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TITLE: Effects of Bright Light Therapy on Sleep, Cognition, Brain Function, and Neurochemistry in Mild Traumatic Brain Injury

PRINCIPAL INVESTIGATOR: William D. "Scott" Killgore, Ph.D

CONTRACTING ORGANIZATION: McLean Hospital, Belmont, MA, 02478

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The study has made substantial progress over the past year. The emerging data on cognition, emotion, and subjective sleep suggest that six weeks of morning Blue Light Therapy versus comparable Amber Light Placebo supports our initial hypotheses that the treatment would improve sleep and cognition. Emerging data from functional magnetic resonance imaging tasks also suggest that the Blue Light condition was effective in altering brain responses during two demanding attention and working memory tasks, whereas such changes were not evident in the Amber Light Placebo condition. Overall, these findings suggest that the Blue Light treatment improved hippocampal functioning during working memory and was associated with prefrontal cortex activation during an attention-based conflict monitoring task. The initial findings point toward some beneficial effects of the active treatment in reducing daytime sleepiness and sleep-related functional impairments, improving subjective sleep, showing clinically significant improvements in attention, and affecting functional brain responses. The current data set is still small and we are exploring avenues to increase sample size to obtain sufficient power to detect reliable effects.
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INTRODUCTION:
With the large number of military personnel who have reported or suspected head injuries as a part of their military service (Hoge et al., 2008), the outcome of the present study could have significant impact on the delivery of health care to returning military veterans. Other than cognitive-behavioral therapies and avoidance of re-injury, there are few alternatives to treat symptoms of mild traumatic brain injury (mTBI) or concussion. Alternative approaches to treatment, or adjunctive therapies that can be used to augment ongoing interventions are clearly needed. Growing evidence suggests that sleep problems are particularly common following mTBI and may even affect the course of recovery. Sleep is critical to neurogenesis, neural plasticity, and removal of neurotoxins. Consequently, sleep enhancement seems to be an ideal candidate for direct intervention among individuals recovering from concussion. If sleep can be improved, it is more likely that other aspects of recovery will be accelerated. In particular, we hypothesize that sleep improvement will lead to improved emotional and cognitive functioning and that this will also enhance the effectiveness of ongoing adjunctive treatments. Growing evidence suggests that the sleep-wake cycle is strongly regulated by exposure to light, particularly in the blue wavelengths. Regular light exposure in the morning suppresses melatonin production early in the day and can re-entrain the circadian rhythm of sleep and wake. Therefore, it is hypothesized that, compared to a placebo device, daily use of morning blue light therapy device to entrain the circadian sleep-wake cycle, will lead to improvement of sleep in a sample of individuals with a recent history of mild TBI/ concussion, thereby increasing the likelihood that they will recover more quickly, and build emotional and cognitive resilience. If effective, the proposed approach could be used in isolation or as an adjunct to ongoing therapy to reduce the impact of mild TBI/ concussion and injury-related subjective symptoms, thereby facilitating a more rapid recovery. Even if the proposed light therapy fails to prove effective at improving sleep or symptom profiles, the obtained cognitive and neuroimaging data, neurocognitive testing, and actigraphy data will prove invaluable in developing further insights into the relationship between mild TBI/ concussion, sleep, and brain function.

The study design involves three visits to McLean Hospital. On the first visit, participants undergo a thorough screening for mTBI and qualified participants are fitted with a wrist actigraph for 24-hour a day continuous monitoring of sleep/wake cycles. Following a week of baseline actigraphy, participants return to the lab for the second visit, which involves a comprehensive neuropsychological assessment, neuroimaging scans, and a modified multiple sleep latency test (MSLT). At the end of the visit, each participant is randomly assigned to either an active treatment condition (Blue Light) or a placebo condition (Amber Light). Participants are provided with a device fitted with either blue or amber light emitting diodes (LEDs), which will be used for 30 minutes each morning, within two hours of awakening, and no later than 11:00 am. Participants use the light devices for 6 weeks and then return for the third visit to the lab. During the third visit, participants undergo a follow-up assessment session that is essentially identical to the previous assessment, including neuropsychological tests, neuroimaging, and MSLT. This past year, participants have also been instructed to wear an actigraph for an additional 6-weeks after the follow-up assessment to determine the durability of treatment effects.

The project has now completed its third year and is currently in a no-cost extension to permit additional data collection and to permit comprehensive analysis of the data.

BODY:

Accomplishments According to Statement of Work (SOW)
The study is progressing as planned. Consistent with the Statement of Work for YEAR 3 the following tasks have been accomplished:

**SOW 1. Data collection will be 100% completed by the third quarter of Year 3.**

**Accomplishments:**

- As of 14 JAN 2014, 183 potential volunteers have been screened, with 54 fulfilling criteria for study participation. Thus, 129 potential subjects were disqualified at phone screen. Of the eligible volunteers, 45 were scheduled to come in for the first study visit, of whom 38 attended the first session and were consented for the study. As of 14 JAN 2014, 32 subjects completed all phases of the study protocol, with 1 active subject who will complete study procedures by 28 FEB 2014. We withdrew 2 subjects from the study due to insufficient compliance with the study procedures. Furthermore, we discontinued 2 additional subjects, one who showed claustrophobia in MRI scanner and another with evidence of pre-injury psychopathology. In addition, 1 subject withdrew from the study, as advised by her legal counsel because of pending legal proceedings associated with the concussion.
- In order to increase statistical power and to permit sufficient time to conduct data analysis, we requested a no cost extension to continue study recruitment and data collection, which was granted on 1 NOV 2013. We therefore are continuing to recruit participants and collect data. Comprehensive analyses are now underway.

**SOW 2. The PI will analyze data and prepare manuscripts for publication during the second half of Year 3.**

**Accomplishments:**

- Preliminary functional neuroimaging data for all completed subjects have been preprocessed in SPM8. Functional MRI data have been corrected for motion, realigned, normalized, and spatially smoothed. All functional imaging data have been inspected for artifacts using the Artifact Detection Program (ART), and covariate regressor files have been created for scans showing excess variability in global signal intensity and motion. Diffusion Tensor Imaging (DTI) data are currently being preprocessed in FSL (i.e., eddy current correction, reconstruction of diffusion tensors, estimation of diffusion parameters, registration to anatomical image and standard space). Structural image data (i.e., anatomical scans) were segmented into gray matter, white matter and cerebrospinal fluid in SPM8. To allow for analysis of intervention-related changes in cortical thickness and cortical volume, sophisticated segmentation using FreeSurfer has been finished, and quality of these segmentations is currently evaluated.
- Self-report data have been scored, checked, and entered into statistical databases. To allow for cross-checking of entered data, we used a double-entry approach by which two independent research assistants entered the data that was then checked by a postdoctoral fellow. Computerized neuropsychological assessment data have been downloaded and entered into statistical databases as well. All data have been visually and graphically inspected to ensure that they were entered correctly.
- Multiple Sleep Latency Test data have been quality-checked and submitted to two experienced polysomnography technicians for scoring.
• Several abstracts have been prepared and submitted for presentation at professional conferences. Most have been accepted as oral presentations over the past year and several more are scheduled for presentation in the coming months (see below).

SOW 3. The PI will prepare a final report describing the effectiveness of blue light therapy for improving sleep and cognitive functioning and reducing symptoms of mTBI, and the functional and tractographic correlates of these changes within the brain.

Accomplishments:

• Given that the study has moved into a no cost extension, a final report will not be due until the end of the extension period. Please see below for preliminary findings.
• Preliminary findings from the study have been presented at the Society of Biological Psychiatry conference, San Francisco, CA, 16 – 18 MAY 2013 (oral presentation) and the APSS SLEEP 2013 conference, Baltimore, MD, 1 – 5 JUN 2013 (oral presentation).
• Preliminary findings will be presented at the TBI Workgroup Meeting at The Spaulding Rehabilitation Hospital Boston, Charlestown, MA, 14 FEB 2014 (oral presentation).
• Preliminary findings will be presented at the 10th World Congress in Brain Injury, San Francisco, CA, 19 – 22 MAR 2014 (oral presentation).

Preliminary Research Findings
Shapiro-Wilk tests were conducted in R to evaluate the normal distribution of all behavioral variables of interest by group. Most of the variables were found to be non-normally distributed. Therefore, a robust data analysis approach was implemented in R (package: WRS) in order to investigate associations between light exposure and behavior.

The current sample contains complete data from 30 participants (age: 20% trimmed mean $M_t=20.6$, standard error of the trimmed mean $SE_t=0.37$; 16 female, 14 male; time since most recent document recent injury in days: 20% trimmed mean $M_t=198.7$, standard error of the trimmed mean $SE_t=19.87$), 15 who received the active bright Blue Light Treatment (age: 20% trimmed mean $M_t=20.4$, standard error of the trimmed mean $SE_t=0.39$, range: 18-35; 9 female, 6 male; time since most recent injury in days: 20% trimmed mean $M_t=211.9$, standard error of the trimmed mean $SE_t=34.87$, range 54-538) and 15 who received the Amber Placebo Treatment (age: 20% trimmed mean $M_t=20.9$, standard error of the trimmed mean $SE_t=0.89$, range: 18-29; 7 female, 8 male; time since most recent injury in days: 20% trimmed mean $M_t=192.1$, standard error of the trimmed mean $SE_t=25.84$, range 83-459). Age and time since injury do not differ between group ($p=.62$ and $p=.92$ respectively).

Below, we present interim study results on subjects with study protocol adherence of greater than 75% ($n=25$). Protocol adherence was defined as the percentage of days participants completed the “on line” sleep diary on the day they were supposed to (i.e., not retrospectively). Overall, the six-week blue light intervention yielded clinically significant improvements in sleep, cognition, and emotion relative to the six-week amber light placebo intervention (see Tables 1 to 3 and Figures 1 to 2).

Sleep and daytime sleepiness
Interim analyses of two self-report measures (Pittsburgh Sleep Quality Index PSQI; Epworth Sleepiness Scale ESS) tentatively suggest six weeks of morning Blue Light to improve subject sleep and daytime sleepiness compared to Amber Light. While there was no main effect of group ($p=.105$, 1-
tailed), there was a main effect of assessment session (pre-versus post tx) (p=.0065, 1-tailed) and a trend towards an interaction between group and assessment session (p=.075, 1-tailed). Inspection of average ranks and relative effects (i.e., the typical ranks across the combinations of groups and combined outcome measures) suggests greater improvements in sleep quality and daytime sleepiness in the Blue Light than Amber Light group (see Table 1).

Table 1: Average ranks and relative effects for the effect of group and light on subjective sleep and sleepiness

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average ranks</td>
<td></td>
</tr>
<tr>
<td>Blue Light group</td>
<td>55.80</td>
<td>38.90</td>
</tr>
<tr>
<td>Amber Light group</td>
<td>58.60</td>
<td>53.80</td>
</tr>
<tr>
<td></td>
<td>Relative effects</td>
<td></td>
</tr>
<tr>
<td>Blue Light group</td>
<td>0.53</td>
<td>0.37</td>
</tr>
<tr>
<td>Amber Light group</td>
<td>0.59</td>
<td>0.51</td>
</tr>
</tbody>
</table>

Relative effect of 0.5 signifies that there is no difference for this factor (i.e., group or assessment). Lower relative effects suggest lower scores on the variables of interest.

**Depressive symptoms**

Interim analyses of two self-report measures (Patient Health Questionnaire PHQ; Beck Depression Inventory BDI) tentatively suggest six weeks of morning Blue Light to reduce severity of depressive symptoms compared to Amber Light. While there was no main effect of group (p=.255, 1-tailed), there was a main effect of assessment session (p=.001, 1-tailed) and a trend towards an interaction between group and assessment session (p=.05, 1-tailed). Inspection of average ranks and relative effects suggests greater reductions in depressive symptoms in the Blue Light than Amber Light group (see Table 2).

Table 2: Average ranks and relative effects for the effect of group and light on depressive symptoms

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Average ranks</td>
<td></td>
</tr>
<tr>
<td>Blue Light group</td>
<td>57.50</td>
<td>37.96</td>
</tr>
<tr>
<td>Amber Light group</td>
<td>55.63</td>
<td>49.28</td>
</tr>
<tr>
<td></td>
<td>Relative effects</td>
<td></td>
</tr>
<tr>
<td>Blue Light group</td>
<td>0.57</td>
<td>0.37</td>
</tr>
<tr>
<td>Amber Light group</td>
<td>0.55</td>
<td>0.49</td>
</tr>
</tbody>
</table>

A relative effect of 0.5 signifies that there is no difference for this factor (i.e., group or assessment). Lower relative effects suggest lower scores on the variables of interest.

**Cognitive performance: Attention**

Interim analyses were conducted on the Psychomotor Vigilance Test (PVT) speed and lapses (i.e., number of trials with reaction time greater than 500ms). There was a significant main effect of time (p<.001), with average ranks and relative effects suggesting speed reductions in both Blue Light and Amber groups. However, there was no significant effect of light on speed (p=.24, 1-tailed) and interaction between light and assessment (p=.14, 1-tailed). There was a significant main effect of time on PVT lapses, with average ranks and relative suggesting that lapses increased for both groups. Furthermore, there was trend for a main effect of light on PVT lapses (p=.05, 1-tailed), with average ranks and relative effects suggesting that PVT lapses were higher in the Amber Group than Blue Light group (p<.001). There was a an interaction between light and assessment (p=.025, 1-tailed), with
average ranks and relative effects suggesting a steeper increase in lapses between the pre- and post-assessment in the Amber Light than the Blue Light group (Table 3). We interpret this as suggesting that participants were somewhat more bored during the second session overall, leading to slower response times on the PVT, but that those in the Amber Light group were significantly more adversely affected by attentional lapses and response slowing than those in the Blue Light group.

Table 3: Average ranks and relative effects for the effect of group and light on PVT as a measure of attention

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PVT Speed</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue Light</td>
<td>85.59</td>
<td>73.29</td>
</tr>
<tr>
<td>Amber Light</td>
<td>80.68</td>
<td>65.25</td>
</tr>
<tr>
<td><strong>Relative effects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue Light</td>
<td>0.57</td>
<td>0.49</td>
</tr>
<tr>
<td>Amber Light</td>
<td>0.53</td>
<td>0.43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PVT Lapses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue Light</td>
<td>64.95</td>
<td>68.40</td>
</tr>
<tr>
<td>Amber Light</td>
<td>71.93</td>
<td>90.60</td>
</tr>
<tr>
<td><strong>Relative effects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue Light</td>
<td>0.43</td>
<td>0.45</td>
</tr>
<tr>
<td>Amber Light</td>
<td>0.48</td>
<td>0.60</td>
</tr>
</tbody>
</table>

1 A relative effect of 0.5 signifies that there is no difference for this factor (i.e., group or assessment). Lower relative effects suggest lower scores on the variables of interest.
Neuroimaging

Figure 1 shows functional brain activation during the MSIT task, a cognitively demanding interference task that subjects performed in the MRI scanner pre-and post-intervention. Specifically, the figure depicts the change in brain activation between pre- and post-assessment for the interference condition in 22 subjects who presented with study protocol adherence greater than 75%. In line with the literature, the data tentatively suggest greater recruitment of the left prefrontal cortex/inferior frontal operculum during this task following six weeks of Blue Light compared to Amber Light.

Figure 1: Blue Light was associated with greater brain activation in the left opercular cortex during a cognitively demanding interference task compared to Amber Light (p<.005, uncorrected)

Figure 2 shows functional brain activation during the N-Back task, a working memory task that subjects performed in the MRI scanner pre-and post-intervention. Specifically, the figure depicts the change in brain activation between pre- and post-assessment for the most difficult task condition in 22 subjects who presented with study protocol adherence greater than 75%. Consistent with the literature, the data tentatively suggest greater recruitment of the bilateral hippocampi during this task following six weeks of Blue Light compared to Amber Light.

Figure 2: Blue Light was associated with greater brain activation in bilateral hippocampus during a working memory task compared to Amber Light (p<.005, uncorrected)

Planned analyses include the incorporation of an objective measure of light exposure, as quantified by the data collected through the light sensor incorporated in the actiwatch. These data are currently being extracted and prepared for data analyses.
KEY RESEARCH ACCOMPLISHMENTS:

- Advertising and recruitment are ongoing.
- Data entry, quality checks, preprocessing and interim analyses are ongoing.
- 38 participants have been enrolled to date.
- 32 participants have completed the study.
- Preliminary results suggest that morning blue light therapy may improve sleep, cognition and emotion relative to a morning amber light placebo therapy of equal duration and intensity.

REPORTABLE OUTCOMES:

- Preliminary results were presented at national sleep and biological psychiatry conferences, yielding interest from health-related media outlets.
- Preliminary results will be presented at a national brain injury conference.

CONCLUSION:

The study has made substantial progress over the past year. The emerging data on cognition, emotion, and subjective sleep suggest that six weeks of morning Blue Light Therapy versus comparable Amber Light Placebo supports our initial hypotheses that the treatment would improve sleep and cognition. Emerging data from functional magnetic resonance imaging tasks also suggest that the Blue Light condition was effective in altering brain responses during two demanding attention and working memory tasks, whereas such changes were not evident in the Amber Light Placebo condition. Overall, these findings suggest that the Blue Light treatment improved hippocampal functioning during working memory and was associated with prefrontal cortex activation during an attention-based conflict monitoring task. The initial findings point toward some beneficial effects of the active treatment in reducing daytime sleepiness and sleep-related functional impairments, improving subjective sleep, showing clinically significant improvements in attention, and affecting functional brain responses. The current data set is still small and we are exploring avenues to increase sample size to obtain sufficient power to detect reliable effects.
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Appendix: Study Measures/Assessments

**Day 1 (Assessment Day)**
1. Neurobehavioral Symptom Inventory (NSI)
2. Personality Assessment Inventory (PAI)
3. Screen Time Questionnaire (STQ)
4. MINI International Neuropsychiatric Interview (MINI)

**Days 2 & 3 (Scan Days)**

*Pre-scan*
5. Multi-Source Interference Task Practice
6. N-back practice
7. Stanford Sleepiness Scale (SSS)

*Scan*
8. Multi-Source Interference Task
9. N-back
10. Diffusion Tensor MRI
11. Resting State MRI

*Post-scan*
12. Repeatable Battery for the Assessment of Neuropsychological Status
13. Automated Neuropsychological Assessment Metrics (ANAM4) TBI Battery
14. Psychomotor Vigilance Test (PVT)
15. Multiple Sleep Latency Test (MSLT)
16. Invincibility Belief Index (IBI)
17. Go/No Go
18. Body Sway and Stability (BS&S)
19. Day of Scan Information Questionnaire
20. Morningness-Eveningness Questionnaire (MEQ)
21. Functional Outcome of Sleep Questionnaire (FOSQ)
22. Evaluation of Risk (EVAR)
Effects of Bright Light Therapy on Sleep, Cognition, Brain Function, and Neurochemistry in Mild Traumatic Brain Injury

PI: William D. “Scott” Killgore, Ph.D.

23. Patient Health Questionnaire (PHQ)
24. Pittsburgh Sleep Quality Index (PSQI)
25. Rivermead Post-Concussion Symptoms Questionnaire (RPCSQ)
26. Beck Depression Inventory (BDI)
27. Balloon Analogue Risk Task (BART)
28. Spielberger State-Trait Anxiety Inventory – STATE
29. Spielberger State-Trait Anxiety Inventory – TRAIT
30. Tower of London (ToL)

6-Week Intervention Period

1. Sleep Diary
NEUROBEHAVIORAL SYMPTOM INVENTORY

Please rate the following symptoms with regard to how much they have disturbed you SINCE YOUR INJURY.

0 = None- Rarely if ever present; not a problem at all
1 = Mild- Occasionally present, but it does not disrupt activities; I can usually continue what I'm doing; doesn't really concern me.
2 = Moderate- Often present, occasionally disrupts my activities; I can usually continue what I'm doing with some effort; I feel somewhat concerned.
3 = Severe- Frequently present and disrupts activities; I can only do things that are fairly simple or take little effort; I feel like I need help.
4 = Very Severe- Almost always present and I have been unable to perform at work, school or home due to this problem; I probably cannot function without help.

1. Feeling dizzy:

<table>
<thead>
<tr>
<th></th>
<th>0 = None</th>
<th>1 = Mild</th>
<th>2 = Moderate</th>
<th>3 = Severe</th>
<th>4 = Very Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
</tr>
</tbody>
</table>

2. Loss of balance:

<table>
<thead>
<tr>
<th></th>
<th>0 = None</th>
<th>1 = Mild</th>
<th>2 = Moderate</th>
<th>3 = Severe</th>
<th>4 = Very Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
</tr>
</tbody>
</table>

3. Poor coordination, clumsy:

<table>
<thead>
<tr>
<th></th>
<th>0 = None</th>
<th>1 = Mild</th>
<th>2 = Moderate</th>
<th>3 = Severe</th>
<th>4 = Very Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
</tr>
</tbody>
</table>

4. Headaches:

<table>
<thead>
<tr>
<th></th>
<th>0 = None</th>
<th>1 = Mild</th>
<th>2 = Moderate</th>
<th>3 = Severe</th>
<th>4 = Very Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
</tr>
</tbody>
</table>

5. Nausea:

<table>
<thead>
<tr>
<th></th>
<th>0 = None</th>
<th>1 = Mild</th>
<th>2 = Moderate</th>
<th>3 = Severe</th>
<th>4 = Very Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
</tr>
</tbody>
</table>

6. Vision problems, blurring, trouble seeing:

<table>
<thead>
<tr>
<th></th>
<th>0 = None</th>
<th>1 = Mild</th>
<th>2 = Moderate</th>
<th>3 = Severe</th>
<th>4 = Very Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
</tr>
</tbody>
</table>
7. Sensitivity to light
   0 1 2 3 4
   NONE  MILD  MODERATE  SEVERE  VERY SEVERE

8. Hearing difficulty:
   0 1 2 3 4
   NONE  MILD  MODERATE  SEVERE  VERY SEVERE

9. Sensitivity to noise:
   0 1 2 3 4
   NONE  MILD  MODERATE  SEVERE  VERY SEVERE

10. Numbness or tingling on parts of my body:
    0 1 2 3 4
    NONE  MILD  MODERATE  SEVERE  VERY SEVERE

11. Change in taste and/or smell:
    0 1 2 3 4
    NONE  MILD  MODERATE  SEVERE  VERY SEVERE

12. Loss of appetite or increase appetite:
    0 1 2 3 4
    NONE  MILD  MODERATE  SEVERE  VERY SEVERE

13. Poor concentration, can't pay attention, easily distracted:
    0 1 2 3 4
    NONE  MILD  MODERATE  SEVERE  VERY SEVERE

14. Forgetfulness, can't remember things:
    0 1 2 3 4
    NONE  MILD  MODERATE  SEVERE  VERY SEVERE

15. Difficulty making decisions:
    0 1 2 3 4
    NONE  MILD  MODERATE  SEVERE  VERY SEVERE

16. Slowed thinking, difficulty getting organized, can't finish things:
    0 1 2 3 4
    NONE  MILD  MODERATE  SEVERE  VERY SEVERE

17. Fatigue, loss of energy, getting tired easily:
    0 1 2 3 4
    NONE  MILD  MODERATE  SEVERE  VERY SEVERE
<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>18. Difficulty falling or staying asleep:</td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
</tr>
<tr>
<td>19. Feeling anxious or tense:</td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
</tr>
<tr>
<td>20. Feeling depressed or sad:</td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
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<tr>
<td>21. Irritability, easily annoyed:</td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
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<td>22. Poor frustration tolerance, feeling easily overwhelmed by things:</td>
<td>NONE</td>
<td>MILD</td>
<td>MODERATE</td>
<td>SEVERE</td>
<td>VERY SEVERE</td>
</tr>
</tbody>
</table>
With its newly revised Professional Manual, Profile Form Adults-Revised, and Critical Items Form-Revised, the PAI® continues to raise the standard for the assessment of adult psychopathology. This objective inventory of adult personality assesses psychopathological syndromes and provides information relevant for clinical diagnosis, treatment planning, and screening for psychopathology. Since its introduction, the PAI has been heralded as one of the most important innovations in the field of clinical assessment.

