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MORE Resiliency in the Rehabilitation of Active Duty Service Members

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CONTRACTING ORGANIZATION:
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Nashville,

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14. ABSTRACT The purpose of our prospective cohort study is to address important knowledge gaps on resiliency in the rehabilitation of adults with lower-extremity injuries. Specific aims are to develop and test a resiliency instrument that is relevant to active duty military Service Members. The proposed project will leverage the infrastructure of the Maximizing Outpatient Rehabilitation Effectiveness (MORE) study that is currently being conducted at Brooke Army Medical Center. The first year of the project focused on selecting items from three well-established resiliency instruments that have been validated in civilian populations. Interviews and focus groups were conducted in up to 28 active duty military Service Members. A pre-test of the MORE resiliency instrument in 60 Service Members was conducted which finalized the instrument. Currently, we are testing the MORE resiliency instrument in 310 Service Members to determine reliability and construct and predictive validity of the instrument in active duty Service Members with lower-extremity injury. This project has HRPO approval and has enrolled 77 out of the 310 participants for the testing cohort phase of the project.					
15. SUBJECT TERMS Resiliency, lower-extremity injury, instrument development					
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1. INTRODUCTION:

The overall objective of this multicenter prospective study is to develop and validate a standardized measure to objectively assess resiliency following neuromusculoskeletal injury. The measure will be specifically tailored to the injured Service Member. Results from the proposed study will provide an evidence-based resiliency instrument that can be integrated into rehabilitation care in the military setting with the end goal of improving rehabilitation outcomes.

This study has 4 specific aims: 1) To select items for a resiliency instrument that address multiple dimensions of resiliency for active duty military Service Members 2) To perform a pre-test of the resiliency instrument in active duty military Service Members with lower-extremity injury for item reduction 3) To determine the reliability and construct validity of a resiliency instrument in active duty military Service Members with lower-extremity injury 4) To determine the predictive validity of a resiliency instrument in active duty military Service Members with lower-extremity injury.

This project has leveraged the infrastructure of the Maximizing Outpatient Rehabilitation Effectiveness (MORE) study that was funded by the Bridging Advanced Developments for Exceptional Rehabilitation Consortium (W81XWH-11-2-0222). We propose a three-phase design and are currently in the final phase of the project. In Phase 1, we identified the most relevant resiliency items to active duty Service Members by conducting interviews and focus groups with individuals who were enrolled in the MORE study (N=28). In Phase 2, we conducted a pre-test to refine and eliminate items that performed poorly (N=60). In Phase 3, we are currently conducting a prospective cohort study to determine reliability and construct and predictive validity. For this phase, we plan to recruit up to 310 MORE participants from the Carl R. Darnall Army Medical Center.

2. KEYWORDS:

resiliency, instrument development, reliability, validity, lower-extremity trauma, rehabilitation outcomes

3. ACCOMPLISHMENTS:

What were the major goals of the project?

	Timeline (Months)	% Complete
Major Task 1: Regulatory Approval		
Milestone(s) Achieved		
Local IRB Approval	12	100%
USAMRMC HRPO Approval	14	100%
Personnel Hired	12	100%
Major Task 2: Participant Interviews		
Milestone(s) Achieved:		
Interviews Completed	19	100%
Qualitative Model and Narratives Completed	20	100%
Major Task 3: Participant Focus Groups		
Milestone(s) Achieved:		
Focus Groups Completed	21	100%
Initial Resiliency Instrument Completed	22	100%

Major Task 4: Pre-Test of Instrument		
Milestone(s) Achieved:		
Participants Complete the Pre-test	28	100%
Resiliency Instrument Finalized	29	100%
Major Task 5: Test-Retest Reliability		
Milestone(s) Achieved:		
Test-Retest Reliability Completed: 50/50	34	100%
Major Task 6: Construct Validity		
Milestone(s) Achieved:		
Construct Validity Completed: 77/310	58	25%
Major Task 7: Predictive Validity		
Milestone(s) Achieved:		
Predictive Validity Completed: 33/310	60	11%
Final Report Completed	60	0%

What was accomplished under these goals?

