

# Sleep and Job Performance in Law Enforcement: Measuring Differences Between Highway Patrol, Sheriff, and Municipal Police Officers

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Prior research on the correlation between sleep and accidents on-the-job leaves little doubt about the potential for injury and death. The fatigue literature aptly includes the study of justice administration within the socially and legally relevant contexts of fatigue-impaired police discretion. In this study, the correlation between sleep measurements, fatigue, and police work are examined among three types of law enforcement agencies in a single western jurisdiction. Independent samples of municipal police (N=25), sheriff's deputies (N=25), and highway patrol (N=25) officers are selected to identify mean differences for sleep, age and sleep, law enforcement experience and sleep, second jobs, hours worked, police accidents and other variables. The findings unequivocally support the notion that law enforcement officers do not get enough recommended sleep, according to the PSQ Index and officer self reports. Other findings indicate that municipal police, compared to sheriff deputies or highway patrol officers are more careful about excessive work hours, work fewer second jobs, and get more sleep. Highway patrol officers consistently placed second to municipal police among these variables while the sample of county sheriff's was the most overworked as well as the most under slept. Conclusions and recommendations follow.

## Introduction

Law enforcement work is seldom routine. The diverse work scenarios for officers range from prolonged periods of boredom to adrenaline-pumped, life threatening activities. Discretion abides within each context and is purposefully crafted for job effectiveness. While exercising discretion, officers are entrusted to manage criminal episodes while simultaneously protecting basic citizen liberties.

Expectations for police officers to be all things to all people are legendary and arguably less onerous compared to other professions. Policing entails a work environment where officer conduct is scrutinized by police administrators, politicians, judges, attorneys, the media, and others. Amid the high expectations, officers are "on-duty" around the clock, thus highlighting the critical variables of sleep and fatigue on the dependent variable of effective job performance for officers. This article considers the variegated pressures placed on law enforcement officers in our society, reviews the fatigue literature, and analyzes the differences between sleep measurements, fatigue, and job performance for officers in three different law enforcement specializations.

### *Purpose of the Research*

While valid and reliable scientific research has successfully studied the subject of sleep, fatigue and officer performance, no empirical studies exist which systematically compare officers across different types of police agencies. This study fills the gap in the literature. Archival secondary data and survey self-reports are utilized to gather empirical observations in three agencies: two local (municipal police force and county sheriff's agency) and one state agency (highway patrol) in a single western metropolitan region. The goal of the research is to determine whether law enforcement officers are sleep deprived, why they may be sleep deprived, and if variation for sleep differences exist between different types of police agencies.

Additionally, job performance variables are measured and correlated to PSQI (Pittsburgh Sleep Quality Index) sleep data and again measured for differences between different agencies. Finally, control variables such as second jobs, age, and years on-the-job are examined and controlled to further the body of literature on the subject of fatigue and law enforcement effectiveness.

## LITERATURE REVIEW

Because a tired employee is someone who is more prone to an accident on the job compared to an employee who is well rested, numerous studies have empirically identified the role of sleep and fatigue on job performance. This body of literature includes studies covering occupations such as medical interns (Melekian, 1999), truck drivers (National Transportation Safety Board, 1990), and airline pilots (Caldwell, 1999; National Transportation Safety Board, 2000), and also includes studies specifically focused on law enforcement personnel (Dorn & Brown, 2003; Vila & Kennedy, 2002; Neylan et al., 2002).

### *Sleep Deprivation*

"Humans are hard-wired with a genetically determined biological need for sleep and with a circadian pacemaker that programs us to sleep at night and to be awake during the day on a 24-hour schedule" (Rosekind & Gander, 1996). Research regarding the need for adequate sleep and the effects of sleep deprivation goes back 50 years. Understandably, this volume of literature has led health care, mental health professionals, occupational therapists and others to conclude that fatigue is a major source of stress for persons in positions of full-time employment (Villa, 1996:52). When these impairments are viewed in the context of police work, the concerns are obvious. The primary concern lies with the safety of the officer.

The harm which can result from sleep deprivation cannot be overstated. Catastrophes at nuclear power plants such as Three Mile Island in Pennsylvania in 1979 and Chernobyl in the Ukraine in 1986 as well as the Exxon Valdez oil spill in Alaska in 1989 were in part attributed to sleep deprivation and fatigue (Vila et al., 2002:7). The costs of an accident on the job can mount in view of the potential civil liability for employers (such as a police department) who knowingly schedule employees in a manner which causally induces fatigue and thereby increases the likelihood of an accident (McGreevy, 2000; Milarsky, 2000).