**PAI® Scales and Subscales**

The 344 PAI items constitute 22 nonoverlapping scales covering the constructs most relevant to a broad-based assessment of mental disorders: 4 validity scales, 11 clinical scales, 5 treatment scales, and 2 interpersonal scales. To facilitate interpretation and to cover the full range of complex clinical constructs, 10 scales contain conceptually derived subscales.

The PAI Clinical scales were developed to provide information about critical diagnostic features of 11 important clinical constructs. These 11 scales may be divided into three broad classes of disorders: those within the neurotic spectrum, those within the psychotic spectrum, and those associated with behavior disorder or impulse control problems.

The Treatment scales were developed to provide indicators of potential complications in treatment that would not necessarily be apparent from diagnostic information. These five scales include two indicators of potential for harm to self or others, two measures of the respondent's environmental circumstances, and one indicator of the respondent's motivation for treatment.

The Interpersonal scales were developed to provide an assessment of the respondent's interpersonal style along two dimensions: a warmly affiliative versus a cold rejecting style, and a dominating/controlling versus a meekly submissive style. These axes provide a useful way of conceptualizing many different mental disorders: persons at the extremes of these dimensions may present with a variety of disorders. A number of studies provide evidence that diagnostic groups differ on these dimensions.

The PAI includes a Borderline Features scale and an Antisocial Features scale. Both of these scales specifically assess character pathology. The Borderline Features scale is the only PAI scale that has four subscales, reflecting the factorial complexity of the construct. The Antisocial Features scale includes a total of three facets: one assessing antisocial behaviors, and the other two assessing antisocial traits.
In a typical week, we would like to know how much and when you are using your TV and Computer. Please place a C (computer) and/or T (television) in each hour time slot to indicate use.

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</table>
MINI INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW

English Version 6.0.0

DSM-IV

USA: D. Sheehan¹, J. Janavs, K. Harnett-Sheehan, M. Sheehan, C. Gray.
¹University of South Florida College of Medicine- Tampa, USA

²Centre Hospitalier Sainte-Anne – Paris, France

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DISCLAIMER

Our aim is to assist in the assessment and tracking of patients with greater efficiency and accuracy. Before action is taken on any data collected and processed by this program, it should be reviewed and interpreted by a licensed clinician.

This program is not designed or intended to be used in the place of a full medical and psychiatric evaluation by a qualified licensed physician – psychiatrist. It is intended only as a tool to facilitate accurate data collection and processing of symptoms elicited by trained personnel.

M.I.N.I. 6.0.0 (January 1, 2009)
<table>
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<tr>
<th>Modules</th>
<th>Time Frame</th>
<th>MEETS CRITERIA</th>
<th>DSM-IV-TR</th>
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<td>L ANOREXIA NERVOSA</td>
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<td>M BULIMIA NERVOSA</td>
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<td>O MEDICAL, ORGANIC, DRUG CAUSE RULED OUT</td>
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</table>

Identify the primary diagnosis by checking the appropriate check box.
(Which problem troubles you the most or dominates the others or came first in the natural history?)

The translation from DSM-IV-TR to ICD-10 coding is not always exact. For more information on this topic see Schulte-Markwort, Crosswalks ICD-10/DSM-IV-TR. Hogrefe & Huber Publishers 2006.
GENERAL INSTRUCTIONS

The M.I.N.I. was designed as a brief structured interview for the major Axis I psychiatric disorders in DSM-IV and ICD-10. Validation and reliability studies have been done comparing the M.I.N.I. to the SCID-P for DSM-III-R and the CIDI (a structured interview developed by the World Health Organization). The results of these studies show that the M.I.N.I. has similar reliability and validity properties, but can be administered in a much shorter period of time (mean 18.7 ± 11.6 minutes, median 15 minutes) than the above referenced instruments. It can be used by clinicians, after a brief training session. Lay interviewers require more extensive training.

INTERVIEW:

In order to keep the interview as brief as possible, inform the patient that you will conduct a clinical interview that is more structured than usual, with very precise questions about psychological problems which require a yes or no answer.

GENERAL FORMAT:

The M.I.N.I. is divided into modules identified by letters, each corresponding to a diagnostic category.

• At the beginning of each diagnostic module (except for psychotic disorders module), screening question(s) corresponding to the main criteria of the disorder are presented in a gray box.

• At the end of each module, diagnostic box(es) permit the clinician to indicate whether diagnostic criteria are met.

CONVENTIONS:

Sentences written in « normal font » should be read exactly as written to the patient in order to standardize the assessment of diagnostic criteria.

Sentences written in « CAPITALS » should not be read to the patient. They are instructions for the interviewer to assist in the scoring of the diagnostic algorithms.

Sentences written in « bold » indicate the time frame being investigated. The interviewer should read them as often as necessary. Only symptoms occurring during the time frame indicated should be considered in scoring the responses.

Answers with an arrow above them (↑) indicate that one of the criteria necessary for the diagnosis(es) is not met. In this case, the interviewer should go to the end of the module, circle « NO » in all the diagnostic boxes and move to the next module.

When terms are separated by a slash (/) the interviewer should read only those symptoms known to be present in the patient (for example, question G6).

Phrases in (parentheses) are clinical examples of the symptom. These may be read to the patient to clarify the question.

RATING INSTRUCTIONS:

All questions must be rated. The rating is done at the right of each question by circling either Yes or No. Clinical judgment by the rater should be used in coding the responses. Interviewers need to be sensitive to the diversity of cultural beliefs in their administration of questions and rating of responses. The rater should ask for examples when necessary, to ensure accurate coding. The patient should be encouraged to ask for clarification on any question that is not absolutely clear. The clinician should be sure that each dimension of the question is taken into account by the patient (for example, time frame, frequency, severity, and/or alternatives).

Symptoms better accounted for by an organic cause or by the use of alcohol or drugs should not be coded positive in the M.I.N.I. The M.I.N.I. Plus has questions that investigate these issues.

For any questions, suggestions, need for a training session or information about updates of the M.I.N.I., please contact:

David V Sheehan, M.D., M.B.A.
University of South Florida College of Medicine
3515 East Fletcher Ave, Tampa, FL USA 33613-4706
tel : +1 813 974 4544; fax : +1 813 974 4575
e-mail : dsheehan@health.usf.edu

Yves Lecrubier, M.D. / Christian Even, M.D.
Centre Hospitalier Sainte-Anne
Clinique des Maladies Mentales de l’Encéphale
100 rue de la Santé, 75674 Paris Cedex 14, France
tel : +33 (0) 1 53 80 49 41; fax : +33 (0) 1 45 65 88 54
e-mail: ylecrubier@noos.fr or even-sainteanne@orange.fr
### A. MAJOR DEPRESSIVE EPISODE

(⇒ MEANS: GO TO THE DIAGNOSTIC BOXES, CIRCLE NO IN ALL DIAGNOSTIC BOXES, AND MOVE TO THE NEXT MODULE)

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</table>
| A1 | a  | Were you **ever** depressed or down, most of the day, nearly every day, for two weeks?  
IF NO, CODE NO TO A1b: IF YES ASK: |
|   | b  | For the **past** two weeks, were you depressed or down, most of the day, nearly every day?  
NO YES |
| A2 | a  | Were you **ever** much less interested in most things or much less able to enjoy the things you used to enjoy most of the time, for two weeks?  
IF NO, CODE NO TO A2b: IF YES ASK: |
|   | b  | In the **past** two weeks, were you much less interested in most things or much less able to enjoy the things you used to enjoy, most of the time?  
NO YES |
|   | IS A1a OR A2a CODED YES? |

| A3 | IF A1b OR A2b = YES: EXPLORE THE CURRENT AND THE MOST SYMPTOMATIC PAST EPISODE, OTHERWISE |
|    | IF A1b AND A2b = NO: EXPLORE ONLY THE MOST SYMPTOMATIC PAST EPISODE |
|    | **OVER THAT TWO WEEK PERIOD, WHEN YOU FELT DEPRESSED OR UNINTERESTED:** |
| a  | Was your appetite decreased or increased nearly every day? Did your weight decrease or increase without trying intentionally (i.e., by ±5% of body weight or ±8 lbs. or ±3.5 kgs., for a 160 lb./70 kg. person in a month)?  
IF YES TO EITHER, CODE YES. |
| b  | Did you have trouble sleeping nearly every night  
(difficulty falling asleep, waking up in the middle of the night, early morning wakening or sleeping excessively)? |
| c  | Did you talk or move more slowly than normal or were you fidgety, restless or having trouble sitting still almost every day? |
| d  | Did you feel tired or without energy almost every day? |
| e  | Did you feel worthless or guilty almost every day?  
IF YES, ASK FOR EXAMPLES. |
| f  | Did you have difficulty concentrating or making decisions almost every day?  
THE EXAMPLES ARE CONSISTENT WITH A DELUSIONAL IDEA. |
| g  | Did you repeatedly consider hurting yourself, feel suicidal, or wish that you were dead? Did you attempt suicide or plan a suicide?  
IF YES TO EITHER, CODE YES. |
| A4 | Did these symptoms cause significant problems at home, at work, socially, at school or in some other important way? |
| A5 | In between 2 episodes of depression, did you ever have an interval of at least 2 months, without any significant depression or any significant loss of interest? |

**M.I.N.I. 6.0.0 (January 1, 2009)**
ARE 5 OR MORE ANSWERS (A1-A3) CODED YES AND IS A4 CODED YES FOR THAT TIME FRAME?

SPECIFY IF THE EPISODE IS CURRENT AND / OR PAST.

IF A5 IS CODED YES, CODE YES FOR RECURRENT.

A6 a How many episodes of depression did you have in your lifetime? _____

Between each episode there must be at least 2 months without any significant depression.
B. SUICIDALITY

In the past month did you:

B1 Suffer any accident?
     IF NO TO B1, SKIP TO B2; IF YES, ASK B1a:
     Points

B1a Plan or intend to hurt yourself in that accident either actively or passively
     (e.g. not avoiding a risk)?
     IF NO TO B1a, SKIP TO B2: IF YES, ASK B1b:

B1b Intend to die as a result of this accident?

B2 Feel hopeless?

B3 Think that you would be better off dead or wish you were dead?

B4 Want to harm yourself or to hurt or to injure yourself or have mental images of harming yourself?

B5 Think about suicide?
     IF NO TO B5, SKIP TO B7. OTHERWISE ASK:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Intensity</th>
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<tr>
<td>Occasionally</td>
<td>Mild</td>
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<tr>
<td>Often</td>
<td>Moderate</td>
</tr>
<tr>
<td>Very often</td>
<td>Severe</td>
</tr>
</tbody>
</table>

Can you state that you will not act on these impulses during this treatment program?

B6 Feel unable to control these impulses?

B7 Have a suicide plan?

B8 Take any active steps to prepare to injure yourself or to prepare for a suicide attempt in which you expected or intended to die?

B9 Deliberately injure yourself without intending to kill yourself?

B10 Attempt suicide?
     IF NO SKIP TO B11:
     1. Hope to be rescued / survive
     2. Expected / intended to die

In your lifetime:

B11 Did you ever make a suicide attempt?
     Points
IS AT LEAST 1 OF THE ABOVE (EXCEPT B1) CODED YES?

IF YES, ADD THE TOTAL POINTS FOR THE ANSWERS (B1-B11) CHECKED 'YES' AND SPECIFY THE SUICIDALITY SCORE AS INDICATED IN THE DIAGNOSTIC BOX:

MAKE ANY ADDITIONAL COMMENTS ABOUT YOUR ASSESSMENT OF THIS PATIENT’S CURRENT AND NEAR FUTURE SUICIDALITY IN THE SPACE BELOW:

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUICIDALITY CURRENT</strong></td>
<td></td>
</tr>
<tr>
<td>1-8 points Low</td>
<td>кл</td>
</tr>
<tr>
<td>9-16 points Moderate</td>
<td>кл</td>
</tr>
<tr>
<td>≥ 17 points High</td>
<td>кл</td>
</tr>
</tbody>
</table>

C. MANIC AND HYPOMANIC EPISODES

(✚ MEANS: GO TO THE DIAGNOSTIC BOXES, CIRCLE NO IN MANIC AND HYPOMANIC DIAGNOSTIC BOXES, AND MOVE TO NEXT MODULE)

Do you have any family history of manic depressive illness or bipolar disorder, or any family member who had mood swings treated with a medication like lithium, sodium valproate (Depakote) or lamotrigine (Lamictal)?

IF YES, PLEASE SPECIFY WHO:______________________________

C1 a Have you ever had a period of time when you were feeling 'up' or 'high' or 'hyper' or so full of energy or full of yourself that you got into trouble, or that other people thought you were not your usual self? (Do not consider times when you were intoxicated on drugs or alcohol.)

IF PATIENT IS PUZZLED OR UNCLEAR ABOUT WHAT YOU MEAN BY 'UP' OR 'HIGH' OR 'HYPER', CLARIFY AS FOLLOWS: By 'up' or 'high' or 'hyper' I mean: having elated mood; increased energy; needing less sleep; having rapid thoughts; being full of ideas; having an increase in productivity, motivation, creativity, or impulsive behavior; phoning or working excessively or spending more money.

IF NO, CODE NO TO C1b: IF YES ASK:

b Are you currently feeling 'up' or 'high' or 'hyper' or full of energy?

C2 a Have you ever been persistently irritable, for several days, so that you had arguments or verbal or physical fights, or shouted at people outside your family? Have you or others noticed that you have been more irritable or over reacted, compared to other people, even in situations that you felt were justified?

IF NO, CODE NO TO C2b: IF YES ASK:

b Are you currently feeling persistently irritable?

IS C1a OR C2a CODED YES?

C3 IF C1b OR C2b = YES: EXPLORE THE CURRENT AND THE MOST SYMPTOMATIC PAST EPISODE, OTHERWISE IF C1b AND C2b = NO: EXPLORE ONLY THE MOST SYMPTOMATIC PAST EPISODE

During the times when you felt high, full of energy, or irritable did you:

<table>
<thead>
<tr>
<th>情感和行为</th>
<th>Current Episode</th>
<th>Past Episode</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Feel that you could do things others couldn't do, or that you were an especially important person? If YES, ASK FOR EXAMPLES. The EXAMPLES ARE CONSISTENT WITH A DELUSIONAL IDEA.</td>
<td>NO YES</td>
<td>NO YES</td>
</tr>
<tr>
<td>b Need less sleep (for example, feel rested after only a few hours sleep)?</td>
<td>NO YES</td>
<td>NO YES</td>
</tr>
<tr>
<td>c Talk too much without stopping, or so fast that people had difficulty understanding?</td>
<td>NO YES</td>
<td>NO YES</td>
</tr>
<tr>
<td>d Have racing thoughts?</td>
<td>NO YES</td>
<td>NO YES</td>
</tr>
</tbody>
</table>

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Current Episode | Past Episode
--- | ---
e. Become easily distracted so that any little interruption could distract you? | NO | YES | NO | YES
f. Have a significant increase in your activity or drive, at work, at school, socially or sexually or did you become physically or mentally restless? | NO | YES | NO | YES
g. Want so much to engage in pleasurable activities that you ignored the risks or consequences (for example, spending sprees, reckless driving, or sexual indiscretions)? | NO | YES | NO | YES

C3 SUMMARY: WHEN RATING CURRENT EPISODE:
- if C1b is NO, are 4 or more C3 answers coded YES?
- if C1b is YES, are 3 or more C3 answers coded YES?

WHEN RATING PAST EPISODE:
- if C1a is NO, are 4 or more C3 answers coded YES?
- if C1a is YES, are 3 or more C3 answers coded YES?

Code YES only if the above 3 or 4 symptoms occurred during the same time period.

RULE: ELATION/EXPANSIVENESS REQUIRES ONLY THREE C3 SYMPTOMS, WHILE IRRITABLE MOOD ALONE REQUIRES 4 OF THE C3 SYMPTOMS.

C4 What is the longest time these symptoms lasted?
- a) 3 days or less
- b) 4 to 6 days
- c) 7 days or more

C5 Were you hospitalized for these problems? | NO | YES | NO | YES

IF YES, STOP HERE AND CIRCLE YES IN MANIC EPISODE FOR THAT TIME FRAME.

C6 Did these symptoms cause significant problems at home, at work, socially in your relationships with others, at school or in some other important way? | NO | YES | NO | YES

**ARE C3 SUMMARY AND C5 AND C6 CODED YES AND EITHER C4a or b or c CODED YES?**

OR

**ARE C3 SUMMARY AND C4c AND C6 CODED YES AND IS C5 CODED NO?**

SPECFIY IF THE EPISODE IS CURRENT AND / OR PAST.

**ARE C3 SUMMARY AND C5 AND C6 CODED NO AND EITHER C4b OR C4c CODED YES?**

OR

**ARE C3 SUMMARY AND C4b AND C6 CODED YES AND IS C5 CODED NO?**

SPECFIY IF THE EPISODE IS CURRENT AND / OR PAST.

---

**MANIC EPISODE**

CURRENT | PAST
--- | ---

**HYPOMANIC EPISODE**

CURRENT | PAST
--- | ---
ARE C3 SUMMARY AND C4a CODED YES AND IS C5 CODED NO?  

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
</table>

**HYPOMANIC SYMPTOMS**

SPECIFY IF THE EPISODE IS CURRENT AND / OR PAST.

<table>
<thead>
<tr>
<th>CURRENT</th>
<th>PAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

**C7**

a) IF MANIC EPISODE IS POSITIVE FOR EITHER CURRENT OR PAST ASK:
   Did you have 2 or more manic episodes (C4c) in your lifetime (including the current episode if present)?  NO  YES

b) IF HYPOMANIC EPISODE IS POSITIVE FOR EITHER CURRENT OR PAST ASK:
   Did you have 2 or more hypomanic EPISODES (C4b) in your lifetime (including the current episode)?  NO  YES

c) IF PAST “HYPOMANIC SYMPTOMS” IS CODED POSITIVE ASK:
   Did you have 2 or more episodes of hypomanic SYMPTOMS (C4a) in your lifetime (including the current episode if present)?  NO  YES
D. PANIC DISORDER

(● MEANS: CIRCLE NO IN D5, D6 AND D7 AND SKIP TO E1)

<table>
<thead>
<tr>
<th>D1</th>
<th>Have you, on more than one occasion, had spells or attacks when you <strong>suddenly</strong> felt anxious, frightened, uncomfortable or uneasy, even in situations where most people would not feel that way?</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>Did the spells surge to a peak within 10 minutes of starting?</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

| D2   | At any time in the past, did any of those spells or attacks come on unexpectedly or occur in an unpredictable or unprovoked manner?                                                                                                                                    | NO  | YES |

| D3   | Have you ever had one such attack followed by a month or more of persistent concern about having another attack, or worries about the consequences of the attack - or did you make a significant change in your behavior because of the attacks (e.g., shopping only with a companion, not wanting to leave your house, visiting the emergency room repeatedly, or seeing your doctor more frequently because of the symptoms)? | NO  | YES |

<table>
<thead>
<tr>
<th>D4</th>
<th><strong>During the worst attack that you can remember:</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Did you have skipping, racing or pounding of your heart?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>b</td>
<td>Did you have sweating or clammy hands?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>c</td>
<td>Were you trembling or shaking?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>d</td>
<td>Did you have shortness of breath or difficulty breathing?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>e</td>
<td>Did you have a choking sensation or a lump in your throat?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>f</td>
<td>Did you have chest pain, pressure or discomfort?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>g</td>
<td>Did you have nausea, stomach problems or sudden diarrhea?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>h</td>
<td>Did you feel dizzy, unsteady, lightheaded or faint?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>i</td>
<td>Did things around you feel strange, unreal, detached or unfamiliar, or did you feel outside of or detached from part or all of your body?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>j</td>
<td>Did you fear that you were losing control or going crazy?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>k</td>
<td>Did you fear that you were dying?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>l</td>
<td>Did you have tingling or numbness in parts of your body?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>m</td>
<td>Did you have hot flushes or chills?</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

| D5   | ARE BOTH D3, AND 4 OR MORE D4 ANSWERS, CODED YES? IF YES TO D5, SKIP TO D7.                                                                                                                          | NO  | YES |

| D6   | IF D5 = NO, ARE ANY D4 ANSWERS CODED YES? THEN SKIP TO E1.                                                                                                                                            | NO  | YES |

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**E. AGORAPHOBIA**

<table>
<thead>
<tr>
<th>Question</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D7</strong> In the past month, did you have such attacks repeatedly (2 or more), and did you have persistent concern about having another attack, or worry about the consequences of the attacks, or did you change your behavior in any way because of the attacks?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**E1** Do you feel anxious or uneasy in places or situations where help might not be available or escape might be difficult, like being in a crowd, standing in a line (queue), when you are alone away from home or alone at home, or when crossing a bridge, or traveling in a bus, train or car or where you might have a panic attack or the panic-like symptoms we just spoke about?  

IF E1 = NO, CIRCLE NO IN E2.

**E2** Do you fear these situations so much that you avoid them, or suffer through them, or need a companion to face them?  

IS E2 (CURRENT AGORAPHOBIA) CODED YES  

and  

IS D7 (CURRENT PANIC DISORDER) CODED YES?  

IS E2 (CURRENT AGORAPHOBIA) CODED NO  

and  

IS D7 (CURRENT PANIC DISORDER) CODED YES?  

IS E2 (CURRENT AGORAPHOBIA) CODED YES  

and  

IS D5 (PANIC DISORDER LIFETIME) CODED NO?  

**IF YES**

**IF NO**  

**PANIC DISORDER with Agoraphobia**  

CURRENT

**PANIC DISORDER without Agoraphobia**  

CURRENT

**AGORAPHOBIA, CURRENT without history of Panic Disorder**
**F. SOCIAL PHOBIA (Social Anxiety Disorder)**

(👉 MEANS: GO TO THE DIAGNOSTIC BOX, CIRCLE NO AND MOVE TO THE NEXT MODULE)

<table>
<thead>
<tr>
<th>Question</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the past month, did you have persistent fear and significant anxiety at being watched, being the focus of attention, or of being humiliated or embarrassed? This includes things like speaking in public, eating in public or with others, writing while someone watches, or being in social situations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is this social fear excessive or unreasonable and does it almost always make you anxious?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you fear these social situations so much that you avoid them or suffer through them most of the time?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do these social fears disrupt your normal work, school or social functioning or cause you significant distress?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUBTYPES**

Do you fear and avoid 4 or more social situations?

- If YES Generalized social phobia (social anxiety disorder)
- If NO Non-generalized social phobia (social anxiety disorder)

**EXAMPLES OF SUCH SOCIAL SITUATIONS TYPICALLY INCLUDE**

- INITIATING OR MAINTAINING A CONVERSATION,
- PARTICIPATING IN SMALL GROUPS,
- DATING,
- SPEAKING TO AUTHORITY FIGURES,
- ATTENDING PARTIES,
- PUBLIC SPEAKING,
- EATING IN FRONT OF OTHERS,
- URINATING IN A PUBLIC WASHROOM, ETC.

