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# **Annual Report to Department of Defense**

**(Fiscal Year 2012: September 28, 2011-September 27, 2012)**

**“Military Suicide Research Consortium”**

**DoD Award: W81XWH-10-2-0178**

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## **Introduction:**

The Military Suicide Research Consortium's ultimate goal is suicide prevention in the military, through research, including on primary, secondary, and tertiary interventions, as well as through information management/scientific communications (cataloguing and disseminating knowledge on military suicide). Specifically, suicidal personnel compromise force readiness, place a strain on the healthcare resources of the military, impact unit morale, and take a large emotional toll on the involved friends, family, and commanders. There is significant stigma associated with being suicidal, which limits the extent to which at-risk individuals are willing to seek help. Moreover, decision-makers need a go-to resource for accurate, efficient, and fast answers regarding suicidal behavior as policies and programs are developed. The Military Suicide Research Consortium is designed to facilitate information management/scientific communications for the DoD and to maximize research efforts at understanding and improving suicide risk screening and assessment, interventions, and population-level prevention programs, as well as to address other pressing research needs (e.g., basic research including neuroscientific and genetic approaches). Programs and projects conducted by the Consortium ensure that information management/scientific communications occur seamlessly, and that screening and assessment, intervention, and prevention efforts are based on the best possible scientific evidence, specific to military personnel. Further, the Consortium contributes to the goal of the research program by expanding our knowledge, understanding, and capacity to prevent, treat, and enhance the quality of life of persons in military communities and the general public who are affected by suicide-related problems.

The Consortium's overall mission can be summarized as follows; each function is developed with the goal of clear military relevance:

1. Produce new scientific knowledge about suicidal behavior in the military that will improve mental health outcomes for our men and women in uniform.
2. Use high quality research methods and analyses to address problems in policy and practice that will have a direct impact on suicide-related and other mental health outcomes for military personnel.
3. Disseminate Consortium knowledge, information, and findings through a variety of methods appropriate for decision makers, practitioners, and others who are accountable for ensuring the mental health of military personnel. This will include a rapid response function so that queries from decision makers and others to the Consortium will be answered with speed and efficiency. Technical assistance and support for decision makers and others is an integral aspect of this Consortium function. This aspect of the Consortium will warehouse knowledge about suicidal behavior in general (e.g., from civilian and international sources as well as from military sources), so that military issues can be informed in a comprehensive manner.

4. Train future leaders in military suicide research through experience within a multi-disciplinary setting for Ph.D. students and postdoctoral scholars interested in research questions on military suicide of both a basic and applied nature.

The inter-relations and flow of information between the Cores and the research program is an important component of the Consortium. By its nature, the Executive Management Core, Core A, is involved with all other Cores and the research program, to exert leadership and quality control over them. In its capacity as our knowledge warehouse/ communication center, the Information Management/Scientific Communications Core (Core B), receives input from all elements of the Consortium, and will output information to military decision makers and others in rapid and efficient fashion. As a result of merging the Information Management/Scientific Communications Core and the Military/Civilian Research Monitoring Core, Core B also provides oversight with specific reference to military relevance and sensitivity to military culture. The Database Management/Statistical Core, Core C, represents a highly valuable asset to the Consortium as a whole, perhaps particularly to the research program. Core C provides world-class data management and analysis infrastructure and consulting.

## **Body:**

### ***Statement of Work***

#### **Task 1. Project Start-up (months 1-3)**

##### 1a. Create infrastructure for all Cores (month 1)

- Core A and Core Directors have bi-monthly conference calls to discuss the Consortium, including its infrastructure.
- Core A and Core B research assistants developed the Consortium's Standard Operating Procedures (SOP; Started in August 2010, received MOMRP legal approval in February 2011). There have been three versions of the SOP; the most recent version was approved April 2012.

##### 1b. Hire and train staff (month 2)

- Denver staff were hired and trained by August 2010, with pre-award funding approval.
- The MSRC reviewed its infrastructure and merged The Military/Civilian Research Monitoring Core with the Information Management/Scientific Communications Core, referred to as Core B. Originally Core D, The Database Management/Statistical Core was renamed Core C with the infrastructure changes.
- Denver staff hired an IRB Coordinator in May 2012.

##### 1c. Core B (Military/Civilian Research Monitoring research assistants) conduct first comprehensive literature review (month 3)

- Accomplished by month 3 and distributed results to Cores A and C.

## **Task 2. Plan research projects (months 4-9)**

- 2a. Establish research priorities in consultation with External Advisory Board (month 4)
- Core A chose preliminary research priorities in month 3, while External Advisory Board members were selected.
  - The Military External Advisory Board (MEAB) and Independent Scientific Peer Review Program (ISPRP) members were chosen by month 7.
  - The MEAB and Core A met with funded research teams in June 2011, November 2011, May 2012, and August 2012. The next MEAB is expected in March 2013.
  - Core A reviews MEAB research priorities at the bi-annual MEAB meetings.
- 2b. Assemble research teams (months 5-6)
- As of month 24, there are 62 MSRC research members.
  - As of month 24, there are seven Principle Investigators on the Unfunded Priorities List.
- 2c. Continue creation of Core B infrastructure (months 4-9)
- Core B is co-located at the FSU site and the Denver site. Its infrastructure was enhanced in month 16, with the merging of the Cores.
  - Core A contributed to the creation of Core B's infrastructure.
- 2c. Core A and Core B assist with protocol development and production (months 7-8)
- Core A and Core B collaborated on protocol development and production.
  - Core A and Core C created a set of common data elements in collaboration with experts in the field of military and suicide.
- 2d. Core B review protocols to ensure proper military relevance (month 9)
- Core B reviewed the all proposals ensuring military relevance.
  - The MEAB also review protocols and ensure military relevance when research teams present proposals to the board.

## **Task 3. Implement intramural research projects (months 10-12)**

- 3a. Preliminary study information submitted to Core B (month 12)
- Preliminary study information was submitted to Core B and added to the Consortium's website.
  - Core B promotes research projects through multiple media venues and maintains the website on a daily basis.

## **Task 4. Initial Consortium review by External Advisory Board (month 12)**

- The Military External Advisory Board (MEAB) met with Core A in June 2011 (month 9) and November 2011 (month 14).
- Core A reviews the progress of the Consortium with their senior advisors at annual meetings and quarterly conference calls.

## **Task 5. Preparing year one quarterly reports (months 3, 6, 9, 12)**

- The 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> quarter reports were prepared and distributed on time.

## **Task 6. Continue intramural research projects (months 13-24)**

- Denver Research Institute funds seven research projects:
  - *Usability and Utility of a Virtual Hope Box for Reducing Suicidal Ideation*, Dr. Nigel Bush, National Center for Telehealth and Technology/Portland VA, (Appendix 2)
  - *A Behavioral Sleep Intervention for Suicidal Behaviors in Military Veterans: A Randomized Controlled Study*, Dr. Rebecca Bernert, Stanford University/Palo Alto VA, (Appendix 3)
  - *Suicide Bereavement in Military and their Families*, Dr. Julie Cerel, University of Kentucky, (Appendix 4)
  - *Window to Hope: Evaluating a Psychological Treatment for Hopelessness among Veterans with TBI: A Phase II RCT and an Active Control Component*, Drs. Lisa Brenner & Grahame Simpson, Denver VAMC, (Appendix 5)
  - *Suicide Risk Assessments within Suicide-Specific Group Therapy Treatment for Veterans: A Pilot Study*, Drs. Lori Johnson & David Jobes, Robley Rex VAMC, (Appendix 6)
  - *Toward a Gold Standard for Suicide Risk Assessment for Military Personnel*, Drs. Peter Gutierrez & Thomas Joiner, Denver VAMC/FSU, (Appendix 7)
  - *Psychophysiology of Suicidal States*, Drs. Michael Allen and Theresa Hernández, Denver VAMC, (Recently funded, no reports to date)
- Florida State University funds three studies:
  - *Reason for Living (RFL) Intervention*, Dr. Craig Bryan, University of Utah,
  - *Development and Evaluation of a Brief, Suicide Prevention Intervention Reducing Anxiety Sensitivity*, Dr. N. Brad Schmidt,
  - *Military Continuity Project (MCP)*, Dr. Katherine Comtois, University of Washington,

## **Task 7. Establish pre-doctoral and postdoctoral training experiences at FSU and MIRECC (month 24)**

- Pre-doctoral and postdoctoral training experiences were established at FSU and the VISN 19 MIRECC.
- The MSRC funds three postdoctoral pilot grants:
  - *Assessment of Cognitive Functioning as it relates to Risk for Suicide in Veterans with HIV/AIDS*, Dr. Gina Signoracci, Denver VAMC,
  - *Behaviorally Assessing Suicide Risk*, Dr. Sean Barnes, Denver VAMC,
  - *Romantic Relationship Satisfaction and Self-Directed Violence in Veterans*, Dr. Amanda Stoeckel, SLC VAMC,
- A MSRC dissertation award was offered to Jessica Ribeiro on her study, *Overarousal and Fearlessness about Death in Imminent Suicidal Behavior*.

- The MSRC planned a Pre-Conference Research Training Day for students and research fellows, with the purpose of developing pre-doctoral and postdoctoral students and fellows' skills as military/Veteran suicide researchers. The MSRC offered a stipend to students and fellows to participate in this workshop. The event is planned for April 2013, in conjunction with the American Association of Suicidology's Annual Conference.
- MSRC postdoctoral fellow, Mike Anestis, accepted a tenure-track position as an Assistant Professor in the Department of Psychology, at the University of Southern Mississippi.

**Task 8. Consortium review by External Advisory Board** (month 24)

- The Military External Advisory Board (MEAB) met with Core A in May 2012 (month 20) and August 2012 (month 23).
- Drs. Gutierrez and Joiner presented to the MOMRP at the May 2013 In-Progress Review (IPR) meeting (month 20).
- The next MEAB and IPR meeting is expected in March 2013.
- Core A reviews the progress of the Consortium with their senior advisors at annual meetings and quarterly conference calls.

**Task 9. Preparing year two quarterly reports** (months 15, 18, 21, 24)

- The 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> quarter reports were prepared and distributed on time.

**Task 10. Continue to refine research priorities** (months 25-36):

- The MSRC maintains an Unfunded Priorities List and has ongoing dialogue with MOMRP and the MEAB on research priorities.

10a. Disseminate results in hand (month 27)

- Dr. Cerel completed a preliminary data analysis which she shared with Core C.

**Overall project timeline:**

Year 1 — Complete Tasks 1, 2, 3, 4, and 5

- Tasks 1, 2, 3, 4, 5, and 7 were completed. Task 6 is ongoing.

Year 2 — Complete Tasks 6, 7, 8, and 9

- Task 6 is ongoing, Tasks 7, 8, and 9 are completed. Task 10 was initiated.

Year 3 — Complete Tasks 6, 10a, 10b, 11, and 12

**Key Research Accomplishments:**

- With the advisory support of the ISPRP and MEAB, the MSRC is funding ten research projects and three postdoctoral pilot grants exploring suicide prevention, intervention, and postvention within active duty and Veteran populations.

- The MSRC continues to be fiscally mindful, merging the Military/Civilian Research Monitoring Core (originally Core C) and the Information Management/Scientific Communications Core to enhance its productivity.
- Authored 12 white papers at the request of Colonel Castro.
- In addition to the 13 studies funded by the MSRC, the MSRC Common Data Elements were distributed to the National Institute of Health and other researchers collecting data relevant to military suicide research.

### **Reportable Outcomes:**

Data collection is underway for three DRI subcontracted studies: Drs. Brenner, Bush, and Cerel.

Basic information about the Consortium and funded studies has been presented at the following professional meetings:

Gutierrez, P. M., Assessing and Managing Suicide Risk in Primary Care. Presented at Community Based Outpatient Clinic, Appleton, WI, October 11, 2011.

Gutierrez, P. M., Suicide Prevention Presentation. Presented at Zablocki VAMC, Milwaukee, WI, October 11, 2011.

Gutierrez, P. M. Military Suicide Research Consortium. Presented via webinar for the National Child Traumatic Stress Network Families Seminar. April 4, 2012.

Gutierrez, P. M. Navigating IRBs as a suicide researcher. Presented at the American Association of Suicidology conference, Baltimore, MD, April 19, 2012.

