tasks, such as documentation preparation, meeting scheduling, agenda, and minutes reports, as well as data storage, archiving and coding, papers database creation and maintenance.

(ii) Secure IRB Approval: *Completed*
The human subjects' research protocol for this project was submitted to the IRB at the University of Miami and approved in Y1Q1 (Protocol #: 20191047).

(iii) Secure HRPO Approval: *Completed*
As described in Y1Q1, the approved IRB protocol and all required documentation were compiled and submitted for review to Mr. Brian Garland at the Human Research Protection Office. We initially encountered a slight delay due to the change in the POC for the HRPO review. In Y1Q2, we learned of the change in personnel; we re-submitted all of the requested materials and had a teleconference with the new POC, Mr. John Morais, to familiarize him with the project. We submitted an official letter detailing the answers to the questions posed by Mr. Morais. In addition, we secured a revised letter of IRB approval explicitly stating that the protocol was approved in an expedited manner with a "no greater than minimal risk" designation. We received approval from the Human Research Protection Office in Y1Q3.

(iv) Submit continuing review and annual reports, amendments and protocols deviations as required and needed: *In progress*
Note that while the IRB has been approved, amendments to the protocol for the app and team-based virtual reality components are in progress. These portions were not in the

initial protocol because several aspects of each of these were still in the discussion phase with the vendors and were in development. We anticipate that amendments for both of these components will be submitted by the end of Y2Q1. In addition, we will submit the continuing review to IRB and then HRPO in the next quarter.

(v) Pre-register the study on clinicaltrials.gov website: *Completed*
As described in Y1Q1, the research team completed the registration of the current research study on clinicaltrials.gov following a series of coordination calls with the Clinical Trial Disclosure Manager at UM, Yolanda Davis. These calls allowed us a smooth registration of the project on clinicaltrials.gov. The project was released on clinicaltrials.gov and can be found at https://clinicaltrials.gov/ct2/show/NCT04210076 (#NCT04210076).

Task 2. Finalize assessment measures
In Year 1, all the sub-tasks of Task 2 were completed as anticipated and described in the quarterly reports.

(i) Select the team-level operational metrics: *Completed*
In Y1Q1, the PI and project team members engaged in conference calls with military personnel at Ft. Drum to confirm that the 10th Mountain Division at Ft. Drum would serve as the partnering military site for the execution of this project. We confirmed their willingness to host and advise us on the selection of operationally relevant metrics using the Conflict Kinetics simulated environment system. COL Sullivan, Chief of Staff at 10 MNT Division, Ft Drum sent a support letter confirming the willingness of 10 MNT Division to partner with Dr. Jha to facilitate the execution of the project. He confirmed that 2BCT is able to accommodate the recruitment goals of the project and collection of lab-based and operational metrics during the duty day. Subsequently, the P.I. and project team members held a series of meetings with military advisors, including MAJ Helm, who is the MEDLOG Planner at 10 MNT Division at Ft. Drum, and COL Bartholomees, Executive Officer to the Director of the Army Staff, about aspects of military training with a focus on the best ways to measure team performance in infantry squads.

In Y1Q2, the research team finalized the selection of the operational team metrics. These measures will assess (i) rifle marksmanship and cognitive decision-making using ecologically valid shooting drills and (ii) team operational performance in an ecologically valid team performance scenario. Table 1 summarizes these metrics.

Table 1. Operational metrics.

Marksmanship and Cognitive Shooting Drills	
Marksmanship Drills	Accuracy and Reaction Time on shoot (7, 50, 100 meter, standing, kneeling, prone)
Marksmanship Qualification	Accuracy and Reaction Time on Table VI (Stage I) Marksmanship Qualification
Cognitive Drills	Accuracy and Reaction Time on Shoot / Don't Shoot and Not Like The Other drills

Team Operational Performance	
Squad Operational Scenario	Multi-phase simulated tactical scenario with squad assault and casualty evacuation
	Accuracy and Reaction Time to targets
	Success or Failure to achieve mission objectives
Pre and Post-Scenario Questionnaires	Pre- and post-scenario expectations, perceived team cohesion, After Action Review

Conflict Kinetics will provide a simulated augmented-reality environment that will be used to implement the drills and multi-phase tactical scenario, in which participants will engage in shooting drills and synthetic fire fights as part of a team-based operational scenario. The first set of metrics will involve obtaining measures of rifle marksmanship and cognitive performance using the synthetic M4 Conflict Kinetics rifles. These cognitive shooting drills will involve: 1) a shoot / no shoot drill in which participants shoot at target stimuli but withhold their fire to non-target stimuli, and 2) a "not like the other" drill in which participants have to quickly decide which stimulus is different (target) in the array of stimuli (non-targets) and accurately shoot that discrepant target. Accuracy and response time will serve as measures of performance.

The second set of metrics will be collected as 7-10 person squads complete a simulated multi-phase tactical scenario. The scenario will involve tasks that infantry squads are expected to be proficient in, modeled in the Battle Drills found in Army Training Publication (ATP) 3-21.8: Infantry Platoon and Squad. For example, the squad will Conduct a Squad Assault in order to secure a location, tend to the injuries of a casualty, Break Contact and evacuate the casualty. The squad will have to distinguish targets (combatants) from non-targets (civilians) and successfully call a MEDEVAC request in the midst of simulated combat. Shooting accuracy and response time will be assessed. Team performance will be assessed based on the success of the team in fulfilling mission criteria in accordance with standard Army doctrine. Furthermore, a series of questionnaires will be administered before and after the scenario in order to assess performance expectations and team cohesion during the scenario, perceptions of how well the team performed, individual and team memory for events or objects during the scenario, and a post-scenario After Action Review.