Other accidents which involved tired employees include:

- An oil tanker runs aground off the coast of Rhode Island under the command of a master who had gone 36 hours without sleep.
- A medical resident in Los Angeles, groggy from working 120-hour weeks, prescribes the wrong medication, sending a diabetic patient into a coma.
- Both the engineer and brakeman of a freight train, working long and irregular hours, fall asleep at the controls and miss several warning signals before their engine plows into the rear of another train at 4:45 a.m. in Pedro, Wyo. (Vila 2002:7).

Existing legislation in the fifty states and at the federal level recognizes the need to regulate work hours in certain professions for reasons of public health and safety. For example, the shift work of train engineers, truck drivers, commercial airline pilots, and nuclear reactor operators are statutorily regulated.

Although the occupations noted above are in the private sector, as opposed to public sector workplaces, the impact of fatigue on police activity is understandably just as important to public safety (Vila 2002:7). Police officers carry loaded firearms and bring them into ambiguously threatening social environments. While good arguments exist which oppose governmental regulation of police officers, the precedent set in other professions such as truck driving is sufficient to alert law enforcement administrators to the social and legal imperatives on behalf of thoughtful employment scheduling for officers.

The physical bodily reactions to sleep deprivation are given greater clarity when using the alcohol metaphor. Being very tired is compared to being intoxicated from alcohol consumption. Williamson and Feyer (2000) compared the relative effects of sleep deprivation to the effects of alcohol. Their findings show that after 17 to 19 hours of wakefulness, human fatigue reaches a level equivalent to that found at the legal BAC (Blood Alcohol Content) limit for safe driving. Response speeds for the fatigue impaired group were up to 50% slower on some tests than those in the alcohol impaired group, and accuracy speeds were significantly slower (Williamson & Feyer 2000:649). Of course, legal limits are placed on alcohol consumption due to the correlation between alcohol consumption and driving performance. Since alcohol intoxication causes altered perceptions of reality, fatigue could cause similar effects on police officers during their work. A mindset that is fatigue-impaired can lead to fatal misconceptions.

#### *Sleep Deprivation and Law Enforcement*

As noted above, unusually high demands are placed on law enforcement officers to be all things to all people. But that social and cultural imperative typically is applied only to an officer while she or he is on-duty as an officer. Many police officers also have demands placed on their lives outside their 40 hour per week work obligations. For example, since police work is relatively low-paying, many officers rely on overtime to provide additional income for themselves and their family. In addition, many officers supplement their income with a second job. Most officers typically also have a family life as well. When shift work schedules demand that officers cover grave and swing shifts, the rest of their lives operate primarily on day time hours for children's school activities, ball games, dance, and piano recitals, etc. If that is not enough, many officers will also try to improve their life circumstances by attending college courses and completing college course work. Accepting these exhausting demands as a consequence of their profession, many officers often accept the challenge and believe they must simply "toughen-up" to meet their extensive obligations at the expense of their personal health.

Brian Vila, a former police chief, and his colleagues have conducted the most extensive, recent research examining the role of fatigue specifically on police officers. Villa quotes a noted sleep researcher on the state of officer fatigue. "It is totally reprehensible that the cops we expect to protect us, come to our aid, and respond to our needs when victimized should be allowed to have the worst fatigue and sleep conditions of any profession in our society" (Villa & Kenny, 2002:21).

So far, we have only examined why a police officer may not get enough recommended sleep and what could happen as a result. There is the additional question of the quality of the sleep that is actually had. Obviously, police officers are exposed to various high-intensity stressors that may affect sleep quality. These include traumatic stressors and chronic non-traumatic stress arising from a demanding work environment where a violent episode is felt to be imminent (Neylan et al., 2002). Neylan's research

suggests that "there are factors intrinsic to police work that contribute to poor sleep quality" (Neylan et al., 2002:349).

Vila proposes that police fatigue can be controlled or at least significantly impacted by the policies of the police department where an officer works. He cites "biologically insensitive shift rotation schemes, excessive mandatory or elective overtime assignments, frequent off-duty court appearances, and the use of extra and double shifts to cope with personnel shortages" (Vila, et al., 2002). Officers' personal lives and choices are also cited as contributing to fatigue to the type of sleep an officer gets when sleep does happen.

Other studies have also made useful contributions to the literature on sleep and law enforcement. A study conducted by a private health care consulting firm showed that fatigue was "prevalent among...officers, with night shift personnel suffering the most adverse effects" (Cochrane, 2001). The same study concluded that night shift officers reported having trouble remembering more frequently than the swing shift and day shift compared in the study. This suggests the disruption of the circadian rhythm as having a detrimental effect on certain cognitive functions.