Gutierrez, P. M., Fitek, D. J., Joiner, T., Holloway, M., Jobes, D., & Rudd, M. D. Status of Department of Defense funded suicide research. Featured Panel presentation at the American Association of Suicidology conference, Baltimore, MD, April 20, 2012.

Moroney, K. A., Hanson, J. E., Pease, J., Dwyer, M. & Gutierrez, P. M. Military Suicide Research Consortium: Infrastructure Poster Presentation. VA Research Days, Denver, CO, May 17, 2012.

Hanson, J. E., Moroney, K. A., Pease, J., Dwyer, M. & Gutierrez, P. M. Military Suicide Research Consortium Funded Studies Poster Presentation. VA Research Days, Denver, CO, May 17, 2012.

Gutierrez, P. M., Castro, C., Fitek, D. J., Holloway, M., & Jobes, D. A. Status of DoD funded suicide research. Presented at the Annual DoD/VA Suicide Prevention Conference, Washington, DC, June 20, 2012.

Matarazzo, B., Gutierrez, P. M., Silverman, M. M. The Self-Directed Violence Classification System: What it is and why it matters. Presented at the Annual DoD/VA Suicide Prevention Conference, Washington, DC, June 20, 2012.

Moroney, K. A. & Gutierrez, P. M. Military Suicide Research Consortium. Military Health System Research Symposium. Ft. Lauderdale, FL, August 15, 2012.

Gutierrez, P. M. Suicide Risk Assessment & Safety Planning as a Stand Alone Intervention. Western Mountain/4A Vet Center Regional Training. Denver, CO, August 29, 2012.

Gutierrez, P. M., Joiner, T., & Castro, C. Preventing suicide in the United States military: Research challenges and opportunities. Presented at the 14<sup>th</sup> European Symposium of Suicide & Suicidal Behavior, Tel Aviv-Jaffa, Israel, September 5, 2012.

Staff from the MIRECC and FSU sites collaborated on a secondary data analysis project resulting in the following in-press article:

Ribeiro, J. D., Pease, J. L., Gutierrez, P. M., Silva, C., Bernert, R. A., Rudd, M. D., & Joiner, T. E. Jr. (in press). Sleep problems outperform depression and hopelessness as cross-sectional and longitudinal predictors of suicidal ideation and behavior in young adults in the military. *Journal of Affective Disorders*.

#### ABSTRACT:

**Background:** Sleep problems appear to represent an underappreciated and important warning sign and risk factor for suicidal behaviors. Given past research indicating that disturbed sleep may confer such risk independent of depressed mood, in the present report we compared self-reported insomnia symptoms to several more traditional, well-established suicide risk factors: depression severity, hopelessness, PTSD diagnosis, as well as anxiety, drug abuse, and alcohol abuse symptoms.

**Methods:** Using multiple regression, we examined the cross-sectional and longitudinal relationships between insomnia symptoms and suicidal ideation and behavior, controlling for depressive symptom severity, hopelessness, PTSD diagnosis, anxiety symptoms, and drug and alcohol abuse symptoms in a sample of military personnel (N=311).

**Results:** In support of a priori hypotheses, self-reported insomnia symptoms were cross-sectionally associated with suicidal ideation, even after accounting for symptoms of depression, hopelessness, PTSD diagnosis, anxiety symptoms and drug and alcohol abuse. Self-reported insomnia symptoms also predicted suicide attempts prospectively at one-month follow up at the level of a non-significant trend, when controlling for baseline self-reported insomnia symptoms, depression, hopelessness, PTSD diagnosis and anxiety, drug and alcohol abuse symptoms. Insomnia symptoms were unique predictors of suicide attempt longitudinally when only baseline self-reported insomnia symptoms, depressive symptoms and hopelessness were controlled.

Conclusions: These findings suggest that insomnia symptoms may be an important target for suicide risk assessment and the treatment development of interventions to prevent suicide.

Publication Under Review:

Anestis, M. D., Soberay, K. A., Gutierrez, P. M. & Joiner, T. E. Jr. (research under review)  
Lethal self-harm does not occur on a whim: A re-examination of the association between impulsivity and suicidal behavior.

Staffs from the MIRECC and FSU sites are preparing data and research information for the following topics:

Joiner, T. E. Jr., Hanson, J. E., & Gutierrez, P. M. (research in progress) Blood alcohol content and suicide.

Matarazzo, B. B., Barnes, S. M., Pease, J., Russell, L. M., Hanson, J. E., Soberay, K. A., & Gutierrez, P. M. (research in progress) GLBT, military, and suicide review.

The MSRC responded to 19 media inquiries, 14 research information requests, and referred four researchers to the BAA.

In an effort to take advantage of leveraging funds, this is a reoccurring agenda item on the bi-monthly conference calls. The MSRC collaborates in leveraging funds that include an increase of grant funds, time, and infrastructure support. Below are some of the most noteworthy leveraging funds efforts:

- Dr. Peter Gutierrez provided consultation for the recently awarded Omega-3 and Suicide Prevention grant, in exchange for Dr. Acierno including the MSRC Common Data Elements in its data collection.
- Dr. Lisa Brenner, funded PI, included an active control component to the already established infrastructure and staff of the Window to Hope study. The additional active control group added only to the project.
- Dr. Rebecca Bernert, funded PI, received an NIMH K Award, which allowed funds to hire more staff. With the support of the MSRC, Dr. Bernert is recognized as a leading expert in sleep and suicide, impacting the future of the field.
- Dr. Peter Gutierrez reviewed and consulted on the Defense Center of Excellence's (DCoE) Screening and Assessment Tools for Suicide Prevention Guide Resource.
- Drs. Peter Gutierrez and Thomas Joiner consulted as content experts on the mental health campaign targeting working age men, mantherapy.org.
- Dr. Peter Gutierrez consulted with Dr. Bob Heinszen, with the National Institute of Health (NIH), of possibly requiring the inclusion of the MSRC's Common Data Elements in all NIH funded grants.
- Drs. Peter Gutierrez and Thomas Joiner provided a general response letter to inquiries regarding research funding that frees time for officials and other funding sources.

## **Conclusion:**

The Military Suicide Research Consortium reached its annual goals and research aims. Denver Research Institute is currently funding seven research projects and three postdoctoral research pilot grants. Florida State University funds three research teams. There are seven studies on the unfunded priorities list. The three Cores collaborate on a daily basis, working toward the ultimate goals of suicide prevention in the military and information dissemination to decision makers, practitioners, and others who are accountable for ensuring the mental health of military personnel.

## **References:**

Ribeiro, J. D., Pease, J. L., Gutierrez, P. M., Silva, C., Bernert, R. A., Rudd, M. D., & Joiner, T. E. Jr. (2012). Sleep problems outperform depression and hopelessness as cross-sectional and longitudinal predictors of suicidal ideation and behavior in young adults in the military. *Journal of Affective Disorders, 136*, 743-750.

## **Appendixes:**

- A1. Peter Gutierrez, Ph.D. CV Appendix Pages: 11-30
- A2. *Usability and Utility of a Virtual Hope Box for Reducing Suicidal Ideation*, Dr. Nigel Bush, National Center for Telehealth and Technology/Portland VA Appendix Pages: 31
- A3. *A Behavioral Sleep Intervention for Suicidal Behaviors in Military Veterans: A Randomized Controlled Study*, Dr. Rebecca Bernert, Stanford University Appendix Pages: 32-34
- A4. *Suicide Bereavement in Military and their Families*, Dr. Julie Cerel, University of Kentucky Appendix Pages: 35
- A5. *Window to Hope: Evaluating a Psychological Treatment for Hopelessness among Veterans with TBI: A Phase II RCT and an Active Control Component*, Drs. Lisa Brenner & Grahame Simpson, Denver VAMC Appendix Pages: 36
- A6. *Suicide Risk Assessments within Suicide-Specific Group Therapy Treatment for Veterans: A Pilot Study*, Drs. Lori Johnson & David Jobes, Robley Rex VAMC Appendix Pages: 37
- A7. *Toward a Gold Standard for Suicide Risk Assessment for Military Personnel*, Drs. Peter Gutierrez & Thomas Joiner, Denver VAMC/FSU Appendix Pages: 38
- A8. Ribeiro et al. (2012) Full Article Appendix Pages: 39-46

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EDUCATION:

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Ph.D., Clinical Psychology	1997	University of Michigan	Ann Arbor, MI
M.A., Clinical Psychology	1994	University of Michigan	Ann Arbor, MI
B.A., Psychology	1991	Winona State University	Winona, MN

*Summa Cum Laude*

AREAS OF SPECIALIZATION AND RESEARCH INTERESTS:

Suicide risk factors, assessment, and prevention. Young adult suicidality. Cultural validity of assessment tools and suicide risk models. Scale development and psychometric evaluation.

PROFESSIONAL EXPERIENCE:

7/1/09- Associate Professor, University of Colorado School of Medicine, Department of Psychiatry.  
6/9/08- Licensed Clinical Psychologist, Colorado #3203.  
2008- Clinical/ Research Psychologist, Denver VA Medical Center, Mental Illness Research and Education Clinical Center.  
2008-2009 Visiting Associate Professor, University of Colorado Denver School of Medicine, Department of Psychiatry.  
2007-2008 Research Psychologist, Denver VA Medical Center, Mental Illness Research and Education Clinical Center.  
2006-2008 Adjoint Associate Professor, University of Colorado Denver School of Medicine, Department of Psychiatry.

- 2006-2007 Research Consultant, Denver VA Medical Center, Mental Illness Research and Education Clinical Center.
- 2002-2007 Associate Professor, Northern Illinois University, Department of Psychology.
- 2002-2006 Assistant Chair, Northern Illinois University, Department of Psychology.
- 1996-2002 Assistant Professor, Northern Illinois University, Department of Psychology.
- 1995-1996 University of Michigan, University Center for the Child and Family, Psychology Intern (APA Accredited through University's Captive Consortium).
- 1993-1995 University of Michigan Medical Center, Division of Child and Adolescent Psychiatry, Department of Psychiatry, Psychology Intern (APA Accredited through University's Captive Consortium).

#### PUBLICATIONS (75):

- Osman, A., Wong, J. L., Bagge, C. L., Freedenthal, S., Gutierrez, P. M., Lozano, G. (in press). The Depression Anxiety Stress Scales—21 (DASS-21): Further examination of dimensions, scale reliability, and correlates. *Journal of Clinical Psychology*.
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#### BOOK/CHAPTERS (7):

- Gutierrez, P. M., Brenner, L. A., Wortzel, H., Harwood, J. E. F., Leitner, R., Rings, J., & Bartlett, S. (2012). Blister packaging medication to increase treatment adherence and clinical response:

Impact on suicide-related morbidity and mortality. In J. Lavigne & J. Kemp (Eds.), *Frontiers in suicide prevention and risk research*. Hauppauge, NY: Nova Science Publishers, Inc.

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Osman, A., Freedenthal, S., Fang, Q., Willis, J., Norizuki, T., & Gutierrez, P. M. (2011). The UTSA Future Disposition Inventory: Further analyses of reliability, validity, and potential correlates in non-clinical samples. In A. M. Columbus (Ed.) *Advances in psychology research*. Hauppauge, NY: Nova Science Publishers, Inc.

Gutierrez, P. M., & Brenner, L. A. (2011). Highlight section: Helping military personnel/Veterans and families manage stress reactions and navigate reintegration. In A. J. Palmo, W. J. Weikel, & D. P. Borsos (Eds.), *Foundations of mental health counseling, 4<sup>th</sup> Edition*. Springfield, IL: Charles C. Thomas Publisher, Inc.

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Gutierrez, P. M., & Osman, A. (2008). *Adolescent suicide: An integrated approach to assessment of risk and protective factors*. DeKalb, IL: Northern Illinois University Press.

#### PAPER PRESENTATIONS (48):

Gutierrez, P. M., Joiner, T., & Castro, C. Preventing suicide in the United States military: Research challenges and opportunities. Presented at the 14<sup>th</sup> European Symposium of Suicide & Suicidal Behavior, Tel Aviv-Jaffa, Israel, September 5, 2012.

Gutierrez, P. M., Castro, C., Fitek, D. J., Holloway, M., & Jobes, D. A. Status of DoD funded suicide research. Presented at the Annual DoD/VA Suicide Prevention Conference, Washington, DC, June 20, 2012.