**NOTE TO INTERVIEWER:** PLEASE ASSESS WHETHER THE SUBJECT’S FEARS ARE RESTRICTED TO NON-GENERALIZED (“ONLY 1 OR SEVERAL”) SOCIAL SITUATIONS OR EXTEND TO GENERALIZED (“MOST”) SOCIAL SITUATIONS. “MOST” SOCIAL SITUATIONS IS USUALLY OPERATIONALIZED TO MEAN 4 OR MORE SOCIAL SITUATIONS, ALTHOUGH THE DSM-IV DOES NOT EXPLICITLY STATE THIS.
## G. OBSESSIVE-COMPULSIVE DISORDER

(✿ MEANS: GO TO THE DIAGNOSTIC BOX, CIRCLE NO AND MOVE TO THE NEXT MODULE)

<p>| | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>G1</strong></td>
<td>In the past month, have you been bothered by recurrent thoughts, impulses, or images that were unwanted, distasteful, inappropriate, intrusive, or distressing? - (For example, the idea that you were dirty, contaminated or had germs, or fear of contaminating others, or fear of harming someone even though it disturbs or distresses you, or fear you would act on some impulse, or fear or superstitions that you would be responsible for things going wrong, or obsessions with sexual thoughts, images or impulses, or hoarding, collecting, or religious obsessions.) <strong>NO</strong> <strong>YES</strong> ↓ <strong>NO</strong> <strong>YES</strong> <strong>SKIP TO G4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G2</strong></td>
<td>Did they keep coming back into your mind even when you tried to ignore or get rid of them? <strong>NO</strong> <strong>YES</strong> ↓ <strong>NO</strong> <strong>YES</strong> <strong>SKIP TO G4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G3</strong></td>
<td>Do you think that these obsessions are the product of your own mind and that they are not imposed from the outside? <strong>NO</strong> <strong>YES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G4</strong></td>
<td>In the past month, did you do something repeatedly without being able to resist doing it, like washing or cleaning excessively, counting or checking things over and over, or repeating, collecting, arranging things, or other superstitious rituals? <strong>NO</strong> <strong>YES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IS G3 OR G4 CODED YES?</strong></td>
<td><strong>NO</strong> <strong>YES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G5</strong></td>
<td>At any point, did you recognize that either these obsessive thoughts or these compulsive behaviors were excessive or unreasonable? <strong>NO</strong> <strong>YES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G6</strong></td>
<td>In the past month, did these obsessive thoughts and/or compulsive behaviors significantly interfere with your normal routine, your work or school, your usual social activities, or relationships, or did they take more than one hour a day? <strong>NO</strong> <strong>YES</strong> <strong>O.C.D. CURRENT</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
H. POSTTRAUMATIC STRESS DISORDER

(_means: go to the diagnostic box, circle no, and move to the next module)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Have you ever experienced or witnessed or had to deal with an extremely traumatic event that included actual or threatened death or serious injury to you or someone else?</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>EXAMPLES OF TRAUMATIC EVENTS INCLUDE: SERIOUS ACCIDENTS, SEXUAL OR PHYSICAL ASSAULT, A TERRORIST ATTACK, BEING HELD HOSTAGE, KIDNAPPING, FIRE, DISCOVERING A BODY, WAR, OR NATURAL DISASTER, WITNESSING THE VIOLENT OR SUDDEN DEATH OF SOMEONE CLOSE TO YOU, OR A LIFE THREATENING ILLNESS.</td>
<td></td>
</tr>
<tr>
<td>H2</td>
<td>Did you respond with intense fear, helplessness or horror?</td>
<td>NO</td>
</tr>
<tr>
<td>H3</td>
<td>During the past month, have you re-experienced the event in a distressing way (such as in dreams, intense recollections, flashbacks or physical reactions) or did you have intense distress when you were reminded about the event or exposed to a similar event?</td>
<td>NO</td>
</tr>
</tbody>
</table>

H4  In the past month:

a. Have you avoided thinking about or talking about the event?  NO  YES
b. Have you avoided activities, places or people that remind you of the event?  NO  YES
c. Have you had trouble recalling some important part of what happened?  NO  YES
d. Have you become much less interested in hobbies or social activities?  NO  YES
e. Have you felt detached or estranged from others?  NO  YES
f. Have you noticed that your feelings are numbed?  NO  YES
g. Have you felt that your life will be shortened or that you will die sooner than other people?  NO  YES

ARE 3 OR MORE H4 ANSWERS CODED YES?  NO  YES

H5  In the past month:

a. Have you had difficulty sleeping?  NO  YES
b. Were you especially irritable or did you have outbursts of anger?  NO  YES
c. Have you had difficulty concentrating?  NO  YES
d. Were you nervous or constantly on your guard?  NO  YES
e. Were you easily startled?  NO  YES

ARE 2 OR MORE H5 ANSWERS CODED YES?  NO  YES

H6  During the past month, have these problems significantly interfered with your work, school or social activities, or caused significant distress?  NO  YES

POSTTRAUMATIC STRESS DISORDER CURRENT
I. ALCOHOL DEPENDENCE / ABUSE

(⇒ MEANS: GO TO DIAGNOSTIC BOXES, CIRCLE NO IN BOTH AND MOVE TO THE NEXT MODULE)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>In the past 12 months</strong>, have you had 3 or more alcoholic drinks, - within a 3 hour period, - on 3 or more occasions?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th><strong>In the past 12 months:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Did you need to drink a lot more in order to get the same effect that you got when you first started drinking or did you get much less effect with continued use of the same amount?</td>
</tr>
<tr>
<td>b</td>
<td>When you cut down on drinking did your hands shake, did you sweat or feel agitated? Did you drink to avoid these symptoms (for example, &quot;the shakes&quot;, sweating or agitation) or to avoid being hungover? &lt;br&gt;IF YES TO ANY, CODE YES.</td>
</tr>
<tr>
<td>c</td>
<td>During the times when you drank alcohol, did you end up drinking more than you planned when you started?</td>
</tr>
<tr>
<td>d</td>
<td>Have you tried to reduce or stop drinking alcohol but failed?</td>
</tr>
<tr>
<td>e</td>
<td>On the days that you drank, did you spend substantial time in obtaining alcohol, drinking, or in recovering from the effects of alcohol?</td>
</tr>
<tr>
<td>f</td>
<td>Did you spend less time working, enjoying hobbies, or being with others because of your drinking?</td>
</tr>
<tr>
<td>g</td>
<td>If your drinking caused you health or mental problems, did you still keep on drinking?</td>
</tr>
</tbody>
</table>

ARE 3 OR MORE I2 ANSWERS CODED YES?  
* IF YES, SKIP I3 QUESTIONS AND GO TO NEXT MODULE. “DEPENDENCE PREEMPTS ABUSE” IN DSM IV TR.

<table>
<thead>
<tr>
<th>3</th>
<th><strong>In the past 12 months:</strong></th>
</tr>
</thead>
</table>
| a | Have you been intoxicated, high, or hungover more than once when you had other responsibilities at school, at work, or at home? Did this cause any problems?  
(CODE YES ONLY IF THIS CAUSED PROBLEMS.) | NO | YES |
<p>| b | Were you intoxicated more than once in any situation where you were physically at risk, for example, driving a car, riding a motorbike, using machinery, boating, etc.? | NO | YES |
| c | Did you have legal problems more than once because of your drinking, for example, an arrest or disorderly conduct? | NO | YES |
| d | If your drinking caused problems with your family or other people, did you still keep on drinking? | NO | YES |</p>
<table>
<thead>
<tr>
<th></th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALCOHOL ABUSE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CURRENT</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ARE 1 OR MORE 13 ANSWERS CODED YES?
J. SUBSTANCE DEPENDENCE / ABUSE (NON-ALCOHOL)

(⇒ MEANS: GO TO THE DIAGNOSTIC BOXES, CIRCLE NO IN ALL DIAGNOSTIC BOXES, AND MOVE TO THE NEXT MODULE)

Now I am going to show you / read to you a list of street drugs or medicines.

J1  a  In the past 12 months, did you take any of these drugs more than once, to get high, to feel elated, to get “a buzz” or to change your mood?  
NO YES

CIRCLE EACH DRUG TAKEN:

Cocaine: snorting, IV, freebase, crack, "speedball".
Narcotics: heroin, morphine, Dilaudid, opium, Demerol, methadone, Darvon, codeine, Percodan, Vicoden, OxyContin.
Hallucinogens: LSD ("acid"), mescaline, peyote, psilocybin, STP, "mushrooms", “ecstasy", MDA, MDMA.
Phencyclidine: PCP ("Angel Dust", "PeaCe Pill", “Tranq", “Hog”), or ketamine ("special K").
Inhalants: "glue", ethyl chloride, “rush”, nitrous oxide ("laughing gas"), amyl or butyl nitrate ("poppers").
Cannabis: marijuana, hashish ("hash"), THC, "pot", "grass", "weed", "reefer".
Tranquilizers: Quaalue, Seconal ("reds"), Valium, Xanax, Librium, Ativan, Dalmane, Halcion, barbiturates, Miltown, GHB, Roofinol, "Roofies".
Miscellaneous: steroids, nonprescription sleep or diet pills. Cough Medicine? Any others?

SPECIFY THE MOST USED DRUG(S): ____________________________

WHICH DRUG(S) CAUSE THE BIGGEST PROBLEMS?: ____________________________

FIRST EXPLORE THE DRUG CAUSING THE BIGGEST PROBLEMS AND MOST LIKELY TO MEET DEPENDENCE / ABUSE CRITERIA.

IF MEETS CRITERIA FOR ABUSE OR DEPENDENCE, SKIP TO THE NEXT MODULE. OTHERWISE, EXPLORE THE NEXT MOST PROBLEMATIC DRUG.

J2  Considering your use of (NAME THE DRUG / DRUG CLASS SELECTED), in the past 12 months:

a  Have you found that you needed to use much more (NAME OF DRUG / DRUG CLASS SELECTED) to get the same effect that you did when you first started taking it?  
NO YES

b  When you reduced or stopped using (NAME OF DRUG / DRUG CLASS SELECTED), did you have withdrawal symptoms (aches, shaking, fever, weakness, diarrhea, nausea, sweating, heart pounding, difficulty sleeping, or feeling agitated, anxious, irritable, or depressed)? Did you use any drug(s) to keep yourself from getting sick (withdrawal symptoms) or so that you would feel better?

IF YES TO EITHER, CODE YES.

c  Have you often found that when you used (NAME OF DRUG / DRUG CLASS SELECTED), you ended up taking more than you thought you would?  
NO YES

d  Have you tried to reduce or stop taking (NAME OF DRUG / DRUG CLASS SELECTED) but failed?  
NO YES

e  On the days that you used (NAME OF DRUG / DRUG CLASS SELECTED), did you spend substantial time (>2 HOURS), obtaining, using or in recovering from the drug, or thinking about the drug?  
NO YES

f  Did you spend less time working, enjoying hobbies, or being with family or friends because of your drug use?  
NO YES

g  If (NAME OF DRUG / DRUG CLASS SELECTED) caused you health or mental problems, did you still keep on using it?  
NO YES
ARE 3 OR MORE J2 ANSWERS CODED YES?

SPECIFY DRUG(S): ____________________________________________

* IF YES, SKIP J3 QUESTIONS, MOVE TO NEXT DISORDER.
“DEPENDENCE PREEMPTS ABUSE” IN DSM IV TR.

Considering your use of (NAME THE DRUG CLASS SELECTED), in the past 12 months:

J3  a  Have you been intoxicated, high, or hungover from (NAME OF DRUG / DRUG CLASS SELECTED) more than once, when you had other responsibilities at school, at work, or at home? Did this cause any problem?

(CODE YES ONLY IF THIS CAUSED PROBLEMS.)

b  Have you been high or intoxicated from (NAME OF DRUG / DRUG CLASS SELECTED) more than once in any situation where you were physically at risk (for example, driving a car, riding a motorbike, using machinery, boating, etc.)?

c  Did you have legal problems more than once because of your drug use, for example, an arrest or disorderly conduct?

d  If (NAME OF DRUG / DRUG CLASS SELECTED) caused problems with your family or other people, did you still keep on using it?

ARE 1 OR MORE J3 ANSWERS CODED YES?

SPECIFY DRUG(S): ____________________________________________

SUBSTANCE ABUSE CURRENT

SUBSTANCE DEPENDENCE CURRENT
K. PSYCHOTIC DISORDERS AND MOOD DISORDER WITH PSYCHOTIC FEATURES

ASK FOR AN EXAMPLE OF EACH QUESTION ANSWERED POSITIVELY. CODE YES ONLY IF THE EXAMPLES CLEARLY SHOW A DISTORTION OF THOUGHT OR OF PERCEPTION OR IF THEY ARE NOT CULTURALLY APPROPRIATE. BEFORE CODING, INVESTIGATE WHETHER DELUSIONS QUALIFY AS "BIZARRE".

DELUSIONS ARE "BIZARRE" IF: CLEARLY IMPLAUSIBLE, ABSURD, NOT UNDERSTANDABLE, AND CANNOT DERIVE FROM ORDINARY LIFE EXPERIENCE.

HALLUCINATIONS ARE SCORED "BIZARRE" IF: A VOICE COMMENTS ON THE PERSON'S THOUGHTS OR BEHAVIOR, OR WHEN TWO OR MORE VOICES ARE CONVERSING WITH EACH OTHER.

THE PURPOSE OF THIS MODULE IS TO EXCLUDE PATIENTS WITH PSYCHOTIC DISORDERS. THIS MODULE NEEDS EXPERIENCE.

Now I am going to ask you about unusual experiences that some people have.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>Have you ever believed that people were spying on you, or that someone was plotting against you, or trying to hurt you?</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> ASK FOR EXAMPLES TO RULE OUT ACTUAL STALKING.</td>
<td></td>
</tr>
<tr>
<td>K2</td>
<td>Have you ever believed that someone was reading your mind or could hear your thoughts, or that you could actually read someone's mind or hear what another person was thinking?</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td><strong>IF YES OR YES BIZARRE:</strong> do you currently believe these things?</td>
<td>NO</td>
</tr>
<tr>
<td>K3</td>
<td>Have you ever believed that someone or some force outside of yourself put thoughts in your mind that were not your own, or made you act in a way that was not your usual self? Have you ever felt that you were possessed?</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td><strong>CLINICIAN:</strong> ASK FOR EXAMPLES AND DISCOUNT ANY THAT ARE NOT PSYCHOTIC.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>IF YES OR YES BIZARRE:</strong> do you currently believe these things?</td>
<td>NO</td>
</tr>
<tr>
<td>K4</td>
<td>Have you ever believed that you were being sent special messages through the TV, radio, newspapers, books or magazines or that a person you did not personally know was particularly interested in you?</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td><strong>IF YES OR YES BIZARRE:</strong> do you currently believe these things?</td>
<td>NO</td>
</tr>
<tr>
<td>K5</td>
<td>Have your relatives or friends ever considered any of your beliefs odd or unusual?</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td><strong>INTERVIEWER:</strong> ASK FOR EXAMPLES. ONLY CODE YES IF THE EXAMPLES ARE CLEARLY DELUSIONAL IDEAS NOT EXPLORED IN QUESTIONS K1 TO K4, FOR EXAMPLE, SOMATIC OR RELIGIOUS DELUSIONS OR DELUSIONS OF GRANDIOSITY, JEALOUSY, GUILT, RUIN OR DESTITUTION, ETC.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>IF YES OR YES BIZARRE:</strong> do they currently consider your beliefs strange?</td>
<td>NO</td>
</tr>
<tr>
<td>K6</td>
<td>Have you ever heard things other people couldn't hear, such as voices?</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td><strong>IF YES TO VOICE HALLUCINATION:</strong> Was the voice commenting on your thoughts or behavior or did you hear two or more voices talking to each other?</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td><strong>IF YES OR YES BIZARRE TO K6a:</strong> have you heard sounds / voices in the past month?</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td><strong>IF YES TO VOICE HALLUCINATION:</strong> Was the voice commenting on your thoughts or behavior or did you hear two or more voices talking to each other?</td>
<td>NO</td>
</tr>
</tbody>
</table>
K7  a  Have you ever had visions when you were awake or have you ever seen things other people couldn’t see?  
CLINICIAN: CHECK TO SEE IF THESE ARE CULTURALLY INAPPROPRIATE.  

b  IF YES: have you seen these things in the past month?  

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
</table>

**CLINICIAN’S JUDGMENT**

K8  b  IS THE PATIENT CURRENTLY EXHIBITING INCOHERENCE, DISORGANIZED SPEECH, OR MARKED LOOSENING OF ASSOCIATIONS?  

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
</table>

K9  b  IS THE PATIENT CURRENTLY EXHIBITING DISORGANIZED OR CATATONIC BEHAVIOR?  

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
</table>

K10  b  ARE NEGATIVE SYMPTOMS OF SCHIZOPHRENIA, E.G. SIGNIFICANT AFFECTIVE FLATTENING, POVERTY OF SPEECH (ALOGIA) OR AN INABILITY TO INITIATE OR PERSIST IN GOAL-DIRECTED ACTIVITIES (AVOLITION), PROMINENT DURING THE INTERVIEW?  

<table>
<thead>
<tr>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
</table>

K11  a  ARE 1 OR MORE « a » QUESTIONS FROM K1a TO K7a CODED YES OR YES BIZARRE AND IS EITHER:  

- MAJOR DEPRESSIVE EPISODE, (CURRENT, RECURRENT OR PAST)  
- MANIC OR HYPOMANIC EPISODE, (CURRENT OR PAST) CODED YES?  

| NO | YES |

IF NO TO K11 a, CIRCLE NO IN BOTH ‘MOOD DISORDER WITH PSYCHOTIC FEATURES’ DIAGNOSTIC BOXES AND MOVE TO K13.

b  You told me earlier that you had period(s) when you felt (depressed/high/persistently irritable).  

Were the beliefs and experiences you just described (SYMPTOMS CODED YES FROM K1a TO K7a) restricted exclusively to times when you were feeling depressed/high/irritable?  

IF THE PATIENT EVER HAD A PERIOD OF AT LEAST 2 WEEKS OF HAVING THESE BELIEFS OR EXPERIENCES (PSYCHOTIC SYMPTOMS) WHEN THEY WERE NOT DEPRESSED/HIGH/IRRITABLE, CODE NO TO THIS DISORDER.  

IF THE ANSWER IS NO TO THIS DISORDER, ALSO CIRCLE NO TO K12 AND MOVE TO K13.

K12  a  ARE 1 OR MORE « b » QUESTIONS FROM K1b TO K7b CODED YES OR YES BIZARRE AND IS EITHER:  

- MAJOR DEPRESSIVE EPISODE, (CURRENT)  
- MANIC OR HYPOMANIC EPISODE, (CURRENT) CODED YES?  

IF THE ANSWER IS YES TO THIS DISORDER (LIFETIME OR CURRENT), CIRCLE NO TO K13 AND K14 AND MOVE TO THE NEXT MODULE.

**MOOD DISORDER WITH PSYCHOTIC FEATURES**

<table>
<thead>
<tr>
<th>LIFETIME</th>
<th>CURRENT</th>
</tr>
</thead>
</table>

| NO | YES | NO | YES |

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K13  ARE 1 OR MORE « b » QUESTIONS FROM K1b TO K6b, CODED YES BIZARRE?

OR

ARE 2 OR MORE « b » QUESTIONS FROM K1b TO K10b, CODED YES (RATHER THAN YES BIZARRE)?

AND DID AT LEAST TWO OF THE PSYCHOTIC SYMPTOMS OCCUR DURING THE SAME 1 MONTH PERIOD?

K14  IS K13 CODED YES

OR

ARE 1 OR MORE « a » QUESTIONS FROM K1a TO K6a, CODED YES BIZARRE?

OR

ARE 2 OR MORE « a » QUESTIONS FROM K1a TO K7a, CODED YES (RATHER THAN YES BIZARRE)

AND DID AT LEAST TWO OF THE PSYCHOTIC SYMPTOMS OCCUR DURING THE SAME 1 MONTH PERIOD?
L. ANOREXIA NERVOSA

(⇒ MEANS: GO TO THE DIAGNOSTIC BOX, CIRCLE NO, AND MOVE TO THE NEXT MODULE)

L1  a. How tall are you?  □ ft  □ in.
   b. What was your lowest weight in the past 3 months?  □ lbs.  □ kgs.
   c. IS PATIENT’S WEIGHT EQUAL TO OR BELOW THE THRESHOLD CORRESPONDING TO HIS / HER HEIGHT? (SEE TABLE BELOW)  NO  YES

In the past 3 months:

L2  In spite of this low weight, have you tried not to gain weight?  NO  YES
L3  Have you intensely feared gaining weight or becoming fat, even though you were underweight?  NO  YES
L4  a. Have you considered yourself too big / fat or that part of your body was too big / fat?  NO  YES
   b. Has your body weight or shape greatly influenced how you felt about yourself?  NO  YES
   c. Have you thought that your current low body weight was normal or excessive?  NO  YES
L5  ARE 1 OR MORE ITEMS FROM L4 CODED YES?  NO  YES
L6  FOR WOMEN ONLY: During the last 3 months, did you miss all your menstrual periods when they were expected to occur (when you were not pregnant)?  NO  YES

FOR WOMEN:  ARE L5 AND L6 CODED YES?
FOR MEN:  IS L5 CODED YES?

NO  YES

ANOREXIA NERVOSA CURRENT

HEIGHT / WEIGHT TABLE CORRESPONDING TO A BMI THRESHOLD OF 17.5 KG/M²

<table>
<thead>
<tr>
<th>Height/Weight</th>
<th>4'9</th>
<th>4'10</th>
<th>4'11</th>
<th>5'0</th>
<th>5'1</th>
<th>5'2</th>
<th>5'3</th>
<th>5'4</th>
<th>5'5</th>
<th>5'6</th>
<th>5'7</th>
<th>5'8</th>
<th>5'9</th>
<th>5'10</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft/in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lbs.</td>
<td>81</td>
<td>84</td>
<td>87</td>
<td>89</td>
<td>92</td>
<td>96</td>
<td>99</td>
<td>102</td>
<td>105</td>
<td>108</td>
<td>112</td>
<td>115</td>
<td>118</td>
<td>122</td>
</tr>
<tr>
<td>cm</td>
<td>145</td>
<td>147</td>
<td>150</td>
<td>152</td>
<td>155</td>
<td>158</td>
<td>160</td>
<td>163</td>
<td>165</td>
<td>168</td>
<td>170</td>
<td>173</td>
<td>175</td>
<td>178</td>
</tr>
<tr>
<td>kgs</td>
<td>37</td>
<td>38</td>
<td>39</td>
<td>41</td>
<td>42</td>
<td>43</td>
<td>45</td>
<td>46</td>
<td>48</td>
<td>49</td>
<td>51</td>
<td>52</td>
<td>54</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Height/Weight</th>
<th>5'11</th>
<th>6'0</th>
<th>6'1</th>
<th>6'2</th>
<th>6'3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft/in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lbs.</td>
<td>125</td>
<td>129</td>
<td>132</td>
<td>136</td>
<td>140</td>
</tr>
<tr>
<td>cm</td>
<td>180</td>
<td>183</td>
<td>185</td>
<td>188</td>
<td>191</td>
</tr>
<tr>
<td>kgs</td>
<td>57</td>
<td>59</td>
<td>60</td>
<td>62</td>
<td>64</td>
</tr>
</tbody>
</table>

The weight thresholds above are calculated using a body mass index (BMI) equal to or below 17.5 kg/m² for the patient’s height. This is the threshold guideline below which a person is deemed underweight by the DSM-IV and the ICD-10 Diagnostic Criteria for Research for Anorexia Nervosa.
## M. BULIMIA NERVOSA

(⇒ MEANS: GO TO THE DIAGNOSTIC BOXES, CIRCLE NO IN ALL DIAGNOSTIC BOXES, AND MOVE TO THE NEXT MODULE)

<table>
<thead>
<tr>
<th>M1</th>
<th>In the past three months, did you have eating binges or times when you ate a very large amount of food within a 2-hour period?</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td>In the last 3 months, did you have eating binges as often as twice a week?</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M3</th>
<th>During these binges, did you feel that your eating was out of control?</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>M4</td>
<td>Did you do anything to compensate for, or to prevent a weight gain from these binges, like vomiting, fasting, exercising or taking laxatives, enemas, diuretics (fluid pills), or other medications?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>M5</td>
<td>Does your body weight or shape greatly influence how you feel about yourself?</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>M6</td>
<td>DO THE PATIENT’S SYMPTOMS MEET CRITERIA FOR ANOREXIA NERVOSA?</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

↓ Skip to M8

| M7 | Do these binges occur only when you are under ( ____ lbs./kgs.)? INTERVIEWER: WRITE IN THE ABOVE PARENTHESIS THE THRESHOLD WEIGHT FOR THIS PATIENT’S HEIGHT FROM THE HEIGHT / WEIGHT TABLE IN THE ANOREXIA NERVOSA MODULE. | NO | YES |

| M8 | IS M5 CODED YES AND IS EITHER M6 OR M7 CODED NO?                                                            | NO | YES |

IS M7 CODED YES?

| NO | YES |

**BULIMIA NERVOSA CURRENT**

| NO | YES |

**ANOREXIA NERVOSA Binge Eating/Purging Type CURRENT**
### N. GENERALIZED ANXIETY DISORDER

*MEANS: GO TO THE DIAGNOSTIC BOX, CIRCLE NO, AND MOVE TO THE NEXT MODULE*

| N1 | a | Were you excessively anxious or worried about several routine things, over the past 6 months? | NO | YES |
|    |   | IN ENGLISH, IF THE PATIENT IS UNCLEAR ABOUT WHAT YOU MEAN, PROBE BY ASKING (Do others think that you are a “worry wart”) AND GET EXAMPLES. |   |   |
|    | b | Are these anxieties and worries present most days? | NO | YES |
|    |   | ARE THE PATIENT’S ANXIETY AND WORRIES RESTRICTED EXCLUSIVELY TO, OR BETTER EXPLAINED BY, ANY DISORDER PRIOR TO THIS POINT? | NO | YES |

| N2 | Do you find it difficult to control the worries? | NO | YES |

| N3 | FOR THE FOLLOWING, CODE NO IF THE SYMPTOMS ARE CONFINED TO FEATURES OF ANY DISORDER EXPLORED PRIOR TO THIS POINT. |
|    | When you were anxious over the past 6 months, did you, most of the time: |
|    | a | Feel restless, keyed up or on edge? | NO | YES |
|    | b | Have muscle tension? | NO | YES |
|    | c | Feel tired, weak or exhausted easily? | NO | YES |
|    | d | Have difficulty concentrating or find your mind going blank? | NO | YES |
|    | e | Feel irritable? | NO | YES |
|    | f | Have difficulty sleeping (difficulty falling asleep, waking up in the middle of the night, early morning wakening or sleeping excessively)? | NO | YES |

|   | ARE 3 OR MORE N3 ANSWERS CODED YES? | NO | YES |

| N4 | Do these anxieties and worries disrupt your normal work, school or social functioning or cause you significant distress? |   |   |

### O. RULE OUT MEDICAL, ORGANIC OR DRUG CAUSES FOR ALL DISORDERS

IF THE PATIENT CODES POSITIVE FOR ANY CURRENT DISORDER ASK:

**Just before these symptoms began:**

| O1a | Were you taking any drugs or medicines? | ☐ No ☐ Yes ☐ Uncertain |
| O1b | Did you have any medical illness? | ☐ No ☐ Yes ☐ Uncertain |

*IN THE CLINICIAN’S JUDGMENT: ARE EITHER OF THESE LIKELY TO BE DIRECT CAUSES OF THE PATIENT’S DISORDER? IF NECESSARY ASK ADDITIONAL OPEN-ENDED QUESTIONS.*

| O2 | SUMMARY: HAS AN ORGANIC CAUSE BEEN RULED OUT? | ☐ No ☐ Yes ☐ Uncertain |
P. ANTISOCIAL PERSONALITY DISORDER

(⇒ MEANS: GO TO THE DIAGNOSTIC BOX AND CIRCLE NO)

P1 Before you were 15 years old, did you:

a repeatedly skip school or run away from home overnight? NO YES

b repeatedly lie, cheat, "con" others, or steal? NO YES
c start fights or bully, threaten, or intimidate others? NO YES
d deliberately destroy things or start fires? NO YES
e deliberately hurt animals or people? NO YES
f force someone to have sex with you? NO YES

ARE 2 OR MORE P1 ANSWERS CODED YES? NO YES

DO NOT CODE YES TO THE BEHAVIORS BELOW IF THEY ARE EXCLUSIVELY POLITICALLY OR RELIGIOUSLY MOTIVATED.