For this reporting period, major activities included continuing enrollment and data collection for Phase 3 of the study and completing enrollment for reliability testing of the MORE resiliency instrument. The phase 3 participants are receiving the 20-item resiliency instrument that was created from 3 well-established resiliency instruments for civilians (i.e., Connor-Davidson, Resilience Scale for Adults, and the 25-item Resilience Scale). These 20 items cover the following resiliency constructs: hardiness, persistence, personal competence/strength, acceptance of self/life, personal structure, social competence, and family cohesion/social support. A copy of the resiliency instrument is submitted with this report. The reliability and validity test enrollment is occurring at Carl R. Darnall Army Medical Center at Fort Hood. Patients are approached for enrollment in the physical therapy clinic and can complete the instrument by survey or through an interview with study staff. To date, we have enrolled 77 out of 310 participants for Phase 3 testing. Of those enrolled, 77 participants have completed the MORE resiliency instrument at baseline by survey as well as the other study questionnaires that are needed to assess construct validity. Demographics of these participants are as follows: 10 females (13%) and 67 males (87%); 3 American Indian or Alaskan Native, 2 Native Hawaiian or Other Pacific Islander, 23 Black or African American, 41 White, 2 Asian, 2 more than one race, and 4 unknown race; 19 individuals are Hispanic or Latino (25%).

Of the 77 participants who completed the baseline survey, 50 have completed the MORE resiliency instrument a second time within 1 week to establish test-retest reliability and 33 participants have completed the study (i.e., completed discharge assessment).

Please see below for a more detailed description of enrollment for Phase 3 testing (Table 1):

Table 1. Screening, Enrollment, and Data Collection for Phase 3 Testing.

Screened	159
Screen Failure	79
in field	11
not returning to PT	32
pregnant	1
cannot commit to time	14
having another surgery	1
not interested	10
lack of severity of injury	10
Consented	80
Completed baseline assessment	77
Completed re-test	50
Lost to follow up	28
Withdrawn	11
Pending	5
Completed Discharge	33

What opportunities for training and professional development has the project provided?

Nothing to Report

How were the results disseminated to communities of interest?

Nothing to Report

What do you plan to do during the next reporting period to accomplish the goals?

During the next reporting period, we plan on completing the prospective testing of the MORE resiliency instrument in order to assess construct and predictive validity.

4. IMPACT:

What was the impact on the development of the principal discipline(s) of the project?

Nothing to Report

What was the impact on other disciplines?

Nothing to Report

What was the impact on technology transfer?

Nothing to Report

What was the impact on society beyond science and technology?

Nothing to Report

5. CHANGES/PROBLEMS:

Changes in approach and reasons for change

There have been no major changes in approach during this reporting period.

Actual or anticipated problems or delays and actions or plans to resolve them

During this reporting period, recruitment was unexpectedly paused for six months due to the COVID-19 pandemic. The enrolling site was closed and we were unable to recruit or collect follow-up data in-person. Patient-reported survey data collection for already enrolled participants continued remotely until we were able to resume enrollment in mid-September. However, some of the patients were difficult to reach for a discharge assessment (36%) and others withdrew from the study (14%) due to the stress of the COVID-19 pandemic.

During the time of the site closure, we received approval for remote consent and baseline assessment so that we would have flexibility in our recruitment procedures once the participating site reopened for clinical care. With recruitment resuming, we anticipate recruitment numbers to increase based on historical trends at CRDAMC. We continue to review enrollment and follow-up procedures on a weekly basis and discuss ways to improve recruitment and follow-up rates.

Changes that had a significant impact on expenditures

Due to the delays in IRB and HRPO approval over the course of the grant period, the personnel and research related expenditures were lower than expected for years 1-3. We will be using funds from years 1-3 for our NCEs requested for years 4 and 5.

Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents

Nothing to Report

Significant changes in use or care of human subjects

Nothing to Report

Significant changes in use or care of vertebrate animals.

Not Applicable

Significant changes in use of biohazards and/or select agents

Not Applicable

6. PRODUCTS:

- **Publications, conference papers, and presentations**

Nothing to Report

Journal publications. Nothing to Report

Books or other non-periodical, one-time publications. Nothing to Report

Other publications, conference papers, and presentations. Nothing to Report

- **Website(s) or other Internet site(s)**

Nothing to report

- **Technologies or techniques**

Nothing to report

- **Inventions, patent applications, and/or licenses**
Nothing to report
- **Other Products**
Nothing to report

7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS
What individuals have worked on the project?