Matarazzo, B., Gutierrez, P. M., Silverman, M. M. The Self-Directed Violence Classification System: What it is and why it matters. Presented at the Annual DoD/VA Suicide Prevention Conference, Washington, DC, June 20, 2012.

Gutierrez, P. M., Fitek, D. J., Joiner, T., Holloway, M., Jobes, D., & Rudd, M. D. Status of Department of Defense funded suicide research. Featured Panel presentation at the American Association of Suicidology conference, Baltimore, MD, April 20, 2012.

Gutierrez, P. M. Navigating IRBs as a suicide researcher. Presented at the American Association of Suicidology conference, Baltimore, MD, April 19, 2012.

- Kemp, J., Thompson, C., Brown, G. K., Brenner, L. A., & Gutierrez, P. M. VA continuum of care for suicidal Veterans. Panel presentation at the American Association of Suicidology conference, Portland, OR, April 16, 2011.
- Gutierrez, P. M., & Lineberry, T. United States Army Medical Research and Materiel Command United States military suicide research: Activities and opportunities. Panel presentation at the American Association of Suicidology conference, Portland, OR, April 14, 2011.
- Bahraini, N., Gutierrez, P. M., Brenner, L. A., Hedegaard, H., & Huggins, J. The Colorado Violent Death Reporting System (COVDRS): Exploring factors associated with suicide in VA and non-VA services utilizing Veterans. Presented at the American Association of Suicidology conference, Portland, OR, April 14, 2011.
- Marshall, J., Gutierrez, P. M., Lineberry, T., & Jobes, D. United States Army Medical Research and Material Command United States military suicide research activities: Activities and opportunities. Panel presentation at the DOD/VA Annual Suicide Prevention Conference, Boston, MA, March 15, 2011.
- Gutierrez, P. M., Bahraini, N., Basham, C. M., Brenner, L. A., Hedegaard, H., Denneson, L. M., & Steven K. Dobscha, S. K. Lessons learned about veteran suicide from the Colorado and Oregon Violent Death Reporting Systems. Presented at the American Association of Suicidology conference, Orlando, FL, April 22, 2010.
- Gutierrez, P. M. Blister packaging medication to increase treatment adherence and clinical response: Impact on suicide related morbidity and mortality. Presented at the 2010 DoD/VA Suicide Prevention Conference, Washington, DC, January 12, 2010.
- Gutierrez, P. M. Theater of War. Plenary Panel member at the 2010 DoD/VA Suicide Prevention Conference, Washington, DC, January 12, 2010.
- Bahraini, N., Gutierrez, P. M., Brenner, L. A., Hedegaard, H., Chase, M., & Shupe, A. The Colorado violent death reporting system: Exploring factors associated with suicide in VA and non-VA services utilizing veterans. Presented at the Centers for Disease Control and Prevention's NVDRS Reverse Site Visit, Denver, CO, May 14, 2009.
- Leach, R. L., Breshears, R. E., Brenner, L. A., Homaifar, B. Y., Gutierrez, P. M., Gorgens, K. M., & Harwood, J. E. F. The utility of the Personality Assessment Inventory for predicting violence in veterans with traumatic brain injury. Presented at the Rehabilitation Psychology Conference, Jacksonville, FL, February 27, 2009.
- Gutierrez, P. M. Collaborative assessment and management of suicide (CAMS): A feasibility study. DoD/VA Annual Suicide Prevention Conference, San Antonio, TX, January 13, 2009.
- Gutierrez, P. M., Brenner, L. A., Homaifar, B. Y., & Olson-Madden, J. H. VA VISN 19 MIRECC research and clinical efforts at suicide prevention. Symposium presented at the American Psychological Association convention, Boston, MA, August 15, 2008.

- Brausch, A. M., & Gutierrez, P. M. Body image and disordered eating in adolescent suicidality. Presented at the American Association of Suicidology conference, Boston, MA, April 17, 2008.
- Gutierrez, P. M. Redefining diversity: The chronically suicidal veteran as one example. Presidential address at the American Association of Suicidology conference, Boston, MA, April 17, 2008.
- Breshears, R. E., Brenner, L. A., & Gutierrez P. M. Predictive validity of the Personality Assessment Inventory in veterans with traumatic brain injury. Presented at the Rehabilitation Psychology Conference, Tucson, AZ, March 13, 2008.
- King, C. A., Gutierrez, P. M., & Jobes, D. A. Looking back – looking ahead: American suicidology at mid-life. Plenary panel presentation at the American Association of Suicidology conference, New Orleans, LA, April 12, 2007.
- Mazza, J. J., Reynolds, W. M., & Gutierrez, P. M. Screening for youth suicidal behavior revisited. Panel presentation at the American Association of Suicidology conference, New Orleans, LA, April 12, 2007.
- Schumacher, M., Quinnett, P., & Gutierrez, P. M. QPRT suicide risk assessment and management course utility. Panel presentation at the American Association of Suicidology conference, New Orleans, LA, April 12, 2007.
- Gutierrez, P. M. Change is good: What the past 40 years tell us about the future. Presidential address at the American Association of Suicidology conference, New Orleans, LA, April 12, 2007.
- Gutierrez, P. M. Suicide in the young adult population. Presented at the Department of Veterans Affairs Employee Education System's Evidence-Based Interventions for Suicidal Persons conference, Denver, CO, February 8, 2007.
- Rudd, M. D., Berman, L., Silverman, M. M., Gutierrez, P. M., & Schumacher, M. Warning signs for suicide: Theory, research, and clinical applications. Panel presented at the American Association of Suicidology conference, Seattle, WA, April 30, 2006.
- Freedenthal, S. L., & Gutierrez, P. M. Adolescents' disclosures of suicidality: Who knows? Presented at the American Association of Suicidology conference, Seattle, WA, April 30, 2006.
- Gutierrez, P. M. Shneidman Award Presentation – An integrated approach to assessing risk and protective factors for adolescent suicide. Presented at the American Association of Suicidology conference, Broomfield, CO, April 15, 2005.
- Schumacher, M., & Gutierrez, P. M. Bipolar spectrum traits and suicide risk. Presented at the American Association of Suicidology conference, Broomfield, CO, April 15, 2005.
- Gutierrez, P. M., & Osman, A. Prediction of adolescent suicide reattempts. Presented at the Kansas Conference in Clinical Child and Adolescent Psychology, Lawrence, KS, October 22, 2004.

- Gutierrez, P. M., & Konick, L. C. Evaluation of school-based suicide prevention programs. Presented at the Suicide Prevention: Advancing the Illinois Strategic Plan conference, Springfield, IL, September 23, 2004.
- Williams, J. E., Osman, A., Barrios, F., Kopper, B. A., & Gutierrez, P. M. Reliability and validity of the Inventory for Suicide Ideation – 30. Presented at the American Psychological Society conference, Chicago, IL, May 28, 2004.
- Hovey, J. D., Freedenthal, S., Gutierrez, P. M., & Fernquist, R. Career development strategies in suicide research #1: Working with a mentor. Panel presented at the American Association of Suicidology conference, Miami, FL, April 15, 2004.
- Conwell, Y., Silverman, M., Gutierrez, P. M., Konick, L. C., & Muehlenkamp, J. J. Career development strategies in suicide research #3: Publishing your findings. Workshop presented at the American Association of Suicidology conference, Miami, FL, April 16, 2004.
- Konick, L. C., & Gutierrez, P. M. Suicide risk in college students: A test of a model. Presented at the 2004 American Association of Suicidology conference, Miami, FL, April 16, 2004.
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- Muehlenkamp, J. J., Swanson, J., & Gutierrez, P. M. Differences between self-injury and suicide on measures of depression and suicidal ideation. Presented at the Midwestern Psychological Association annual meeting, Chicago, IL, May 9, 2003.
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- Konick, L. C., & Gutierrez, P. M. Is spirituality a moderator of risk for suicide? Presented at the American Association of Suicidology annual conference, Santa Fe, NM, April 25, 2003.
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- Gutierrez, P. M., Osman, A., Watkins, R. L., Konick, L. C., Muehlenkamp, J. J., & Brausch, A. M. Development and validation of the Suicide Resilience Inventory - 25 (SRI-25) in clinical and nonclinical samples. Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October, 19, 2002.
- Konick, L. C., Brausch, A. M., Gutierrez, P. M., & Pawlowski, C. CBT in depressed kids: What factors moderate treatment effectiveness? Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October, 19, 2002.

Hovey, J. D., Gutierrez, P. M., & Jha, A. Measuring cultural risk factors in suicide research. Panel presented at the American Association of Suicidology annual conference, Atlanta, GA, April 19, 2001.

Gutierrez, P. M., Osman, A., Barrios, F. X., & Kopper, B. A. The Self-Harm Behavior Questionnaire. Presented at the American Association of Suicidology annual conference, Atlanta, GA, April 21, 2001.

Gutierrez, P. M., Collura, D., & Watkins, R. A case for regular suicide risk screening in high schools. Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October 14, 2000.

Osman, A., Gutierrez, P. M., Kopper, B. A., Barrios, F. X., Breitenstein, J. L., & Silich, N. Validity and utility of the Adolescent Psychopathology Scale (APS) with adolescent psychiatric inpatients. Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October 13, 2000.

Kopper, B. A., Gutierrez, P. M., Osman, A., & Barrios, F. X. Helping kids stay alive: The Reasons for Living Inventory - Adolescents. Presented at Western Psychological Association Annual Convention, Portland, OR, April 14, 2000.

Gutierrez, P. M., Rodriguez, P. J., & Foat, N. K. A model of late adolescent suicidality. Presented at the American Association of Suicidology annual conference, Houston, TX, April 15, 1999.

Gutierrez, P. M., Osman, A., Kopper, B. A., & Barrios, F. X. Quality of risk assessment with common measures. Presented at the American Association of Suicidology annual conference, Bethesda, MD, April 18, 1998.

#### POSTER PRESENTATIONS (48):

Rings, J. A., Gutierrez, P. M., Harwood, J. E. F., & Leitner, R. Examining prolonged grief symptomatology and its relationship to self-directed violence among Veterans. Presented at the Veterans Affairs Mental Health Conference. Baltimore, MD, August 23, 2011.

Rings, J. A., Gutierrez, P. M., & Harwood, J. E. F. Prolonged grief disorder and its relationship to self-directed violence among Veterans: Preliminary findings. Presented at the Departments of Defense and Veterans Affairs Suicide Prevention Conference. Boston, MA, March 15, 2011.

Huggins, J., Homaifar, B.Y., Skopp, N.A., Reger, M., Gahm, G., Gutierrez, P., & Brenner, L.A. Suicide prevention through the transformation of data into information. Presented at the Departments of Defense and Veterans Affairs Suicide Prevention Conference. Boston, MA, March 15, 2011.

Betthausen, L. M., Allen, E., Brenner, L. A., & Gutierrez, P. M. Centrality of intimate relationships on failed belongingness and perceived burdensomeness in returning combat Veterans. Presented at the International Association for Relationship Research, Lawrence, KS, November, 2009.