As described in Y1Q2, the selection of the operational metrics was guided by a series of meetings and discussions held during this quarter with military and scientific study advisors, leadership of 10th Mountain Division at Ft. Drum, and Conflict Kinetics. First, a 2-page document describing the whole project was prepared and sent to MAJ Helm, who is the MEDLOG Planner at 10th MNT Division at Ft. Drum. The same week, the PI had a

conference call with MAJ Helm to discuss the 2-pager. Following their conversation, the team had a 2-hour conference call with MAJ Helm and Conflict Kinetics (CK) to discuss adequate operational measures and discuss the scenario that will be utilized at Conflict Kinetics to run the simulation and test these operational measures, and another one-hour phone call with MAJ Helm to discuss the upcoming visit to Conflict Kinetics. On March 11th, 2020, the PI and 2 scientists of the lab visited Conflict Kinetics in person. Dr. Amy Adler and CPT Tom Nassif from the Walter Reed Army Institute of Research, and COL Bartholomees (who is the executive officer for the Director of the US Army Staff and has extensive expertise with the use of CK metrics for teams) joined this in-person meeting. The group saw the simulated environment in action and discussed its use as a measure of team performance (and other measures) and the possible simulation scenarios for the teams to go through. On the same day, the team also visited the Pentagon along with Dr. Amy Adler and CPT Tom Nassif, where they further discussed with COL Bartholomees the role of the Conflict Kinetics simulation in this project, the overall grant, the progress that was made up to that point and the plans for the future. Following these meetings, the research team prepared and discussed an after-action review document that was sent to all those who attended the Conflict Kinetics meeting in Virginia.

(ii) Refine the lab-based cognitive and self-reported interpersonal measures: *Completed*

In Y1Q1, members of the research team began formulating appropriate methods for collecting information regarding team cohesion and attitudes towards successful team performance. The team met with a former US Marine, who is a colleague in the Department of Psychology at the University of Miami campus and familiar with experimental cognitive-affective metrics, to discuss appropriate methods of collecting information regarding team cohesion and attitudes towards successful team performance. This discussion allowed us to formulate ideas around specific questions to be included in the testing battery to assess the cohesion and familiarity of team members.

The PI and research team held several meetings discussing the selection of laboratory measures to be included in the computerized testing battery. The selected measures tap into the 2 main domains of interest for this project: (i) the cognitive domain and (ii) the interpersonal/team domain, as listed in Table 2.

The selection of metrics for the cognitive domain is guided by our prior research using the MBAT program in the military (Jha et al., 2020; Zanesco et al., 2019) as well as in high-stress civilian cohorts, such as firefighters (Denkova et al., 2020). As such, we are including 2 cognitive tasks, the Sustained Attention to Response Task (SART) and the Working Memory Tasks with Affective Distracters (WMDA), that showed sensitivity to mindfulness training. While these measures were used previously, we have been working to refine these tasks by including high-quality images, more sensitive experience sampling probes during SART, etc.

The selection of measures for the team/interpersonal domain was informed by the review of literature on team cohesion in the military and other settings (health care), where team cohesion and high-quality interpersonal relationships between teammates is a key factor for adequate decision-making. We will also include the assessment of team emotional

culture (related to joy, optimism and pride) that was related to better team cohesion, resilience, and team performance (Adler et al., 2020). Table 2 summarizes these metrics.

Table 2. Laboratory metrics.

Cognitive domain	
Attention	Sustained Attention To Response task (SART, Jha et al., 2019)
Working memory	Working Memory with Affective Distracters (WMDA, Jha et al., 2019)
Resilience	Brief Resilience Scale (BRS, Smith et al., 2008)

Subjective Interpersonal/Team	
Team Cohesion	3-item scale (Williams et al., 2016)
Situation Monitoring	TeamSTEPPS Teamwork perceptions: situation monitoring sub-scale (Battles, 2007)
Emotional Awareness & Regulation	Workgroup Emotional Intelligence Profile (WEIP-S, Jordan & Lawrence, 2009)
Emotional team culture	Emotional culture of Joy, Optimism and Pride (Adler et al., 2020)
Leadership	4-item WRAIR leadership Scale (Lopez et al., 2018)
Team Mindfulness	Team Mindfulness Scale (Yu & Zellmer-Bruhn, 2018)

(iii) Discussion to determine final selection of operational metrics (Conflict Kinetics): *Completed*

In Y1Q1, the PI had several calls with the representatives at Conflict Kinetics to determine the best routes by which to learn about and sample potential tasks and schedule an in-person meeting at the Conflict Kinetics offices. The PI also benefitted from calls with COL Bartholomees, who is familiar with this system.

As described in Y1Q2, the selection of the operational metrics was guided by a series of meetings and discussions held throughout Y1Q1 and Y1Q2 with military and scientific study advisors, leadership of 10th Mountain Division at Ft. Drum, and Conflict Kinetics (see Task 2 (i) above). These meetings and discussions culminated in a visit to the Conflict Kinetics facilities in Virginia in order for the research team to see the simulated environment and operational measures in person and discuss the operational metrics with study advisors. Dr. Amy Adler and CPT Tom Nassif from the Walter Reed Army Institute of Research and COL Bartholomees accompanied the research team on this visit. The team also visited the Pentagon along with Dr. Amy Adler and CPT Tom Nassif, where they continued discussion with COL Bartholomees about the role of the Conflict Kinetics simulation in this project and the overall grant. After this meeting, the research team prepared an after-action review of decisions regarding operational metrics for dissemination to the participants of this visit to Conflict Kinetics.

In Y1Q3, the team held several internal meetings to review the information gathered from previous discussions with military and scientific study advisors, Conflict Kinetics, and leadership of 10th Mountain Division at Ft. Drum. The research team prepared an after-

action review of decisions regarding the operational metrics. This document was reviewed with the Fort Drum leadership, Conflict Kinetics, as well as with study advisors. Revision and adjustments to the metrics were requested and Conflict Kinetics has concurred with the suggested changes. A revised plan for operational metrics was provided to us by Conflict Kinetics in Y1Q3. Further internal discussions have ensued to determine the acceptability of proposed measures. This task has been completed in Y1Q4. IRB modifications based on these finalized decisions will be submitted during Y2Q1.

Task 3. Prepare and develop Training Materials

In Year 1, progress was made on all the sub-tasks of Task 3 as described below in detail. Sub-tasks (i) and (ii) were initiated in Y1Q1. Sub-tasks (iii) and (v) were initiated in Y1Q3. Detailed descriptions of the progress made on these sub-tasks was reported in the past quarterly reports submitted in Year 1 and is described in detail below.

