Guns and sleep

The Harvard community has made this article openly available. Please share how this access benefits you. Your story matters

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Published Version</td>
<td>doi:10.13175/swjpcc107-15</td>
</tr>
<tr>
<td>Citable link</td>
<td><a href="http://nrs.harvard.edu/urn-3:HUL.InstRepos:23017684">http://nrs.harvard.edu/urn-3:HUL.InstRepos:23017684</a></td>
</tr>
<tr>
<td>Terms of Use</td>
<td>This article was downloaded from Harvard University’s DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at <a href="http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA">http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA</a></td>
</tr>
</tbody>
</table>

Guns and Sleep

Gun deaths are a problem in America. Irrespective of one’s position on gun control, the statistics do not lie. According to the Centers for Disease Control and Prevention (CDC), there were 11,208 deaths caused by firearms in 2013 (1). The recent high profile cases in Cincinnati, OH, Lafayette, LA and Memphis, TN further highlight the issue. Obviously, each case of death by a firearm had its own set of underlying factors that contributed to the final fatal outcome, but one wonders whether sleep deprivation can be implicated in some of them.

Sleep duration in adults over the past approximately 30 years has been declining in the United States (2). A variety of reasons can be cited as underlying causes such as greater use of artificial lighting, an expanding 24 hour non-stop society, promotion of a work ethic that values “burning the midnight oil”, and use of electronic devices before bedtime (especially those that emit blue wavelength light). In addition, both legal and illegal drugs have important impacts on sleep quality and quantity. For example, amphetamines can cause insomnia and by extension a reduction in sleep time (3), and perhaps more importantly, caffeine will have the same effect if used to excess (4). The most recent recommendation from the American Academy of Sleep Medicine is for adults to sleep at least 7 hours per night (5). However, recent CDC data indicate that 29.2% of adults sleep less than 6 hours per night and are thus chronically sleep deprived (2).

Symptoms of sleep deprivation include longer reaction times, lapses in attention or concentration, poor short term memory, errors of omission and sleepiness. However, sleep deprivation also leads to confusion, stress, irritability and impulsivity. Importantly, decision making and the ability to formulate reasonable moral judgments are impaired. All of these negative impacts of sleep deprivation can lead to high-risk behavior. Thus, can it be posited that in some cases, sleep deprivation, perhaps fueled by the legal or illegal use of stimulant compounds, leads to impaired judgment and increased impulsivity, poor decisions and fatal shootings?

Several years ago, I was asked to be a defense expert in a case where a jilted wife fatally shot her husband’s lover. After learning about her husband’s affair, the wife had become distraught and unable to sleep for ~2 days. She then sought out the victim and shot her. Her sleep deprivation was used as a mitigating factor to reduce the charge from 1st to 2nd degree homicide. Although not a shooting, more recently, a Florida man was acquitted of the murder by suffocation of his father because he was sleep deprived after consuming a large amount of Red Bull (80 mg caffeine per 8.46 fluid ounces). Cases such as these have led to speculation that sleep deprivation may be an effective defense where the fatal act could plausibly be explained by a change in mood or cognitive impairment.

The potential impact of sleep deprivation is likely not limited to citizens accused of fatal shooting, but law enforcement officers as well. Police officers frequently...
work overnight or rotating shifts, and many accept overtime duty as well. A recent survey of 4957 police officers found that >40% screened positive for at least one sleep disorder with 28.5% being excessively sleepy, suggesting an element of sleep deprivation (5). Most troubling was that those who were identified as having a sleep disorder had a 51% greater likelihood of making an error or safety violation and a 63% greater chance of exhibiting other adverse work-related outcomes including uncontrolled anger toward suspects. Could some of the recently publicized adverse interactions between police officers and citizens be partially explained by lack of sleep?

Although a possible causal link between gun violence and sleep deprivation is speculative, there is no doubt that insufficient sleep is becoming endemic in our society and has significant personal and public health consequences. There should be a concerted effort on the part of public health officials, public and private institutions and individuals to reverse this trend by publicizing the adverse impact of insufficient sleep, undertaking policy measures to promote adequate sleep and set themselves as examples of healthy sleepers.

Stuart F. Quan, MD
Gerald E. McGinnis Professor of Sleep Medicine
Harvard Medical School
Brigham and Women's Hospital
Boston, MA

References