Bahraini, N., Gutierrez, P. M., Brenner, L. A., Huggins, J., Hedegaard, H., Shupe, A., Chase, M. The Colorado violent death reporting system: Exploring factors associated with suicide in VA and

- non-VA services utilizing veterans. Presented at the American Psychological Association conference, Toronto, Ontario Canada, August 6, 2009.
- Brausch, A. M., & Gutierrez, P. M. Psychosocial factors related to non-suicidal self-injury in adolescents. Presented at the American Association of Suicidology annual conference, San Francisco, CA, April 17, 2009.
- Ballard, E. D., Jobes, D., Brenner, L., Gutierrez, P. M., Nagamoto, H., Kemp, J., et al. Qualitative suicide status form responses of suicidal veterans. Presented at the American Association of Suicidology conference, Boston, MA, April 18, 2008.
- Bahraini, N., Gutierrez, P. M., Brenner, L. A., Staves, P., Cornette, M., & Betthausen, L. Pain tolerance and links to increased suicide risk. Presented at the American Association of Suicidology conference, Boston, MA, April 18, 2008.
- Cornette, M. M., DeBoard, R. L., Clark, D. C., Holloway, R. H., Brenner, L., Gutierrez, P. M., & Joiner, T. E. Examination of an interpersonal-behavioural model of suicide: Toward greater specificity in suicide risk prediction. Presented at the International Association for Suicide Prevention Conference, Dublin, Ireland, August 31, 2007.
- Brenner, L. A., Gutierrez, P. M., Cornette, M., Staves, P. J., & Betthausen, L. M. Veterans' experiences of habituation to painful stimuli, perceived burdensomeness and failed belongingness. Presented at the American Psychological Association conference, San Francisco, CA, August 19, 2007.
- Fang, Q., Choma, K., Salvatore, A., Mack, T., Bailey, J., & Gutierrez, P. M. Validation of the Pain Distress Inventory using an adolescent inpatient sample. Presented at the Kansas Conference in Clinical Child and Adolescent Psychology, Lawrence, KS, October 19, 2006.
- Brausch, A. M., & Gutierrez, P. M. Adolescent gender differences in reasons for living. Poster presented at the American Association of Suicidology conference, Seattle, WA, April 30, 2006.
- Swanson, J. D., & Gutierrez, P. M. Gender, social support, and student suicidality. Poster presented at the American Association of Suicidology conference, Seattle, WA, April 30, 2006.
- Kopper, B. A., Osman, A., Gutierrez, P. M., Williams, J. E., & Barrios, F. X. Suicide Resilience Inventory-25: Validation with normal and adolescent psychiatric inpatients. Poster presented at the 2005 APA conference, Washington, DC.
- Kopper, B. A., Osman, A., Barrios, F. X., Gutierrez, P. M., & Williams, J. E. The Beck Depression Inventory-II with nonclinical and inpatient adolescents. Poster presented at the 2005 APA conference, Washington, DC.
- Brausch, A. M., & Gutierrez, P. M. Ethnic differences in body image, affect, and eating behaviors and the impact of media exposure. Presented at the Association for the Advancement of Behavior Therapy conference, New Orleans, LA, November 11, 2004.

- Muehlenkamp, J. J., & Gutierrez, P. M. Validation of the Self-Harm Behavior Questionnaire in adolescents. Presented at the Association for the Advancement of Behavior Therapy conference, New Orleans, LA, November 11, 2004.
- Linden, S., Osman, A., Barrios, F. X., Kopper, B. A., Williams, J. E., & Gutierrez, P. M. Structure of the Adolescent Psychopathology Scale (APS) clinical subscales in psychiatric inpatients. Presented at the Association for the Advancement of Behavior Therapy conference, New Orleans, LA, November 11, 2004.
- Osman, A., Williams, J. E., Barrios, F. X., Kopper, B. A., Gutierrez, P. M., Linden, S. C., & Carlson, N. Development of cutoff scores for the Beck scales in adolescent psychiatric inpatients. Presented at the Kansas Conference in Clinical Child and Adolescent Psychology, Lawrence, KS, October 21, 2004.
- Osman, A., Barrios, F. X., Gutierrez, P. M., Kopper, B. A., Williams, J. E., Carlson, N., & Koser, K. Reliability and validity of the Multidimensional Anxiety Scale for Children and the Children's Depression Inventory. Presented at the Kansas Conference in Clinical Child and Adolescent Psychology, Lawrence, KS, October 21, 2004.
- Osman, A., Gutierrez, P. M., Barrios, F. X., Kopper, B. A., Linden, S. C., Carlson, N., & Koser, K. The Reynolds Adolescent Depression Scale 2: Reliability and validity. Presented at the Kansas Conference in Clinical Child and Adolescent Psychology, Lawrence, KS, October 21, 2004.
- Muehlenkamp, J. J., & Gutierrez, P. M. Are self-injurious behaviors and suicide attempts different points on the same continuum? Presented at the Suicide Prevention: Advancing the Illinois Strategic Plan conference, Springfield, IL, September 23, 2004.
- Brausch, A. M., Swanson, J., & Gutierrez, P. M. Parent marital status, depression and suicide. Presented at the American Association of Suicidology conference, Miami, FL, April 16, 2004.
- Konick, L. C., Gutierrez, P. M., Muehlenkamp, J. J., Watkins, R. L., Ward, K. E., & Haase, K. Development of the Spiritual Attitudes and Beliefs Inventory: Phase II. Presented at the Midwestern Psychological Association annual meeting, Chicago, IL, May 8, 2003.
- Konick, L. C., Gutierrez, P. M., & Watkins, R. L. Adult Suicidal Ideation Questionnaire psychometrics. Presented at the American Association of Suicidology annual conference, Santa Fe, NM, April 25, 2003.
- Gutierrez, P. M., & Muehlenkamp, J. J. Understanding differences between self-injurious behavior and suicide attempts in high school students. Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October, 18, 2002.
- Gutierrez, P. M., Osman, A., Brausch, A. M., Muehlenkamp, J. J., Watkins, R. L., & Konick, L. C. Reliability and validity of the Beck scales in the assessment of suicide-related behaviors in adolescent psychiatric inpatients. Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October, 18, 2002.

- Gutierrez, P. M., Osman, A., Watkins, R. L., & Muehlenkamp, J. J. Potential racial differences in adolescent suicide risk. Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October, 18, 2002.
- Osman, A., Gutierrez, P. M., Kopper, B. A., Barrios, F. X., Boyle, T., & Duncan, A. The Inventory of Suicide Orientation - 30: Further validation with adolescent inpatients. Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October, 18, 2002.
- Osman, A., Linden, S., Gutierrez, P. M., Barrios, F. X., Kopper, B. A., & Forman, K. Validity of the Adolescent Psychopathology Content Scales (APS) in Pediatric Medical Institute for Children (PMIC) inpatients. Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October, 18, 2002.
- Konick, L. C., Wrangham, J. J., Gutierrez, P. M., Blacker, D., Watkins, R. L., Aalders, G., Giannerini, J., Miller, M. J., Rapp, J. M., Shayne, L. E., & Ward, K. E. Development of the Spiritual Attitudes and Beliefs Inventory (SABI). Presented at the annual meeting of the Midwestern Psychological Association, Chicago, IL, May 2, 2002.
- Gutierrez, P. M., Wrangham, J., Konick, L., Osman, A., & Barrios, F. X. Does ethnicity influence adolescent suicide risk? Presented at the American Association of Suicidology annual conference, Bethesda, MD, April 12, 2002.
- Wrangham, J., Gutierrez, P. M., Osman, A., & Barrios, F. X. Validation of the PANSI with minority young adults. Presented at the American Association of Suicidology annual conference, Bethesda, MD, April 12, 2002.
- Konick, L. C., Brandt, L. A., & Gutierrez, P. M. School-based suicide prevention programs: A meta-analysis. Presented at the American Association of Suicidology annual conference, Bethesda, MD, April 12, 2002.
- Gutierrez, P. M., Osman, A., Kopper, B. A., & Barrios, F. X. Use of the Multi-Attitude Suicide Tendency Scale with minority individuals. Presented at the meeting of the Midwestern Psychological Association, Chicago, IL, May 4, 2001.
- Valentiner, D., Gutierrez, P. M., Deacon, B., & Blacker, D. Factor structure and incremental validity of the Anxiety Sensitivity Index for Children in an adolescent sample. Presented at the annual meeting of the Society for Research in Child Development, Minneapolis, MN, April 21, 2001.
- Gutierrez, P.M., Rodriguez, P. J., & Garcia, P. Minority suicide risk. Presented at the American Association of Suicidology annual conference, Los Angeles, CA, April 13, 2000.
- Kopper, B. A., Gutierrez, P. M., Osman, A., Barrios, F. X., Baker, M. T., & Haraburda, C. M. Reasons for Living Inventory for Young Adults: Psychometric properties. Presented for Division 17 - Counseling Psychology - at the annual convention of the American Psychological Association, Washington, DC, August 5, 2000.

- Kopper, B. A., Gutierrez, P. M., Osman, A., Barrios, F. X., & Bagge, C. L. Assessment of suicidal ideation in college students. Presented for Division 17 - Counseling Psychology - at the annual convention of the American Psychological Association, Washington, DC, August 5, 2000.
- Gutierrez, P. M., Rubin, E. C., & Blacker, D. A preliminary investigation of the role of suicide exposure and attitudes about death on adolescent suicidal ideation. Presented at the Midwestern Psychological Association annual conference, Chicago, IL, May 4, 2000.
- Martin, H., & Gutierrez, P. M. The role of mediating factors on the long-term relationship between early parental death and later depression and anxiety. Presented at the Midwestern Psychological Association Annual Conference, Chicago, IL, May 4, 2000.
- Kopper, B. A., Osman, A., Gilpin, A. R., Panak, W. F., Barrios, F. X., Gutierrez, P. M., Chiro, C. E. The Multi-Attitude Suicide Tendency Scale: Further validation with adolescent psychiatric inpatients. Presented at the annual convention of the American Psychological Association, Boston, MA August 22, 1999.
- Kopper, B. A., Osman, A., Linehan, M. M., Barrios, F. X., Gutierrez, P. M., Bagge, C. L. Validation of the Adult Suicide Ideation Questionnaire and the Reasons for Living Inventory in an adult psychiatric inpatient sample. Presented at the annual convention of the American Psychological Association, Boston, MA August 22, 1999.
- Osman, A., Bagge, C. L., Barrios, F. X., Gutierrez, P. M., & Kopper, B. A. Receiver operating characteristic curve analyses of the Beck Depression Inventory - II in adolescent psychiatric inpatients. Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October 9, 1998.
- Osman, A., Bagge, C. L., Gutierrez, P. M., Kopper, B. A., & Barrios, F. X. Validation of the Reasons for Living Inventory for Adolescents (RFL-A) in a clinical sample. Presented at the Kansas Conference in Clinical Child Psychology, Lawrence, KS, October 9, 1998.
- Kopper, B. A., Osman, A., Hoffman, J., Gutierrez, P. M., & Barrios, F. X. Reliability and validity of the BDI-II with inpatient psychiatric adolescents. Presented at Division 12 - Clinical Psychology - at the annual convention of the American Psychological Association, San Francisco, CA, August 16, 1998.
- Gutierrez, P. M., & Hagstrom, A. H. Uses for the Multi-Attitude Suicide Tendency Scale. Presented at the American Association of Suicidology annual conference, Bethesda, MD, April 17, 1998.
- Gutierrez, P., & Williams, J. Children's understanding of death. Presented at the Midwestern Psychological Association annual meeting, Chicago, IL, May, 3, 1991.

#### GRANTS AND AWARDS:

- 10/12-9/14 Department of Veterans Affairs National Center for Patient Safety; Co-investigator (PIs Robert Bossarte, Ph.D. & Ira Katz, MD); for *Patient Safety Center of Inquiry*.

- 3/11-2/13 Department of Defense, Military Operational Medicine Research Program, grant; Consultant (PI Steven Vannoy, Ph.D., MPH); for *Development and Validation of a Theory Based Screening Process for Suicide Risk*.
- 3/11-3/15 Department of Defense, Military Operational Medicine Research Program, grant; Co-Investigator; for *A Randomized Clinical Trial of the Collaborative Assessment and Management of Suicidality vs. Enhanced Care as Usual for Suicidal Soldiers*.
- 9/10-9/13 Department of Defense, Military Operational Medicine Research Program, grant; Principle Investigator: jointly with Thomas Joiner, Ph.D., Florida State University; **(additional going to FSU)** for *Military Suicide Research Consortium*.
- 9/09-9/13 Department of Defense, Military Operational Medicine Research Program, grant; Principle Investigator; for *Blister Packaging Medication to Increase Treatment Adherence and Clinical Response: Impact on Suicide-related Morbidity and Mortality*.
- 5/09-5/10 Colorado TBI Trust Fund Education grant; to support the hosting of a conference of national experts in suicide safety planning and TBI rehabilitation.
- 5/08-5/09 Colorado TBI Trust Fund Education grant; to support the hosting of a conference of national experts in assessment of TBI and suicide risk and the role of executive dysfunction in linking the two problems.
- 2005 Shneidman Award for Significant Contributions to Suicide Research, American Association of Suicidology
- 2003 Outstanding Young Alumni, Winona State University

PROFESSIONAL SERVICE:

- 1/12- Department of Psychiatry Faculty Promotions Committee, Doug Novins, MD, Chair
- 1/12- Editorial Board Member, *Archives of Suicide Research*, Barbara Stanley, Ph.D., Editor-in-Chief
- 4/09- Associate Editor, *Suicide and Life-Threatening Behavior*, Thomas Joiner, Ph.D., Editor-in-Chief.
- 4/09-4/11 Past-president, Board position, of the American Association of Suicidology.