(i) Develop the MBAT-Team course materials: *Near Completion/Under Refinement (90%)*

The development of the MBAT-Team course materials was initiated in Y1Q1, starting with discussions about the Mindfulness-Based Attention Training (MBAT) program. The specific goal of this sub-task is to develop a team-based variant of MBAT (referred to as MBAT-Team). MBAT-Team will build on the standard MBAT curriculum (referred to as MBAT-Individual). In Y1Q1, several meetings were held with co-I Scott Rogers, the co-developer of MBAT, to discuss and establish the plan for the development of the MBAT-team curriculum. During her visit to the Pentagon in October, 2019, the PI presented and discussed the MBAT program and the associated research component with senior military leaders, including the Chief and Vice Chief of Staff of the US Army as well as the Director of the Army Staff and the Sergeant Major of the Army. They provided introductions to various staff members and affiliated individuals who may be able to provide feedback on the training materials and/or serve on the advisory board. On November 26, 2019, GEN Funk, Commander of the U.S. Army Training and Doctrine Command, and his team visited the PI's lab for a full-day visit. The PI and Scott Rogers briefed GEN Funk, Dr. Funk and their team on mindfulness training and prior research on the use of MBAT in military settings, specifically. They provided feedback on modifications to consider for improved compliance and buy-in from soldiers, and language that may promote team-level engagement in MBAT practices.

In Y1Q2, the research team made significant progress in establishing the structure of the MBAT-Team curriculum. The research team and Scott Rogers met to go over the key concepts around team cohesion. During this meeting, the team reviewed the literature on team cohesion and team mindfulness, discussed what the most important ingredients for successful team operations and performance are and how these ingredients map into specific mindfulness exercises. During the follow-up meeting, the team met and reviewed the proposed plan for the MBAT-Team curriculum and how it parallels the structure of the MBAT-Individual. Furthermore, during the meeting with Drs. Adler and Nassif and COL Bartholomees at the Pentagon in March 2020, the proposed MBAT-Team curriculum was further reviewed. Thoughtful and helpful feedback to incorporate an additional level of

overall team climate, in addition to the between-teammates interaction component, was provided. The research team reviewed the comments and feedback provided at the Pentagon meeting and Scott Rogers incorporated the suggested additions into the MBAT-Team program.

In Y1Q3, considerable progress was made towards the completion of the MBAT-Team (MBAT-T) course materials. Scott Rogers extensively reviewed the comments and feedback received from the meetings held in Y1Q1 and Y1Q2 as well as recently published papers on the topic of cognitive, affective, and social psychological concepts involving teams, and team-oriented mindfulness training programs. This review allowed for greater refinement in conceptualizing key aspects and features for inclusion in the training materials. Regular weekly meetings were held among research and training team members to review and assess incremental development and refinement of Team-based exercises. Documentation, including diagraming of session flow variations, and practice/exercise options drawing from a variety of team-oriented programs were reviewed and discussed. New elements of the MBAT-T course have been selected to offer a broader range of interpersonal mindfulness practices in small groups of 2, 3, and 4, along with large group discussions and practice. Each of the four new elements is tethered conceptually to a basic MBAT-Individual (MBAT-I) module but broadens the scope of practice and the cultivation of team mindfulness. The MBAT-T course involves adjustments to MBAT-I's curriculum layout, didactic information, group discussion, and practices. Training development lead (Scott Rogers) met with several subject matter experts (SMEs) to discuss various aspects of the MBAT-T program. The SME and topic of discussion are listed below.

1. Dr. Amy Adler: Discussion on the basis for practices to be integrated into Session 2, and integration of a form of the iCover practice.

2. Michele DeStefano: Discussion on team-based practice known as One Brain, to be integrated in Session 3 of the program.

3. Dr. Jutta Tobias-Mortlock, Ph.D., (Co-Founder of Centre for Excellence in Mindfulness Research and lecturer at City University of London): Discussion on exercises to integrate into Session 4 of the program.

In Y1Q4, further progress was made on the development of the MBAT-T training materials, which is currently near completion and under review. Specifically, Scott Rogers focused on the development of the MBAT-Team course with specific focus on team cohesion and interpersonal mindfulness. Furthermore, he made progress on the development of interactive mindfulness exercises to be introduced in the second half of each session. For Session 1, following a didactic discussion, students will engage in their first Team-Mindfulness practice, in dyads.

The aim of the first part of Session 1 is to familiarize participants with mindfulness, the science supporting its efficacy, and coming to appreciate more fully that one can attend to the activity one own's mind. In the second part of this session, the focus expands to

attuning to other peoples' minds. The mindfulness exercise practiced in dyads involves mindful listening. This practice will be interleaved across the training to nurture both experience with the Focused Attention practice, a core exercise in the MBAT course, as well as interpersonal mindfulness, a central theme in the MBAT-Team course. The MBAT-T component to Session 2 integrates didactic and experiential learning based on the iCover curriculum, a training developed for military units to quickly respond when a Soldier is experiencing an acute stress reaction. The object is not to train Soldiers in iCover but to allow the training to establish a pragmatic and personally relevant container to discuss team awareness and engage in a simulated exercise in a group of 3-4. As part of the didactic training, participants will watch a video explaining the nature of the iCover practice and engage in a group discussion. The idea for drawing upon iCover was conceived in a meeting between Scott Rogers and Dr. Amy Adler, one of the innovators of iCover, that occurred in Y1Q3.

In Session 3, participants will engage in a group exercise with 5-8 members where they will be tasked with reciting, one at a time, and without an established plan, e.g., the letters of the alphabet from A-Z (to be determined) without interrupting or speaking over each other. This will be framed as a contest with the other groups to see who finishes with the fastest time. When there is an interruption, the group is required to start again. This practice is intended to foster connection, attention to non-verbal cues, situational receptivity and interpersonal mindfulness. Session 4 moves more fully into the realm of connection and empathy and begins with a group discussion that raises the issue of common struggles, like sleep deprivation, that can affect individual and team performance and well-being. The selection of this subject matter was raised in the Y1Q3 meeting between Rogers and Dr. Jutta Tobias-Mortlock based on her experience in the UK. In groups, Soldiers will discuss ways they might be affected, how others might be affected, and what they would request of their team when they are struggling with, for example, sleep deprivation. The smaller group discussion would then be brought into the larger group setting.