In her article on foot pursuit policies, Bohrer (2000) states that officers are trained to "base their decisions on whether to pursue a fleeing suspect on the degree of risk to themselves or others." Since there have been numerous studies that show how fatigue can impair decision-making and other cognitive tasks (Rosekind, 1996), the officer's ability to correctly analyze the situation and come to a safe conclusion is dangerously hindered by sleep-deprivation.

Pinizzotto (2000) comments on the officer's "perceptual shorthand," a process in which the officer begins to rely on a schema of events when responding to situations such as a routine traffic stop. The assumptions stemming from these mindsets can often lead the officer into a dangerous or potentially life-threatening situation. Fatigue could only exacerbate the likelihood that this mental process would occur.

However, studies such as that of Horne and Reyner (1995) show that there were two peaks in the rates of vehicular crashes concentrated in the England midlands. The peaks occurred between the hours of midnight and 3:00 a.m. and the hours of 2:00 p.m. and 5:00 p.m.. These time periods coincide with circadian alertness levels, and a failure to obtain recommended sleep will lower circadian alertness levels.

## **Methodology**

### Research Questions

1. Do officers get the sleep they need?
2. Do younger officers get less sleep than older officers?
3. Do less experienced officers get less sleep than more experienced officers?
4. Do full-time officers work at second jobs?
5. What is the maximum number of hours worked by officers per week?
6. What is the number of accidents and performance errors by agency?

### **Data Collection**

#### *Nonrandom sample*

As this is an exploratory study, a non probability sample is used. Babbie notes the usefulness of a "purposive or judgmental sample" when a subset of a population is easily accessed and highly resembles the greater population from which it is drawn (Babbi, 2004). Here, subsets of sworn officers are drawn from the larger population of police officers in a single western state. The criteria for selection into the sample were that all respondents be sworn line officers and that none are specifically singled-out to complete the survey or participate in the study. In addition, no officers were prevented from being drawn into the sample. These sampling conditions created an informally representative sample. Hence, the sample's characteristics in terms of age, race, gender, and experience reflect that of the greater policing population from which it was drawn. Further, the sample's representativeness is highly relevant to the interests of this study. That is, those selected to the sample are sworn line officers and work full-time in the field of law enforcement.

#### *Data Collection Techniques*

Two data collection techniques were utilized in order to empirically answer the research questions for this study. Institutional Review Board (IRB) approval was successfully secured for this study.

#### **Archival Records/Pre-existing Data.**

Pre-existing data were mined from each agencies internal affairs records dating back five years from 2001-2005. While gathering this data, three criteria were used: 1) only the nature of incidents, rather than specific surrounding circumstances were categorized, 2) the time of day the incident occurred was recorded, and 3) whether the incident was sustained or not sustained was recorded. *No personal identifying information was collected.*

#### **Survey Research/Self-reported Data.**

This study also utilizes a short survey instrument. The instrument contains various demographic measures and also items specifically designed to measure sleep, hours worked, and other work-related questions in order to gather data for the attributes of the independent and dependent variables for the study. The survey instrument is adopted from the George Washington University, Shiftwork Research Team, MRC/ESRC, Social and Applied Psychology Unit. One addition that was made to the instrument by the

Principal Investigator (PI) was the inclusion of the PSQI (Pittsburgh Sleep Quality Index). The PSQI is a relatively well-used, hence time-tested instrument with proven criterion-related validity and overall content validity. The main usefulness of the PSQI is the ability to gather respondent self-reports on sleep length, sleep quality, effects of poor sleep, etc. While the PSQI data was edifying for framing research questions, none of the data from the Index is used here. The PSQI is a valuable research tool, but its usefulness has been slightly surpassed by high-tech data collection tools for measuring sleep such as electronic wrist bracelets worn 24/7 by research subjects, and PDA's for subjects to note fatigue-related data on an hourly basis.

As with the archival research, in the survey research for this project, no personal identifying information was collected. Each respondent was issued a number, instead of a name, hence ensuring anonymity for the subjects. Each participant was given a \$5.00 gift card to a local food establishment for completion of the survey used in the study.

