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TITLE: Spin, unit climate, and aggression: Near term, long term, and reciprocal predictors of violence among workers in military settings

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13. SUPPLEMENTARY NOTES

14. ABSTRACT

The primary goal of the proposed effort is to conduct a prospective study evaluating potential near term and longer term predictors of various forms of aggression and closely related constructs (e.g., physical assault, verbal aggression, anger / rage, bullying, harassment, intimate partner violence) as well as physical health and mental health outcomes often associated with exposure to aggression (e.g., drug / alcohol use, burnout, suicidal ideation). The proposed effort includes both individual level variables (e.g., differences in within-person variability in emotional state, known as "spin") and group level variables (e.g., unit climate) hypothesized to impact aggression, health, and mental health. Because we anticipate many of the relations may be bi-directional (e.g., aggression influences health, which also influences aggression), the study will consist of several waves spanning roughly 14 months. During this project year (PY2), our team completed and submitted our literature review, refined and deployed our recruitment materials, and launched the prospective study.

15. SUBJECT TERMS

workplace aggression; affective spin; unit climate; substance use; stress ; intimate partner violence ; suicidality

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1. **INTRODUCTION:**
   The prediction of aggressive behaviors is an historically difficult task. However, it is also a very important task, particularly in settings such as the military workplace. In addition to the harm that can be caused to targets of physical aggression, witnessing aggression in the workplace can have negative consequences for unit performance, physical health, and mental health. An oft overlooked aspect of aggression is that it is a product of factors occurring both in short (e.g., provocations) and long time frames (e.g., repeated exposure to stressful settings) as well as the individual (e.g., personality) and group level (e.g., unit climate). The primary goal of the proposed effort is to conduct a prospective study evaluating potential near term and longer term predictors of various forms of aggression and closely related constructs (e.g., physical assault, verbal aggression, anger / rage, bullying, harassment, intimate partner violence) as well as physical health and mental health outcomes often associated with exposure to aggression (e.g., drug / alcohol use, burnout, suicidal ideation). The proposed effort includes both individual level variables (e.g., differences in within-person variability in emotional state, known as "spin") and group level variables (e.g., unit climate) hypothesized to impact aggression, health, and mental health. Because we hypothesize many of these relationships are reciprocal (e.g., health is influenced by and influences aggression), the study consists of following the same individuals across several waves spread over approximately 14 months. The project timeline specified Project Year 1 would consist primarily of reviewing the scholarly literature relating to aggression as well as investigation reports from mass casualty events, refining and finalizing measures, and obtaining relevant approvals to conduct the study. These efforts would then form the basis for data collection scheduled to occur during Project Years 2 and 3 and analyses to be conducted Year 3.

2. **KEYWORDS:**
   workplace aggression; affective spin; unit climate; substance use; stress ; intimate partner violence ; suicidality

3. **ACCOMPLISHMENTS**

   What were the major goals of the project?
   The proposed effort consists of a qualitative examination of past incidents of aggression (via investigation reports) plus a prospective study to evaluate variables likely to predict near and long term risk of several forms of aggression and closely related concepts (e.g., physical assault, verbal aggression, anger / rage, bullying, harassment, intimate partner violence) and related physical health and mental health concerns (e.g., drug / alcohol use, burnout, suicidal ideation). We proposed to do so by looking at both individual level and unit level factors across time. At the individual level, we will examine within-person variability in emotion and interpersonal behaviors (known as "spin"), history of aggression, and mental health states related to aggression (e.g., borderline personality disorder, stress). At the unit level, we will examine unit climate regarding the appropriateness of aggressive behavior and of emotion displays as well as leadership variables relating to unit climate. As such, the effort integrates findings and theories across several separate literatures (e.g., emotion regulation, aggression in the workplace, domestic violence, substance use, etc.). We expect the variables we identify will interact with each other over time to influence aggression, health, and mental health

outcomes, and that some of these relationships will be reciprocal in nature (e.g., aggression impacts mental health, which then impacts aggression). To assess these possibilities, we use a mixture of experience sampling methods (ESM; repeated measures taken within a relatively short time) via smart phone based questionnaire delivery tools and traditional longitudinal methods (i.e., lengthier surveys at three to four month intervals) via web based delivery tools.