- 3/09-12/09 U. S. Army Suicide Reduction and Prevention Research Strategic Planning Workgroup, Soldier Identification and Case Management Expert Lead.
- 5/07-10/08 Member of the International Advisory Board for the Australian National Study of Self Injury (ANESSI), Professor Graham Martin, Director.
- 4/07-4/09 President of the American Association of Suicidology.
- 3/06-3/07 Reviewer for National Registry of Evidence-based Programs and Practices, Substance Abuse and Mental Health Services Administration.
- 4/05-4/07 President-Elect of the American Association of Suicidology.
- 2/04-4/09 Consulting Editor and Editorial Board member, *Suicide and Life-Threatening Behavior*, Morton M. Silverman, M.D., Editor-in-Chief.
- 11/02-6/06 Member, Illinois Suicide Prevention Strategic Planning Task Force, Illinois Department of Public Health.
- 3/02-1/06 Member, American Association of Suicidology Institutional Review Board.
- 4/00-4/03 Director, Research Division, American Association of Suicidology.
- 4/99- Ad hoc reviewer for *Psychiatry Research; Journal of Personality Assessment; American Journal of Public Health; Internal Journal of Circumpolar Health; Death Studies; Social Problems; Journal of Adolescent Research; Child Abuse and Neglect; British Journal of Clinical Psychology; Journal of Clinical and Consulting Psychology; Journal of Abnormal Psychology; International Journal of Psychology; Archives of Suicide Research; American Journal of Orthopsychiatry; Journal of Mental Health Counseling.*
- 1998-2002 Member, North Central Association Outcomes Endorsement Team for Auburn High School, Rockford, IL.
- 7/98-4/00 Chair, Publications Committee, American Association of Suicidology.
- 1998-2006 Director, Adolescent Risk Project, Auburn High School, Rockford, IL. Combined research and suicide risk screening project.
- 1997-2006 Faculty Associate of the Center for Latino and Latin-American Studies at Northern Illinois University.

**MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS:**

- 2010- International Academy for Suicide Research, Fellow
- 2007- Colorado Psychological Association
- 2003-2010 International Academy for Suicide Research, Associate Member

1999- APA Div. 12, Section VII, Clinical Emergencies and Crises  
1998-2010 APA Div. 53, Society of Clinical Child and Adolescent Psychology  
1997-2007 Midwestern Psychological Association  
1996- American Association of Suicidology

**A2 Usability and Utility of a Virtual Hope Box for Reducing Suicidal Ideation**  
Nigel Bush, Ph.D.  
Annual Report

**Task 1: Finalize agreements and subcontracts with participating clinical site (Months 1-2)**

- Final completion in Month 5.
  - The process for subcontract agreement with VA Portland was started in months 1 and 2 and finally executed on March 19, 2012.

**Task 2: Hire and train Phase 1 (P1) study staff (Months 1-3)**

- Completed on schedule.
  - The mobile application developer was hired in November 2011 and equipment for him was procured. Development and testing of the VHB app began December 2011.

**Task 3: Develop and test VHB app. (Months 4-9).**

- Completed on schedule.
  - Android and iPhone versions of the VHB were developed concurrently using an iterative process of “agile” modular designing, testing and modifying.
  - Heuristic usability testing of progressing prototypes, including graphics, layout and interface was completed by the T2 TEC lab on February 10.
  - Functionality usability testing by the TEC lab commenced on March 26 and was completed April 6 and the VHB was determined to be ready for Phase 2.

**Task 4: Set up Phase 2 (P2) clinical site (Months 10-12).**

- Completed on schedule.
  - Initial training for the clinical site staff was conducted April 24 by Dr. Bush in Portland.
  - Preliminary Portland VA IRB approval was obtained in April followed by MSRC and HRPO in July. Final minor modifications to the protocol, study materials and processes were made through a series of collaborative dialogs between T2 and Portland. Final Portland IRB approval process was close to complete as of 10/19/2012.
  - The Portland onsite study coordinator was hired July 30, 2012 and completed training at T2 August 31, 2012.
  - Training of participating clinic providers was completed by the coordinator November 1, 2012.
  - Portland VA clinic space was allocated for study participant recruitment and assessment in October 2012.
  - In preparation for recruitment, cell-phone signal hot-spot equipment was installed for study use October 2012.

**Presentations:**

Bush, N. Development and Evaluation of a Virtual Hope Box for Reducing Suicidal Ideation. DoD/VA Suicide Prevention Conference, June 20, 2012, Washington, DC.

**A3** A Behavioral Sleep Intervention for Suicidal Behaviors in Military Veterans:  
A Randomized Controlled Study  
Rebecca Bernert, Ph.D.  
Annual Report

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Task 1: Secure Approvals, Hire/Train Personnel, Prepare for Data Collection

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**IRB/ R&D/ HRPO/ Sponsor Approvals**

- Revised IRB submission and approval through Stanford University/ VA Palo Alto Research & Development (R&D) Committee, following revised and expanded protocol (eg, to include fMRI scans) (Approved 9/25/2012)
- HRPO submission and approval of protocol for Continuing Review/ Sponsor-related approval (Approved 8/13/2012)

**Data and Safety Monitoring Board Assembly and Clinical Trials Registry**

- Finalized assembly and membership of DSMB:
  - Registered protocol at Clinicaltrials.gov
  - Registered protocol at Stanford Clinical Trials Registry
- 

Task 2: Hire/Train Personnel, Prepare for Data Collection, Initiate Recruitment and Screening/Randomize 120 Eligible OEF/OIF returnees, Conduct RCT Data Collection

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**Personnel/ Stanford/ PAIRE Hiring and WOC VAPAHCS Appointment Processing/ Badging**

- Completed hiring search and institutionally-required job postings/ employment paperwork for project staff:
- Initiated WOC appointments for project staff and investigators/ encountered significant delays in processing due to service-level changes by Memorandum in WOC processing post April 2012 at VAPAHCS
- Founded research program (Suicide Prevention Research Laboratory) and initiated formal affiliation with Stanford Mood Disorders Centers
- Developed trainee apprenticeship program in affiliation with Stanford University, Palo Alto University (clinical psychology graduate programs PhD/PsyD), and VA Palo Alto HCS Volunteer Services to further expand lab and research assistant infrastructure to support project management; retained two PhD students as part of this 2-year program; initiated associated Stanford-related and WOC paperwork
- Initiated hiring search (in progress) for remaining project staff appointments (July 2012)

**Revised Budget for NGA K23/ Revised Budget for Supplemental Funds and Protocol Expansion**

- Revised submission and approval of Budget Justification (March 2012) due to Dr. Bernert's (formerly budgeted) effort now subsumed under an NIH CDA (K23); conference call with MSRC directors for approval; approval obtained through RMG/ OSR

- Secured additional consultation (March 2012) in Desensitization Treatment for Insomnia (DTI), for manual development in group therapy format for comparison to MSPI (Dr. Rachel Manber); obtained consultation agreement and approval of revised Budget Justification
- Revised submission and approval of Budget Justification (May 2012) and Project Narrative for proposed use of Supplemental funds; approval obtained through RMG/ OSR; expanded scientific protocol to include fMRI (to examine biological correlates of emotion regulation in treatment) among subsample at pre/posttreatment in collaboration with laboratory of Dr. Amit Etkin (Stanford); coordinated scan scheduling and hiring for subspecialty focus within project.

### **Study Investigator Meetings/ Consultation Meetings**

- Completed regularly-scheduled Consultation meetings
- Completed regularly-scheduled Co-Investigator meetings

### **Equipment/ Infrastructure/ Protocol Development and SOP Manual Development**

- Purchased all sleep monitoring (Actigraphy) devices (24) and commercialized software; and docking systems; completed training inservice by Respironics on site at Stanford
- Completed beta testing for Actigraphy equipment and software installation; obtained additional license for VA-installation of software and docking systems for study use (already obtained and installed for PC study laptop)
- Purchased/ Ordered additional budgeted equipment/ Supplies/ OI&T Services for infrastructure: Initiated contracting for recruitment-related study advertising, including web development and design (for both Study website and Lab webpage-linked to Stanford.edu), as well as print media recruitment services (meeting occurred 9/28/12 with company; contract initiated and internal paperwork is underway); researched use of RedCap to facilitate internet-based screening and recruitment.
- Completed draft of Manual of Operations to standardize site-specific recruitment and randomization procedures and standard operating procedures Secured fMRI imaging scan access/ defined procedures for scheduling for scans by treatment group
- Initiated MSPI treatment manual, including treatment manual for therapists, session-by-session powerpoints, study scripts, homework assignments, and patient/therapist handouts)
- Organized laboratory radioimmunoassay/ genotyping/ tissue banking services and billing with Stanford Hospitals and Clinics, Clinical Translational Research Unit (CTRU) under award via VA Palo Alto HCS; secured long-term VA -80 freezer space for sample storage
- Organized infrastructure (slated to move 10/15/12)

## **Dissemination Activities/ Conference Presentations and Attendance/ Relevant Scholarly Work**

- Presented at three research conferences in topic area: APSS (Boston, June 2012,) and the VA/DOD Suicide Prevention Conference (DC, June 2012), ACAAP (San Francisco, October 2012)
- Invited contributor to VA/DOD 2012 Suicide Prevention Clinical Practice Guidelines (focus on sleep as a risk factor for suicide based on Consortium-funded and additional preliminary studies)
- Relevant scholarly work during the award period:

### **Published Abstracts/ Articles**

- Suh S, Nowakowski S, **Bernert RA**, Ong JC, Siebern A, Dowdle C, Manber R (2012). Clinical Significance of night-to-night sleep variability in insomnia. *Sleep Med*, 13, 469-475
- **Bernert RA**, Joiner, TE (2012). Insomnia, nightmares and sleep variability as predictors of acute suicidality in a high risk young adult sample. *Sleep*, 35, A327.
- **Bernert RA**, Roberts RL (In press). Ethical considerations in the assessment and management of suicide risk. *FOCUS: The Journal of Lifelong Learning in Psychiatry*

### **Invited Presentations**

- **Bernert RA**. An open trial of CBT for insomnia results in posttreatment reductions in suicidal ideation: Military Relevance and Clinical Implications. *Annual VA/DOD Suicide Prevention Meeting, Sleep Research Symposium*, June 2011, Washington, DC
- **Bernert RA**. Ethical considerations in suicide risk assessment and management. *First Inaugural Society of Behavioral Sleep Medicine Conference, Ethical Considerations in Behavioral Sleep Medicine Symposium*, June 2012, Boston, MA

### **Book Chapters**

- Manber, R., **Bernert, R.A.**, & Siebern, A.T. (In press). Special considerations in the treatment of insomnia. In Kushida, C., (Ed.) *Encyclopedia of Sleep*. Elsevier
- **Bernert, R.A.** & Nadorff, M.R. (In press). Sleep disturbances and suicidal behavior. In Hirschkowitz, M. & Herman, J.H. (Eds.), *Handbook on Psychiatry and Sleep Medicine*

### **Other**

- Contributor, 2012 A/DoD Suicide Prevention Clinical Practice Guidelines, *VA/DoD Suicide Prevention Workgroup* (in press)

## **A4 Suicide Bereavement in Military and their Families**

Julie Cerel, Ph.D.

Year 1, Quarters 1, 2, & 3

### **Task 1. Protocols submitted to and approved by IRB – Completed**

The project was approved by the University of Kentucky IRB and HRPO.

### **Task 2. Obtain sample for random digit-dial survey – Completed**

The Suicide Bereavement in Military and their Families research team obtained a sample for random-digit dial survey via landline and cell phone.

### **Task 3. Engagement with local/national organizations to obtain sample of family members – In Progress**

The Suicide Bereavement team is engaging organizations to be able to help recruit family members. This is an ongoing process.

### **Task 4. Family interviews – In Progress**

The research team completed three family interviews, to date.

### **Task 5. Veteran and community members invited to complete online surveys – In Progress**

62 phase 2 online surveys have been completed (21 veterans, 41 community)

### **Task 6. Interview of suicide and traumatic-death exposed veterans and suicide-exposed community members – In Progress**

7 phase 3 interviews have been completed (1 veteran, 6 community)

### **Other Progress:**

A transcriptionist has been hired and the preliminary data analysis has begun.