Scott Rogers and the research team have met to review and discuss the progress made on the development of the MBAT-Team course materials and provided feedback to be integrated in the upcoming Y2Q1. The course materials are currently under refinement and will be revisited and adjusted as needed following feedback.

(ii) Refine and finalize the MBAT-I course materials: *Completed/Under Refinement*
In addition to developing the team variant of MBAT, the standard 4-week, 8-hour MBAT program is currently being refined and extended to include 2 more hours of course content to match the duration of MBAT-Team. During Year 1 Quarter 1, a conference call was held with the SAIC trainers who had previously delivered the MBAT-I and who will be serving as trainers in the present project. The goal of the meeting was to gather information regarding their experience delivering MBAT and areas of improvement for the training materials. Scott Rogers incorporated their feedback in updating the training materials. Furthermore, the PI and Scott Rogers have had several meetings to thoroughly review the specific cards, concepts, and practices to consider, as well as where and how modifications should be made to the course material. A list of main activities of the meetings are reported below:

o Identify didactic and experiential content expansion of MBAT training based on prior experience and familiarity working with teams and leaders;

o Review MBAT training materials to identify specific content areas to augment training time and integrate team and leader content;

o Review books and book chapters that address team-based interventions;

o Reviewed recent publications assembled by research team members that have addressed team-based interventions.

In Y1Q2, in addition to making progress towards development of the MBAT-Team component, adjustments and refinement to the MBAT-I have also been made.

During Y1Q3, the MBAT-I course was further elaborated. Minor modifications were made to the first training session to allow for greater symmetry across the MBAT-I and MBAT-T variations. One example of a concept to allow for better alignment involves introduction of the triad model of the Soldier, with intrapersonal mindfulness represented in the MBAT-I variant and interpersonal/team mindfulness represented in the MBAT-T variant. The triad model has “Soldier” in the middle of the triangle with “Family”, “Leader”, and “Team” as the points of the triangle. Regular weekly meetings were held among lab members to review and assess the ways that Team exercises would impact the MBAT-I course. Documentation, including diagraming of session flow variations, and practice/exercise options flowing out of proposed team-oriented practices were reviewed and discussed.

In Y1Q4, Scott Rogers and the research team held meetings to review the progress made on the MBAT-T course and discuss the consequent edits to the MBAT-I course. Scott Rogers adjusted the MBAT-I course content to align with the new changes and developments of MBAT-T. For example, some didactic segments of session 2, 3, and 4 have been modified to track non-trivial content explored in the MBAT-T curriculum. The development of the MBAT-I course materials has been completed, but adjustments may be necessary according to the development of the MBAT-T in order to ensure uniformity between the two MBAT variations.

(iii) Develop the MBAT-T practicum and teaching materials: *Near Completion/Under Refinement (90%)*

The development of the MBAT-T practicum and teaching materials was initiated during Y1Q3. This development is dependent upon completion of the MBAT-T course, as the content of the teaching materials/practicum flows out of the MBAT-T course. In addition, the teaching materials for the MBAT-I trainers’ refresher were developed during this quarter and presented to the trainers during the “Refresher” training.
In Y1Q4, as progress was achieved in the development of the MBAT-T materials, Scott Rogers continued developing the MBAT-T practicum and teaching materials accordingly. Currently, the teaching materials are near completion and under refinement. Changes to these materials are dependent on any changes made to the MBAT-T course.

(iv) Record all mindfulness exercises/training materials: *In Progress*
The recording of the materials will take place once the MBAT-Team materials have been completed and finalized. As of Y1Q4, all of the guided practices used in the MBAT-I training have already been recorded. One additional MBAT-T guided practice is undergoing development. It will replace the "Focused Attention" practice that is interleaved across Sessions 2 to 4. This practice will have both a strong Focused Attention and Team Awareness component.

(v) Military Leadership/Advisory Group Briefings on MBAT-T materials: *In Progress*
During Y1Q3, we made substantial progress reviewing the course and teaching materials with our advisory group. Scott Rogers held a two-hour meeting with members of the MBAT-T advisory group to brief them and review the training materials and teaching curricula. This advisory group comprises Commander William K. MacNulty, Ph.D., ABPP, Health Promotion Psychologist with the 1st Special Forces Group (Airborne); Stephen Gonzales, Ph.D., Assistant Athletic Director for Leaderships and Mental Performance at Dartmouth College Athletics; and John W. Gaddy, Ph.D., Regional Manager, Armed Forces Services Corporation. Various ideas were discussed, including: Mindfulness Listening as a Dyad (to begin transition from personal focus to interpersonal focus, on path to team focus), inclusion of a group exercise with video, a movement practice that involves having Soldiers maintain situational awareness of each other's position, and having Soldiers discuss questions in small group breakouts and then discuss in larger groups. Following this meeting, Scott Rogers further discussed these ideas with each member of the advisory group individually via email. The primary takeaways from these discussions were confirmation of the importance of beginning with a mindful listening practice to engage the Soldiers in a dyad exchange and have them engage, across the four sessions, in group discussions. Furthermore, questions of feasibility of certain in-person practices, given possible distancing concerns, were kept in mind and remain an open question.

In Y1Q4, the P.I. and Scott Rogers have scheduled a meeting with BG David Hodne, the Commandant of the Infantry School at Fort Benning to formally review the MBAT-T materials. The meeting is scheduled to take place in Y2Q1. Although several of the core military and advisory group meetings took place in Y1Q3 to provide relevant knowledge and material for the development of the MBAT-T, this task is currently marked as in progress as training and teaching materials will be reviewed in the upcoming months with other military advisors before being finalized.