Our approach is largely informed by the I^3 model's (Finkel et al., 2012) separation of predictors of aggression into Impellors (factors that influence base rate of aggressive urges), Instigators (akin to provocations), and Inhibitors (in this case, individual differences in ability to control one's hostile emotions and behavior). We think of potential predictors – including potentially reciprocal predictors – in terms of how they might influence one's base rate of having aggressive urges absent provocation, seeing an event as a provocation, and ability to restrain oneself from acting on an aggressive urge if such an urge is experienced.

Objectives/Hypotheses
1. To examine the relationship of within-person variability ("spin") to aggressive behavior and health outcomes.

2. To examine potential reciprocal relationships of mental health variables (e.g., stress, substance use) to aggression over time.

3. To examine the relationship of "unit climate" to aggressive behaviors and health outcomes.

4. To examine the relationship between individual regulatory skills and aggression.

Specific Aims
1. To determine the utility of measures of affective and interpersonal spin, hostility and regulatory climate, and individual differences in self-regulation as predictors of aggressive behavior and health outcomes.
2. To describe the near and long term interactions between these factors, and their influence on aggression and health outcomes.

Year 1 Major Activities & Milestones
1. Search literature and investigation reports to inform selection of variables and measures (Sep 2014 - Feb 2015)
2. Compile measures into questionnaire (Sep 2014-Feb 2015)
3. Obtain regulatory approvals, including modifications (Feb 2015- Aug 2015)
4. Formalize results of literature search as scholarly review document (Apr 2015 - Aug 2015)

Year 2 Major Activities & Milestones
1. Recruitment and enrollment of participants (Oct 2015)
2. Data collection waves 1 (ESM wave; Nov 2015), 2 (survey; Dec 2015), and 3 (ESM plus survey; Apr 2016)
3. Data entry and preparation (Nov 2015 – July 2015)

Year 3 Major Activities & Milestones
1. Data collection waves 4 (survey; Aug 2016) and 5 (survey; Dec 2016)
2. Data entry and preparation (Aug 2016 – Jan 2017)
3. Primary data analysis (Jan 2017 – July 2017)
4. Final report (Aug 2017)

What was accomplished under these goals?
Year 1 saw the selection of measures, assembly of these measures into our online instruments, and the bulk of the literature review. Year 1 also saw the initial IRB approval for our proposed study. Modifications to the recruitment plan (made at the advice of our recruitment liaison in light of the web-based nature of the study) were submitted in Q1 of Year 2 and approved in Q2. Additional modifications made to accommodate suggestions provided at the October 2015 IPR were approved by the PI's home IRB and judged non-substantive changes by HRPO (Q3/Q4). Following notification of this judgment, we launched recruitment (Q4). We continued to refine our web presence / electronic outreach needed to maximize the effectiveness of recruitment materials throughout Q4. During Q3 and Q4, we also explored alternate recruitment strategies as fallback positions (e.g., other electronic postings, recruiting through channels requiring garrison level approval) should our primary strategy not provide sufficient numbers of participants quickly enough. Due to delays in launching recruitment (see changes / problems), we did not succeed in launching waves 2 and 3 during this project year as we had originally planned. These are now slated to be launched beginning early in Year 3 (see Appendix A).

Year 2 also saw completion of the scholarly summary for the sponsor (Q3) and submission of a proposal for the annual review issue of a scholarly journal (Q4). Unfortunately, the journal in question did not select our proposal for development into an article. We also made substantial progress toward submission of a review manuscript to a second scholarly journal. This manuscript is expected to be submitted for consideration by that journal within days of this annual report and will be submitted to the GOR simultaneously.