Name: Kristin Archer

Project Role: PI

Nearest person month worked: 1

Contribution to project: Developed protocol and all IRB documents, HRPO submission, oversight of pre-test analysis, finalized instrument, oversight of prospective enrollment and followup for test cohort, completed quarterly reports and annual report

Name: Amy Bowles

Project Role: Site PI BAMC

Nearest person month worked: 1

Contribution to project: Oversight of BAMC IRB submission and recruitment and follow-up, participated in weekly team conference calls

Name: Jason Wilken

Project Role: Co-investigator

Nearest person month worked: 1

Contribution to project: Provided expert advice on enrollment and amendments, participated in weekly team conference calls

Name: Stephen Wegener

Project Role: Co-investigator

Nearest person month worked: 0

Contribution to project: Provided expert advice on resiliency and helped interpret analysis to finalize instrument

Name: David Schlundt

Project Role: Co-investigator

Nearest person month worked: 0

Contribution to project: Conducted qualitative analysis, trained study personnel in cognitive interviewing

Name: Benjamin Keizer

Project Role: Co-investigator

Nearest person month worked: 0

Contribution to project: Provided expert advice on resiliency instrument

Name: Christine Snyder

Project Role: Co-investigator

Nearest person month worked: 0
Contribution to project: Provided expert advice on resiliency instrument

Name: Mathew Frazier
Project Role: Site PI CRDAMC, Ft, Hood
Nearest person month worked: 0
Contribution to project: Oversight of enrollment into pre-test and pilot test

Name: Shannon Block
Project Role: Project Director
Nearest person month worked: 1
Contribution to project: Assisted with preparing amendments and IRB submission for Aims 3 and 4, participated in weekly team conference calls, auditing data for completeness, training of personnel on recruitment and data collection

Name: Molly Pacha
Project Role: Collaborator
Nearest person month worked: 1
Contribution to project: Helped prepare documents for IRB and HRPO amendment submissions and scheduled and participated in weekly conference calls for the team

Name: Kemberlee Bonnet
Project Role: Collaborator
Nearest person month worked: 0
Contribution to project: Assisted with qualitative analysis to finalize resiliency instrument

Name: Whitney Kiyua
Project Role: Research Physical Therapy Technician
Nearest person month worked: 2
Contribution to project: Enrolled participants for the pre-test and pilot test and was responsible for all data collection, helped reschedule appointments when needed, participated in weekly conference calls for the team

Name: Pamela Jahelka
Project Role: Research Assistant
Nearest person month worked: 0
Contribution to project: Assisted with data collection, recruitment, consent, staff training, local IRB and protocol coordination

Name: Andrew Valantine
Project Role: Research Physical Therapy Technician
Nearest person month worked: 0
Contribution to project: Enrolled participants for the pre-test and pilot test and helped reschedule appointments when needed

Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?

Nothing to report

What other organizations were involved as partners?

Organization Name: University of Iowa

Location of Organization: Iowa City, IA

Partner's contribution to the project:

Collaboration on protocol and IRB documents as well as development of resiliency instrument

Organization Name: Johns Hopkins Medicine

Location of Organization: Baltimore, MD

Partner's contribution to the project:

Collaboration on protocol and IRB documents as well as development of resiliency instrument

Organization Name: Carl R. Darnall Army Medical Center

Location of Organization: Fort Hood, TX

Partner's contribution to the project:

Collaboration on protocol and IRB documents, development of resiliency instrument, enrollment and data collection

Organization Name: Center for the Intrepid

Location of Organization: SAMMC, JBSA Fort Sam Houston, TX

Partner's contribution to the project:

Collaboration on protocol and IRB documents, development of resiliency instrument

8. SPECIAL REPORTING REQUIREMENTS

COLLABORATIVE AWARDS: N/A

QUAD CHARTS: Submitted

Appendix I: Final 20-Item MORE Resiliency Instrument

For each item, please mark an “x” in the box below that best indicates how much you agree with the following statements as they apply to you in your military or personal life. If a particular situation has not occurred recently, answer according to how you think you would have felt.

		Not true at all (0)	Rarely true (1)	Sometimes true (2)	Often true (3)	True nearly all the time (4)
1.	Having to cope with stressful situations can make me stronger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	I tend to bounce back after illness or injury	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	I am not easily discouraged by failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	I am able to handle unpleasant or painful feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	When something unforeseen happens I find a solution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	In difficult periods, I have a tendency to find something that helps me thrive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	I manage to come to terms with events in my life that I cannot influence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	I feel that my future looks very promising	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	I am able to depend on myself more than anyone else	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	I feel that I can handle many things at a time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	I am determined	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	I have self discipline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	I can usually look at a situation in a number of ways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Sometimes I make myself do things whether I want to or not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	I can usually find something to laugh about	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	I am at my best when I have a clear goal to strive for	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	I enjoy being together with other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	I discuss personal issues with friends/family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	I get support from friends/family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	When needed, I have someone who can help me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>