P2 Since you were 15 years old, have you:

a repeatedly behaved in a way that others would consider irresponsible, like failing to pay for things you owed, deliberately being impulsive or deliberately not working to support yourself? NO YES

b done things that are illegal even if you didn’t get caught (for example, destroying property, shoplifting, stealing, selling drugs, or committing a felony)? NO YES
c been in physical fights repeatedly (including physical fights with your spouse or children)? NO YES
d often lied or "conned" other people to get money or pleasure, or lied just for fun? NO YES
e exposed others to danger without caring? NO YES
f felt no guilt after hurting, mistreating, lying to, or stealing from others, or after damaging property? NO YES

ARE 3 OR MORE P2 QUESTIONS CODED YES? NO YES

ANTISOCIAL PERSONALITY DISORDER LIFETIME

THIS CONCLUDES THE INTERVIEW
REFERENCES


Scientific committee for the MINI 6.0.0:
A. Carlo Altamura, Milano, Italy
Cyril Hoschli, Praha, Czech Republic
George Papadimitriou, Athens, Greece
Hans Ågren, Göteborg, Sweden
Hans-Jürgen Möller, München, Germany
Hans-Ulrich Wittchen, Dresden, Germany
István Bitter, Budapest, Hungary
Jean-Pierre Lépine, Paris, France
Jules Angst, Zurich, Switzerland
Julio Bobes, Oviedo, Spain
Luciano Conti, Pisa, Italy
Marelli Colon-Soto MD, Puerto Rico, United States
Michael Van Ameringen MD, Toronto, Canada
Rosario Hidalgo MD, Tampa, United States
Siegfried Kasper, Vienna, Austria
Thomas Schlæpfer, Bonn, Germany

Translations of M.I.N.I. 6.0.0

<table>
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<tr>
<th>Language</th>
<th>M.I.N.I. 4.4 or earlier versions</th>
<th>M.I.N.I. 4.6/5.0, M.I.N.I. Plus 4.6/5.0</th>
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<td>R. Emsley, W. Maartens</td>
<td>O. Osman, E. Al-Radi</td>
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<td>Icelandic</td>
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<td></td>
<td>J.G. Stefansson</td>
</tr>
<tr>
<td>Japanese</td>
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</tbody>
</table>

M.I.N.I. 6.0.0 (January 1, 2009) 27
A validation study of this instrument was made possible, in part, by grants from SmithKline Beecham and the European Commission. The authors are grateful to Dr. Pauline Powers for her advice on the modules on Anorexia Nervosa and Bulimia.
MOOD DISORDERS: DIAGNOSTIC ALGORITHM

Consult Modules:
- A  Major Depressive Episode
- C  (Hypo) manic Episode
- K  Psychotic Disorders

MODULE K:

1a  IS K11b CODED YES? NO YES
1b  IS K12a CODED YES? NO YES

MODULES A and C:

2  a  CIRCLE YES IF A DELUSIONAL IDEA IS IDENTIFIED IN A3e? YES YES
2  b  CIRCLE YES IF A DELUSIONAL IDEA IS IDENTIFIED IN C3a? YES YES

c  Is a Major Depressive Episode coded YES (current or past)?
   and
   is Manic Episode coded NO (current and past)?
   and
   is Hypomanic Episode coded NO (current and past)?
   and
   is “Hypomanic Symptoms” coded NO (current and past)?

Specify:
• If the depressive episode is current or past or both

• With Psychotic Features Current: If 1b or 2a (current) = YES
  With Psychotic Features Past: If 1a or 2a (past) = YES

BIPOLAR I DISORDER

Specify:
• If the Bipolar I Disorder is current or past or both

• With Single Manic Episode: If Manic episode (current or past) = YES
  and MDE (current and past) = NO

• With Psychotic Features Current: If 1b or 2a (current) or 2b (current) = YES
  With Psychotic Features Past: If 1a or 2a (past) or 2b (past) = YES

• If the most recent episode is manic, depressed, mixed or hypomanic or unspecified (all mutually exclusive)

• Unspecified if the Past Manic Episode is coded YES AND
  Current (C3 Summary AND C4a AND C6 AND O2) are coded YES

MAJOR DEPRESSIVE DISORDER

Specify:
• If the MDD is current or past or both

With Psychotic Features
  Current
  Past

Bipolar I Disorder

Specify:
• If the Bipolar I Disorder is current or past or both

With Psychotic Features
  Current
  Past

Most Recent Episode
  Manic
  Depressed
  Mixed
  Hypomanic
  Unspecified

M.I.N.I. 6.0.0 (January 1, 2009)
e  Is Major Depressive Episode coded YES (current or past)?
   and
   Is Hypomanic Episode coded YES (current or past)?
   and
   Is Manic Episode coded NO (current and past)?

Specify:

- If the Bipolar Disorder is **current** or **past** or both
- If the most recent mood episode is **hypomanic** or **depressed** (mutually exclusive)

f  Is MDE coded NO (current and past)
   and
   Is Manic Episode coded NO (current and past)?
   and is either:

   1)  C7b coded YES for the appropriate time frame?

      or

   2)  C3 Summary coded YES for the appropriate time frame?
      and
      C4a coded YES for the appropriate time frame?
      and
      C7c coded YES for the appropriate time frame?

Specify if the Bipolar Disorder NOS is **current** or **past** or both
The shaded modules below are additional modules available in the MINI PLUS beyond what is available in the standard MINI. The un-shaded modules below are in the standard MINI.

These MINI PLUS modules can be inserted into or used in place of the standard MINI modules, as dictated by the specific needs of any study.

<table>
<thead>
<tr>
<th>MODULES</th>
<th>TIME FRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A MAJOR DEPRESSIVE EPISODE</td>
<td>Current (2 weeks)</td>
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<tr>
<td></td>
<td>Past</td>
</tr>
<tr>
<td></td>
<td>Recurrent</td>
</tr>
<tr>
<td>MOOD DISORDER DUE TO A GENERAL MEDICAL CONDITION</td>
<td>Current</td>
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<tr>
<td>SUBSTANCE INDUCED MOOD DISORDER</td>
<td>Past</td>
</tr>
<tr>
<td>MDE WITH MELANCHOLIC FEATURES</td>
<td>Current (2 weeks)</td>
</tr>
<tr>
<td>MDE WITH ATYPICAL FEATURES</td>
<td>Current (2 weeks)</td>
</tr>
<tr>
<td>MDE WITH CATATONIC FEATURES</td>
<td>Current (2 weeks)</td>
</tr>
<tr>
<td>B DYSTHYMIA</td>
<td>Current (Past 2 years)</td>
</tr>
<tr>
<td>C SUICIDALITY</td>
<td>Current (Past Month)</td>
</tr>
<tr>
<td></td>
<td>Risk: Low □ Medium □ High</td>
</tr>
<tr>
<td>D MANIC EPISODE</td>
<td>Current</td>
</tr>
<tr>
<td></td>
<td>Past</td>
</tr>
<tr>
<td>HYPOMANIC EPISODE</td>
<td>Current</td>
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<td>BIPOLAR I DISORDER</td>
<td>Past</td>
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<tr>
<td>BIPOLAR II DISORDER</td>
<td>Current</td>
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<tr>
<td>BIPOLAR DISORDER NOS</td>
<td>Past</td>
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<tr>
<td>MANIC EPISODE DUE TO A GENERAL MEDICAL CONDITION</td>
<td>Current</td>
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<td>HYPOMANIC EPISODE DUE TO A GENERAL MEDICAL CONDITION</td>
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<td>SUBSTANCE INDUCED MANIC EPISODE</td>
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<td>SUBSTANCE INDUCED HYPOMANIC EPISODE</td>
<td>Past</td>
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<tr>
<td>E PANIC DISORDER</td>
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<td>ANXIETY DISORDER WITH PANIC ATTACKS DUE TO A GENERAL</td>
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<td>F AGORAPHOBIA</td>
<td>Current</td>
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<tr>
<td>G SOCIAL PHOBIA (Social Anxiety Disorder)</td>
<td>Current (Past Month)</td>
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<td>H SPECIFIC PHOBIA</td>
<td>Current</td>
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<td>I OBSESSIVE-COMPULSIVE DISORDER</td>
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<td>OCD DUE TO A GENERAL MEDICAL CONDITION</td>
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<td>SUBSTANCE INDUCED OCD</td>
<td>Current</td>
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<td>J POSTTRAUMATIC STRESS DISORDER</td>
<td>Current (Past Month)</td>
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<tr>
<td>K ALCOHOL DEPENDENCE</td>
<td>Past 12 Months</td>
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<td>ALCOHOL DEPENDENCE</td>
<td>Lifetime</td>
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<td>ALCOHOL ABUSE</td>
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<td>L SUBSTANCE DEPENDENCE (Non-alcohol)</td>
<td>Past 12 Months</td>
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<td>SUBSTANCE DEPENDENCE (Non-alcohol)</td>
<td>Lifetime</td>
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<td>Past 12 Months</td>
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<td>M</td>
<td>PSYCHOTIC DISORDERS</td>
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<td>MOOD DISORDER WITH PSYCHOTIC FEATURES</td>
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<td>SCHIZOPHRENIA</td>
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<td>MOOD DISORDER NOS</td>
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<td>MAJOR DEPRESSIVE DISORDER WITH PSYCHOTIC FEATURES</td>
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<td>BIPOLAR I DISORDER WITH PSYCHOTIC FEATURES</td>
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<tr>
<td>N</td>
<td>ANOREXIA NERVOSA</td>
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<tr>
<td>O</td>
<td>BULIMIA NERVOSA</td>
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<tr>
<td></td>
<td>BULIMIA NERVOSA PURGING TYPE</td>
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<tr>
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<td>BULIMIA NERVOSA NONPURGING TYPE</td>
</tr>
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<td></td>
<td>ANOREXIA NERVOSA, BINGE EATING/PURGING TYPE</td>
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<td>ANOREXIA NERVOSA, Restricting Type</td>
</tr>
<tr>
<td>P</td>
<td>GENERALIZED ANXIETY DISORDER</td>
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<td>GENERALIZED ANXIETY DISORDER DUE TO A GENERAL MEDICAL CONDITION</td>
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<td>SUBSTANCE INDUCED GAD</td>
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<td>ANTISOCIAL PERSONALITY DISORDER</td>
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<td>R</td>
<td>SOMATIZATION DISORDER</td>
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<td>BODY DYSMORPHIC DISORDER</td>
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<td>PAIN DISORDER</td>
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<td>V</td>
<td>CONDUCT DISORDER</td>
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<tr>
<td>W</td>
<td>ATTENTION DEFICIT/HYPERACTIVITY DISORDER (Children/Adolescents)</td>
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<td>ATTENTION DEFICIT/HYPERACTIVITY DISORDER (Adults)</td>
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<td>ADJUSTMENT DISORDERS</td>
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<td>PREMENSTRUAL DYSPHORIC DISORDER</td>
</tr>
<tr>
<td>Z</td>
<td>MIXED ANXIETY-DEPRESSIVE DISORDER</td>
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</tbody>
</table>
Multi-Source Interference Task (MSIT)
N-back task

interstimulus interval: 600 ms

presentation time: 1000 ms
Please put an X next to the statement that best describes how you feel:

**Right now I am:**

- □ Feeling active, vital, alert or wide awake
- □ Functioning at high levels, but not at peak; able to concentrate
- □ Awake, but relaxed; responsive but not fully alert
- □ Somewhat foggy, let down
- □ Foggy; losing interest in remaining awake; slowed down
- □ Sleepy, woozy, fighting sleep; prefer to lie down
- □ No longer fighting sleep, sleep onset soon; having dream-like thoughts
- ❖ Asleep
Automated Neuropsychological Assessment Metrics (ANAM4)
Psychomotor Vigilance Test

Press the spacebar every time an “x” appears on the screen.
BRIGHT LIGHT

10-20 PSG electrode attachments

<table>
<thead>
<tr>
<th>Measure</th>
<th>Electrode</th>
<th>Distance</th>
<th>cm</th>
<th>Completed</th>
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<tr>
<td>Nasion to Inion</td>
<td>CZ</td>
<td>midpoint</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FP</td>
<td>10% from nasion</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OZ</td>
<td>10% from inion</td>
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<tr>
<td>Preaurical to preaurical</td>
<td>CZ</td>
<td>midpoint</td>
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<tr>
<td></td>
<td>C3 &amp; C4</td>
<td>20% from midpoint</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head Circumference (through FP and OZ)</td>
<td>FP1 &amp; FP2</td>
<td>5% to each side of FP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>O1 &amp; O2</td>
<td>5% to each side of OZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP1 to C3</td>
<td>F3</td>
<td>50% from C3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP2 to C4</td>
<td>F4</td>
<td>50% from C4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>A1 &amp; A2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chins (EMG)</td>
<td>EMG1 &amp; EMG2</td>
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Bio Calibrations

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<tr>
<th>Instruction</th>
<th>Code</th>
<th>Duration</th>
<th>MSLT 1 Completed</th>
<th>MSLT 2 Completed</th>
<th>MSLT 3 Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Rest with eyes open</td>
<td>EO</td>
<td>1 min (2 epochs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Rest with eyes closed</td>
<td>EC</td>
<td>1 min (2 epochs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Look up and down</td>
<td>U/D</td>
<td>30 sec (1 epoch)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Look left and right</td>
<td>L/R</td>
<td>30 sec (1 epoch)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Blink 5 times</td>
<td>Blink</td>
<td>5 blinks (1 epoch)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Grit teeth</td>
<td>Teeth</td>
<td>30 sec (1 epoch)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Lights out epoch
Wake time epoch
Read the following scenarios. Each scenario presents a situation and asks a question about the chance or likelihood that you would experience a particular outcome. For each one, think about how likely that outcome would be for YOU in that situation. Do NOT worry about how most people would do in a particular situation—just think about the chance that a particular outcome would happen to YOU in that situation. Circle the percent chance that best represents the probability that the outcome would happen to YOU.

1. You arrive 25 minutes late for a big job interview. What is the probability that YOU will get the job?
   
   0%  10%  20%  30%  40%  50%  60%  70%  80%  90%  100%

2. If you were to find yourself confronted by a vicious angry dog, what is the probability that YOU could get away unharmed?
   
   0%  10%  20%  30%  40%  50%  60%  70%  80%  90%  100%

3. Regardless of your moral convictions, if you were to shoplift a pair of $50 sunglasses from a chain drug store, what is the probability that YOU could get away with it without being caught?
   
   0%  10%  20%  30%  40%  50%  60%  70%  80%  90%  100%

4. While leaving a popular night club, you are attacked by a drunk man in his early 20s wielding a 10 inch knife. During the scuffle, your friend is stabbed, but not fatally. What is the chance that YOU will be killed during the attack?
   
   0%  10%  20%  30%  40%  50%  60%  70%  80%  90%  100%

5. While on vacation, you meet up with a stranger asking for help. Although the story the stranger tells you is heart wrenching and he seems very sincere, you are aware that he may just be a con-artist trying to scam you. If the stranger truly is a con-artist, what is the probability YOU will end up being scammed out of some of your money?
   
   0%  10%  20%  30%  40%  50%  60%  70%  80%  90%  100%

6. You awaken one morning realizing that you engaged in unprotected sex with someone you just met. Now that the alcohol has worn off, your partner remorsefully tells you that he/she has suffered for a long time with a very serious sexually transmitted disease. What is the chance that YOU will contract the sexually transmitted disease yourself after this contact?
   
   0%  10%  20%  30%  40%  50%  60%  70%  80%  90%  100%
7. While on vacation in a far away country, your 3 traveling companions have all contracted a bad case of diarrhea after drinking the water. You realize that you just drank some of the same water about an hour ago. What is the likelihood that YOU will come down with diarrhea too?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

8. While on vacation in the woods, you decide to go hiking in an unfamiliar and thickly wooded area without a map or guide. What is the likelihood that YOU will get lost?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

9. You have been at a nightclub for 4 hours. During that time you have had 7 alcoholic beverages. You are feeling a little “buzzed” but you decide to drive yourself home anyway because it is only about 5 miles away. What is the probability that YOU will make it home without any negative incident?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

10. While playing golf one afternoon a thunderstorm comes up quickly. There is much wind and occasional lightning is hitting nearby. Because you are winning the game and only have two more holes to play, you decide to continue to the end. What is the likelihood that YOU will be struck by lightning before finishing the game?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

11. While at your job you discover that one of your superiors has been embezzling large amounts of money from your organization. You decide to inform higher management of his illegal behavior. What is the chance that YOUR future career at the company will be harmed by reporting him?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

12. Your company has a strict policy forbidding the removal of computer equipment from the work premises. However, you have a big project due that can only be completed if you “borrow” a company laptop computer over the weekend. What is the probability that YOU could secretly remove the computer for the weekend and return it to work on Monday without ever being caught?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

13. You are a foreigner living in a war-torn country that is filled with violence and frequent sniper attacks. Although it is dark outside and there are many hostile insurgents in the area, you decide to drive alone and unarmed down a 10 mile stretch of empty highway to spend the weekend in the next town. What is the probability that YOU will be killed while making the trip?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
14. While staying at a high rise hotel a bad fire breaks out several floors below yours. After hearing the fire alarm and smelling smoke, you quickly devise a plan of escape. What is the likelihood that YOU would be unable to figure out a way to escape and would die in the fire?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

15. A severe natural disaster has devastated your town, resulting in widespread panic, looting, and deadly violence. The escape routes leading from the town are blocked with gridlock traffic and street gangs are killing at random and using violent means to steal limited necessities and survive. What is the chance that YOU will be able to outmaneuver the looters and escape the town unharmed?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

16. You enter a competition in an arena in which you are particularly talented. What is the chance that YOU will ultimately win the competition?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

17. You are sightseeing off a tall bridge where many individuals have tried to commit suicide by jumping to their deaths in the water below. Approximately half of all jumpers have not survived the long drop into the bay. Unfortunately, you stumble and are accidentally knocked off of the bridge. What is the likelihood that YOU would die in the fall?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

18. Your biggest rival has challenged you in some way. What is the likelihood that YOU will ultimately defeat your rival at whatever he/she has challenged you with?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

19. A bad automobile accident has just occurred in front of you. In one of the cars, the driver is unconscious and bleeding. You smell gas and notice that smoke is starting to billow out from the car. Afraid that the car may explode at any moment, you work to pull the unconscious driver from the car. What is the chance that YOU will die in the process of saving the driver?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

20. While on vacation on a tropical island you decided to rent a small motor boat to do some sightseeing and fishing out along the island coast. After stopping the boat some distance from the shore you lay down to take a brief nap. Upon awakening you realize that you can no longer see the shore and notice that there is a fierce storm coming. What is the likelihood that YOU will die at sea?

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Go/No-Go Task

- Go
- Go
- Go
- No Go
Body Sway and Stability Test
Day of Scan Information Questionnaire

Subject #: ______________ Date: ______________

DATE OF BIRTH  _______ / _______ / _______
day        month         year

AGE ........................................................... ___________ years
HEIGHT .................................................... ___________ ft/inches
WEIGHT ................................................... ___________ lbs
SEX ....................................................... Male   Female

RIGHT or LEFT-HANDED? .................... RIGHT    LEFT    BOTH/NEITHER

How far did you go in school?
<9th; 9th; 10th; 11th; HS Grad; 2yr College; College Grad; Some Grad School; Masters, Doctorate

Do you have any problems with reading?  NO   YES ________________________________

What is your primary language (what do you speak at home most of the time)?

English    Spanish    Other ________________

CAFFEINE USE
Did you have any caffeine containing products today?  If so, how much?   ___________
On average, how many cups of caffeinated coffee do you drink per day?  ___________
On average, how many cups of caffeinated tea do you drink per day?    ___________
On average, how many cans of caffeinated soda do you drink per day?   ___________
On average, how many caffeinated sports drinks do you drink per day? ___________(brand)
Do you use any other caffeinated products, such as Vivarin?   YES NO
If YES, WHAT? ________________ How much?_________ How often? ____________

NICOTINE USE
Do you smoke cigarettes?   YES NO
If YES, about how many cigarettes do you smoke per day?  ___________
  How long have you been smoking? __________________ years ___________ months
  Have you tried to quit?  YES NO
    If YES, how many times?__________
  If NO, did you ever smoke cigarettes in the past?  YES NO
    If YES, how many cigarettes did you smoke per day?  ___________
      When did you start smoking? __________ (date)
      When did you quit? __________ (date)
Do you use smokeless tobacco, such as dip or chew?  YES NO
If YES, about how much do you use per day?_____________________________
  If NO, did you ever use smokeless tobacco in the past?  YES NO
    If YES, how much did you use per day? ___________
      When did you start using? __________ (year)
      When did you quit? __________ (year)
Do you use any other nicotine-containing products?  YES  NO
If YES, WHAT? ________________ How much?_________ How often? _____________

OTHER
Do you take diet pills?  YES  NO
If YES, what brand? ________________ How much?_________ How often? _____________

Are you currently taking any medications, vitamins, or supplements?  YES  NO
If YES, please list:
Name: ___________________ Dosage: ___________________
Name: ___________________ Dosage: ___________________
Name: ___________________ Dosage: ___________________
Name: ___________________ Dosage: ___________________

How many times per month do you drink (alcohol)? ________________
On those occasions, what is the average number of drinks you consume? _______
On those occasions, what is the largest number of drinks you consume? _______

How many times in the past year have you used marijuana? _______
Have you ever used marijuana at other times in your life?  YES  NO
If YES, at what age did you begin smoking marijuana? ________________
On approximately how many occasions have you used marijuana? ____________

Do you use any other street drugs currently or in the past year?  YES  NO
If YES, WHAT? ________________ How much?_________ How often? _____________

PHYSICAL INFORMATION
If female, when was the start of your last menstrual period (be as precise as possible)?
Date of period:__________ or about ________ days ago.