What opportunities for training and professional development has the project provided?
Weekly meetings have been conducted with research assistants. The primary goal of these has been coordinating research assistants' activities and assignments. However, during Year 1 they were also used to discuss findings and theories as they pertain to the project for the purpose of helping research assistants develop a deeper understanding of the literatures on military psychology, social psychology, organizational psychology, affect, mental health, and aggression. Later Year 1 meetings and early Year 2 meetings also included discussions of the opportunities and hazards involved in various forms of online data collection. Improving research assistants' understanding in these domains allows them to be more effective research assistants in addition to contributing to their professional development. As Year 2 progressed, meetings increasingly involved discussions of selection of scholarly journals as outlets for reviews papers and empirical articles, the publication process and strategies, and research ethics / publication ethics.

Although we did not yet have data to present, a portion of Year 2 travel funds was also used to partially subsidize two research assistants' participation in the annual meeting of the Society of Personality and Social Psychology to provide them with an opportunity to gain broader exposure to health and aggression research, to learn about not yet published research in health and aggression, and to learn more about scholarly norms.

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 first month of the Project Year 3, we intend to submit a review manuscript to a scholarly journal for consideration. We also intend to continue to pursue additional electronic recruitment methods. These include methods not requiring garrison level approval (e.g., advertising on MWR sites and news sites) and methods do require garrison level approval. During this time, we will also continue our primary recruitment strategy.

While enrollment is accruing, some members of our team will prepare to provide technical support to participants during wave 1. These members will then be responsible for providing such support if needed. The remaining members of the team will prepare to assist with technical issues should any arise for wave 2. Upon completion of wave 2, some members of our team will be devoted to data compilation and preparation while others focus on making final preparations to launch and provide technical support for wave 3. Similar divisions of labor will continue through waves 4 and 5, gradually shifting from data entry and preparation to data analysis and writing.

4. IMPACT

What was the impact on the development of the principal discipline(s) of the project?
The scholarly review submitted to the sponsor in Year 2 integrates theory and findings on aggression from organizational psychology, social psychology, and military psychology and applies them in a novel way to predict aggression. It also integrates across long and short term predictors of aggression. This level of integration is rare in these literatures. As such, the review document has the potential to lead researchers in these areas to consider a broader range of factors when thinking about prediction and prevention of aggression.

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?
In addition to integrating theory and findings on aggression from across different areas of research, the scholarly review submitted to the sponsor in Year 2 integrates across long and short term predictors of aggression and potential reciprocal effects. A better understanding of these temporal relations will help in both the development of methods for predicting when someone is about to aggress and in the development of policies to reduce the likelihood of aggression in military and workplace settings.

5. CHANGES/PROBLEMS:

Changes in approach and reasons for change
As noted in our quarterly reports, to address feedback received at the 2015 IPR, we added a screening questionnaire to minimize the chances that non-military individuals posing as military would attempt to take part in the study and to enhance our ability to detect and prevent participation by any non-military individuals who made such an attempt. As

suggested by members of the panel at the 2015 IPR, we refined our measures to obtain additional information on ostracism in light of the growing importance of this concept both in health research and aggression research and its potential to be especially important in settings in which unit cohesion and camaraderie are highly valued (as in the military). We have also narrowed recruitment to specific installations / units to improve measurement of unit climate. Because such narrowing risks slowing accrual of participants, we are monitoring accrual closely and intend to adjust the breadth of recruitment if accrual indicates a need to do so.

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

During project Year 2, our main vector for providing recruitment ads (Facebook) changed the manner in which advertisers could define their target population. It is now more difficult to deliver advertising at the unit level than it was under the previous system. To compensate for this, we have been pursuing three plans of action. The first involves improving our web presence to increase the rate of enrollment among those who receive the ad. To this end we launched a research group web site within the branding guidelines of the PI's institution, and made our Facebook site more active with news stories relevant to the military workplace (e.g., via links to Military Times, Stars and Stripes, news sites at the selected installations, etc.), and rotating the imagery used in our posts, advertisements, etc. The second plan of action involves purchasing advertising through news sites serving specific military installations and, for installations so permitting, on affiliated MWR sites, the cost of which we are currently assessing. The third plan of action involves pursuing garrison approval to post recruitment materials on unit-administered electronic resources (including Facebook pages) to more directly distribute our materials to specific units. Although we are hopeful that these changes will overcome the issues created by the changes in our primary recruitment tool and the narrowing of our sampling frame, we are concerned that our recruitment will be slower than originally projected and that it may become necessary to request a no cost extension.