Task 4. Mobile Application (App) development and piloting

In Year 1, we completed the coordination of the app development, made considerable progress in the finalization of the plan for the app, and initiated a discussion regarding the logistics to prepare for the recruitment of a convenience sample to participate in the pilot testing of the app. The progress is described in detail below:

(i) Coordinate App Development for mindfulness exercise dissemination: *Completed*

As described in Y1Q1, the research team compiled mindfulness research that used apps and compared available mindfulness apps (e.g., Headspace, 10% Happier) to gather ideas regarding the content and visual look of mindfulness apps. These findings and ideas were discussed with the PI, Scott Rogers and the PI's team in a one-hour long meeting, in preparation for the meeting with the app developers. The PI and lab members held a two-hour meeting with the app development team, On the Map, Inc. (OTM), to discuss the plan and timeline for the app development.

In Y1Q2, the PI had a teleconference with Dr. Mathias Simmons, a Research Psychologist at the U.S. Army Research Institute for the Behavioral and Social Sciences, to discuss broad app plans and restrictions/considerations for apps for soldiers. Dr. Simmons stated that he would follow-up with the PI to provide contact information for the TRADOC staff who develops apps for the army as well as the office that can convey rules and specs for apps on army devices (including personal devices of Soldiers).

During Y1Q3, several meetings were held between the app company and the PI's team to establish the scope of work and parameters for the '***measuring mindfulness' app***. The app parameters were set-up to allow the following 4 key aspects: (1) Offer mindfulness training-related content through video, audio and/or reading material (as fillable field entries), (2) evaluation questions as part of the user's experience and engagement in training-related content, (3) database control to be able to have different program content delivered to different subgroups of participants, and (4) flexibility on programming content and timing of measurement metrics. The research team held a meeting with the app company to discuss and establish the payment terms for the development of the app. A draft of the agreement was created and reviewed through an iterative process of adjustments provided by OTM and the research team. The agreement was finalized and included the statement of work, payment terms, payment schedule, a description of the nature and features of the App to be developed, and a timeline outlining the time and costs estimate for each stage of the development of the app. The agreement document along with other additional documentations (i.e., justification of app company selection) was submitted to the UM for review and approval. UM IT portfolio management reviewed the app agreement and data flow chart provided by OTM and provided approval to move forward with contracting.

In Y1Q4, the research team worked in collaboration with OTM's user experience designers and application developers to design and code both a user-facing smartphone application and a secure web-based administrative portal. Throughout the quarter, the app team and project staff meet weekly for 1.5 hours to outline and flesh out the application features and functionality. The design process was iterative and conducted in four phases: 1) User-facing functionality and design, 2) User-facing navigation 3) Data-focused design, 3) Administrative portal development. The project team provided the app company with feedback at every step until the design was finalized. The application developers have begun to code the application and the administrative web portal.

(ii) Finalize app development: *In Progress*
In Y1Q4, the features, functionality and design of the app were finalized, and the back-end coding of the application and administration portal were initiated. In Y2Q1, the study team will evaluate and pilot the application in order to provide the app company with feedback to update the features and usability, as needed.

(iii) Recruit undergraduates (*n* = 40) to test the app for 4 consecutive weeks: *Initiated*
In Y1Q4, the project team began preparations to initiate pilot testing and to prepare for the recruitment of undergraduates to participate in the pilot testing. A pilot affiliated study protocol and informed consent form were submitted on September 15th to the University of Miami's institutional review board (IRB), but funds for the app focus group will be funded from a separate source. We are currently planning for an amendment to this project's IRB protocol to include ROTC cadets as participants, before submitting to HRPO, along with other amendments that have been described above. Dr. Jha has connected with UMiami ROTC leadership (LTC Papkov) to secure their support of this pilot study and discuss a timeline for when recruitment into this project is possible. Because of COVID-19, there have been delays in this meeting, and it is likely that a briefing to cadets to solicit their interest in the project may occur via VTC in the next quarter, but this has not been confirmed.

Task 5. Deliver mindfulness practicum and refresher to trainers

In Year 1, we initiated Task 5 as anticipated in the Statement of Work.
In preparation for Task 5 execution, we initiated the contracting of the consulting agency that will provide trainers for this project (Vendor = Science Applications International Corporation, SAIC). The research team had a VTC call with Dr. Coreen Harada, Human Performance, Research and Evaluation Manager at SAIC, to discuss the contracting process and various stages of the project in which the trainers will be involved. The call was followed by several email conversations with Coreen Harada and Justin Johnston (SAIC Contracts Associate) to establish the scope of work and milestones of the agreement between SAIC and the PI's lab. The research team then met to review the agreement and further discuss the role and selection of the trainers who will be involved in the projects, as well as the project's timeline. Furthermore, the team had several conversations with the point person at the University of Miami in charge of registering and contracting outside companies in the University of Miami "UMarketplace" system, in an effort to facilitate and expedite the contracting process. SAIC was successfully registered as a vendor on the UM system after communication and coordination between UM, the research team, and SAIC. In Y1Q3, the agreement was submitted to UM for review and approval, and was finalized and signed in Y1Q4, on July 28th.

(i) Provide training 'refresher' for foundational MBAT course to trainers by master trainer: *Completed*
In Y1Q4, the research team and Scott Rogers met to discuss the scheduling and details of the training "refresher" to be delivered during this quarter. During this meeting, the team decided that due to the current events regarding COVID19, the training refreshers would be delivered remotely online through the use of Zoom VTC. Furthermore, the research

team selected the four trainers that will be attending the training "refresher", as well as confirmed the schedule for the delivery of the training: the proposed schedule involves four, 2-hour long sessions delivered through Zoom, during the third week of September. The proposed plan was discussed with the point of contact at SAIC, Dr. Coreen Harada, and availability to attend the training was confirmed with the selected trainers. The master trainer (i.e., Scott Rogers) met with the trainers on four occasions on September 14th, 15th, 16th, and 18th for four, 2-hour long sessions and completed the fundamental MBAT course refresher.

(ii) Deliver MBAT-T practicum to trainers by master trainer: *In Progress*
In Y1Q4, Scott Rogers met with the SAIC trainers for the delivery of the MBAT-I "refresher". During these meetings, Rogers provided the trainers with a summary of the MBAT-T project and curriculum, in preparation for the practicum. Furthermore, the trainers were provided draft recordings of the four primary MBAT guided practices included in both MBAT-I and MBAT-T. The practicum will be scheduled in Y2Q1 and delivered in Y2Q2.