Dr. Cerel and the Suicide Bereavement team distributed a press release on the study, which resulted in six interviews and two Op-Eds. All media requests were approved by VA and MOMRP PAOs.

**A5 Window to Hope: Evaluating a Psychological Treatment for Hopelessness among Veterans with TBI: A Phase II RCT and an Active Control Component**  
Lisa A. Brenner, Ph.D., ABPP  
Year 1, Quarters 1 & 2

PHASE I: Study Initiation/Cross-cultural Adaptation/Feasibility/Acceptability

**Task 1: Build infrastructure; begin adapting WtoH for a Veteran; hire and train personnel; create database/measures; expert consensus meeting; revise intervention; obtain regulatory approval**

- Milestone 2: Initial cross-cultural adaptation procedures completed (Q1-Q2: **Completed**)

Progress: Successfully updated based on consensus conference and pilot group feedback. Make the Connection website was selected as a medium to view videos of Veteran/Military personnel with stories of resilience following traumatic brain injury.

PHASE II: RCT

**Task 3: Recruit and consent participants for RCT; collect and enter Time 1 data**

- Milestone 7: 42 recruited to complete study procedures; Time 1 data collected and entered (Q2-Q8: **In Progress**)

Progress: RCT screening and recruitment procedures have commenced, baseline assessments are currently being completed.

**Task 4: Conduct Phase II RCT WtoH intervention and complete Time 2 data collection**

- Milestone 8: RCT WtoH intervention complete; Time 2 data collected for all participants; Time 2 data entered in database (Q2-Q8: **Pending**)

Progress: RCT follow-up procedures have not commenced pending enrollment of participants, completion of baseline procedures, and initiation of group therapy.

**Task 6: Evaluate treatment adherence**

- Milestone 10: FRS scores generated and feedback provided to clinicians (Q2-Q8: **Pending**)

Progress: RCT groups have not commenced pending recruitment of eligible participants and completion of baseline procedures.

**Pilot Group Recruitment:**

- 32 potential participants expressed interest and screened for Pilot Groups (20 did not meet inclusion criteria; 12 met inclusion criteria)

Pilot Group Data collection:

- Time 1 assessment data was obtained for 9 participants.
- Time 2 assessment data was obtained for 8 participants (1 withdrew).
- Time 3 assessment data was obtained for 8 participants (1 withdrew).

**WtoH RCT Group Recruitment:**

- 61 potential participants expressed interest (6 met inclusion criteria)

**RCT Group Data Collection:**

- Time 1 assessment data and Attendance data is pending
- Time 2 and Time 3 follow-up assessment data is pending

**A6** Suicide Risk Assessments within Suicide-Specific Group Therapy Treatment for Veterans: A Pilot Study

Lori Johnson, Ph.D. & David Jobes, Ph.D.

Year 1, Quarter 1

**Task 1: Hire and train study staff.** (Year 1 Months 1-3)

**1a:** RRVAMC PI and CO-I, recruit, select, and hire study staff – **Complete**

**1b:** RRVAMC PI and Co-I ensure all study staff complete VAMC human subjects and IRB trainings (Year 1 Month 2) – **Complete**

**1c:** CUA and UW Co-Is train all RRVAMC staff in study policies and procedure and administering study assessments. (Year 1 Month 2) - **Scheduled**

**1d:** RRVAMC staff begins recruitment and initial assessment procedures for pilot cases. Staff consults with CUA and UW Co-Is and Denver VA MIRECC consultant concerning effectiveness of recruitment procedures and initial assessment. Research team develops adaptations as needed prior to test cases. (Year 1 Month 3) – **Projected Start 12/1/12**

**1e:** Experimental and control groups begin pilot cases. Team consults with Co-Is for effectiveness of procedures and adaptations as needed prior to test cases. (Year 1 Month 3) – **Projected Start 12/17/12**

**A7** Toward a Gold Standard for Suicide Risk Assessment for Military Personnel  
Peter M. Gutierrez, Ph.D. & Thomas Joiner, Ph.D.  
Year 1, Quarter 1

**Task 1. Hire and train staff** (timeframe, months 1-4):

1a. Hire and train project coordinators at MIRECC and FSU (timeframe, months 1-2) - **Completed**

- Project Coordinators for both sites were hired and trained on study procedures.

1b. Hire and train site assessors (timeframe, months 3-4) - **In Progress**

- Qualifications for the Site Assessor positions have been determined. The positions are open and applications have been received. Currently applicants are undergoing a screening process conducted by the Geneva Foundation prior to being interviewed by the Study PI's.

**Other Progress**

- In addition to training project coordinators, military installations have been identified and agreed to participate in our study. The following installations and Site PI's are involved:
  - Naval Medical Center Portsmouth, Site PI Dr. Douglas Knittel
  - Andrews Air Force Base, Site PI Dr. Katie Kanzler
  - Fort Campbell, Site PI Dr. Joseph Wise
- The IRB and CRADA processes for the sites have been initiated.



Research report

# Sleep problems outperform depression and hopelessness as cross-sectional and longitudinal predictors of suicidal ideation and behavior in young adults in the military<sup>☆</sup>

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## ABSTRACT

**Background:** Sleep problems appear to represent an underappreciated and important warning sign and risk factor for suicidal behaviors. Given past research indicating that disturbed sleep may confer such risk independent of depressed mood, in the present report we compared self-reported insomnia symptoms to several more traditional, well-established suicide risk factors: depression severity, hopelessness, PTSD diagnosis, as well as anxiety, drug abuse, and alcohol abuse symptoms.

**Methods:** Using multiple regression, we examined the cross-sectional and longitudinal relationships between insomnia symptoms and suicidal ideation and behavior, controlling for depressive symptom severity, hopelessness, PTSD diagnosis, anxiety symptoms, and drug and alcohol abuse symptoms in a sample of military personnel (N = 311).

**Results:** In support of a priori hypotheses, self-reported insomnia symptoms were cross-sectionally associated with suicidal ideation, even after accounting for symptoms of depression, hopelessness, PTSD diagnosis, anxiety symptoms and drug and alcohol abuse. Self-reported insomnia symptoms also predicted suicide attempts prospectively at one-month follow up at the level of a non-significant trend, when controlling for baseline self-reported insomnia symptoms, depression, hopelessness, PTSD diagnosis and anxiety, drug and alcohol abuse symptoms. Insomnia symptoms were unique predictors of suicide attempt longitudinally when only baseline self-reported insomnia symptoms, depressive symptoms and hopelessness were controlled.

**Limitations:** The assessment of insomnia symptoms consisted of only three self-report items. Findings may not generalize outside of populations at severe suicide risk.

**Conclusions:** These findings suggest that insomnia symptoms may be an important target for suicide risk assessment and the treatment development of interventions to prevent suicide.

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*"In the states of depression in spite of great need for sleep, it is for the most part sensibly encroached upon; the patients lie for hours, sleepless in bed, ... although even in bed they find no refreshment."* Emil Kraepelin (1921)

## 1. Introduction

If asked to list the top few warning signs for imminent suicidal behavior, relatively few mental health professionals – even experienced ones; indeed even specialists – would list insomnia. But perhaps should, as mounting evidence makes clear (Ağargün and Cartwright, 2003; Bernert et al., 2005; Fawcett et al., 1990; Krakow et al., 2011; Turvey et al., 2002; Wojnar et al., 2009). Here, we extend this evidence by documenting robust links between sleep problems and suicidality, both cross-sectionally and longitudinally, and both with regard to suicidal ideation and suicidal behavior. Crucially, in all cases, we show that the links between sleep problems and suicidality exist beyond the involvement of factors mental health professionals would list as among the top few clinical risk indices for suicidality—namely, depression, hopelessness, PTSD, anxiety, and drug and alcohol abuse (Beck et al., 1990; Nock et al., 2010; Oquendo et al., 2002, 2004).

## 2. Why would sleep problems be involved in suicidality?

In the moments before their deaths, suicide decedents are almost never described by others as “sluggish” or “slowed down” – a perhaps surprising fact given the well-known association between depression – which can certainly slow people down – and suicidality. How are they usually described then? Descriptors of severe anxiety and terms such as “agitated,” “on edge,” and “keyed up” come up quite regularly (Busch and Fawcett, 2004; Hall et al., 1999). If others are queried about the days and nights preceding the death, another term is likely to surface: “sleepless” (Hall et al., 1999; McGirr et al., 2007; Tanskanen et al., 2001).

Suicide is inherently difficult because it requires overcoming basic self-preservation instincts (Joiner, 2005). This may be one factor that contributes to why decedents, in the moments before death, are rarely viewed as “sluggish” and are frequently viewed as “keyed up.” Those whose death by suicide is imminent are physiologically aroused (Busch and Fawcett, 2004; Busch et al., 2003; Hall et al., 1999); were they not, something as daunting as death would likely be too difficult to enact. Indeed, many of them are physiologically *overaroused* (Busch and Fawcett, 2004; Busch et al., 2003; Kovaszny et al., 2004).

This state of overarousal appears to be a higher-order, underlying substrate with several manifest indicators, including various aspects of agitation and sleep disturbance. The focus in the current study is insomnia, which, for the purposes of this investigation, refers to a difficulty initiating or maintaining sleep that results in daytime consequences (e.g., fatigue). In this context, insomnia may be understood as one indicator of a psychological overarousal, which in turn may be associated with elevated risk for acute death by suicide. The emphasis of the current project is placed on insomnia not only because it is believed to be a key indicator of the overarousal, but also because it may be a clinically modifiable risk factor

(Fawcett et al., 1990); furthermore, it is a topic many patients may be more likely to discuss with clinicians, in contradistinction to topics like suicidality and depression (Britt et al., 2008; Green-Shortridge et al., 2007; Hoge et al., 2004).

It is important to emphasize that the mechanisms underlying the relationship between insomnia symptoms and suicide remain unclear and under-researched. The overarousal hypothesis is offered as one potential explanation; however, there are a number of other possible explanatory pathways that might account for the link. Of note, there is some evidence to suggest that insomnia symptoms may impair decision making (Killgore et al., 2006), impulsivity (Schmidt et al., 2010), and exacerbate mood symptoms (Baglioni et al., 2010)—all of which may serve to mediate the relationship between insomnia symptoms and suicidal ideation and behavior.

## 3. Past research on sleep problems and suicidality

Despite the lack of theoretical research on why sleep would be associated with suicide risk, a growing body of evidence suggests that disturbed sleep may constitute an important, modifiable risk factor for suicide. Multiple sleep problems appear to predict elevated risk for suicide including insomnia, poor sleep quality, and nightmares (Ağargün and Cartwright, 2003; Ağargün et al., 1998; Bernert et al., 2005; Fawcett et al., 1990; Tanskanen et al., 2001). Supporting the construct validity of this association, this effect has been demonstrated controlling for depression, across diverse populations (*clinical, nonclinical*; Bernert et al., 2005, 2008), designs (*longitudinal, cross-sectional; epidemiologic, psychological autopsy studies*; Bernert et al., 2005; Bernert et al., 2007; Goldstein et al., 2008; Sabo et al., 1991), assessment techniques (*objective, subjective sleep indices*; Bernert et al., 2005; Goldstein et al., 2008; Sabo et al., 1991) and outcome measures (*suicide ideation, suicide death*; Ağargün et al., 1997a; Barraclough and Pallis, 1975; Bernert et al., 2007).

Of specific sleep disturbances that may increase suicidality, insomnia and its attendant fatigue have received the most research attention, but even so, there remain important research questions to address. Cross-sectionally, insomnia has repeatedly been linked to greater levels of suicidal ideation (Ağargün et al., 1997a; Barraclough and Pallis, 1975) even after controlling for depressive symptoms (Bernert et al., 2005, 2009; Chellappa and Araújo, 2007), and suicidal behavior (Goldstein et al., 2008; Sjöström et al., 2007). Longitudinal studies (though few) provide even more compelling evidence, indicating that insomnia emerges as a significant predictor of later suicidal ideation (McCall et al., 2010) and death by suicide (Fawcett et al., 1990; Fujino et al., 2005; Turvey et al., 2002).