Changes that had a significant impact on expenditures

The delay in hiring in Year 1 and changes in our main recruitment tool each contributed to a delay in start of data collection in Year 2. Because much of the original Year 2 budget was earmarked for providing "thank you" gifts to participants, the delay resulted in shifting a substantial amount of spending from Year 2 to Year 3.

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

Significant changes in use or care of human subjects

IRB approval for online recruiting as well as for changes to the study's measures to address issues raised at the 2015 IPR was obtained from the PI's home institution. These changes were judged to be non-substantive changes by HRPO. No other changes have occurred this project year.

Significant changes in use or care of vertebrate animals.

N/A ; Effort does not involve any non-human subjects or specimens

Significant changes in use of biohazards and/or select agents

N/A ; Effort does not involve any biohazards or related substances

6. PRODUCTS

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

  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:	Michael R. Baumann
Project Role:	PI
ORCID:	0000-0001-9633-0677
Nearest person months worked this year:	2 (1.5 via project funding; 0.5 via UTSA research time)
Contribution to project:	Dr. Baumann coordinated the efforts of senior personnel, coordinated with IRBs / HRPO, and oversaw the research assistants with respect to the literature review, scholarly summary for sponsor, and development and deployment of recruitment materials and questionnaires. Dr. Baumann also contributed heavily to the writing of manuscripts.

Name:	Rebecca Weston
Project Role:	Co-PI
ORCID:	0000-0003-0457-1970
Nearest person months worked this year:	1
Contribution to project:	Dr. Weston's primary contributions this year were in the form of advising the literature review, advising on recruitment materials and process, and testing of the experience sampling platform.

Name: Daniel J Beal

Project Role: Co-PI

ORCID: 0000-0003-4750-2430

Nearest person months
    worked this year: 1

Contribution to project: Dr. Beal's primary contributions this year were in the form of advising the annual review article proposal, the literature review, and testing of the experience sampling platform.

Name: David Oviatt

Project Role: Research Assistant

ORCID: 0000-0002-3343-2411

Nearest person months
    worked this year: 6

Contribution to project: Mr. Oviatt's primary responsibilities were (1) integrating analyses of mass casualty events into the scholarly summary for the sponsor (2) developing a screening questionnaire addressing concerns raised at the IPR and (3) testing and providing feedback on refinements to the questionnaire

Name: Janet Bennett

Project Role: Research Assistant

ORCID: 0000-0002-7542-3265

Nearest person months
    worked this year: 6

Contribution to project: Ms. Bennett's primary responsibilities were (1) integrating theoretical models and perspectives on aggression into the scholarly report for the sponsor, (2) refining measures of ostracism for inclusion as recommended at the 2015 IPR, (3) refining advertisements and advertisement-targeting to optimize Facebook-based recruitment, and (4) primary writing for the review-style manuscript to be submitted in Aug 2016.

Name: James Deller

Project Role: Research Assistant

ORCID: 0000-0001-7374-7621

Nearest person months
    worked this year: 6

Contribution to project: Mr. Deller's primary responsibilities were (1) integrating information from the civilian workplace into the scholarly report for the sponsor, (2) refining the appearance of each questionnaire to broaden the range of compatible platforms, and (3) providing feedback on manuscript drafts.

Name: Jessica Perrotte

Project Role: Research Assistant

ORCID: 0000-0002-4091-7820

Nearest person months
worked this year: 6

Contribution to project: Ms. Perrotte's primary responsibilities were (1) integrating information on similarities and differences between the military and civilian populations and settings into the scholarly summary for the sponsor (2) compiling our references lists into a database to manage the large number of relevant works, (3) providing feedback and testing on questionnaires, recruitment materials, and manuscripts.