CONCUSSION INFORMATION
How many “concussions” have you had in your life? ________________
Did you lose consciousness or get “knocked out” each time? ________________
How long ago was your most recent concussion? __________ Date it happened: ____________
Briefly describe the situation that led to your most recent concussion:
____________________________________________________________________________________
____________________________________________________________________________________

Did you “see stars” during your last concussion?  YES  NO
Did you lose consciousness during your last concussion?  YES  NO
(If “YES”, for how long were you unconscious: ________)

Did you notice that your sleep became worse following the concussion?  YES  NO
After your concussion, what sleep problems became more noticeable to you? (check all that apply)

_____ I get sleepier during the day
_____ I get drowsier than I used to when trying to concentrate or work
_____ I fall asleep when I should not
_____ It is harder to stay alert during the day
_____ It is harder to fall asleep at night
_____ I fall asleep much later than I used to
_____ I fall asleep much earlier than I used to
_____ I sleep later in the morning than I used to
_____ I wake up much earlier in the morning than I used to
When I do sleep, it is fitful or less restful than it used to be
I wake up off and on throughout the night more than I used to
I have more nightmares than I used to

In the months BEFORE your concussion occurred:

**Before** your concussion, at what time did you normally go to bed at night on:
- Week nights (Sun-Thur)? ________ AM    PM (midnight = 12 AM; noon = 12 PM)
- Weekends (Fri-Sat)? ________ AM    PM

**Before** your concussion, what time did you typically awaken on:
- Weekdays (Mon-Fri)? ________ AM    PM
- Weekends (Sat-Sun)? ________ AM    PM

**Before** your concussion, how long did it typically take you to fall asleep at night?
- On week nights (Sun-Thur)? ________ MIN    HRS
- On weekends (Fri-Sat)? ________ MIN    HRS

**CURRENT SLEEP HABITS**

How much sleep did you get last night? _____________

**Since your concussion,** how much do you typically sleep on weeknights (Sun-Thur)? __________

**Since your concussion,** how much do you typically sleep on weekend nights (Fri-Sat)?_________

**Since your concussion,** at what time do you normally go to bed at night on:
- Week nights (Sun-Thur)? ________ AM    PM (midnight = 12 AM; noon = 12 PM)
- Weekends (Fri-Sat)? ________ AM    PM

**Since your concussion,** what time do you typically awaken on:
- Weekdays (Mon-Fri)? ________ AM    PM
- Weekends (Sat-Sun)? ________ AM    PM

**Since your concussion,** how long does it typically take you to fall asleep at night?
- On week nights (Sun-Thur)? ________ MIN    HRS
- On weekends (Fri-Sat)? ________ MIN    HRS

**Since your concussion,** at what time of day do you feel sleepiest? ________ AM    PM
At what time of day do you feel most alert? ________ AM    PM

**Since your concussion,** how many hours do you need to sleep to feel your best? __________

“If I get less than _____ hours of sleep, I notice an impairment in my ability to function at work.”
“If I get more than ______ hours of sleep, I notice an impairment in my ability to function at work.”

Is daytime sleepiness currently a problem for you? .............YES   NO
Are you currently doing shift work, that is, working early morning, evening, or night shifts?...YES  NO

Do you ever have trouble falling asleep? .................................................................YES  NO
If yes, how often? ________ times per WEEK MONTH YEAR (circle one)
If yes, did this get start or get worse since your concussion?  YES  NO

Do you ever have trouble staying asleep? .............................................................YES  NO
If yes, how often? ________ times per WEEK MONTH YEAR (circle one)
If yes, did this start or get worse since your concussion?  YES  NO

Do you ever have trouble staying asleep? .............................................................YES  NO
If yes, how often? ________ times per WEEK MONTH YEAR (circle one)
If yes, did this start or get worse since your concussion?  YES  NO

Do you take more than two daytime naps per month? .................................YES  NO
If yes, about how many times per week do you nap? ...........................................
At what time of day do you normally take your nap? ___:___ AM/PM to ___:___ AM/PM
Do you consider yourself a light, normal, or heavy sleeper? ........LIGHT NORMAL HEAVY
Have you been told or do you think that you snore excessively?  YES  NO
Have you ever been diagnosed or treated for sleep apnea or sleep disordered breathing?  YES  NO

I yawn often
Never  1  2  3  4  5  6  7  8  9  10 Always yawning

When I see or hear someone else yawn, I will yawn too
Never  1  2  3  4  5  6  7  8  9  10 Every time

RECENT RISK OF DOZING OFF (ESS)

How likely are to doze off or fall asleep in the following situations, in contrast to feeling just tired? This refers to your usual way of life in recent times. Even if you have not done some of these things recently try to work out how they would have affected you. Use the following scale to choose the most appropriate number for each situation:

0 = would never doze
1 = slight chance of dozing
2 = moderate chance of dozing
3 = high chance of dozing

SITUATION  

CHANCE OF DOZING (0-3)

Sitting and reading  0  1  2  3
Watching TV  0  1  2  3
Sitting, inactive in a public place (e.g. a theatre or meeting)  0  1  2  3
As a passenger in a car for an hour without a break  0  1  2  3
Lying down to rest in the afternoon when circumstances permit  0  1  2  3
Sitting and talking to someone  0  1  2  3
Sitting quietly after a lunch without alcohol  0  1  2  3
In a car, while stopped for a few minutes in the traffic  0  1  2  3
Second Day of Scan Information Questionnaire

Subject #: _____________ Date: ______________

CAFFEINE USE
Did you have any caffeine containing products today? If so, how much? __________
On average, how many cups of caffeinated coffee do you drink per day? __________
On average, how many cups of caffeinated tea do you drink per day? __________
On average, how many cans of caffeinated soda do you drink per day? __________
On average, how many caffeinated sports drinks do you drink per day? __________(brand)
Do you use any other caffeinated products, such as Vivarin? YES NO
If YES, WHAT? _______________ How much?_________ How often? _____________

NICOTINE USE
Do you smoke cigarettes? YES NO
If YES, about how many cigarettes do you smoke per day? __________
How long have you been smoking? __________ years __________ months
Have you tried to quit? YES NO
If YES, how many times? ______
If NO, did you ever smoke cigarettes in the past? YES NO
If YES, how many cigarettes did you smoke per day? __________
When did you start smoking? __________ (date)
When did you quit? __________ (date)
Do you use smokeless tobacco, such as dip or chew? YES NO
If YES, about how much do you use per day? __________
If NO, did you ever use smokeless tobacco in the past? YES NO
If YES, how much did you use per day? __________
When did you start using? __________ (year)
When did you quit? __________ (year)
Do you use any other nicotine-containing products? YES NO
If YES, WHAT? _______________ How much?_________ How often? _____________

OTHER
Do you take diet pills? YES NO
If YES, what brand? ___________ How much?_________ How often?
Are you currently taking any medications, vitamins, or supplements? YES NO
If YES, please list:
  Name: _______________ Dosage: _______________
  Name: _______________ Dosage: _______________
  Name: _______________ Dosage: _______________
  Name: _______________ Dosage: _______________
How many times per month do you drink (alcohol)?
  On those occasions, what is the average number of drinks you consume? __________
  On those occasions, what is the largest number of drinks you consume? __________
How many times in the past year have you used marijuana? __________
Have you ever used marijuana at other times in your life? YES NO
If YES, at what age did you begin smoking marijuana? __________
On approximately how many occasions have you used marijuana? __________
Do you use any other street drugs currently or in the past year?  
YES  NO

If YES, WHAT? ______________ How much?________ How often? ___________

PHYSICAL INFORMATION

If female, when was the start of your last menstrual period (be as precise as possible)?
Date of period: ______________ or about _______ days ago.

CURRENT SLEEP HABITS

How much sleep did you get last night? ___________

In the past two weeks, how much do you typically sleep on weeknights (Sun-Thur)? _________

In the past two weeks, how much do you typically sleep on weekend nights (Fri-Sat)?_________

In the past two weeks, at what time do you normally go to bed at night on:
week nights (Sun-Thur)? ________ AM    PM (midnight = 12 AM; noon = 12 PM)
weekends (Fri-Sat)? ________ AM    PM

In the past two weeks, what time do you typically awaken on:
weekdays (Mon-Fri)? ________ AM    PM
weekends (Sat-Sun)? ________ AM    PM

In the past two weeks, how long does it typically take you to fall asleep at night?
on week nights (Sun-Thur)? ________ MIN    HRS
on weekends (Fri-Sat)? ________ MIN    HRS

In the past two weeks, at what time of day do you feel sleepiest? ________ AM    PM
At what time of day do you feel most alert? ________ AM    PM

In the past two weeks, how many hours do you need to sleep to feel your best? _______

“In the past two weeks…”
“If I get less than _____ hours of sleep, I notice an impairment in my ability to function at work.”
“If I get more than ______ hours of sleep, I notice an impairment in my ability to function at work.”

In the past two weeks:

Is daytime sleepiness currently a problem for you? ..........YES  NO

Are you currently doing shift work, that is, working early morning, evening, or night shifts?...YES  NO

Do you ever have trouble falling asleep? ..................................................................................YES  NO
If yes, how often? __________ times per WEEK    MONTH    YEAR (circle one)

Do you ever have trouble staying asleep? ...................................................................................YES  NO
If yes, how often? __________ times per WEEK    MONTH    YEAR (circle one)
Do you take more than two daytime naps per month? .............................. YES  NO
If yes, about how many times per week do you nap? ..............................
At what time of day do you normally take your nap?  ____:____ AM/PM to  ____:____ AM/PM
Do you consider yourself a light, normal, or heavy sleeper? ..........LIGHT  NORMAL  HEAVY
Have you been told or do you think that you snore excessively? YES  NO
Have you ever been diagnosed or treated for sleep apnea or sleep disordered breathing? YES  NO

I yawn often
   Never  1  2  3  4  5  6  7  8  9  10  Always yawning

When I see or hear someone else yawn, I will yawn too
   Never  1  2  3  4  5  6  7  8  9  10  Every time

**RECENT RISK OF DOZING OFF (ESS)**

How likely are you to doze off or fall asleep in the following situations, in contrast to feeling just tired? This refers to your usual way of life in the last two weeks. Even if you have not done some of these things recently, try to work out how they would have affected you. Use the following scale to choose the most appropriate number for each situation:

0 = would never doze
1 = slight chance of dozing
2 = moderate chance of dozing
3 = high chance of dozing

<table>
<thead>
<tr>
<th>SITUATION</th>
<th>CHANCE OF DOZING (0-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting and reading</td>
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<td>Sitting, inactive in a public place (e.g. a theatre or meeting)</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>As a passenger in a car for an hour without a break</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Lying down to rest in the afternoon when circumstances permit</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Sitting and talking to someone</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Sitting quietly after a lunch without alcohol</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>In a car, while stopped for a few minutes in the traffic</td>
<td>0 1 2 3</td>
</tr>
</tbody>
</table>
MEQ

SUBJECT: ___________________________    DATE: _____/_____/_____

1. Considering only your own “feeling best” rhythm, at what time would you get up if you were entirely free to plan your day?
   _____ 5:00 - 6:30 AM
   _____ 6:30 - 7:45 AM
   _____ 7:45 - 9:45 AM
   _____ 9:45 - 11:00 AM
   _____ 11:00 AM - 12:00 PM

2. Considering only your own “feeling best” rhythm, at what time would you go to bed if you were entirely free to plan your evening?
   _____ 8:00 - 9:00 PM
   _____ 9:00 - 10:15 PM
   _____ 10:15 PM - 12:30 AM
   _____ 12:30 - 1:45 AM
   _____ 1:45 - 3:00 AM

3. If there is a specific time at which you have to get up in the morning, to what extent are you dependent on being woken up by an alarm clock?
   _____ not at all dependent
   _____ slightly dependent
   _____ fairly dependent
   _____ very dependent

4. Assuming adequate environmental conditions, how easy do you find getting up in the mornings?
   _____ not at all easy
   _____ not very easy
   _____ fairly easy
   _____ very easy

5. How alert do you feel during the first half hour after having woken in the mornings?
   _____ not at all alert
   _____ slightly alert
   _____ fairly alert
   _____ very alert

6. How is your appetite during the first half-hour after having woken in the mornings?
   _____ very poor
   _____ fairly poor
   _____ fairly good
   _____ very good

7. During the first half-hour after having woken in the morning, how tired do you feel?
   _____ very tired
   _____ fairly tired
   _____ fairly refreshed
   _____ very refreshed
8. When you have no commitments the next day, at what time do you go to bed compared to your usual bedtime?

_____ seldom or never later
_____ less than one hour later
_____ 1-2 hours later
_____ more than two hours later

9. You have decided to engage in some physical exercise. A friend suggests that you do this one hour twice a week and the best time for him is between 7:00-8:00 AM. Bearing in mind nothing else but your own “feeling best” rhythm how do you think you would perform?

_____ would be in good form
_____ would be in reasonable for
_____ would find it difficult
_____ would find it very difficult

10. At what time in the evening do you feel tired and as a result in need of sleep?

_____ 8:00 - 9:00 PM
_____ 9:00 - 10:15 PM
_____ 10:15 PM - 12:45 AM
_____ 12:45 - 2:00 AM
_____ 2:00 - 3:00 AM

11. You wish to be at your peak performance for a test which you know is going to be mentally exhausting and lasting for two hours. You are entirely free to plan your day and considering only your own “feeling best” rhythm which ONE of the four testing times would you choose?

_____ 8:00 - 10:00 AM
_____ 11:00 AM - 1:00 PM
_____ 3:00 - 5:00 PM
_____ 7:00 - 9:00 PM

12. If you went to bed at 11:00 PM at what level of tiredness would you be?

_____ not at all tired
_____ a little tired
_____ fairly tired
_____ very tired

13. For some reason you have gone to bed several hours later than usual, but there is no need to get up at any particular time the next morning. Which ONE of the following events are you most likely to experience?

_____ will wake up at usual time and will NOT fall asleep
_____ will wake up at usual time and will doze thereafter
_____ will wake up at usual time but will fall asleep again
_____ will NOT wake up until later than usual

14. One night you have to remain awake between 4:00 - 6:00 AM in order to carry out a night watch. You have no commitments the next day. Which ONE of the following alternatives will suit you best?

_____ would NOT go to bed until watch was over
_____ would take a nap before and sleep after
_____ would take a good sleep before and nap after
_____ would take ALL sleep before watch
15. You have to do two hours of hard physical work. You are entirely free to plan your day and considering only your own “feeling best” rhythm which ONE of the following times would you choose?

_____ 8:00 - 10:00 AM
_____ 11:00 AM - 1:00 PM
_____ 3:00 - 5:00 PM
_____ 7:00 - 9:00 PM

16. You have decided to engage in hard physical exercise. A friend suggests that you do this for one hour twice a week and the best time for him is between 10:00 - 11:00 PM. Bearing in mind nothing else but your own “feeling best” rhythm how well do you think you would perform?

_____ would be in good form
_____ would be in reasonable form
_____ would find it difficult
_____ would find it very difficult

17. Suppose that you can choose your own work hours. Assume that you worked a FIVE-hour day (including breaks) and that your job was interesting and paid by results. During which time period would you want that five consecutive hours to END?

_____ 12:00 - 4:00 AM
_____ 4:00 - 8:00 AM
_____ 8:00 - 9:00 AM
_____ 9:00 AM - 2:00 PM
_____ 2:00 - 5:00 PM
_____ 5:00 PM - 12:00 AM

18. At what time of the day do you think that you reach your “feeling best” peak?

_____ 12:00 - 5:00 AM
_____ 5:00 - 8:00 AM
_____ 8:00 - 10:00 AM
_____ 10:00 AM - 5:00 PM
_____ 5:00 - 10:00 PM
_____ 10:00 PM - 12:00 AM

19. One hears about “morning” and “evening” types of people. Which ONE of these types do you consider yourself to be?

_____ definitely a “morning” person
_____ rather more a “morning” than an “evening” type
_____ rather more an “evening” than a “morning” type
_____ definitely an “evening” type
Some people have difficulty performing everyday activities when they feel tired or sleepy. The purpose of this questionnaire is to find out if you generally have difficulty carrying out certain activities because you are too sleepy or tired. In this questionnaire, when the words “sleepy” or “tired” are used, it means the feeling that you can’t keep your eyes open, your head is droopy, that you want to “nod off”, or that you feel the urge to take a nap. These words do not refer to the tired or fatigued feeling you may have after you have exercised.

Please circle one answer for each question. Please try to be as accurate as possible.

0 – I don’t do this activity for other reasons
1 – No difficulty
2 – Yes, a little difficulty
3 – Yes, Moderate difficulty
4 – Yes, Extreme difficulty

1. Do you generally have difficulty concentrating on things you do because you are sleepy or tired?
2. Do you generally have difficulty remembering things because you are sleepy or tired?
3. Do you have difficulty finishing a meal because you become sleepy or tired?
4. Do you have difficulty working on a hobby (for example: sewing, collecting, gardening) because you are sleepy or tired?
5. Do you have difficulty doing work around the house (for example: cleaning house, doing laundry, taking out the trash, repair work) because you are sleepy or tired?
6. Do you have difficulty operating a motor vehicle for short distances (less than 100 miles) because you become sleepy or tired?
7. Do you have difficulty operating a motor vehicle for long distances (greater than 100 miles) because you become sleepy or tired?
8. Do you have difficulty getting things done because you are too sleepy or tired to drive or take public transportation?
9. Do you have difficulty take care of financial affairs and doing paperwork (for example: writing checks, paying bills, keeping financial records, filling out tax forms, etc.) because you are sleepy or tired?
10. Do you have difficulty performing employed or volunteer work because you are sleepy or tired?
11. Do you have difficulty maintaining a telephone conversation because you become sleepy or tired?
1 – No difficulty
2 – Yes, a little difficulty
3 – Yes, Moderate difficulty
4 – Yes, Extreme difficulty

12. Do you have difficulty visiting with your family or friends in your home because you become sleepy or tired? 0 1 2 3 4
13. Do you have difficulty visiting with your family or friends in their homes because you become sleepy or tired? 0 1 2 3 4
14. Do you have difficulty doing things for your family or friends because you become sleepy or tired? 0 1 2 3 4
15. Has your relationship with family, friends or work colleagues been affected because you are sleepy or tired? 0 1 2 3 4
16. Do you have difficulty exercising or participating in a sporting activity because you are too sleepy or tired? 0 1 2 3 4
17. Do you have difficulty watching a movie or videotape because you become sleepy or tired? 0 1 2 3 4
18. Do you have difficulty enjoying the theater or a lecture because you become sleepy or tired? 0 1 2 3 4
19. Do you have difficulty enjoying a concert because you become sleepy or tired? 0 1 2 3 4
20. Do you have difficulty watching television because you are sleepy or tired? 0 1 2 3 4
21. Do you have difficulty participating in religious services, meetings or a group club because you are sleepy or tired? 0 1 2 3 4
22. Do you have difficulty being as active as you want to be in the evening because you are sleepy or tired? 0 1 2 3 4
23. Do you have difficulty being as active as you want to be in the morning because you are sleepy or tired? 0 1 2 3 4
24. Do you have difficulty being as active as you want to be in the afternoon because you are sleepy or tired? 0 1 2 3 4
25. Do you have difficulty keeping a pace with others your own age because you are sleepy or tired? 0 1 2 3 4
26. How would you rate yourself in your general level of activity? 0 1 2 3 4 1= Very low; 2= Low; 3= Medium; 4= High
27. Has your intimate or sexual relationship been affected because you are sleepy or tired? 0 1 2 3 4
28. Has your desire for intimacy or sex been affected because you are sleepy or tired? 0 1 2 3 4
29. Has your ability to become sexually aroused been affected because you are sleepy or tired? 0 1 2 3 4
30. Has your ability to have an orgasm been affected because you are sleepy or tired? 0 1 2 3 4
VIII. Preferences

1. Please mark the bubble which best describes your feelings **RIGHT NOW**.

- I feel like gambling
  - not at all
  - very much

- I am driving and the light turns yellow. I feel like
  - stopping
  - accelerating

- The lights suddenly go out in an unfamiliar stairwell
  - I don’t move
  - I proceed immediately

- I feel like
  - avoiding everyone
  - taking on the world

- I feel like diving from a diving board, which is
  - very high
  - very low

- I like
  - routine
  - adventure

- I seek
  - the thrill of danger
  - tranquility

- I am in a hurry
  - I take a dangerous shortcut
  - I take a safe detour

- I am open to
  - negotiation
  - confrontation

- I prefer to
  - direct
  - be supervised

- I give priority to
  - reason
  - action

- I like to listen to music
  - at a loud volume
  - very softly

- I am sure of myself
  - not at all
  - completely

- I prefer discussions, which are
  - animated
  - calm

- A hostile situation
  - weakens me
  - reinforces me

- A menacing dog approaches
  - I confront it
  - I run away
<table>
<thead>
<tr>
<th>Statement</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faced with a potentially dangerous event</td>
<td></td>
</tr>
<tr>
<td>I take my time</td>
<td></td>
</tr>
<tr>
<td>I instantly react</td>
<td></td>
</tr>
<tr>
<td>Seeing a person who is drowning, I first</td>
<td></td>
</tr>
<tr>
<td>dive in</td>
<td></td>
</tr>
<tr>
<td>call for help</td>
<td></td>
</tr>
<tr>
<td>I prefer work that is</td>
<td></td>
</tr>
<tr>
<td>well planned</td>
<td></td>
</tr>
<tr>
<td>not planned</td>
<td></td>
</tr>
<tr>
<td>all the time</td>
<td></td>
</tr>
<tr>
<td>I am right</td>
<td></td>
</tr>
<tr>
<td>never</td>
<td></td>
</tr>
<tr>
<td>I emphasize</td>
<td></td>
</tr>
<tr>
<td>precision</td>
<td></td>
</tr>
<tr>
<td>speed</td>
<td></td>
</tr>
<tr>
<td>I like to drive</td>
<td></td>
</tr>
<tr>
<td>very fast</td>
<td></td>
</tr>
<tr>
<td>very slow</td>
<td></td>
</tr>
<tr>
<td>I like to listen to music with a tempo that is</td>
<td></td>
</tr>
<tr>
<td>very slow</td>
<td></td>
</tr>
<tr>
<td>very fast</td>
<td></td>
</tr>
<tr>
<td>I like to take risks</td>
<td></td>
</tr>
<tr>
<td>not at all</td>
<td></td>
</tr>
<tr>
<td>a lot</td>
<td></td>
</tr>
</tbody>
</table>

THANK YOU FOR COMPLETING THIS SURVEY!
Please provide any additional comments below or on the back of the survey, if needed.
Over the last 2 weeks, how often have you been bothered by any of the following problems? (use “✓” to indicate your answer)

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little interest or pleasure in doing things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Feeling down, depressed, or hopeless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Trouble falling or staying asleep, or sleeping too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Feeling tired or having little energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Poor appetite or overeating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Trouble concentrating on things, such as reading the newspaper or watching television</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. Thoughts that you would be better off dead, or of hurting yourself</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

(add columns + + )

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card). TOTAL: 

10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?  

   - Not difficult at all:  
   - Somewhat difficult:  
   - Very difficult:  
   - Extremely difficult:  

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PITTSBURGH SLEEP QUALITY INDEX

INSTRUCTIONS:
The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

1. During the past month, what time have you usually gone to bed at night?
   
   BED TIME ___________

2. During the past month, how long (in minutes) has it usually taken you to fall asleep each night?

   NUMBER OF MINUTES ___________

3. During the past month, what time have you usually gotten up in the morning?

   GETTING UP TIME ___________

4. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)

   HOURS OF SLEEP PER NIGHT ___________

For each of the remaining questions, check the one best response. Please answer all questions.

