SLEEP DISTURBANCES AS A SUICIDE RISK FACTOR: A NOVEL OPPORTUNITY FOR PREVENTION

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Overview

I. Background
   - Introduction to suicidology: Risk, rates, and prevalence

II. Sleep and Suicide Risk
   - Inherent challenges and methodological considerations
   - Sleep as risk factor and intervention tool

III. Sleep as a Novel Therapeutic Target
   - Suicide prevention trials currently underway
Suicide constitutes a complex, but **preventable** public health problem and global disease burden.

- Nearly 1 million deaths annually
- Generates a cumulative death toll higher than all homicides and war-related deaths combined
- One life lost every 40 seconds
- Suicide currently represents 57% of violent deaths in the world
Suicide Risk – Nomenclature

- The tragic outcome of psychiatric illness, and a dynamic interplay of multiple risk factors and medical conditions
- Suicidal behaviors exist on a continuum of risk, ranging in severity
- Harmful myths and misconceptions persist that thwart understanding and access to care
Suicide Risk – Worldwide Rates
Suicide Risk – Absolute Numbers

- Highest rates are in Eastern Europe (Lithuania, Estonia, Latvia), and to a lesser extent, Hungary, Finland, Russia
- However, largest numbers of suicides occur in Asia, reflecting population size and density
Suicide Risk – National Rates
Strategic Direction 1
Healthy and Empowered Individuals, Families, and Communities

Strategic Direction 2
Clinical and Community Preventive Services

Strategic Direction 3
Treatment and Support Services

Strategic Direction 4
Surveillance, Research, and Evaluation
Suicide Risk – Intractable Rates Across Time

Annual U.S. Suicide Rates, 1950 - 2010

Numbers of suicide deaths in the U.S. by year

High since 1950 (1977) 13.01
Low since 1950 (1957) 9.67
Difference 3.34
## Suicide Risk – Risk Factors

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>HIGH RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethnicity</strong></td>
<td>Indigenous, Caucasian</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td>Male (4:1)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>Older adults</td>
</tr>
<tr>
<td></td>
<td>25% of suicides, 10% population</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td>Separated/divorced/widowed</td>
</tr>
<tr>
<td></td>
<td>No children</td>
</tr>
<tr>
<td><strong>Employment</strong></td>
<td>Unemployed</td>
</tr>
<tr>
<td><strong>Biological</strong></td>
<td>Genetic (family history)</td>
</tr>
<tr>
<td><strong>Physical</strong></td>
<td>Chronic Illness/ Pain</td>
</tr>
<tr>
<td><strong>Psychiatric</strong></td>
<td>90% have diagnosis at time of death</td>
</tr>
<tr>
<td></td>
<td>MDD (2/3 of all suicides)</td>
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</table>
### Suicide Risk – Risk Factors

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<tbody>
<tr>
<td><strong>Suicidal Symptoms</strong></td>
<td>Plans and Preparations</td>
</tr>
<tr>
<td><em>(frequency, severity, structure)</em></td>
<td>Symptoms intense, Pervasive</td>
</tr>
<tr>
<td><strong>SA History</strong></td>
<td>Multiple</td>
</tr>
<tr>
<td></td>
<td>25: 1 SA to death</td>
</tr>
<tr>
<td><strong>SA Severity</strong></td>
<td>Planful, Rescue unlikely</td>
</tr>
<tr>
<td></td>
<td>Lethal method, Unambiguous wish to die</td>
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<tr>
<td></td>
<td>Reaction to survival is disappointment</td>
</tr>
<tr>
<td><strong>Mental State</strong></td>
<td>Hopelessness; Unstable affect</td>
</tr>
<tr>
<td></td>
<td>Few reasons for living</td>
</tr>
<tr>
<td><strong>Situational</strong></td>
<td>Life stress; Loss preceding suicidal crisis</td>
</tr>
<tr>
<td><strong>Relationships</strong></td>
<td>Conflictual, Isolated</td>
</tr>
</tbody>
</table>
Sleep as a Suicide Risk Factor

- Evidence suggests that sleep disturbances confer risk for suicidal behaviors
- Sleep complaints listed among the top 10 warning signs of suicide from SAMHSA
- Preliminary evidence suggests this exists above and beyond the influence of depression
Suicide Risk Factors – Inherent Challenges

- **Ethical Considerations:** Traditional doctor patient model of working together to promote health with clinical obligation to protect a patient from self harm

- **Probability Challenges:** Suicide occurs rarely in the population, which challenges prediction

- **Definitional Problems:** A lack of conceptual clarity in nomenclature and the way we define suicidal behaviors, which challenges comparability across studies
Suicide Risk Factors – Inherent Challenges

• **Measurement Considerations:**
  Concerns about the way in which information may be used, given confidentiality limits and concerns, impacting accuracy of reporting, transient nature of a suicidal crisis

Impact scientific understanding of risk and ability to prevent suicide
Suicide Risk Factors – Inherent Challenges