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

Michael R. Baumann:
No change

Rebecca Weston:
New support obtained since last annual report:
CDC
Implementing Fourth R in US schools: feasibility, fidelity, and sustainability
Sep 2015 – Sep 2018
Role: Co-I
Commitment: 1 month per year (9 academic months at 11%)

Support completed since last annual report
NIJ
Continuation of Dating it Safe: A longitudinal study on teen dating violence
Role: Co-investigator
Jan 2013 – Dec 2015
Commitment: 1 month per academic year (9 academic months at 11%)

Daniel Beal:
No change

Craig Bryan:
New support obtained since last annual report:
Military Operational Medicine Research Program
Technologies for assessing behavioral and cognitive markers of suicide risk
Oct 2015 – Sep 2018
Role: PI
Commitment: 1.2 months per year (10% each calendar month)

Department of Defense
A virtual PTSD clinical assistant with cloud computing and mobile interface: VPCA
Oct 2015 – Mar 2017
Role: Co-Investigator
Commitment: 0.4 months per year (3% each calendar month)

State of Utah
Utah Comrades Peer Support Program
Aug 2015 – Jul 2018
Role: Co-PI
Commitment: 0.6 months per year (5% each calendar month)

Support completed since last annual report
Northrop Grumman
Time-dependent analyses of suicide risk indicators among military social media
users
Jun 2015 – Sep 2105
Role: PI
Commitment: .4 months (10% each calendar month)

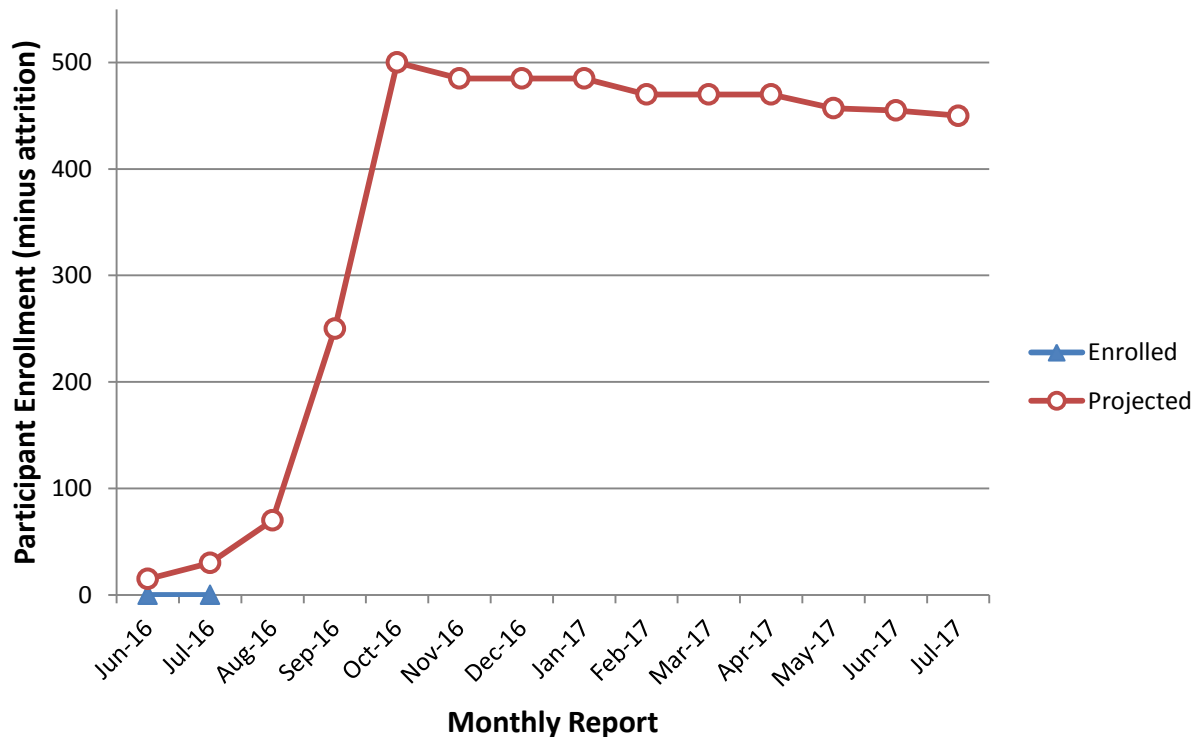**What other organizations were involved as partners?**
Nothing to report (all organizations involved were previously specified)