5. During the past month, how often have you had trouble sleeping because you . . .

   a) Cannot get to sleep within 30 minutes

      Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____ 

   b) Wake up in the middle of the night or early morning

      Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____ 

   c) Have to get up to use the bathroom

      Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____
d) Cannot breathe comfortably

Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

e) Cough or snore loudly

Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

f) Feel too cold

Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

g) Feel too hot

Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

h) Had bad dreams

Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

i) Have pain

Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

j) Other reason(s), please describe________________________________________________________

____________________________________________________________________________________

How often during the past month have you had trouble sleeping because of this?

Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

6. During the past month, how would you rate your sleep quality overall?

Very good ___________

Fairly good ___________

Fairly bad ___________

Very bad ___________
7. During the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")?

Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

8. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?

Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

9. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?

   No problem at all __________
   Only a very slight problem __________
   Somewhat of a problem __________
   A very big problem __________

10. Do you have a bed partner or room mate?

    No bed partner or room mate ________
    Partner/room mate in other room ________
    Partner in same room, but not same bed ________
    Partner in same bed ________

    If you have a room mate or bed partner, ask him/her how often in the past month you have had . . .

a) Loud snoring

    Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

b) Long pauses between breaths while asleep

    Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______

c) Legs twitching or jerking while you sleep

    Not during the past month______ Less than once a week______ Once or twice a week______ Three or more times a week______
d) Episodes of disorientation or confusion during sleep

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not during the past month</td>
<td></td>
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<tr>
<td>Less than once a week</td>
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<tr>
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<tr>
<td>Three or more times a week</td>
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</table>

e) Other restlessness while you sleep; please describe ____________________________

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</table>
After a head injury or accident, some people experience symptoms that can cause worry or nuisance. We would like to know if you now suffer any of the symptoms given below. Because many of these symptoms occur normally, we would like you to compare yourself now with before the accident. For each symptom listed below, please circle the number that most closely represents your answer.

0 = not experienced at all
1 = no more of a problem
2 = a mild problem
3 = a moderate problem
4 = a severe problem

Compared with **before** the accident, do you **now** (i.e., over the last 24 hours) suffer from:

<table>
<thead>
<tr>
<th>Symptom</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>Headaches</td>
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<tr>
<td>Feelings of dizziness</td>
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<td>Nausea and/or vomiting</td>
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<td>Noise sensitivity</td>
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<tr>
<td>Sleep disturbance</td>
<td></td>
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<tr>
<td>Fatigue, tiring more easily</td>
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<td>Being irritable, easily angered</td>
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<td>Feeling depressed or tearful</td>
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<td>Feeling frustrated or impatient</td>
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<td>Forgetfulness, poor memory</td>
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<td>Poor concentration</td>
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<td>Taking longer to think</td>
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<td>Blurred vision</td>
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<tr>
<td>Light sensitivity</td>
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<td>Double vision</td>
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<tr>
<td>Restlessness</td>
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</table>

Are you experiencing any other difficulties? Please specify, and rate as above.

1.   |   |   |   |   |   |
2.   |   |   |   |   |   |

**Administration only:**

<p>| |</p>
<table>
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<tbody>
<tr>
<td><strong>RPQ-3</strong> (total for first three items)</td>
</tr>
<tr>
<td><strong>RPQ-13</strong> (total for next 13 items)</td>
</tr>
</tbody>
</table>

Administration only

Individual item scores reflect the presence and severity of post concussive symptoms. Post concussive symptoms, as measured by the RPQ, may arise for different reasons subsequent to (although not necessarily directly because of) a traumatic brain injury. The symptoms overlap with broader conditions, such as pain, fatigue and mental health conditions such as depression.

The questionnaire can be repeated to monitor a patient’s progress over time. There may be changes in the severity of symptoms, or the range of symptoms. Typical recovery is reflected in a reduction of symptoms and their severity within three months.

Scoring

The scoring system has been modified from Eyres, 2005.

The items are scored in two groups. The first group (RPQ-3) consists of the first three items (headaches, feelings of dizziness and nausea) and the second group (RPQ-13) comprises the next 13 items. The total score for RPQ-3 items is potentially 0–12 and is associated with early symptom clusters of post concussive symptoms. If there is a higher score on the RPQ-3, earlier reassessment and closer monitoring is recommended.

The RPQ-13 score is potentially 0–52, where higher scores reflect greater severity of post concussive symptoms. The RPQ-13 items are associated with a later cluster of symptoms, although the RPQ-3 symptoms of headaches, dizziness and nausea may also be present. The later cluster of symptoms is associated with having a greater impact on participation, psychosocial functioning and lifestyle. Symptoms are likely to resolve within three months. A gradual resumption of usual activities is recommended during this period, appropriate to symptoms. If the symptoms do not resolve within three months, consideration of referral for specialist assessment or treatment services is recommended.

References:


INSTRUCTIONS: On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling in the PAST WEEK, INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. **Be sure to read all the statements in each group before making your choice.**

1. 0 I do not feel sad.  
   1 I feel sad.  
   2 I am sad all the time and I can't snap out of it.  
   3 I am so sad or unhappy that I can't stand it.  

2. 0 I am not particularly discouraged about the future.  
   1 I feel discouraged about the future.  
   2 I feel I have nothing to look forward to.  
   3 I feel that the future is hopeless and that things cannot improve.  

3. 0 I do not feel like a failure.  
   1 I feel I have failed more than the average person.  
   2 As I look back on my life, all I can see is a lot of failures.  
   3 I feel I am a complete failure as a person.  

4. 0 I get as much satisfaction out of things as I used to.  
   1 I don't enjoy things the way I used to.  
   2 I don't get real satisfaction out of anything anymore.  
   3 I am dissatisfied or bored with everything.  

5. 0 I don't feel particularly guilty.  
   1 I feel guilty a good part of the time.  
   2 I feel quite guilty most of the time.  
   3 I feel guilty all of the time.  

6. 0 I don't feel I am being punished.  
   1 I feel I may be punished.  
   2 I expect to be punished.  
   3 I feel I am being punished.  

7. 0 I don't feel disappointed in myself.  
   1 I am disappointed in myself.  
   2 I am disgusted with myself.  
   3 I hate myself.  

8. 0 I don't feel I am any worse than anybody else.  
   1 I am critical of myself for my weaknesses or mistakes.  
   2 I blame myself all the time for my faults.  
   3 I blame myself for everything bad that happens.  

9. 0 I don't have any thoughts of killing myself.  
   1 I have thoughts of killing myself, but I would not carry them out.  
   2 I would like to kill myself.  
   3 I would kill myself if I had the chance.
<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th></th>
<th>1</th>
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<th>2</th>
<th></th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>10</td>
<td>I don't cry any more than usual.</td>
<td>I cry more now than I used to.</td>
<td>I cry all the time now.</td>
<td>I used to be able to cry, but now I can't cry even though I want to.</td>
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<tr>
<td>11</td>
<td>I am no more irritated now than I ever am.</td>
<td>I get annoyed or irritated more easily than I used to.</td>
<td>I feel irritated all the time now.</td>
<td>I don't get irritated at all by the things that used to irritate me.</td>
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<tr>
<td>12</td>
<td>I have not lost interest in other people.</td>
<td>I am less interested in other people than I used to be.</td>
<td>I have lost most of my interest in other people.</td>
<td>I have lost all of my interest in other people.</td>
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<tr>
<td>13</td>
<td>I make decisions about as well as ever.</td>
<td>I put off making decisions more than I used to.</td>
<td>I have greater difficulty in making decisions than before.</td>
<td>I can't make any decisions at all anymore.</td>
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<tr>
<td>14</td>
<td>I don't feel I look any worse than I used to.</td>
<td>I am worried that I am looking old or unattractive.</td>
<td>I feel that there are permanent changes in my appearance that make me look unattractive.</td>
<td>I believe that I look ugly.</td>
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<tr>
<td>15</td>
<td>I can work about as well as before.</td>
<td>It takes extra effort to get started at doing something.</td>
<td>I have to push myself very hard to do anything.</td>
<td>I can't do any work at all.</td>
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<tr>
<td>16</td>
<td>I can sleep as well as usual.</td>
<td>I don't sleep as well as I used to.</td>
<td>I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.</td>
<td>I wake up several hours earlier than I used to and cannot get back to sleep.</td>
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<tr>
<td>17</td>
<td>I don't get more tired than usual.</td>
<td>I get tired more easily than I used to.</td>
<td>I get tired from doing almost anything.</td>
<td>I am too tired to do anything.</td>
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<tr>
<td>18</td>
<td>My appetite is no worse than usual.</td>
<td>My appetite is not as good as it used to be.</td>
<td>My appetite is much worse now.</td>
<td>I have no appetite at all anymore.</td>
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<tr>
<td>19</td>
<td>I haven't lost much weight, if any, lately.</td>
<td>I have lost more than 5 pounds.</td>
<td>I have lost more than 10 pounds.</td>
<td>I have lost more than 15 pounds.</td>
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<td></td>
<td>I am purposely trying to lose weight by eating less</td>
<td>YES ____</td>
<td>NO ____</td>
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<tr>
<td>20</td>
<td>I am no more worried about my health than usual.</td>
<td>I am worried about physical problems such as aches and pains, or upset stomach, or constipation.</td>
<td>I am very worried about physical problems and it's hard to think of much else.</td>
<td>I am so worried about my physical problems that I cannot think about anything else.</td>
<td></td>
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</tbody>
</table>
21.  0 I have not noticed any recent change in my interest in sex.
     1 I am less interested in sex than I used to be.
     2 I am much less interested in sex now.
     3 I have lost interest in sex completely.
The BART presents participants with 30 virtual balloons.
Each balloon can be inflated one increment for each key press.

With each key press the size of the balloon increases.
Each increment also increases the potential value of the balloon by 5 cents.
The balloon can be “cashed in” at any time and the total accumulated value retained.

Each balloon can explode at any time.
If a balloon explodes, all of the potential money accumulated for that balloon will be lost.

The goal is to maximize winnings.
Only 30 balloons are presented.
DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel right now, THAT IS, at this moment.

There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

1. I feel calm. ........................................... 1 2 3 4
2. I feel secure. ........................................... 1 2 3 4
3. I am tense ............................................. 1 2 3 4
4. I feel regretful ......................................... 1 2 3 4
5. I feel at ease ........................................... 1 2 3 4
6. I feel upset ............................................. 1 2 3 4
7. I am presently worrying over possible misfortunes. ........................................... 1 2 3 4
8. I feel rested. ........................................... 1 2 3 4
9. I feel anxious .......................................... 1 2 3 4
10. I feel comfortable ..................................... 1 2 3 4
11. I feel self-confident. ................................ 1 2 3 4
12. I feel nervous ......................................... 1 2 3 4
13. I am jittery ............................................ 1 2 3 4
14. I feel "high strung" ................................... 1 2 3 4
15. I am relaxed .......................................... 1 2 3 4
16. I feel content ......................................... 1 2 3 4
17. I am worried .......................................... 1 2 3 4
18. I feel over-excited and "rattled" ...................... 1 2 3 4
19. I feel joyful. ......................................... 1 2 3 4
20. I feel pleasant. ....................................... 1 2 3 4
STAI Form T

NAME ___________________________ DATE ___________________________

RECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you generally feel.

There are no right or wrong answers.
Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

21. I feel pleasant ........................................... 1 2 3 4

22. I tire quickly ........................................... 1 2 3 4

23. I feel like crying ........................................... 1 2 3 4

24. I wish I could be as happy as others seem to be ............. 1 2 3 4

25. I am losing out on things because I can't make up my mind soon enough ........................................... 1 2 3 4

26. I feel rested ........................................... 1 2 3 4

27. I am "calm, cool, and collected" ........................................... 1 2 3 4

28. I feel that difficulties are piling up so that I cannot overcome them ........................................... 1 2 3 4

29. I worry too much over something that really doesn't matter ........................................... 1 2 3 4

30. I am happy ........................................... 1 2 3 4

31. I am inclined to take things hard ........................................... 1 2 3 4

32. I lack self-confidence ........................................... 1 2 3 4

33. I feel secure ........................................... 1 2 3 4

34. I try to avoid facing a crises or difficulty ........................................... 1 2 3 4

35. I feel blue ........................................... 1 2 3 4

36. I am content ........................................... 1 2 3 4

37. Some unimportant thought runs through my mind and bothers me ........................................... 1 2 3 4

38. I take disappointments so keenly that I can't put them out of my mind ........................................... 1 2 3 4

39. I am a steady person ........................................... 1 2 3 4

40. I get in a state of tension or turmoil as I think over my recent concerns and interests ........................................... 1 2 3 4
Tower of London Task

Your Tower

Goal
Daily Sleep Diary

Use this sleep diary **every day** to help you track the quantity and quality of your sleep. Reflecting on the previous day, please fill out this diary during your exposure to the lightbox. If you have any questions or concerns, please call (617)-855-2239.

<table>
<thead>
<tr>
<th>Date:</th>
<th>Light box start time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed time last night   <em><strong><strong>:</strong></strong></em>  □ AM  □ PM</td>
<td>I woke up this morning feeling</td>
</tr>
<tr>
<td>Wake time this morning  <em><strong><strong>:</strong></strong></em> □ AM  □ PM</td>
<td>□ refreshed</td>
</tr>
<tr>
<td>It took me _______ (hr) _______ (min) to fall asleep</td>
<td>□ somewhat refreshed</td>
</tr>
<tr>
<td>I woke up _______ times during the night</td>
<td>□ fatigued</td>
</tr>
<tr>
<td>I took a nap from   __<strong><strong>:</strong></strong>  to  __<strong><strong>:</strong></strong>  □ N/A</td>
<td>I consumed caffeine yesterday:</td>
</tr>
<tr>
<td>Number of caffeinated beverages: __________</td>
<td>□ morning  □ afternoon  □ evening</td>
</tr>
<tr>
<td>Most of the day yesterday, I felt:</td>
<td>Yesterday my mood was:</td>
</tr>
<tr>
<td>Very sleepy 1 2 3 4 5 6 7 Very alert</td>
<td>Very poor 1 2 3 4 5 6 7 Very good</td>
</tr>
<tr>
<td>Yesterday I had problems with headache pain:</td>
<td>Yesterday I ate more than I intended to:</td>
</tr>
<tr>
<td>Not at all 1 2 3 4 5 6 7 Very severe</td>
<td>Disagree 1 2 3 4 5 6 7 Agree</td>
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<tr>
<td>Very sleepy 1 2 3 4 5 6 7 Very alert</td>
<td>Very poor 1 2 3 4 5 6 7 Very good</td>
</tr>
<tr>
<td>Yesterday I had problems with headache pain:</td>
<td>Yesterday I ate more than I intended to:</td>
</tr>
<tr>
<td>Not at all 1 2 3 4 5 6 7 Very severe</td>
<td>Disagree 1 2 3 4 5 6 7 Agree</td>
</tr>
<tr>
<td>Date:</td>
<td>Light box start time:</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Bed time last night <em><strong><strong>:</strong></strong></em>_ □ AM □ PM</td>
<td>I woke up this morning feeling □ refreshed □ somewhat refreshed □ fatigued</td>
</tr>
<tr>
<td>Wake time this morning <em><strong><strong>:</strong></strong></em>_ □ AM □ PM</td>
<td>I consumed caffeine yesterday □ morning □ afternoon □ evening</td>
</tr>
<tr>
<td>It took me _______ (hr) ______ (min) to fall asleep</td>
<td></td>
</tr>
<tr>
<td>I woke up ________ times during the night</td>
<td></td>
</tr>
<tr>
<td>I took a nap from <em><strong><strong>:</strong></strong></em>_ to <em><strong><strong>:</strong></strong></em>_ □ N/A</td>
<td></td>
</tr>
<tr>
<td>Number of caffeinated beverages: _________</td>
<td></td>
</tr>
</tbody>
</table>

**Most of the day yesterday, I felt:**

<table>
<thead>
<tr>
<th></th>
<th>Very sleepy</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Very alert</th>
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**Yesterday my mood was:**

<table>
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<th>6</th>
<th>7</th>
<th>Agree</th>
</tr>
</thead>
</table>
Curriculum Vitae

Date Prepared: January 29, 2014

Name: WILLIAM DALE (SCOTT) KILLGORE

Office Address: Neuroimaging Center
McLean Hospital
115 Mill Street
Belmont, MA 02478  United States

Work Phone: (617) 855-3166
Work Email: killgore@mclean.harvard.edu
Work FAX: (617) 855-2770
Place of Birth: Anchorage, AK

Education
1985 A.A. (Liberal Arts), San Antonio College
1985 A.A.S (Radio-TV-Film), San Antonio College
1990 B.A. (Psychology), Summa cum laude with Distinction, University of New Mexico
1992 M.A. (Clinical Psychology), Texas Tech University
1996 PH.D. (Clinical Psychology), Texas Tech University

Postdoctoral Training
08/95-07/96 Predoctoral Fellow, Clinical Psychology, Yale School of Medicine
08/96-07/97 Postdoctoral Fellow, Clinical Neuropsychology, University of OK Health Sciences Center
08/97-07/99 Postdoctoral Fellow, Clinical Neuropsychology, University of Pennsylvania Medical School
07/99-09/00 Research Fellow, Neuroimaging, McLean Hospital/ Harvard Medical School

Faculty Academic Appointments
10/00-08/02 Instructor in Psychology in the Department of Psychiatry
Harvard Medical School, Boston, MA
09/02-07/07 Clinical Instructor in Psychology in the Department of Psychiatry
Harvard Medical School, Boston, MA
08/07-10/10 Instructor in Psychology in the Department of Psychiatry
Harvard Medical School, Boston, MA
04/08- Faculty Affiliate, Division of Sleep Medicine
Harvard Medical School, Boston, MA
10/10-10/12 Assistant Professor of Psychology in the Department of Psychiatry
Harvard Medical School, Boston, MA
10/12- Associate Professor of Psychology in the Department of Psychiatry
Harvard Medical School

Appointments at Hospitals/Affiliated Institutions

10/00-08/02 Assistant Research Psychologist, McLean Hospital, Belmont, MA
08/02-07/04 Research Psychologist, Department of Behavioral Biology, Walter Reed Army Institute of Research, Silver Spring, MD
09/02-04/05 Special Volunteer, National Institute on Deafness and Other Communication Disorders (NIDCD), National Institutes of Health (NIH), Bethesda, MD
09/02-07/07 Consultant in Psychology, McLean Hospital, Belmont, MA
08/07 Research Psychologist, McLean Hospital, Belmont, MA

Other Professional Positions

11/01-08/02 First Lieutenant, Medical Service Corps, United States Army Reserve (USAR)
08/02-07/05 Captain, Medical Service Corps, United States Army
08/05-10/07 Major, Medical Service Corps, United States Army
10/07-12/12 Major, Medical Service Corps, United States Army Reserve (USAR)
08/08 Consulting Psychologist, The Brain Institute, University of Utah
07/12 Lieutenant Colonel, Medical Service Corps, United States Army Reserve (USAR)

Major Administrative Leadership Positions

Local
1988-1989 Undergraduate Teaching Assistant-Introduction to Psychology 102, University of New Mexico
1990-1991 Graduate Teaching Assistant-General Psychology 1300, Texas Tech University
1991-1992 Graduate Teaching Assistant-Psychology of Learning Laboratory 3317, Texas Tech University
2004-2007 Chief, Neurocognitive Performance Branch, Walter Reed Army Institute of Research, Silver Spring, MD
2005-2006 Neuropsychology Postdoctoral Program Training Supervisor, Walter Reed Hospital, Washington, DC
2011- Co-Director, Social, Cognitive, and Affective Neuroscience Laboratory, McLean Hospital, Belmont, MA

Committee Service

Local
2003 Scientific Review Committee, Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD
2005 Scientific Review Committee, Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD
McLean Hospital Research Committee, McLean Hospital, Belmont, MA

Regional
2005-2006 Undergraduate Honors Thesis Committee, Jessica Richards [Chairperson], University of Maryland, Baltimore County
2011 Scientific Review Committee, U.S. Army Institute of Environmental Medicine (USARIEM), Natick, MA

National
2011- National Network of Depression Centers, Military Task Group

International
2005-2006 Doctoral Thesis Committee, Belinda J. Liddell, University of Sydney, Australia

Professional Societies
1995-1997 American Psychological Association, Member
1998-2000 National Academy of Neuropsychology, Member
2012- American Academy of Sleep Medicine, Member

Grant Review Activities
National
2004 University of Alabama, Clinical Nutrition Research Center (UAB CNRC) Pilot/Feasibility Study Program Review Committee
2006 U.S. Small Business Administration, Small Business Technology Transfer (STTR) Program Review Committee
2006 Cognitive Performance Assessment Program Area Steering Committee, U.S. Army Military Operational Medicine Research Program Funding Panel
2007 Cognitive Performance Assessment Program Area Steering Committee, U.S. Army Military Operational Medicine Research Program Funding Panel
2008 United States Army Medical Research and Materiel Command (USAMRMC) Congressionally Directed Medical Research Programs (CDMRP) Extramural Grant Review Panel
2009 NIH-CSR Brain Disorders and Clinical Neuroscience N02 Member Study Conflict Section Review Panel
2009 Sleep Physiology and Fatigue Interventions Program Area Steering Committee, U.S. Army Military Operational Medicine Research Program
2011 National Science Foundation (NSF) Grant Reviewer
2012 National Science Foundation (NSF) Grant Reviewer

International
2009 Scotland, UK, Biomedical and Therapeutic Research Committee, Grant Reviewer
2010 Canada, Social Sciences and Humanities Research Council of Canada, Grant Reviewer
2011 Israel, Israel Science Foundation (ISF), Grant Reviewer
2013 Israel, Israel Science Foundation (ISF), Grant Reviewer
**Editorial Activities**

2001-2012 Reviewer, Psychological Reports  
2001-2012 Reviewer, Perceptual and Motor Skills  
2002 Reviewer, American Journal of Psychiatry  
2002-2013 Reviewer, Biological Psychiatry  
2003 Reviewer, Clinical Neurology and Neurosurgery  
2004, 2013 Reviewer, NeuroImage  
2004-2006 Reviewer, Neuropsychologia  
2004 Reviewer, Journal of Neuroscience  
2004 Reviewer, Consciousness and Cognition  
2005 Reviewer, Experimental Brain Research  
2005 Reviewer, Schizophrenia Research  
2005-2012 Reviewer, Archives of General Psychiatry  
2005 Reviewer, Behavioral Brain Research  
2005-2009 Reviewer, Human Brain Mapping  
2005-2013 Reviewer, Psychiatry Research: Neuroimaging  
2006 Reviewer, Journal of Abnormal Psychology  
2006 Reviewer, Psychopharmacology  
2006 Reviewer, Developmental Science  
2006 Reviewer, Acta Psychologica  
2006 Reviewer, Neuroscience Letters  
2006-2014 Reviewer, Journal of Sleep Research  
2006-2013 Reviewer, Physiology and Behavior  
2006-2014 Reviewer, SLEEP  
2007 Reviewer, Journal of Clinical and Experimental Neuropsychology  
2008 Reviewer, European Journal of Child and Adolescent Psychiatry  
2008 Reviewer, Judgment and Decision Making  
2008-2010 Reviewer, Aviation, Space, & Environmental Medicine  
2008 Reviewer, Journal of Psychophysiology  
2008 Reviewer, Brazilian Journal of Medical and Biological Research  
2008 Reviewer, The Harvard Undergraduate Research Journal  
2008 Reviewer, Bipolar Disorders  
2008-2013 Reviewer, Chronobiology International  
2008 Reviewer, International Journal of Obesity  
2009 Reviewer, European Journal of Neuroscience  
2009-2013 Reviewer, International Journal of Eating Disorders  
2009 Reviewer, Psychophysiology  
2009 Reviewer, Traumatology  
2009 Reviewer, Clinical Medicine: Therapeutics  
2009 Reviewer, Acta Pharmacologica Sinica  
2009 Reviewer, Collegium Antropologicum  
2009 Reviewer, Journal of Psychopharmacology  
2009-2010 Reviewer, Obesity  
2009 Reviewer, Scientific Research and Essays  
2009 Reviewer, Child Development Perspectives  
2009-2010 Reviewer, Personality and Individual Differences  
2009-2010 Reviewer, Noise and Health  
2009-2010 Reviewer, Sleep Medicine
2010  Reviewer, Nature and Science of Sleep
2010  Reviewer, Psychiatry and Clinical Neurosciences
2010  Reviewer, Learning and Individual Differences
2010  Reviewer, Cognitive, Affective, and Behavioral Neuroscience
2010  Reviewer, BMC Medical Research Methodology
2010-2011  Reviewer, Journal of Adolescence
2010-2012  Reviewer, Brain Research
2011  Reviewer, Brain
2011  Reviewer, Social Cognitive and Affective Neuroscience
2011  Reviewer, Journal of Traumatic Stress
2011  Reviewer, Social Neuroscience
2011  Reviewer, Brain and Cognition
2011  Reviewer, Frontiers in Neuroscience
2011-2012  Reviewer, Sleep Medicine Reviews
2012  Reviewer, Journal of Experimental Psychology: General
2012  Reviewer, Ergonomics
2012  Reviewer, Behavioral Sleep Medicine
2012  Reviewer, Neuropsychology
2012  Reviewer, Emotion
2012  Reviewer, JAMA
2012  Reviewer, BMC Neuroscience
2012  Reviewer, Cognition and Emotion
2012  Reviewer, Journal of Behavioral Decision Making
2012  Reviewer, Psychosomatic Medicine
2012-2013  Reviewer, PLoS One
2012  Reviewer, American Journal of Critical Care
2013  Reviewer, Experimental Psychology
2013  Reviewer, Clinical Interventions in Aging
2013  Reviewer, Frontiers in Psychology
2013  Reviewer, Brain Structure and Function
2013  Reviewer, Appetite
2013  Reviewer, JAMA Psychiatry

**Other Editorial Roles**

2009-  Editorial Board Member  International Journal of Eating Disorders
2012-  Editor  Datasets in Neuroscience
2012-  Editor  Datasets in Medicine
2012-  Editor  Journal of Sleep Disorders: Treatment and Care

**Honors and Prizes**

1990  Outstanding Senior Honors Thesis in Psychology, University of New Mexico
1990-1995  Maxey Scholarship in Psychology, Texas Tech University
2001  Rennick Research Award, Co-Authored Paper, International Neuropsychological Society
2002  Honor Graduate, AMEDD Officer Basic Course, U.S. Army Medical Department Center and School
2002  Lynch Leadership Award Nominee, AMEDD Officer Basic Course, U.S. Army Medical Department Center and School
2003  Outstanding Research Presentation Award, 2003 Force Health Protection Conference, U.S. Army Center for Health Promotion and Preventive Medicine
2005  Edward L. Buescher Award for Excellence in Research by a Young Scientist, Walter Reed Army Institute of Research (WRAIR) Association
2009  Merit Poster Award, International Neuropsychological Society
2009  Outstanding Research Presentation Award, 2009 Force Health Protection Conference, U.S. Army Center for Health Promotion and Preventive Medicine
2010  Best Paper Award, Neuroscience, 27th U.S. Army Science Conference
2011  Published paper included in *Best of Sleep Medicine 2011*
2011  Blue Ribbon Finalist, 2011 Top Poster Award in Clinical and Translational Research, Society of Biological Psychiatry
2012  Defense Advance Research Projects Agency (DARPA) Young Faculty Award in Neuroscience

**Report of Funded and Unfunded Projects**

**Funding Information**

**Past**

N.I.H., 1R03HD41542-01
P.I.: Killgore ($79,000.)