- **Methodological Problems:**
  
  Disturbed sleep and suicidal symptoms diagnostic criteria for MDD, and depression is a predictor of suicide risk

  Underscore the need to evaluate poor sleep as stand-alone risk factor (vs a mere correlate) of suicidal behaviors

- To address, we conducted several investigations across different samples, study designs, measurement techniques, and outcome measures
Sleep Disturbances as an Evidence-Based Suicide Risk Factor

Rebecca A. Bernert · Joanne S. Kim · Naomi G. Iwata · Michael L. Perlis

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Abstract Increasing research indicates that sleep disturbances may confer increased risk for suicidal behaviors, including suicidal ideation, suicide attempts, and death by suicide. Despite increased investigation, a number of methodological problems present important limitations to the validity and generalizability of findings in this area, which warrant additional focus. To evaluate and delineate sleep disturbances as an evidence-based suicide risk factor, a systematic review of the extant literature was conducted with methodological considerations as a central focus. The following methodologic criteria were required for inclusion: the report (1) evaluated an index of sleep disturbance; (2) examined an outcome measure for suicidal behavior; (3) adjusted for presence of a depression diagnosis or depression severity, as a covariate; and (4) represented an original investigation as opposed to a chart review. Reports meeting inclusion criteria were further classified and reviewed according to: study design and timeframe; sample type and size; sleep disturbance, suicide risk, and depression covariate assessment measure(s); and presence of positive ver-

Of these, \( N=18 \) met inclusion criteria for review based on systematic analysis. Of the reports identified, \( N=18 \) evaluated insomnia or poor sleep quality symptoms, whereas \( N=8 \) assessed nightmares in association with suicide risk. Despite considerable differences in study designs, samples, and assessment techniques, the comparison of such reports indicates preliminary, converging evidence for sleep disturbances as an empirical risk factor for suicidal behaviors, while highlighting important, future directions for increased investigation.

Keywords Sleep disturbances · Suicide · Insomnia · Nightmares · Sleep quality

Introduction

Suicide Risk and Prevalence
Summary of Preliminary Studies

- Confirmed sleep as an independent risk factor across diverse Populations (clinical, nonclinical), Designs (cross-sectional, longitudinal), Measurement Techniques (objective, subjective sleep), Outcome measures (ideation, attempts, suicide death).

- Showed that modification of this factor therapeutically impacts risk.

Provide scientific rationale for the use of sleep as a novel treatment target.
Clinical Relevance

- Unlike many other risk factors, disturbed sleep is: **modifiable**, **non-stigmatizing**, **visible** in the weeks and months preceding death, and **highly treatable**

- May be **more strongly predictive of risk** compared to traditional risk factors
Military Relevance

- Suicide rates have surged in recent years across service branches

- Stigma well-documented in the military as a barrier to mental health care utilization, and attrition rates are high

- Sleep problems are overrepresented among military samples, with alarming rates (up to 100%) among recent returnees and veterans
Recent Initiatives

• DARPA Defense Sciences Research Council (DSRC) Workshop
• VA/DOD Clinical Practice Guidelines (CPG) for Suicidal Behaviors
• VACO Mental Health Innovations Workgroup
• U.S. Special Operations Command (SOCOM) Panel
• White House Office of Science and Technology: Data Science Initiative
Current Trials

- NIH and DOD-funded suicide prevention trials underway efficacy of a behavioral insomnia treatment for suicidal behaviors among civilians (NCT01770587) and military veterans (NCT01958541)
What is Project SERVE?

Researchers from Stanford University and the VA Palo Alto Health Care System are studying the impact of a non-medication insomnia treatment among veterans of OEF/OIF/OND. A brief behavioral insomnia treatment is provided at no cost as part of this study, which may be undertaken in addition to other medical or mental health treatments.
iSleep
Insomnia Treatment for Improved Sleep & Well-Being
Study Design and Methods

- **Develop and manualized a sleep-based intervention**
  Multicomponent behavioral insomnia treatment
  Integrated, based on sleep-focused suicide risk factors
  Manualized into a brief (4-5 weekly session) format

- **Offered as an Enhancement to Usual Care**

- **Suicide prevention trial**
  Selective intervention
  Suicidal ideation as a primary outcome measure
Application to Prevention

**Innovation and Impact**

- Addresses gap wherein efficacious interventions remain few in number, unacceptable, or inaccessible
- Represents a low-risk strategy targeting prevention of a high-risk outcome
- Application to selective or universal preventive interventions, with broad public health impact
- As a proposed biomarker that cuts across psychiatric illness, promises insights into the pathogenesis of risk
Conclusions

• Trial supports novel testing of an insomnia treatment for suicidal behaviors
• Preliminary findings show therapeutic benefit to suicidal ideation, depression
• May inform stand-alone interventions or be used as gateway to treatment
• Scientific utility of an intervention targeting a highly treatable, non-stigmatizing risk factor using a non-mental health treatment