## 4. The present study

In the current study, the literature on insomnia and suicidality is built upon. As can be discerned in Table 1, studies conducted to date vary considerably in terms of whether they examine suicidal ideation, behavior, or death by suicide as outcomes, whether they consider depression or other covariates, whether their assessment approach included multi-method features, and whether their designs incorporated cross-sectional or longitudinal elements. As Table 1 shows, no study did all of these. The present study is the first to do

**Table 1**  
Past research on insomnia and suicidality.

	Dependent variable			Control variable		Design	
	Ideation	Behavior	Assessment method	Depression	Other	Cross-sectional	Longitudinal
Barracough and Pallis (1975)		X	Suicide death			X	
Fawcett et al. (1990)		X	Suicide death				X
Ağargün et al. (1997a)	X		Schedule for Affective Disorders and Schizophrenia (SADS) Suicide Subscale			X	
Ağargün et al. (1997b)	X		SADS Suicide Subscale			X	
Turvey et al. (2002)		X	Suicide death				X
Smith et al. (2004)	X		Beck Depression Inventory (BDI)—Item 9	X		X	
Bernert et al. (2005)	X		Beck Scale for Suicidal Ideation (BSS)	X		X	
Fujino et al. (2005)		X	Suicide death				X
Ağargün et al. (2007)		X	Suicide attempt			X	
Chellappa and Araújo (2007)	X	X	Scale for Suicide Ideation (SSI)		X <sub>a</sub>	X	
Sjöström et al. (2007)		X	Suicide Assessment Scale (SAS)			X	
Bernert et al. (2009)	X		BSS	X	X <sub>b</sub>	X	
Wojnar et al. (2009)	X	X	The World Health Organization (WHO) Composite International Diagnostic Interview (CIDI)	X	X <sub>c</sub>	X	
McCall et al. (2010)	X		SSI		X <sub>d</sub>		X
Krakow et al., (2011)	X		Depressive Symptoms Inventory—Suicide Subscale (DSI-SS)	X		X	
Current study	X	X	Modified Scale for Suicidal Ideation (MSSI)	X	X	X	X

Note. a—controlled for antidepressant and hypnotic medication use; b—controlled for presence vs. absence of mental disorder and symptom severity; c—controlled for presence vs. absence of mental disorder, chronic health problems, and demographics; d—controlled for age, gender, treatment status, and baseline suicidality.

so. In addition, it is the first study to our knowledge that evaluates sleep disturbance in association with suicide risk in a military population.

Using archival data of a sample of young adults in the military referred for suicidality, the cross-sectional associations at baseline between insomnia symptoms and interviewer-assessed suicidal ideation are examined, controlling for hopelessness, depression, PTSD diagnosis, anxiety, drug abuse and alcohol abuse. A substantial subset of the participants was assessed one month later, allowing for the examination of longitudinal associations, between insomnia symptoms and suicidal ideation and behavior.

## 5. Method

### 5.1. Participants

Participants for this study included 311 individuals (255 men [82%]; 56 women), evaluated as they entered a study on the efficacy of treatments for suicidal young adults (Rudd et al., 1996). All participants were referred for severe suicidality from two outpatient clinics, an inpatient facility, and an emergency room. All facilities were affiliated with a major U.S. Army Medical Center. Approximately 40% had a diagnosis of major depressive disorder, 15% had a bipolar spectrum diagnosis (i.e. Bipolar I Disorder, Bipolar II Disorder, Cyclothymic Disorder, and Bipolar Disorder-Not Otherwise Specified), 13% had anxiety disorders, 5% had been diagnosed with a schizophrenia spectrum disorder, 20% had co-morbid post-traumatic stress disorder (PTSD), and about 20% had a co-morbid substance use disorder. The total number of diagnoses averaged approximately three. Diagnoses were assigned using a computerized version of the Diagnostic Interview Schedule (Blouin et al., 1988). Average age was 22.19 (SD = 2.77). Sixty percent was Non-Hispanic White; 25.3% was African-American; 10.5% was Hispanic; 1.5% was Native American; 1.2% was Asian-American or Pacific

Islander; ethnicity was not classified for the remaining 1%. Forty-four percent was single; 37% was married; 10% was separated; 7% was divorced; 1% was widowed. Further details regarding the military experience of the sample (e.g., length of service, active duty status) are unavailable. Given the alarming increase in death by suicide in the military with close to 300 suicide deaths in active-duty military in 2009 alone (Luxton et al., 2009), the relevance and importance of the topic of the current study are difficult to overstate.

Of the 311 participants evaluated upon entry to the study, 239 were re-evaluated one month later. There were no differences on study variables between those who did and did not return except that those who did not return had slightly more suicidal ideation at baseline than those who did return (correlation between return/not and suicidal ideation was .12,  $p < .05$ ).

### 5.2. Procedures

All participants provided full, informed, and written consent for research participation and were thoroughly clinically evaluated at pre-treatment (i.e., “baseline” assessment). All patients were offered rigorous treatment and were randomly-assigned to a problem-solving treatment or treatment-as-usual (as described by Rudd et al., 2000). A follow-up assessment was conducted post-treatment, one month after baseline. Interviews and administration of measures were conducted by clinical staff. Refer to Rudd et al., 1996 for more detailed information on procedures.

### 5.3. Measures

#### 5.3.1. Insomnia symptoms

Assessed at both baseline and follow-up, the insomnia symptom index consisted of three items: Beck Depression Inventory (BDI; Beck et al., 1961) Items 16 (sleeplessness) and 17 (fatigue), as well as Suicide Probability Scale (SPS; Cull

and Gill, 1982) Item 33 (fatigue and listlessness). The BDI and SPS items are rated on a 0-to-3 rating scale. Scores on the insomnia symptom index could range from 0 to 9, with higher scores indicating greater symptom severity. Of note, BDI items 16 and 17 have been used in past literature as an index of sleep symptom severity (e.g., Perlis et al., 1997). Moreover, the use of a brief index has precedence in the literature on suicide risk. For example, the four-item Suicide Behaviors Questionnaire-Revised (SBQ-R; Osman et al., 2001) is psychometrically sound. The same can be said of the four-item Depressive Symptom Index-Suicidality Subscale (Metalsky and Joiner, 1997) and of the four-item P4 screener (Dube et al., 2010).

At baseline, the coefficient alpha of these three items was adequate at .71 and at follow-up was .76. As would be expected for a phenomenon that has episodic and state-like qualities (Buysse et al., 2010; Perlis et al., 1997; Vallières et al., 2005), the test-retest coefficient for the insomnia symptom index was in the moderate range ( $r = .44, p < .01$ ). Test-retest coefficients in the moderate range are the norm for validated indices of insomnia, when the test-retest interval is three weeks or longer (as in the present study). For instance, in a sample of 50 undergraduates selected into a separate study for the presence of suicidal ideation, test-retest of the Insomnia Severity Index (Morin, 1993) over the course of three weeks was .41,  $p < .05$  (Bernert and Joiner, in preparation).

Regarding validity, in approximately 200 undergraduates who completed the BDI and the Insomnia Severity Index for a separate study (Ribeiro et al., in press), the correlation between the composite of BDI Items 16 and 17 and ISI scores was .60,  $p < .01$  (the SPS was not available in this particular sample)—substantial considering that the reliability ceiling of the three-item index is in the range of .71–.76, and the ceiling for the composite of the two BDI items is lower. Similarly, in the undergraduate sample alluded to above, the average correlation across the three week study between the composite of the two BDI items and the Insomnia Severity Index was .61,  $p < .05$ .

The insomnia symptom index at baseline served as the main independent variable of interest in the prediction of suicidal ideation cross-sectionally and of both suicidal ideation and suicide attempt longitudinally. Also, analyses were conducted in which the insomnia symptom index at follow-up served as the dependent variable and suicidal ideation served as a predictor, which allowed for examination of directionality of effects.

### 5.3.2. Modified Scale for Suicidal Ideation (MSSI; Miller, Norman, Bishop, & Dow, 1986)

The MSSI is an 18-item scale that is designed to assess several aspects of suicidality. Each MSSI item was rated on a 0 to 3 scale; a total score of 11 or greater indicates clinical significance. Miller et al. (1986) have reported reliability coefficients and construct validity data for this measure (see also Clum and Yang, 1995).

### 5.3.3. Psychosocial history

This interviewer-rated form assessed demographic information and relevant personal history. The form administered at follow-up included a question on whether a suicide attempt had occurred since baseline. Of the 239 participants

who returned for follow-up, ten reported suicide attempts between baseline and follow-up. We thus created a dichotomous variable (i.e. reflecting whether or not a suicide attempt occurred between baseline and follow-up), which served as a dependent variable in our longitudinal analysis predicting follow-up attempt status using the baseline insomnia symptom index, controlling for baseline suicidal ideation, depression, and hopelessness.

### 5.3.4. Millon Clinical Multiaxial Inventory (MCMI; Millon and Davis, 1997)

The original MCMI is a 175-item, true-false inventory. For the present purposes, the major depression, anxiety, alcohol abuse, and drug abuse subscales were used as covariates. The scales' reliability and validity appear to be adequate (Millon and Davis, 1997). The congruence of various versions of the MCMI scales has also been adequate (Marlowe et al., 1998). We use the depression subscale as measure of depression instead of the BDI to avoid contamination between predictor and dependent variables.

### 5.3.5. Beck Hopelessness Scale (BHS; Beck et al., 1974)

The BHS includes 20 true-false items that assess hopeless cognitions. The scale's reliability and validity have been supported (Metalsky et al., 1993). The BHS was used as a covariate; given that the BHS and the BDI share content and were developed by the same investigator, its use as a covariate in analyses involving our insomnia symptom index, also based in part on the BDI, may be considered a reasonably stringent data-analytic approach.

## 5.4. Data-analytic strategy

For cross-sectional analyses, we used multiple regression analyses, predicting MSSSI suicidal ideation. The insomnia symptom index, BHS hopelessness scores, and MCMI depression scores were entered simultaneously as predictors. Recognizing viable covariates beyond depression and hopelessness, we also entered PTSD diagnosis, baseline MCMI anxiety scores, substance abuse, and alcohol abuse scores as control variables.

Regarding longitudinal analyses, a similar approach was used to evaluate whether the insomnia symptom index at baseline predicted MSSSI suicidal ideation at follow-up, controlling for baseline MSSSI, BHS, PTSD, and MCMI scores. To evaluate directionality, we conducted a similar analysis in which the insomnia symptom index and MSSSI “switched places.” The dependent variable was the insomnia symptom index at follow-up, and predictors included baseline insomnia symptom index, MSSSI, BHS, PTSD, and MCMI scores. Additional analyses involved a logistic regression examining the relation of baseline insomnia symptom index to a variable reflecting whether or not participants reported a suicide attempt occurring between baseline and follow-up. Baseline MSSSI, BHS, MCMI anxiety, MCMI substance abuse, and MCMI alcohol abuse scores as well as PTSD diagnosis were controlled in these analyses.

## 6. Results

Means, standard deviations, and intercorrelations for all variables are presented in Table 2. Notably, symptom scores

**Table 2**

Means, standard deviations, and intercorrelations between all measures for study (N = 311 at Time 1, N = 239 at Time 2).

	1	2	3	4	5	6	7	8	9	10	11
1. Sleep—initial	–										
2. MSSI total—initial	.394**	–									
3. BHS total—initial	.553**	.488**	–								
4. MCMI major depression—initial	.338**	.297**	.375**	–							
5. MCMI anxiety—initial	.258**	.299**	.379**	.708**	–						
6. MCMI alcohol abuse—initial	.106	.154**	.060	.408**	.477**	–					
7. MCMI substance abuse—initial	.036	.027	–.226**	–.011	–.001	.544**	–				
8. PTSD	.231**	.200**	.131*	.131*	.204**	.184**	.096	–			
9. Sleep—1 month	.435**	.143*	.205**	.157*	.258**	.106	.036	.231**	–		
10. MSSI total—1 month	.274**	.315**	.225**	.142*	.119	.057	–.011	.148**	.303**	–	
11. Adtl suicide attempt—1 month	.135*	–.002	–.017	.022	.236	–.089	.001	.176**	.079	.264**	–
Mean	4.42	23.30	8.73	66.53	87.77	59.66	62.55	.23	2.83	5.98	.04
SD	2.67	10.42	6.36	13.43	20.35	17.63	19.34	.42	2.30	9.77	.20

\*\* Correlation is significant at the .01 level (2-tailed).