U.S. Army Medical Research and Materiel Command (USAMRMC) Competitive Medical Research Proposal Program (CMRP),
P.I.: Killgore (Total Award: $1,345,000.)

2004-2005  Sleep/wake Schedules in 3ID Aviation Brigade Soldiers.
Defense Advanced Research Projects Agency (DARPA)
P.I.: Killgore (Total Award: $60,000.)

2005-2006  Functional Neuroimaging Studies of Neural Processing Changes with Sleep and Sleep Deprivation.
U.S. Army Medical Research and Materiel Command (USAMRMC) Task Area C (Warfighter Judgment and Decision Making) Program Funding
P.I.: Killgore (Total Award: $219,400.)

2006-2007  Establishing Normative Data Sets for a Series of Tasks to Measure the Cognitive Effects of Operationally Relevant Stressors.
U.S. Army Medical Research and Materiel Command (USAMRMC) Task Area C (Warfighter Judgment and Decision Making) Program Funding,
P.I.: Killgore  (Total Award: $154,000.)
2006-2007 Military Operational Medicine Research Program (MOM-RP), Development of the Sleep History and Readiness Predictor (SHARP).
U.S. Army Medical Research and Materiel Command (USAMRMC)
P.I.: Killgore (Total Award:$291,000.)

Current
U.S. Army Medical Research and Materiel Command (USAMRMC),
P.I.: Killgore (Total Award: $551,961.)
Major Goal: To identify the neurobiological basis of cognitive and emotional intelligence using functional and structural magnetic resonance imaging.

2011-2014 Effects of Bright Light Therapy on Sleep, Cognition, and Brain Function following Mild Traumatic Brain Injury.
U.S. Army Medical Research and Materiel Command (USAMRMC),
P.I.: Killgore  (Total Award: $941,924)
Major Goal: To evaluate the effectiveness of morning exposure to bright light as a treatment for improving in sleep patterns among individuals with post-concussive syndrome. Effects of improved sleep on recovery due to this treatment will be evaluated using neurocognitive testing as well as functional and structural neuroimaging.

2012-2015 Internet Based Cognitive Behavioral Therapy Effects on Depressive Cognitions and Brain function.
U.S. Army Medical Research and Materiel Command (USAMRMC),
Co-PI: Killgore (Total Award: $1,646,045)
Major Goal: To evaluate the effectiveness of an internet-based cognitive behavioral therapy treatment program on improving depressive symptoms, coping and resilience skills, cognitive processing and functional brain activation patterns within the prefrontal cortex.

2012-2014 Multimodal Neuroimaging to Predict Cognitive Resilience Against Sleep Loss
Defense Advance Research Projects Agency (DARPA) Young Faculty Award in Neuroscience
P.I.: Killgore (Total Award: $445,531)
Major Goal: To combine several neuroimaging techniques, including functional and structural magnetic resonance imaging, diffusion tensor imaging, and magnetic resonance spectroscopy to predict individual resilience to 24 hours of sleep deprivation.

2012-2016 A Model for Predicting Cognitive and Emotional Health from Structural and Functional Neurocircuitry following Traumatic Brain Injury
Congressionally Directed Medical Research Program (CDMRP), Psychological Health/Traumatic Brain Injury (PH/TBI) Research Program: Applied Neurotrauma Research Award.
P.I.: Killgore (Total Award: $2,272,098)
Major Goal: To evaluate the relation between axonal damage and neurocognitive performance in patients with traumatic brain injury at multiple points over the recovery trajectory, in order to predict recovery.

2012-2014 Neural Mechanisms of Fear Extinction Across Anxiety Disorders
NIH NIMH
Site Subcontract PI: Killgore (Subcontract Award: $505,065)
Major Goal: To examine the neurocircuitry involved in fear conditioning, extinction, and extinction recall across several major anxiety disorders.

P.I.: Killgore (Total Award: $1,853,921)
Major Goal: To verify the effectiveness of morning exposure to bright light as a treatment for improving in sleep patterns, neurocognitive performance, brain function, and brain structure among individuals with a recent mild traumatic brain injury.

Report of Local Teaching and Training
Laboratory and Other Research Supervisory and Training Responsibilities

2005-2006 1 Fellow for 250 hrs/year, Neuropsychology Postdoctoral Research Training Program Supervisor, Walter Reed Hospital

2011- 2 Fellows for 2080 hrs/year, Harvard Research Fellow Supervisor, McLean Hospital

Formally Supervised Trainees

1997-1999  David Glahn, Ph.D. Associate Professor, Yale University School of Medicine
Provided mentorship in clinical neuropsychological assessment and research at the University of Pennsylvania Hospital, which resulted in the development of a new psychometric test, 1 co-authored published conference abstract, and 1 co-authored published journal article.

1997-1999  Daniel Casasanto, Ph.D. Senior Scientist/Lecturer, Max Plank Institute for Psycholinguistics
Supervised this trainee while at the University of Pennsylvania Hospital, which resulted in the development of a new psychometric test, 9 co-authored published conference abstracts, and 5 co-authored published journal articles.

2002-2005  Alexander Vo, Ph.D. Associate Professor, UTMB; Vice President, Electronically Mediated Services, Colorado Access
Served as one of his research mentors at the Walter Reed Army Institute of Research, which resulted in 3 co-authored published conference abstracts, and 3 co-authored published journal articles.

2002-2007  Rebecca Reichardt, M.A. Human Subjects Protection Scientist, USAMRMC
Supervised her research training in my lab at the Walter Reed Army Institute of Research, which resulted in 10 co-authored published conference abstracts, and 2 co-authored published journal articles.

2003-2004  Stan Liu, M.D. Medical Intern, Johns Hopkins Medical School
Supervised his research training in my lab at the Walter Reed Army Institute of Research, which primarily involved training in neuropsychological assessment and sleep research methods.

2003-2004  Neil Arora, B.A. Student, Yale University
Supervised his research project in my lab at the Walter Reed Army Institute of Research
and NIH, which primarily involved training in brain imaging analysis and led to 2 co-authored published conference abstracts.

2003-2005  
Nancy Grugle, Ph.D.  Assistant Professor, Cleveland State University  
Supervised her Doctoral Dissertation research project in my lab at the Walter Reed Army Institute of Research, which resulted in 23 co-authored published conference abstracts, and 10 co-authored published journal articles.

2003-2005  
Joshua Bailey, B.A.  Seminary Student  
Supervised his computer programming development and research in my lab at the Walter Reed Army Institute of Research, which resulted in 1 co-authored published conference abstract, and 1 co-authored computer analysis package submitted for U.S. patent.

2003-2005  
Athena Kendall, M.A.  Lab Manager, Walter Reed Army Medical Center  
Supervised part of her masters degree research project and other research work in my lab at the Walter Reed Army Institute of Research, which resulted in 23 co-authored published conference abstracts, and 10 co-authored published journal articles.

2003-2006  
Lisa Day, M.S.W.  Clinical Social Worker, Washington D.C.  
Supervised her research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 4 co-authored published conference abstracts, and 4 co-authored published journal articles.

2004-2005  
Merica Shepherd, B.A.  Laboratory Coordinator  
Supervised her research training in my lab at the Walter Reed Army Institute of Research, which primarily involved training in neuropsychological assessment and sleep research methods.

2004-2005  
Cynthia Hawes, B.A.  Research Program Coordinator  
Supervised her research training in my lab at the Walter Reed Army Institute of Research, which primarily involved training in neuropsychological assessment and sleep research methods.

2004-2006  
Christopher Li, B.A.  Graduate Student  
Supervised his research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 3 co-authored published conference abstracts, and 1 co-authored published journal article.

2004-2007  
Jessica Richards, M.S.  Ph.D. Student, University of Maryland College Park  
Served as Chair of her Senior Honors Thesis Committee and supervised her research work in my lab at the Walter Reed Army Institute of Research, which resulted in 8 co-authored published conference abstracts, a senior honors thesis, and 2 co-authored published journal articles.

2004-2007  
Erica Lipizzi, M.A.  Graduate Student, Emory University  
Supervised her research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 16 co-authored published conference abstracts, and 12 co-authored published journal articles.

2004-2007  
Brian Leavitt, B.S.  Research Technician, Walter Reed Army Institute of Research  
Supervised his research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 4 co-authored published conference abstracts, and 1 co-authored published journal article.

2004-2007  
Rachel Newman, M.S.  Senior Laboratory Manager, Walter Reed  
Supervised her research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 6 co-authored published conference abstracts, and 1 co-authored published journal article.
2004-2007  Alexandra Krugler, B.S.  Medical Student, Louisiana State University
Supervised her research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 5 co-authored published conference abstracts, and 1 co-authored published journal article.

Supervised her research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 4 co-authored published conference abstracts, and 1 co-authored published journal article.

2005-2006  Nathan Huck, PH.D.  Clinical Neuropsychologist, Walter Reed Army Institute of Research
Served as his post-doctoral research training supervisor at the Walter Reed Army Institute of Research, which resulted in 1 co-authored published conference abstract and 1 co-authored published journal article.

2005-2006  Ellen Kahn-Greene, Ph.D.  Post-Doctoral Fellow, Boston VA
Supervised her research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 7 co-authored published conference abstracts and 5 co-authored published journal articles.

2005-2006  Alison Muckle, B.A.  Research Technician
Supervised her research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 1 co-authored published conference abstract and 1 co-authored published journal article.

2005-2006  Christina Murray, B.S.  Medical Student, Drexel University
Supervised her research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 2 co-authored published conference abstracts.

2005-2007  Gautham Ganesan, M.D.  Medical Student, UC Irvine
Supervised his research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 1 co-authored published conference abstract and 1 co-authored published journal article.

2005-2007  Dante Picchioni, Ph.D.  Research Psychologist, Walter Reed Army Institute of Research
Supervised part of his post-doctoral brain imaging research training at the Walter Reed Army Institute of Research, which resulted in 1 co-authored published conference abstract and 1 co-authored published journal article.

2006-2007  Tracy Rupp, Ph.D.  Research Psychologist, Walter Reed Army Institute of Research
Supervised part of her post-doctoral sleep research training at the Walter Reed Army Institute of Research, which resulted in 17 co-authored conference abstracts and 2 co-authored published journal articles.

2006-2007  Kacie Smith, B.A.  Study Manager, Walter Reed Army Institute of Research
Supervised her research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 7 co-authored published conference abstracts.

2006-2007  Shane Smith, B.S.  Medical Student, University of the West Indies
Served as his research mentor at the Walter Reed Army Institute of Research, which primarily involved training in neuropsychological assessment and sleep research methods.

2006-2007  Shanelle McNair  Research Technician, Walter Reed Army Institute of Research
Supervised her research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 1 co-authored published article.
2006-2007  George Watlington  Research Technician, Walter Reed Army Institute of Research
Supervised his research training and work in my lab at the Walter Reed Army Institute of Research, which resulted in 1 co-authored published article.

2008  Grady O’Brien  Undergraduate Student
Served as his summer volunteer research mentor at McLean Hospital, which resulted in 1 oral research presentation.

2008-2009  Alex Post  Undergraduate Student, Carnegie Mellon University
Served as his summer volunteer research mentor at McLean Hospital, which resulted in 2 oral research presentations and 1 co-authored published abstract.

2008-2009  Lauren Price, B.A.  Senior Clinical Research Assistant, McLean Hospital
Supervised her research training and work in my lab at the McLean Hospital, which resulted in 11 co-authored published conference abstracts and 4 co-authored published articles.

2009-2013  Zachary Schwab, B.S.  Medical Student, University of Kansas
Supervised his research training and work in my lab at the McLean Hospital, which resulted in 79 co-authored published conference abstracts and 15 co-authored published articles.

2009-2011  Melissa Weiner, B.S.  Graduate Student, Yale School of Public Health
Supervised her research training and work in my lab at the McLean Hospital, which resulted in 35 co-authored published conference abstracts and 7 co-authored published articles.

2010-2011  Norah Simpson, Ph.D.  Post-Doctoral Fellow, Beth Israel Deaconess/Harvard Medical School
Served as a research mentor on her federal K-Award grant application.

2010-2012  Vincent Capaldi, M.D.  Medical Resident, Walter Reed Army Medical Ctr.
Served as his post-doctoral research mentor, which resulted in 1 co-authored published conference abstract and 2 co-authored published articles.

2010-2011  Christina Song  Undergraduate Student, Smith College
Served as her summer volunteer research mentor at McLean Hospital, which resulted in 1 co-authored published abstract.

2011  Jill Kizielewicz  Undergraduate Student, Hamilton College
Served as her summer volunteer research mentor at McLean Hospital, which resulted in 1 co-authored published abstract.

2011-2013  Sophie DelDonno, B.A.  Doctoral Student, University of Illinois, Chicago
Supervised her research training and work in my lab at the McLean Hospital, which resulted in 34 co-authored published conference abstracts and 9 co-authored published articles.

2011-   Maia Kipman, B.A.  Research Assistant, McLean Hospital
Supervised her research training and work in my lab at the McLean Hospital, which resulted in 42 co-authored published conference abstracts and 10 co-authored published articles.

2011  Michael Covell, B.A.  Graduate Student, Baruch College
Served as one of his research mentors at McLean Hospital, which resulted in 4 co-authored published conference abstracts, and 1 co-authored published article.

2011-   Mareen Weber, Ph.D.  Instructor, Harvard Medical School
Supervised her post-doctoral research training and work in my lab at the McLean Hospital, which has resulted in 49 co-authored published conference abstracts, 15 co-authored
published articles, 1 co-authored book chapter, 1 travel award, five federal grant submissions, and 2 successfully funded grants.

2012- Julia Cohen, Ph.D.  Post-Doctoral Fellow, Harvard Medical School
Served as one of her research mentors at McLean Hospital, which resulted in 6 co-authored published conference abstracts and 1 peer-reviewed publication.

2012- Christian Webb, Ph.D.  Post-Doctoral Fellow, Harvard Medical School
Currently supervising his post-doctoral research training and work in my lab at the McLean Hospital, which has resulted in 9 co-authored published conference abstracts and 6 peer-reviewed publications.

2012- Hannah Gogel, B.S.  Research Assistant, McLean Hospital
Supervised her research training and work in my lab at the McLean Hospital, which resulted in 21 co-authored published conference abstracts and 4 co-authored published articles.

2012- Olga Tkachenko, A.B.  Research Assistant, McLean Hospital
Supervised her research training and work in my lab at the McLean Hospital, which resulted in 23 co-authored published conference abstracts and 4 co-authored published articles.

2012- Lilly Preer, B.A.  Research Assistant, McLean Hospital
Supervised her research training and work in my lab at the McLean Hospital, which resulted in 22 co-authored published conference abstracts and 3 co-authored published articles.

2012-2013 Elizabeth Mundy, Ph.D  Postdoctoral Fellow, Harvard Medical School
Supervised her post-doctoral research training and work in my lab at the McLean Hospital, which resulted in 3 co-authored published conference abstracts and 2 co-authored published articles.

2012- John S. Bark, B.A.  Lab Volunteer, McLean Hospital
Supervised his research training and work in my lab at the McLean Hospital, which resulted in 5 co-authored published conference abstracts, and 2 co-authored published articles.

2013- Shreya Divatia, B.S.  Research Assistant, McLean Hospital
Supervised her research training and work in my lab at the McLean Hospital, which resulted in 9 co-authored published conference abstracts.

2013- Lauren Demers, B.A.  Research Assistant, McLean Hospital
Supervised her research training and work in my lab at the McLean Hospital, which resulted in 10 co-authored published conference abstracts.

2013- Jiaolong Cui, Ph.D  Postdoctoral Fellow, Harvard Medical School
Supervised his post-doctoral research training and work in my lab at the McLean Hospital, which resulted in 9 co-authored published conference abstracts.

2013- Allison Jorgensen  Lab Volunteer, McLean Hospital
Supervised her research training and work in my lab at the McLean Hospital, which resulted in 2 co-authored published conference abstracts.

Local Invited Presentations

2000 The Neurobiology of Emotion in Children, McLean Hospital
Lecturer: 30 participants, 2 hours contact time per year, 10 hours prep time per year. [Invited Lecture]
2001  The Neurobiology of Emotion in Children and Adolescents, McLean Hospital
Lecturer: 60 participants, 2 hours contact time per year, 10 hours prep time per year.
[Invited Lecture]

2001  Using Functional MRI to Study the Developing Brain, Judge Baker Children's Center
Lecturer: 8 participants, 2 hours contact time per year, 10 hours prep time per year [Invited Seminar]

2005  Briefing to the Chairman of the Congressional Committee on Strategies to Protect the
Health of Deployed U.S. Forces, John H. Moxley, on the Optimization of Judgment and
Decision Making Capacities in Soldiers Following Sleep Deprivation, Walter Reed Army
Institute of Research, Washington, DC [Invited Lecture]

2005  Lecture on Functional Neuroimaging, Cognitive Assessment, and the Enhancement of
Soldier Performance, Walter Reed Army Institute of Research, Washington, DC [Invited Lecture]

2006  Lecture on Optimization of Judgment and Decision Making Capacities in Soldiers
Following Sleep Deprivation, Brain Imaging Center, McLean Hospital, Belmont MA
[Invited Lecture]

2006  Briefing to the Chairman of the Cognitive Performance Assessment Program Area
Steering Committee, U.S. Army Military Operational Medicine Research Program,
entitled Optimization of Judgment and Decision Making Capacities in Soldiers
Following Sleep Deprivation, Walter Reed Army Institute of Research [Invited Lecture]

2010  Lecture on Patterns of Cortico-Limbic Activation Across Anxiety Disorders, Center for
Anxiety, Depression, and Stress, McLean Hospital, Belmont, MA [Invited Lecture]

2010  Lecture on Cortico-Limbic Activation Among Anxiety Disorders, Neuroimaging Center,
McLean Hospital, Belmont, MA [Invited Lecture]

2011  Lecture on Shared and Differential Patterns of Cortico-Limbic Activation Across
Anxiety Disorders, McLean Research Day Brief Communications, McLean Hospital,
Belmont, MA  [Invited Lecture]

2012  Briefing to GEN (Ret) George Casey Jr., former Chief of Staff of the U.S. Army,
entitled Research for the Soldier.  McLean Hospital, Belmont, MA. [Invited Lecture]

Report of Regional, National and International Invited Teaching and
Presentations

Invited Presentations and Courses

Regional

2002  Cortico-Limbic Activation in Adolescence and Adulthood, Youth Advocacy Project,
Cape Cod, MA
Lecturer: 45 participants, 2 hours contact time per year, 10 hours prep time per year
[Invited Lecture]


2007 Lecture on Cerebral Responses During Visual Processing of Food, U.S. Army Institute of Environmental Medicine, Natick, MA[Invited Lecture]


2008 Lecture on Sleep Deprivation, Executive Function, and Resilience to Sleep Loss; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2008 Lecture on the Role of Research Psychology in the Army; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2008 Lecture on Combat Stress Control: Basic Battlemind Training; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2009 Lecture entitled Evaluate a Casualty, Prevent Shock, and Prevent Cold Weather injuries; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2009 Lecture on Combat Exposure and Sleep Deprivation Effects on Risky Decision-Making; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2009 Lecture on the Sleep History and Readiness Predictor (SHARP); 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2009 Lecture on The Use of Actigraphy for Measuring Sleep in Combat and Military Training; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2010 Lecture entitled Casualty Evaluation; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2010 Lecture entitled Combat Stress and Risk-Taking Behavior Following Deployment; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2010 Lecture entitled Historical Perspectives on Combat Medicine at the Battle of Gettysburg; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2010 Lecture entitled Sleep Loss, Stimulants, and Decision-Making; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]
2010 Lecture entitled PTSD: New Insights from Brain Imaging; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2011 Lecture entitled Effects of bright light therapy on sleep, cognition and brain function after mild traumatic brain injury; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2011 Lecture entitled Laboratory Sciences and Research Psychology in the Army; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2011 Lecture entitled Tools for Assessing Sleep in Military Settings; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2011 Lecture entitled The Brain Basis of Emotional Trauma and Practical Issues in Supporting Victims of Trauma, U.S. Department of Justice, United States Attorneys Office, Serving Victims of Crime Training Program, Holyoke, MA [Invited Lecture]

2011 Lecture entitled The Brain Altering Effects of Traumatic Experiences; 105th Reinforcement Training Unit (RTU), U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2012 Lecture entitled Sleep Loss, Caffeine, and Military Performance; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2012 Lecture entitled Using Light Therapy to Treat Sleep Disturbance Following Concussion; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2013 Lecture entitled Brain Responses to Food: What you See Could Make you Fat; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

2013 Lecture entitled Predicting Resilience Against Sleep Loss; 105th IMA Detachment, U.S. Army Reserve Center, Boston, MA [Invited Lecture]

National

2000 Lecture on the Neurobiology of Emotional Development in Children, 9th Annual Parents as Teachers Born to Learn Conference, St. Louis, MO [Invited Lecture]


2004 Lecture on the Regional Cerebral Blood Flow Correlates of Electroencephalographic Activity During Stage 2 and Slow Wave Sleep: An H215O PET Study: Presented at the Bi-Annual 71F Research Psychology Short Course, Ft. Detrick, MD, U.S. Army Medical
2004  Oral Platform Presentation: Regional cerebral metabolic correlates of
electroencephalographic activity during stage-2 and slow-wave sleep: An H215O PET
Study, 18th Associated Professional Sleep Societies Annual Meeting, Philadelphia, PA.