8. SPECIAL REPORTING REQUIREMENTS

QUAD CHARTS:
Submitted as Appendix A

ENROLLMENT CHART (accounting for attrition):

9. APPENDICES:
    Appendix A: Quad chart

Spin, unit climate, and aggression: Near term, long term, and reciprocal predictors of violence among workers in military settings

Log Number 14303006
Award Number W81XWH-14-1-0259

PI: Michael R. Baumann, PhD   **Org:** The University of Texas at San Antonio   **Award Amount:** $637,443

Study/Product Aim(s)

• To determine the utility of affective and interpersonal spin as predictors of aggressive behavior and health outcomes
• To determine the utility of unit level hostility and regulatory climates as predictors of aggressive behavior and health outcomes
• To determine the utility of differences in self-regulation as predictors of aggressive behavior and health outcomes
• Describe the near and long term interactions, including reciprocal relationships, between these factors, aggression, and health outcomes

Approach and Military Relevance

Aggression is influenced by immediate (e.g., provocation) and long term (e.g., history of abuse) factors at multiple levels (e.g., individual, unit). To untangle these factors we use ESM and longitudinal methods with cutting edge statistical analyses. Our findings will make it possible to develop policy interventions based on immediate and early warning signs and, by examining reciprocal relationships, identify risk spirals. Because we include several health outcomes, our findings will also have direct implications for the physical and mental health of military employees.
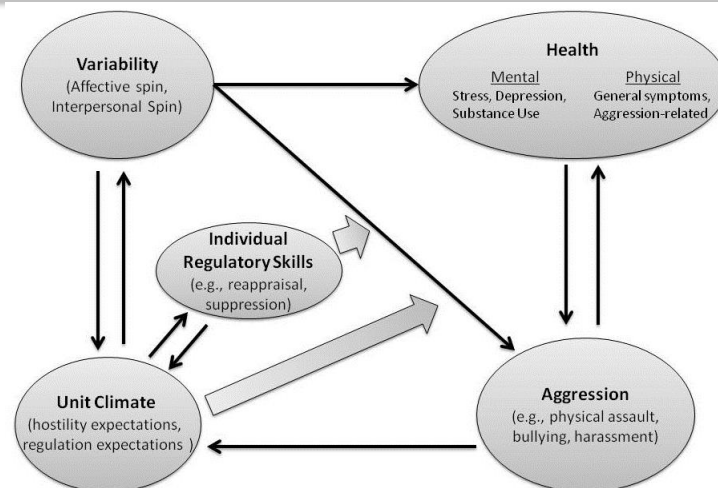
Modifications from 2015 IPR approved by local IRB and submitted to HRPO; scholarly summary for sponsor completed; recruitment launched; data collection in progress

Timeline and Cost

Activities CY	14	15	16	17
Conduct reviews & complete review documents	▮			
Complete questionnaire & obtain IRB approvals		▮		
Data Collection			▮▮▮▮	▮
Analysis & Report				▮▮
Estimated Budget ($K)	**$8k**	**$165k**	**$205k**	**$260k**

Updated: Aug 2016

Projected Goals/Milestones

CY14 Goals – Conduct literature reviews, refine questionnaires
CY15 Goals – Complete reviews; obtain IRB approval; launch study
- review completed; initial IRB approval obtained; data collection programs tested

CY16 Goals – Data collection
- Final IRB / HRPO approvals received; Recruitment launched
- Wave 1 in progress; Wave 2 anticipated Sep 2016; Wave 3 anticipated Oct 2016

CY17 Goals – Complete data collection, analysis, and report
- Wave 4 anticipated Feb 2017; Wave 5 anticipated June 2017;

Comments / Challenges
- Initial hiring delays had downstream effects on study launch date
- Delay to data collection delayed human subjects costs

Budget Expenditure to date
- Projected : $421k
- Actual : $301k