Task 6. Deliver the MBAT-T and MBAT-I programs to Soldiers over 2 Rounds *(In Preparation)*

In preparation for Task 6 execution, we initiated the scheduling aspect of this task during Y1Q3. Progress was made in confirming involvement in the project with military leadership at Fort Drum and establishing specific dates for the delivery of the program: CPT Rosado-Burgos met with Acting Commanding General BG Funck to brief him about the project. During this meeting, CPT Rosado-Burgos answered questions about the project and confirmed the interest of the 10th MTN Leadership at Fort Drum. The dates for MBAT delivery have been confirmed in the extended schedule of units at Fort Drum to begin April 2021 for the first round and October 2021 for the second round. MBAT delivery will occur in Y2 and Y3. In Y1Q4, we received the names of unit liaisons for participating brigades of the 10th MTN division at Fort Drum. The research team will coordinate with these unit liaisons for recruitment of participants in the study and implementation of the study protocol at Fort Drum.

What opportunities for training and professional development has the project provided?
If the project was not intended to provide training and professional development opportunities or there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe opportunities for training and professional development provided to anyone who worked on the project or anyone who was involved in the activities supported by the project. "Training" activities are those in which individuals with advanced professional skills and experience assist others in attaining greater proficiency. Training activities may include, for example, courses or one-on-one work with a mentor. "Professional development" activities result in increased knowledge or skill in one's area of expertise and may include workshops, conferences, seminars, study groups, and individual study.

Include participation in conferences, workshops, and seminars not listed under major activities.

During this reporting period, training and professional development opportunities have been offered informally and on an ad hoc basis to post-doctoral, graduate students and research-associate members of the PI's lab via discussions with the PI over this first year of the project. Lab members have learned different aspects of the scientific process, including the types of planning and preliminary procedures involved in successfully conducting a research study. Specifically, lab members have been exposed to procedures involved in IRB preparation and submission, study design, battery preparation and programming, logistical coordination with consultants and partnering military installation, and preparing for offsite data collection via discussions with the PI. The group discussions at regular lab meetings regarding this project have offered trainees an opportunity to be exposed to areas of key importance in preparation for doctoral studies and in a career as a researcher.

How were the results disseminated to communities of interest?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how the results were disseminated to communities of interest. Include any outreach activities that were undertaken to reach members of communities who are not usually aware of these project activities, for the purpose of enhancing public understanding and increasing interest in learning and careers in science, technology, and the humanities.

Nothing to report.

What do you plan to do during the next reporting period to accomplish the goals?
If this is the final report, state "Nothing to Report."

Describe briefly what you plan to do during the next reporting period to accomplish the goals and objectives.

During the next quarter, we aim to complete the following tasks:

- Finalize the MBAT-T course materials, practicum and teaching materials
- Hold briefings with military leadership/advisory groups for review of these materials
- Update IRB protocol to include operational measures, app components and piloting.
- Submit approved IRB modification to HRPO
- Finalize the development of the app
- Initiate/plan app testing with an ROTC convenience sample
- Make progress on the delivery of the MBAT-T practicum to trainers by master trainer

4. **IMPACT:** D*escribe distinctive contributions, major accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the project relative to:*

What was the impact on the development of the principal discipline(s) of the project?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how findings, results, techniques that were developed or extended, or other products from the project made an impact or are likely to make an impact on the base of knowledge, theory, and research in the principal disciplinary field(s) of the project. Summarize using language that an intelligent lay audience can understand (Scientific American style).

Nothing to report.

What was the impact on other disciplines?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how the findings, results, or techniques that were developed or improved, or other products from the project made an impact or are likely to make an impact on other disciplines.

Nothing to report.

What was the impact on technology transfer?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe ways in which the project made an impact, or is likely to make an impact, on commercial technology or public use, including:

- *transfer of results to entities in government or industry;*
- *instances where the research has led to the initiation of a start-up company; or*
- *adoption of new practices.*

Nothing to report.

What was the impact on society beyond science and technology?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how results from the project made an impact, or are likely to make an impact, beyond the bounds of science, engineering, and the academic world on areas such as:

- *improving public knowledge, attitudes, skills, and abilities;*
- *changing behavior, practices, decision making, policies (including regulatory policies), or social actions; or*
- *improving social, economic, civic, or environmental conditions.*

Discussions with military project advisors and sharing of training materials with military leadership and advisors, as part of the work of this project, has led to a number of broader impacts within the military. As one consequence of these advisory meetings, GEN Funk, commanding officer of the U.S. Army Training and Doctrine Command (TRADOC), and members of the Walter Reed Army Institute of Research (WRAIR), have initiated a large-scale independent research project. This collaboration between TRADOC and WRAIR seeks to investigate the effects of MBAT in the context of U.S. Army Basic Training, which has the potential to have a broad and lasting influence on the U.S. Army.

5. CHANGES/PROBLEMS: *The PD/PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency grants official whenever there are significant changes in the project or its direction. If not previously reported in writing, provide the following additional information or state, "Nothing to Report," if applicable:*

Changes in approach and reasons for change
Describe any changes in approach during the reporting period and reasons for these changes. Remember that significant changes in objectives and scope require prior approval of the agency.

Nothing to report.

Actual or anticipated problems or delays and actions or plans to resolve them
Describe problems or delays encountered during the reporting period and actions or plans to resolve them.

Due to the COVID19 pandemic, we have been anticipating some delays and discussing solutions.

1. Given that no in-person research activities are allowed at the University, we are currently working on transferring all computer-based laboratory testing to an online testing platform. We have been proactive in programming the battery online using the online software Inquisit for data collection and performing piloting to ensure the quality of data collected remotely.

2. In addition, given that the project involves collaboration with Ft. Drum as a recruitment site, we anticipate possible delays in executing the project at Ft. Drum. If data collection is not feasible in-person due to the COVID-19 pandemic, we will be

ready to switch to online data collection, which will involve some re-budgeting of the software and electronic devices needed for this alternative plan.

3. Some of the aspects that depend on approval from the University of Miami (e.g. approval of contracts) are taking longer than expected given continued staff furlough and other COVID-related delays. We have been working closely with various UM departments to minimize delays.