2005  Lecture on The Sleep History and Readiness Predictor: Presented to the Medical
Research and Materiel Command, Ft. Detrick, MD [Invited Lecture]

2006  Lecture on The Sleep History and Readiness Predictor: Presented at the Bi-
Annual 71F Research Psychology Short Course, Ft. Rucker, AL, U.S. Army
Medical Research and Materiel Command [Invited Lecture]

2007  Lecture on the Effects of Fatigue and Pharmacological Countermeasures on
Judgment and Decision-Making, U.S. Army Aeromedical Research Laboratory,
Fort Rucker, AL [Invited Lecture]

2008  Lecture on the Validation of Actigraphy and the SHARP as Methods of
Measuring Sleep and Performance in Soldiers, U.S. Army Aeromedical Research
Laboratory, Fort Rucker, AL [Seminar]

2009  Lecture on Sleep Deprivation, Executive Function, and Resilience to Sleep Loss:
Walter Reed Army Institute of Research AIBS Review, Washington DC [Invited
Lecture]

2009  Lecture Entitled: Influences of Combat Exposure and Sleep Deprivation on Risky
Decision-Making, Evans U.S. Army Hospital, Fort Carson, CO [Invited Lecture]

2009  Lecture on Making Bad Choices: The Effects of Combat Exposure and Sleep
Deprivation on Risky Decision-Making, 4th Army, Division West, Quarterly
Safety Briefing to the Commanding General and Staff, Fort Carson, CO [Invited
Lecture]

2009  Symposium on Sleep Deprivation, Judgment, and Decision-Making, 23rd Annual
Meeting of the Associated Professional Sleep Societies, Seattle, WA [Invited
Lecture]

2009  Symposium Session Moderator: Workshop on Components of Cognition and
Fatigue: From Laboratory Experiments to Mathematical Modeling and
Operational Applications, Washington State University, Spokane, WA [Invited
Speaker]

2009  Lecture on Comparative Studies of Stimulant Action as Countermeasures for
Higher Order Cognition and Executive Function Impairment that Results from
Disrupted Sleep Patterns, Presented at the NIDA-ODS Symposium entitled:
Caffeine: Is the Next Problem Already Brewing, Rockville, MD [Invited Lecture]

2010  Oral Platform Presentation: Sleep deprivation selectively impairs emotional
aspects of cognitive functioning, 27th Army Science Conference, Orlando, FL.

2010 Oral Platform Presentation: Exaggerated amygdala responses to masked fearful faces are specific to PTSD versus simple phobia, 27th Army Science Conference, Orlando, FL.

2011 Lecture Entitled: The effects of emotional intelligence on judgment and decision making, Military Operational Medicine Research Program Task Area C, R & A Briefing, Walter Reed Army Institute of Research, Silver Spring, MD [Invited Lecture]

2011 Lecture Entitled: Effects of bright light therapy on sleep, cognition, brain function, and neurochemistry following mild traumatic brain injury, Military Operational Medicine Research Program Task Area C, R & A Briefing, Walter Reed Army Institute of Research, Silver Spring, MD [Invited Lecture]

2012 Oral Symposium Presentation: Shared and distinctive patterns of cortico-limbic activation across anxiety disorders, 32nd Annual Conference of the Anxiety Disorders Association of America, Arlington, VA.

2012 Lecture Entitled: Effects of bright light therapy on sleep, cognition, brain function, and neurochemistry following mild traumatic brain injury, Military Operational Medicine Research Program In Progress Review (IPR) Briefing, U.S. Army Medical Research and Materiel Command, Fort Detrick, MD [Invited Lecture]

2013 Lecture entitled Brain responses to visual images of food: Could your eyes be the gateway to excess? Presented to the NIH Nutrition Coordinating Committee and the Assistant Surgeon General of the United States, Bethesda, MD [Invited Lecture]

2013 Lecture Entitled: Update on the Effects of Bright light therapy on sleep, cognition, brain function, and neurochemistry following mild traumatic brain injury, Military Operational Medicine Research Program In Progress Review (IPR) Briefing, U.S. Army Medical Research and Materiel Command, Fort Detrick, MD [Invited Lecture]

2013 Lecture Entitled: Internet Based Cognitive Behavioral Therapy: Effects on Depressive Cognitions and Brain Function, Military Operational Medicine Research Program In Progress Review (IPR) Briefing, U.S. Army Medical Research and Materiel Command, Fort Detrick, MD [Invited Lecture]

2013 Symposium Entitled: Predicting Resilience Against Sleep Loss, United States Military Academy at West Point, West Point, NY [Invited Symposium].

International

1999 Oral Platform Presentation: Functional MRI lateralization during memory encoding
predicts seizure outcome following anterior temporal lobectomy, 27th Annual Meeting of the International Neuropsychological Society, Boston, MA.

2001 Oral Platform Presentation: Sex differences in functional activation of the amygdala during the perception of happy faces, 29th Annual Meeting of the International Neuropsychological Society, Chicago, IL.

2002 Oral Platform Presentation: Developmental changes in the lateralized activation of the prefrontal cortex and amygdala during the processing of facial affect, 30th Annual Meeting of the International Neuropsychological Society, Toronto, Ontario, Canada.


2008 Lecture on Sleep Deprivation, Executive Function, & Resilience to Sleep Loss, First Franco-American Workshop on War Traumatism, IMNSSA, Toulon, France [Invited Lecture]

2012 Oral Platform Presentation: Shared and unique patterns of cortico-limbic activation across anxiety disorders. 40th Meeting of the International Neuropsychological Society, Montreal, Canada.

Report of Clinical Activities and Innovations

Current Licensure and Certification
2001- Clinical Psychologist, New Hampshire

Practice Activities
1991- Psychology, Clinical, Psychology Clinic, Texas Tech University, Lubbock, TX
1995 Clinical Activity Description: Provided psychotherapy and other supervised psychological services for a broad spectrum of client problems. Duties included regular therapy contacts with four to eight clients per week for approximately four years. Clients ranged in age from preschool through middle age. Clinical responsibilities included intake evaluations, formal testing and assessment, case formulation and treatment plan development, and delivery of a wide range of psychotherapy services including crisis intervention, behavior modification, short-term cognitive restructuring, and long-term psychotherapy.
Patient Load: 6/week

1993- Psychology, Neuropsychology, Methodist Hospital Rehabilitation Institute, Lubbock, TX
1995 Clinical Activity Description: A two year placement consisting of two days per week within a
large rehabilitation unit of a major regional medical center. Responsibilities included administration, scoring, and writing of neuropsychological assessments/reports, primarily emphasizing the Halstead-Reitan Neuropsychological Battery. Assessment services were provided on both inpatient and outpatient basis.

**Patient Load:** 2/week

1995-1996  
Psychology, Neuropsychology, Yale University School of Medicine, Connecticut Mental Health Center  
**Clinical Activity Description:** Neuropsychological and psychodiagnostic assessment of chronic and severe mentally ill patients. Duties included patient interviewing, test administration, scoring, interpretation, and report writing. Assessment and consultation services were provided for both the inpatient and outpatient units.  
**Patient Load:** 2/week

1995-1996  
Psychology, Clinical, Yale University School of Medicine, West Haven Mental Health Clinic  
**Clinical Activity Description:** Provided short-term, long-term, and group psychotherapy services, consultation, and psychological assessments for adults, children, and families. Duties also included co-leading a regular outpatient group devoted to treatment of moderate to severe personality disorders.  
**Patient Load:** 12/week

1996-1997  
Psychology, Neuropsychology, University of Oklahoma Health Sciences Center  
**Clinical Activity Description:** Full-time placement in the Neuropsychological Assessment Laboratory, which meets INS/Division 40 guidelines for post-doctoral training in clinical neuropsychology. Responsibilities included comprehensive neuropsychological assessment and consultation services, including test administration, scoring, interpretation, and report writing. Regular outpatient psychotherapy was also provided for approximately two patients per week.  
**Patient Load:** 4/week

1997-1999  
Psychology, Neuropsychology, University of Pennsylvania Medical Center  
**Clinical Activity Description:** Full-time two-year placement in the Department of Neurology, which meets INS/Division 40 guidelines for post-doctoral training in clinical neuropsychology. Responsibilities included neuropsychological assessment, consultation, and psychotherapy services for the Departments of Neurology and Neurosurgery.  
**Patient Load:** 3/week

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**Report of Education of Patients and Service to the Community**

**Recognition**

2003-2007  
Who's Who in America, Marquis Who's Who

2004-2005  
Who's Who in Medicine and Healthcare, Marquis Who's Who
Report of Scholarship

Publications

Peer reviewed publications in print or other media

A) Research Investigations:


13. **Killgore WD.** Sex differences in identifying the facial affect of normal and mirror-reversed


27. **Killgore WD**, Yurgelun-Todd DA. Body mass predicts orbitofrontal activity during visual...


56. **Killgore WD**, Richards JM, Killgore DB, Kamimori GH, Balkin TJ. The trait of Introversion-


95. Killgore, WD, Schwab, ZJ, Kipman, M, DelDonno, SR, & Weber, M. Insomnia-related


107. Killgore, WD, Olson, EA, & Weber, M. Physical exercise habits correlate with gray matter
volume of the hippocampus in healthy humans. Scientific Reports (in press).


B) Other Peer Reviewed Publications


Non-peer reviewed scientific or medical publications/materials in print or other media

Reviews/Chapters/Editorials


**Published U.S. Government Technical Reports**


**Professional educational materials or reports, in print or other media**
1. **Killgore, WD, & Bailey, JD.** Sleep History And Readiness Predictor (SHARP). Silver Spring, MD: Walter Reed Army Institute of Research; 2006. Computer program for predicting cognitive status based on actigraphically recorded sleep history. Patent Pending.

**Thesis**

1. **Killgore, WD.** Senior Honors Thesis: Perceived intensity of lateral facial asymmetry of spontaneous vs. posed emotional expressions. Albuquerque, NM: University of New Mexico; 1990. *(Outstanding Psychology Senior Honors Thesis, UNM-1990).*


**Abstracts, Poster Presentations and Exhibits Presented at Professional Meetings**


2. **Killgore, WDS, & Locke, B.** A nonverbal instrument for the measurement of transient mood states: The Facial Analogue Mood Scale (FAMS) [Abstract]. Proceedings of the Annual Conference of the Oklahoma Center for Neurosciences 1996, Oklahoma City, OK.


30. **Killgore, WDS** & Yurgelun-Todd, DA. Developmental changes in the lateralized activation of the prefrontal cortex and amygdala during the processing of facial affect [Abstract]. Oral


52. Killgore, WDS, Balkin, TJ, & Wesensten, NJ. Decision-making is impaired following 2-days of sleep deprivation. Poster presented at the 34th Meeting of the International Neuropsychological Society, Boston, MA, February 1-4, 2006.


59. Huck, NO, Kendall, AP, McBride, SA, Killgore, WDS. The perception of facial emotion is enhanced by psychostimulants following two nights of sleep deprivation [abstract]. Abstract presented at the 20th Meeting of the Associated Professional Sleep Societies, Salt Lake City,
60. O'Sullivan, M, Reichardt, RM, Krugler, AL, Killgore, DB, & Killgore, WDS. Premorbid intelligence correlates with duration and quality of recovery sleep following sleep deprivation [abstract]. Abstract presented at the 20th Meeting of the Associated Professional Sleep Societies, Salt Lake City, UT, June 17-22, 2006. SLEEP, 29 (Supplement), A372.


72. Killgore, DB, Kahn-Green, E, Balkin, TJ, Kamimori, GH, & Killgore, WDS. 56 hours of wakefulness is associated with a sub-clinical increase in symptoms of psychopathology [abstract]. Abstract presented at the 20th Meeting of the Associated Professional Sleep Societies, Salt Lake City, UT, June 17-22, 2006. SLEEP, 29 (Supplement), A130.


74. Reichardt, RM, Killgore, DB, Lipizzi, EL, Li, CJ, Krugler, AL, & Killgore, WDS. The effects of stimulants on recovery sleep and post-recovery verbal performance following 61-hours of sleep deprivation [abstract]. Abstract presented at the 20th Meeting of the Associated Professional Sleep Societies, Salt Lake City, UT, June 17-22, 2006. SLEEP, 29 (Supplement), A42.

75. Bailey, JD, Richards, J, & Killgore, WDS. Prediction of mood fluctuations during sleep deprivation with the SAFTE Model [abstract]. Abstract presented at the 20th Meeting of the Associated Professional Sleep Societies, Salt Lake City, UT, June 17-22, 2006. SLEEP, 29 (Supplement), A60.

76. Kendall, AP, McBride, S. A, & Killgore, WDS. Visuospatial perception of line orientation is resistant to one night of sleep loss [abstract]. Abstract presented at the 20th Meeting of the Associated Professional Sleep Societies, Salt Lake City, UT, June 17-22, 2006. SLEEP, 29 (Supplement), A369.

77. Kendall, AP, McBride, SA, Kamimori, GH, & Killgore, WDS. The interaction of coping skills and stimulants on sustaining vigilance: Poor coping may keep you up at night [abstract]. Abstract presented at the 20th Meeting of the Associated Professional Sleep Societies, Salt Lake City, UT, June 17-22, 2006. SLEEP, 29 (Supplement), A129.

78. Muckle, A, Killgore, DB, & Killgore, WDS. Gender differences in the effects of stimulant
medications on the ability to estimate unknown quantities when sleep deprived [abstract]. Abstract presented at the 20th Meeting of the Associated Professional Sleep Societies, Salt Lake City, UT, June 17-22, 2006. SLEEP, 29 (Supplement), A369.


89. Richards, JM, Lipizzi, EL, Kamimori, GH, & Killgore, WD. Extroversion predicts change in
attentional lapses during sleep deprivation [abstract]. Abstract presented at the 21st Meeting of the Associated Professional Sleep Societies, Minneapolis, MN, June 9-14, 2007. SLEEP, 30 (Supplement), A137.

90. Lipizzi, EL, Richards, JM, Balkin, TJ, Grugle, NL, & Killgore, WD. Morningness-Eveningness and Intelligence [abstract]. Abstract presented at the 21st Meeting of the Associated Professional Sleep Societies, Minneapolis, MN, June 9-14, 2007. SLEEP, 30 (Supplement), A345.


98. Rupp, TL, Grugle, NL, Krugler, AL, Balkin, TJ, & Killgore, WD. Caffeine, dextroamphetamine, and modafinil improve PVT performance after sleep deprivation and recovery sleep [abstract]. Abstract presented at the 21st Meeting of the Associated Professional Sleep Societies, Minneapolis, MN, June 9-14, 2007. SLEEP, 30 (Supplement),
99. **Killgore, WD, Lipizzi, EL, Balkin, TJ, Grugle, NL, & Killgore, DB.** The effects of sleep deprivation and stimulants on self-reported sensation seeking propensity [abstract]. Abstract presented at the 21st Meeting of the Associated Professional Sleep Societies, Minneapolis, MN, June 9-14, 2007. SLEEP, 30 (Supplement), A42.

100. **Killgore, WD, Richards, JM, Balkin, TJ, Grugle, NL, & Killgore DB.** The effects of sleep deprivation and stimulants on risky behavior [abstract]. Abstract presented at the 21st Meeting of the Associated Professional Sleep Societies, Minneapolis, MN, June 9-14, 2007. SLEEP, 30 (Supplement), A41.


102. Richards, JM, Lipizzi, EL, Balkin, TJ, Grugle, NL, & **Killgore, WD.** Objective alertness predicts mood changes during 44 hours of sleep deprivation [abstract]. Abstract presented at the 21st Meeting of the Associated Professional Sleep Societies, Minneapolis, MN, June 9-14, 2007. SLEEP, 30 (Supplement), A56.


104. Estrada, A, **Killgore, WD, Rouse, T, Balkin, TJ, & Wildzunas, RM.** Total sleep time measured by actigraphy predicts academic performance during military training [abstract]. Abstract presented at the 22nd Meeting of the Associated Professional Sleep Societies, Baltimore, MD, June 7-12, 2008. SLEEP, 31 (Supplement), A134.

105. **Killgore, WD, Lipizzi, EL, Smith, KL, Killgore, DB, Rupp, TL, Kamimori, GH, & Balkin, T. J.** Nonverbal intelligence is inversely related to the ability to resist sleep loss [abstract]. Abstract presented at the 22nd Meeting of the Associated Professional Sleep Societies, Baltimore, MD, June 7-12, 2008. SLEEP, 31 (Supplement), A134.


107. Reid, CT, Smith, K, **Killgore, WD, Rupp, TL, & Balkin, TJ.** Higher intelligence is associated with less subjective sleepiness during sleep restriction [abstract]. Abstract presented at the 22nd Meeting of the Associated Professional Sleep Societies, Baltimore, MD, June 7-12, 2008. SLEEP, 31 (Supplement), A375.

108. Newman, R, **Killgore, WD, Rupp, T. L, & Balkin, TJ.** Better baseline olfactory
discrimination is associated with worse PVT and MWT performance with sleep restriction and recovery [abstract]. Abstract presented at the 22nd Meeting of the Associated Professional Sleep Societies, Baltimore, MD, June 7-12, 2008. SLEEP, 31 (Supplement), A375.


110. Lipizzi, EL, Killgore, WD, Rupp, TL, & Balkin, TJ. Risk-taking behavior is elevated during recovery from sleep restriction [abstract]. Abstract presented at the 22nd Meeting of the Associated Professional Sleep Societies, Baltimore, MD, June 7-12, 2008. SLEEP, 31 (Supplement), A376.


118. Britton, JC, Stewart, SE, Price, LM, Killgore, WD, Gold, AL, Jenike, MA, & Rauch, SL. Reduced amygdalar activation in response to emotional faces in pediatric Obsessive-


123. **Killgore, WD, Killgore, DB, Kamimori, GH, & Balkin, TJ.** When being smart is a liability: More intelligent individuals may be less resistant to sleep deprivation. Abstract presented the 37th Annual Meeting of the International Neuropsychological Society, Atlanta, GA, February 11-14, 2009.


126. **Killgore, WD, Britton, JC, Price, LM, Gold, AL, Deckersbach, T, & Rauch, SL.** Small animal phobics show sustained amygdala activation in response to masked happy facial expressions. Abstract presented the 37th Annual Meeting of the International Neuropsychological Society, Atlanta, GA, February 11-14, 2009. [*Merit Poster Award*]


128. **Killgore, WD, Britton, JC, Price, LM, Gold, AL, Deckersbach, T, & Rauch, SL.** Neuroticism
is inversely correlated with amygdala and insula activation during masked presentations of affective stimuli. Abstract presented at the Annual Conference of the Anxiety Disorders Association of America, Santa Ana Pueblo, New Mexico, March 12-15, 2009.


142. **Killgore, WD** & Balkin, TJ. Vulnerability to sleep loss is affected by baseline executive function capacity. Abstract presented at the 38th Annual Meeting of the International Neuropsychological Society, Acapulco, Mexico, February 3-6, 2010.


146. **Killgore, WD** & Yurgelun-Todd, DA. Self-reported insomnia is associated with increased activation within the default-mode network during a simple attention task. Abstract presented at the 38th Annual Meeting of the International Neuropsychological Society, Acapulco, Mexico, February 3-6, 2010.


152. Rupp, TL, Killgore, WD, & Balkin, TJ. Vulnerability to sleep deprivation is differentially mediated by social exposure in extraverts vs. introverts. Oral presentation at the “Data Blitz” section at the 24th Annual Meeting of the Associated Professional Sleep Societies, San Antonio, Texas, June 5-9, 2010.


159. Rupp, TL, Killgore, WD, & Balkin, TJ. Vulnerability to sleep deprivation is mediated by


170. Crowley, DJ, Covell, MJ, **Killgore, WD**, Schwab, ZJ, Weiner, MR, Acharya, D, Rosso, IM,


180. Crowley, DJ, Covell, MJ, Killgore, WD, Schwab, ZJ, Weiner, MR, Acharya, D, Rosso, IM, & Silveri, MM. Differential influence of facial expression on inhibitory capacity in


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213. Rosso, IM, Britton, JC, Makris, N, **Killgore, WDS**, Rauch SL, & Stewart ES. Impact of major depression comorbidity on prefrontal and anterior cingulate volumes in pediatric OCD.


254. Killgore, WDS, Schwab, ZJ, Kipman, M, DelDonno, SR, & Weber, M. A Couple of Hours


269. Cui, J, Tkachenko, O, & **Killgore, WDS.** Can the activation of anterior cingulate predict the emotional suppression? An fMRI study with masked faces. Abstract accepted for presentation at the 36th Annual Conference of the Anxiety Disorders Association of America, Chicago, IL, March 27-30, 2014.


272. Cui, J, Tkachenko, O, & **Killgore, WDS.** Can the activation of anterior cingulate predict the emotional suppression? An fMRI study with masked faces. Abstract accepted for presentation at the 21st Annual Meeting of the Cognitive Neuroscience Society, Boston, MA, April 5-8, 2014.

273. Divatia, S, Demers, LA, Preer, L, Olson, EA, Weber, M, & **Killgore, WDS.** Advantageous decision making linked with increased gray matter volume in the ventromedial prefrontal cortex. Abstract accepted for presentation at the 21st Annual Meeting of the Cognitive Neuroscience Society, Boston, MA, April 5-8, 2014.

274. Demers, LA, Olson, EA, Weber, M, Divatia, S, Preer, L, & **Killgore, WDS.** Paranoid traits
are related to deficits in complex social decision making and reduced superior temporal sulcus volume. Abstract accepted for presentation at the 21st Annual Meeting of the Cognitive Neuroscience Society, Boston, MA, April 5-8, 2014.


Narrative Report (limit to 500 words)
My research has emphasized the study of higher order cognition and executive functions and how these cognitive abilities are influenced and guided by subtle affective processes. Over the past 12 years, my research has utilized functional and structural magnetic resonance imaging to study the interaction of
affective processes and cognition within limbic networks of the medial temporal lobes and prefrontal cortex. This line of research has led to the refinement of a developmental model of prefrontal cortical-limbic maturation that explains how these processes contribute to the way adolescents perceive emotionally and motivationally relevant stimuli such as affective faces and visual images of food. As a result of the Iraq War, I took an extended leave of absence to serve in the Active Duty Army as the Chief of the Neurocognitive Performance Branch at the Walter Reed Army Institute of Research from 2002-2007. During that time, I extended the scope of my affective processing research to also examine the effects of stressors such as prolonged sleep deprivation, chronic sleep restriction, nutritional deprivation, and the use of stimulant countermeasures on the cognitive-affective systems within the brain. This line of investigation suggests that sleep deprivation alters the metabolic activity within the medial prefrontal cortex, resulting in subtle but profound effects on specific aspects of cognition. These sleep-loss related prefrontal decrements impair the ability to use affective processes to guide judgment and decision-making, particularly in high-risk or morally relevant situations. My recent investigations also suggest that while commonly used stimulants such as caffeine, modafinil, and dextroamphetamine are highly effective at reversing sleep-loss induced deficits in alertness and vigilance, they have virtually no restorative effect on the cognitive-affective decision-making systems of the brain. Having left military service to return to McLean Hospital full time in the summer of 2007, I have since been extending my previous work to identify the extent to which these cognitive-affective decision-making systems and their neurobiological substrates are impaired or altered in patients suffering from anxiety disorders and post-traumatic stress. During the past five years I have also successfully secured multiple grants from the DoD and DARPA totaling more than $7.8M, including a study of the neural basis of emotional intelligence, a study of a novel light treatment for improving sleep and cognitive functioning in mTBI, and a neuroimaging study of the effectiveness of an internet based cognitive-behavior therapy program, a neuroimaging study of axonal damage in mTBI, and a study of the neural basis of resilience against the adverse effects of sleep deprivation. In early 2011, I was named Co-Director of the Social, Cognitive, and Affective Neuroscience Lab at McLean Hospital.

My recent teaching activities have primarily involved daily supervision and training of student research assistants and postdoctoral fellows, as well as occasional seminar presentations. Over the past 6 years, I have closely and regularly mentored more than 25 students at the undergraduate, graduate, and postdoctoral level. This involvement has included one-on-one supervision and training in basic research methods, neuropsychological assessment, statistical analysis, and manuscript preparation. Nearly all of my advisees have served as co-authors on abstracts, posters, talks, and published manuscripts based on my research program.