\* Correlation is significant at the .05 level (2-tailed).

are elevated at baseline. For the insomnia symptom index, the mean score was 4.42 ( $SD=2.67$ ). Mean MSSI scores were also elevated ( $M=23.30$ ,  $SD=10.42$ ), as expected. Participants reported an average score of 8.73 ( $SD=6.36$ ) on the BHS, 66.53 ( $SD=13.43$ ) on the MCMI depression subscale, 87.77 ( $SD=20.35$ ) on the MCMI anxiety subscale at baseline, 59.66 ( $SD=17.63$ ) on the MCMI alcohol abuse subscale, and 62.55 ( $SD=19.34$ ) on the MCMI drug abuse subscale (scores above 65 are in the clinical range). Further, all symptom scores were significantly intercorrelated at baseline, and with the insomnia symptom index ( $M=2.83$ ,  $SD=2.30$ ) and MSSI ( $M=5.98$ ,  $SD=9.77$ ) at one-month follow-up, as anticipated. Additional suicide attempts at one month follow-up were positively correlated with sleep score at baseline ( $r=.14$ ,  $p<.05$ ), with MSSI total score at follow-up ( $r=.26$ ,  $p<.01$ ), as well as with PTSD diagnosis ( $r=.18$ ,  $p<.01$ ).

#### 6.1. Cross-sectional analyses: does the insomnia symptom index predict MSSI suicidal ideation controlling for hopelessness, depression, PTSD, anxiety, and drug and alcohol abuse?

The answer to this question is yes. For this analysis, the insomnia symptom index, BHS, MCMI depression, anxiety, alcohol abuse and drug abuse scores, and PTSD diagnosis were entered simultaneously as predictors into a multiple regression equation, predicting MSSI. The insomnia symptom index emerged as a significant predictor of suicidal ideation, beyond the effects of hopelessness, depression, PTSD, anxiety, alcohol and drug abuse ( $pr=.12$ ,  $t[307]=2.11$ ,  $p<.05$ ). Hopelessness ( $pr=.34$ ,  $t[307]=6.35$ ,  $p<.001$ ) also emerged as a significant predictor of suicidal ideation, beyond the effects of the other rival covariates.

#### 6.2. Longitudinal analyses: 1) Does the insomnia symptom index at baseline predict MSSI suicidal ideation at follow-up, controlling for baseline MSSI, and for hopelessness depression, PTSD, anxiety, and drug and alcohol abuse?

Here, too, the answer to this question is yes. A similar multiple regression approach as outlined above was used to evaluate whether the insomnia symptom index at baseline predicted MSSI scores at follow-up, controlling for baseline MSSI, BHS, PTSD, and MCMI depression, anxiety, drug abuse,

and alcohol abuse scores. As would be expected, MSSI scores at baseline predicted MSSI scores at one-month follow-up ( $pr=.19$ ,  $t[234]=2.97$ ,  $p<.01$ ). Of the remaining predictors, only the insomnia symptom index evinced a significant longitudinal relationship to increased suicidal ideation at follow-up ( $pr=.14$ ,  $t[234]=2.13$ ,  $p<.05$ ). Hopelessness ( $pr=.01$ ,  $t[234]=0.21$ ,  $p=ns$ ), depression ( $pr=.03$ ,  $t[234]=.39$ ,  $p=ns$ ), PTSD ( $pr=.09$ ,  $t[234]=.131$ ,  $p=ns$ ), anxiety ( $pr=.12$ ,  $t[234]=-.69$ ,  $p=ns$ ), drug abuse ( $pr=-.01$ ,  $t[234]=-.07$ ,  $p=ns$ ), and alcohol abuse ( $pr=-.03$ ,  $t[234]=-.38$ ,  $p=ns$ ) failed to do so.

#### 6.3. Longitudinal analyses: 2) The question of directionality: Does MSSI suicidal ideation at baseline predict the insomnia symptom index at follow-up, controlling for baseline insomnia symptoms, and for hopelessness, depression, PTSD, anxiety, and drug and alcohol abuse?

No. To evaluate directionality, analyses were conducted in which the dependent variable was the insomnia symptom index at follow-up, and predictors included the insomnia symptom index at baseline, and baseline MSSI, BHS, PTSD diagnosis, MCMI depression, anxiety, drug abuse, and alcohol abuse scores.

Baseline suicidal ideation did not predict insomnia symptom scores at follow-up, controlling for baseline insomnia symptom scores ( $pr=-.07$ ,  $t[234]=-1.09$ ,  $p=ns$ ). This suggests that the longitudinal association between insomnia symptoms and suicidal ideation flows from insomnia symptoms to suicidal ideation.

#### 6.4. Longitudinal analyses: 3) does the insomnia symptom index at baseline predict suicide attempts occurring between baseline and follow-up, controlling for baseline MSSI, and for hopelessness, depression, PTSD, anxiety, and drug and alcohol abuse?

Not quite. In a logistic regression equation controlling for baseline MSSI, BHS, PTSD MCMI depression, anxiety, drug and alcohol abuse scores, baseline insomnia symptom index scores were used as a predictor of suicide attempt status at follow-up. The insomnia symptom index emerged as a non-significant trend predicting a suicide attempt at follow-up (exponentiated beta [Exp(B)], which is an index of effect

size, was 1.33; Wald coefficient = 2.68,  $p = .10$ ). Only PTSD (Exp(B) = 6.71; Wald coefficient = 5.83,  $p < .05$ ) and MCMI alcohol abuse (Exp(B) = .92; Wald coefficient = 6.22,  $p < .05$ ) emerged as significant predictors of subsequent suicide attempt. Although the effect of insomnia was not significant in this analysis, it is important to highlight that this was within the context of controlling for very robust predictors of suicidal behavior and, even then, the effect approached significance.

Of note, in a separate logistic regression when baseline insomnia symptom index scores were entered as a predictor of later suicide attempt, controlling for MCMI depression and BHS hopelessness scores, insomnia symptom index showed a significant longitudinal relationship to suicide attempt at follow-up (exponentiated beta [Exp(B)] = 1.45; Wald coefficient = 6.28,  $p < .01$ ). Neither baseline suicidal ideation (Exp[B] = 0.98; Wald coefficient = 0.19,  $p = ns$ ), hopelessness (Exp[B] = 0.91; Wald coefficient = 1.64,  $p = ns$ ), nor depression (Exp[B] = 1.00; Wald coefficient = 0.01,  $p = ns$ ) performed similarly.

## 7. Discussion

The current study's findings converge with a growing body of research, indicating a relationship between sleep disturbance and suicidality (Goldstein et al., 2008; Goodwin and Marusic, 2008; Keshavan et al., 1994; Liu, 2004; Sabo et al., 1991; Sjöström et al., 2007). This link has been reported in both clinical (Ağargün and Cartwright, 2003; Bernert et al., 2005; Sabo et al., 1991) and nonclinical population-based samples (Fujino et al., 2005; Goodwin and Marusic, 2008; Turvey et al., 2002) regarding suicidal ideation, suicide attempt, and death by suicide.

This investigation builds upon past findings by evaluating sleep problems as cross-sectional and longitudinal predictors of interviewer-assessed suicidal ideation and attempts, in direct comparison with depression, hopelessness, PTSD diagnosis, anxiety, drug and alcohol abuse, in a military sample. The present study revealed that insomnia symptoms served as a unique predictor of suicidal ideation assessed cross-sectionally, and for suicidal ideation and suicide attempt longitudinally (though the latter only held when controlling for only depression, hopelessness and baseline suicidal ideation, which are still strong predictors of death by suicide). This is a stringent test, given that depression is among the strongest predictors of suicide risk, and considering that insomnia and suicidality are symptoms of depression and highly associated with PTSD. An additional strength of this study was use of interviewer-assessed suicidal ideation and behavior. With a few exceptions (Bernert et al., 2005, 2009), the majority of past reports used single-item measures of suicidal ideation (Ağargün et al., 1997a, 1997b; Fawcett et al., 1990; Roberts et al., 2001).

This is also the first examination to our knowledge of such relationships in a military sample. There is some evidence that military status is associated with increased risk for suicide across cultures (Kim et al., 2006), and rates of suicide in the U.S. military have surged to record numbers in recent years (Kuehn, 2009; Lorge, 2011; US Army, 2011). The prevalence of sleep complaints appears significantly increased among military personnel when compared to civilians (Hoge et al., 2004; Neylan et al., 1998; Seelig et al., 2010),

which does not appear to be explained by a PTSD diagnosis (Lewis et al., 2009).

The current study included limitations, which should be considered in interpreting the findings. The approach to the assessment of insomnia can be improved upon. One particular concern may be the construct validity of the insomnia symptom index as a measure of insomnia, as only one item indexes insomnia directly and the other two are assessments of fatigue. Although fatigue is highly associated with insomnia, it is also related to many other constructs as well (e.g., depression, physical illness, and eating disorders). Given the strong evidence base on sleep problems and suicidality, it would be reasonable to hypothesize that sleep problems are likely accounting for the effects. It is also important to note that analyses controlled for another strong potential confounding variable that is associated with fatigue, insomnia, and suicidality—namely, depressive symptoms. Therefore, future research using comprehensive self-report and objective measures of sleep problems is needed. In addition, findings involved relatively small effect sizes and did not examine potential variables (e.g., rumination, physiological effects of sleeplessness) that might mediate the results. Nevertheless, it should be emphasized that results conformed to stringent, a priori hypotheses, persisted after controlling for relevant variables, emerged within a multi-method assessment strategy, and were similar to – and in some cases exceeded – effects for variables with traditionally strong effects. It should also be acknowledged that the current findings may not be generalizable outside of a severe risk sample. However, studying a severe sample will likely serve to highlight the highly salient risk factors.

Importantly, the results do not diminish the importance of depression and hopelessness as indicators of increased suicide risk as much as they underscore the importance of sleep problems. Based on the present findings, incorporating sleep problems into suicide risk assessment may be clinically important and potentially enhance detection of at-risk military members as sleep disturbances are often easily detectable (Goldstein et al., 2008), in contrast to many other suicide risk factors (e.g., past suicide attempt history). Information regarding more traditional suicide risk factors provides a context for determining how much weight to place on sleep problems, which likely informs on-going risk assessment and treatment (Gutierrez et al., 2009).

Overarousal may be an overarching factor underlying the association between insomnia and suicidality, as absence of sleep may be an indicator of agitation. Though limited, there is an emerging body of literature that suggests agitation or overarousal is an acute risk factor for suicide (Busch and Fawcett, 2004; Busch et al., 2003; Kovaszny et al., 2004). In addition to literature directly examining the role of agitation per se, research on agitated-related constructs also provides some support for this hypothesis. Anxiety disorders, for instance, appear to confer additional risk to suicidal ideation and behavior in individuals with bipolar disorder as compared to both depressed patients and individuals who do not have a mood disorder (Dilsaver et al., 2006). Further research is needed to clarify how insomnia is related to suicidality and whether overarousal is the higher-order factor accounting for the relationship between sleep disturbance and suicide.

Impaired emotional processing is another possible explanatory pathway. Sleep restriction is associated with mood decrements and emotional volatility (Dinges et al., 1997; Leotta et al., 1997; Zohar et al., 2005). Dysregulated sleep has been found to predict mood lability and elevated suicidality (Bernert and Joiner, 2010)—and mood lability predicts suicidality when controlling for depression severity (Bronisch, 1992; Zlotnick et al., 1997). Future research should focus on examining whether overarousal, mood dysregulation, or their interaction may explain the relationship between disturbed sleep and suicidality.

In combination with the past literature on sleep disturbance and suicide, the present findings also suggest that evaluating the efficacy of sleep-focused interventions on suicidal symptoms may be promising. If found to be effective, sleep-focused interventions may be particularly important to consider in military populations, where stigma is well-documented and an obstacle to successful treatment implementation and mental health care utilization (Hoge et al., 2004). In stark contrast to mental health concerns, soldiers appear willing to seek help for sleep-related problems. Sleep problems are also common among active-duty military, especially while deployed (Peterson et al., 2008). The current findings converge with recent treatment trials showing that brief behavioral interventions for insomnia are associated with decreased depressive symptoms and suicidality post-treatment (Buysse et al., 2011; Manber et al., 2008, in submission; Morin et al., 2006, 2009; NIH Consensus Science Statements). The current findings combine with that of others to affirm the restorative power of sleep, and the potentially disastrous effects of its absence.

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#### Conflict of interest

All authors denied any possible conflict of interest with other people or organizations within 3 years of beginning the submitted work that could inappropriately influence the present research study.

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