4. Finally, due to a hiring freeze at the University of Miami, we encountered delays in the hiring of proposed personnel. To temporally solve this problem, we have redistributed the effort of current members of the team.

Note that we will continue to work remotely as a research team and will ensure that we are best able to follow the stated timeline of our approved SOW.

Changes that had a significant impact on expenditures
Describe changes during the reporting period that may have had a significant impact on expenditures, for example, delays in hiring staff or favorable developments that enable meeting objectives at less cost than anticipated.

As stated above, the COVID-19 pandemic had an impact on hiring, travel, contract approval at the University of Miami. This explains the lower actual expenditure for Year 1 compared to what was initially budgeted. As we are close to finalizing contracts with consultants, hiring of new personnel, and planning for online testing requiring purchasing of online software and easy to ship devices (e.g., iPads), we are anticipating that we will be closer to the proposed budget in the subsequent years.

Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents
Describe significant deviations, unexpected outcomes, or changes in approved protocols for the use or care of human subjects, vertebrate animals, biohazards, and/or select agents during the reporting period. If required, were these changes approved by the applicable institution committee (or equivalent) and reported to the agency? Also specify the applicable Institutional Review Board/Institutional Animal Care and Use Committee approval dates.

Significant changes in use or care of human subjects

Nothing to report.

Significant changes in use or care of vertebrate animals

Nothing to report.

Significant changes in use of biohazards and/or select agents
Nothing to report.

6. **PRODUCTS:** *List any products resulting from the project during the reporting period. If there is nothing to report under a particular item, state "Nothing to Report."*

- **Publications, conference papers, and presentations**
  Report only the major publication(s) resulting from the work under this award.

  Nothing to report

  Journal publications. *List peer-reviewed articles or papers appearing in scientific, technical, or professional journals. Identify for each publication: Author(s); title; journal; volume: year; page numbers; status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

  Nothing to report

  Books or other non-periodical, one-time publications. *Report any book, monograph, dissertation, abstract, or the like published as or in a separate publication, rather than a periodical or series. Include any significant publication in the proceedings of a one-time conference or in the report of a one-time study, commission, or the like. Identify for each one-time publication: author(s); title; editor; title of collection, if applicable; bibliographic information; year; type of publication (e.g., book, thesis or dissertation); status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

  Nothing to report

  Other publications, conference papers and presentations. *Identify any other publications, conference papers and/or presentations not reported above. Specify the status of the publication as noted above. List presentations made during the last year (international, national, local societies, military meetings, etc.). Use an asterisk (*) if presentation produced a manuscript.*

  Nothing to report

- **Website(s) or other Internet site(s)**
  List the URL for any Internet site(s) that disseminates the results of the research activities. A short description of each site should be provided. It is not necessary to include the publications already specified above in this section.

  Nothing to report

- **Technologies or techniques**
  Identify technologies or techniques that resulted from the research activities. Describe the technologies or techniques were shared.

Nothing to report

- **Inventions, patent applications, and/or licenses**

  Identify inventions, patent applications with date, and/or licenses that have resulted from the research. Submission of this information as part of an interim research performance progress report is not a substitute for any other invention reporting required under the terms and conditions of an award.

  Nothing to report

- **Other Products**
  Identify any other reportable outcomes that were developed under this project. Reportable outcomes are defined as a research result that is or relates to a product, scientific advance, or research tool that makes a meaningful contribution toward the understanding, prevention, diagnosis, prognosis, treatment and /or rehabilitation of a disease, injury or condition, or to improve the quality of life. Examples include:
  - *data or databases;*
  - *physical collections;*
  - *audio or video products;*
  - *software;*
  - *models;*
  - *educational aids or curricula;*
  - *instruments or equipment;*
  - *research material (e.g., Germplasm; cell lines, DNA probes, animal models);*
  - *clinical interventions;*
  - *new business creation; and*
  - *other*

Nothing to report.

7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

What individuals have worked on the project?
Provide the following information for: (1) PDs/PIs; and (2) each person who has worked at least one person month per year on the project during the reporting period, regardless of the source of compensation (a person month equals approximately 160 hours of effort). If information is unchanged from a previous submission, provide the name only and indicate "no change".

Name:	Amishi P. Jha
Project Role:	P.I.
Nearest person month worked:	1.5 person months per quarter
Contribution to Project:	Dr. Jha has provided oversight and leadership on this project. She has provided several briefs to military

	leadership. She was involved in securing the site of the project and coordinating all of the ongoing tasks.
Name:	Scott Rogers
Project Role:	Co-Investigator
Nearest person month worked:	1 person month per quarter
Contribution to Project:	Scott Rogers is involved in the refinement of the MBAT Individual program and the development of the MBAT Team program. He has been playing a key role in the coordination with the App development team regarding the content of the app.
Name:	Ekaterina Denkova
Project Role:	Co-Investogator
Nearest person month worked:	2 person months per quarter
Contribution to Project:	Dr. Denkova has performed work in the area of securing IRB/HRPO approvals, submitting the pre-registration of the study to clinicaltrials.gov, engaging in discussions regarding the app and coordinating the logistics of the project as well as leading the selection of lab measures for the study.
Name:	Anthony Zanesco
Project Role:	Post-doctoral fellow
Nearest person month worked:	3 person months per quarter
Contribution to Project:	Dr. Zanesco has been involved in the development of the operational metrics (i.e., Conflict Kinetics) and provided support for the coordination of the study.
Name:	Jordan Barry
Project Role:	Research Associate
Nearest person month worked:	2 person months per quarter
Contribution to Project:	Mr. Barry has provided support in the preparation of IRB submission, registration to clinicaltrials.gov, and gathering of information to facilitate the development of training courses and the mobile app.
Name:	Costanza Alessio
Project Role:	Research Associate

Nearest person month worked:	1 person month per quarter
Contribution to Project:	Mrs. Alessio has provided support in the preparation of IRB submission, registration to clinicaltrials.gov, and gathering of information to facilitate the development of training courses and the mobile app.
Name:	Kellen McDonald
Project Role:	Research Associate
Nearest person month worked:	1 person month per quarter
Contribution to Project:	Ms. McDonald has provided support in the coordination and development of the mobile app.
Name:	Cody Boland
Project Role:	Graduate Student
Nearest person month worked:	1 person month per quarter
Contribution to Project:	Ms. Boland has provided support in the coordination and development of the mobile app.

Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

If the active support has changed for the PD/PI(s) or senior/key personnel, then describe what the change has been. Changes may occur, for example, if a previously active grant has closed and/or if a previously pending grant is now active. Annotate this information so it is clear what has changed from the previous submission. Submission of other support information is not necessary for pending changes or for changes in the level of effort for active support reported previously. The awarding agency may require prior written approval if a change in active other support significantly impacts the effort on the project that is the subject of the project report.

1. The end of the reporting period coincides with the final end date of another DOD grant (Grant Award # W81XWH-14-1-0443, Log Number 13046061).

2. During the last quarter, a new grant was also awarded to the PI and Co-Is (Research Subcontract No. 00620 under WRAIR Prime Contract No. W911QY-17-C-010).

3. We are in the process of contracting a new DOD grant, which is planned to start October 2020.

As such, the effort for the PI and key personnel will be distributed to account for these changes.

What other organizations were involved as partners?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe partner organizations – academic institutions, other nonprofits, industrial or commercial firms, state or local governments, schools or school systems, or other organizations (foreign or domestic) – that were involved with the project. Partner organizations may have provided financial or in-kind support, supplied facilities or equipment, collaborated in the research, exchanged personnel, or otherwise contributed.

Provide the following information for each partnership:
Organization Name:
Location of Organization: (if foreign location list country)
Partner's contribution to the project (identify one or more)

- *Financial support;*
- *In-kind support (e.g., partner makes software, computers, equipment, etc., available to project staff);*
- *Facilities (e.g., project staff use the partner's facilities for project activities);*
- *Collaboration (e.g., partner's staff work with project staff on the project);*
- *Personnel exchanges (e.g., project staff and/or partner's staff use each other's facilities, work at each other's site); and*
- *Other.*

Organization Name:
Fort Drum, 10th Mountain Division

Location of Organization:
10000 10th Mountain Division Drive, Fort Drum, NY 13602

Partner's contribution to the project:
Fort Drum is a U.S. Army military installation. It generates, rapidly deploys, and sustains ready forces to meet national security requirements while caring for Soldiers, Families, and civilians. Ft. Drum is a collaborating organization on this project by providing project coordination with the research team for aspects of the study taking place at Ft. Drum, and for facilitating recruitment of participants. Ft. Drum will also provide facilities and locations for the testing and MBAT training, and the installation of the simulated operational scenario environment.

8. SPECIAL REPORTING REQUIREMENTS

COLLABORATIVE AWARDS: *For collaborative awards, independent reports are required from BOTH the Initiating Principal Investigator (PI) and the Collaborating/Partnering PI. A duplicative report is acceptable; however, tasks shall be*

clearly marked with the responsible PI and research site. A report shall be submitted to ***https://ers.amedd.army.mil*** *for each unique award.*

QUAD CHARTS: *If applicable, the Quad Chart (available on https://www.usamraa.army.mil) should be updated and submitted with attachments.*

Mindfulness-based Attention Training to Bolster Small Team Performance
Log Number: 180178
Award Number: W81XWH1920064

PI: Dr. Amishi P. Jha **Org:** University of Miami **Award Amount:** $2,318,318

Study/Product Aim(s)

The overarching aim of this proposal is to develop, deliver, and investigate the efficacy of MBAT-Team (vs. MBAT-I) as a tool to promote individual cognitive performance, resilience, interpersonal interactions and team-level operational performance.

Approach

Main Components.

1. Develop MBAT-Team
2. Deliver MBAT-Team Practicum to trainers
3. Develop MBAT app
4. Deliver MBAT-Team and MBAT-Individual to squads
5. Collect lab and operational measures from squads

All tasks that were expected to be initiated in Year 1 were initiated according to the Statement of Work. Contracting processes of Non-UM providers were slightly delayed because of the current situation caused by COVID-19. Key tasks are described below:

- Prepared the research protocol for IRB/HRPO approval and pre-registration on clinicaltrials.gov
- Hired and trained research associated
- Finalized all assessment measures
- Made progress on the development of the MBAT-T course materials and corresponding mindfulness exercises
- Completed the refinement of the MBAT-I course materials
- Made progress on the development of the MBAT-T practicum and teaching materials
- Delivered the MBAT-T practicum to trainers
- Coordinated and progressed on the development and finalization of the mobile app for mindfulness exercise dissemination
- Held advisory group briefings on MBAT-T materials
- Made progress on the contracting of consultant/service providers
- Confirmed interest in the project with military leadership at Ft. Drum and established specific dates for the delivery of the program

Timeline and Cost

Activities CY	19	20	21	22
Secure IRB approval and pre-registration				
Finalize assessment measures				
Prepare and develop training materials				
Develop and Pilot Mobile Application (App)				
Deliver mindfulness practicum to trainers				
Deliver the MBAT-T and MBAT-I				
Compare and contrast MBAT-T and MBAT-I				
Disseminate results				
Estimated budget per year		$662,805	$873,214	$782,299

Updated: University of Miami, October 2020

Goals/Milestones

CY20 Goal – Preparation testing and training materials

☑ Secure IRB approval and pre-registration

☑ Finalize assessment measures

☐ Prepare and develop training materials

CY21 Goals – App development and Teaching Practicum

☐Develop and Pilot Mobile Application (App)

☐Deliver mindfulness practicum to trainers

CY22 Goal – Deliver MT, collect and analyze data

☐Deliver the MBAT-T and MBAT-I

☐Compare and contrast MBAT-T and MBAT-I

☐Disseminate results

Comments/Challenges/Issues/Concerns

Budget Expenditure to Date

Projected Expenditure: $2,318,318

Actual Expenditure: $425,552.33

9. APPENDICES: *Attach all appendices that contain information that supplements, clarifies or supports the text. Examples include original copies of journal articles, reprints of manuscripts and abstracts, a curriculum vitae, patent applications, study questionnaires, and surveys, etc.*