### *Survey Administration*

The three types of law enforcement agencies selected for this study and the respondents from each one of them were all part of the same urban-metro region of a single western state. The goal was to avoid selecting agencies which had jurisdiction adjacent to one another. Agencies located relatively far away from one another would enhance the possibility for variation among the attributes of the variables. This goal was achieved. The total number of officer-respondents sought from each department included a minimum and maximum acceptable number but did not involve a specific percentage of officers from each department. A quota-sample is not used, as mentioned above, since this is a no probability sample; a sample of convenience.

Consent for the administration of the surveys to the line officer-respondents was provided by the appropriate supervisory and managerial personnel in each agency. The eventual person who administered the survey in each agency was instructed for how to conduct the survey administration, but the Principal Investigator was not present during survey administration.

The surveys were handed out at various roll calls for self report by each officer who participated. Once more, no systematic, stratified, or quota method was used to determine who would or would not complete the instrument. Upon collecting the completed surveys, each commanding officer who administered the survey was debriefed to ensure that no irregularities occurred during survey administration. The principal investigator was assured that no irregularities occurred such as talking among the respondents, the presence of noisy or other distractions, or a lack of adequate time to complete the surveys.

The roll calls were routine and did not involve special units or personnel. One hundred percent of the respondents returned a survey, although many surveys contained missing data. For some reason, certain respondents did not complete certain sections of the instrument. Although sections of some surveys were left blank, no respondent reported being confused by survey questions or otherwise finding the instrument ambiguous in some way. One percent of the surveys returned could not be used because of a total absence of responses. In sum, this study takes advantage of a 99 percent response rate.

Survey administration took place during a three week period in the summer of 2005. At the time of survey administration, there was no particular heightened interest in the communities or departments in the topic of fatigue and police accidents. Meaning, for example, during the one-month survey period, none of the major daily newspapers in this region had a front page story on any topic related to the police not getting enough sleep. In addition, during the one-month period, the *USA Today* newspaper did not include any front page story on the subject. In sum, no particular media or political attention was placed on fatigued police work at the time of the study that may have biased survey responses made by the subjects.

### **Data Description**

Over 90 percent of the respondents are white males. Lack of variation for the variables of race and gender eliminated these variables from further analyses. The range of ages of the respondents varies between 21 and 65 years. In order to qualify as a respondent, each person had to have participated in law enforcement shift work as a sworn officer full-time within 30 days of the study. Specificities regarding the variables of age, years experience at each agency, hours worked per week, and sleep patterns are reported below.

### **FINDINGS**

The amount of sleep an individual needs varies from person to person and lies somewhere between six and ten hours in any 24 hour period (Rosekind &Gander, 1996). Scientifically controlled studies indicate that most adults require about eight hours of sleep to function at their peak levels (Rosekind &Gander, 1996). The findings here are consistent with the sleep research. Seventy percent of the respondent-officers claim they needed seven to nine hours of sleep per night. Alarming, a majority of all of the respondents (66%) report they only get between three and six hours of sleep in a 24 hour period. Established research indicates that performance and alertness can be significantly altered in most people with only one night of two hours less sleep than is usually required (Rosekind & Gander, 1996). Hence, taken as a whole, the officers from all three types of agencies in this study enforce the law while relatively fatigued.

Table 1 below shows the distribution for the variable "Gets Enough Sleep by Age." The hypothesis is that age may correlate to officers' sleep patterns. The premise for the hypothesis is that younger officers may be more inclined to "burn the midnight oil" since a younger body is less affected by lack of sleep compared to an older body. With a minor exception for officers in the police department, the findings do not support the hypothesis. It appears that approximately half of the respondents, regardless of agency, do not get enough recommended sleep. However, by comparison, municipal police officers get more sleep than sheriff's deputies or highway patrol officers. It appears that a relative lack of sleep is prevalent across all age groups.

A minor exception to the age distribution for sleep concerns municipal police officers. Table 1 shows a slightly linear pattern where, as an officer gets older, the officer indeed does get enough sleep. This pattern would support the idea that older, "wiser" police officers are unwilling to sacrifice sleep compared to younger, "hardier" police officers. Lastly, the type of agency may explain the differences between the police and other two agencies. Meaning, policing agencies may face greater risks on the street than sheriff's deputies or highway patrol officers. It is plausible that the presence of greater threats to the

type of officer may cause the officer to want to be more mentally alert, and hence get enough sleep to face the demands of the job.

Table 1. Percentage of respondents who stated that they get enough sleep. n = 25 per agency. Raw numbers in parens.

		Ages					
		18-26	27-33	34-42	43-50	51-59	Totals
Gets Enough Sleep	Police	33% (2/6)	40% (4/10)	75% (3/4)	100% (3/3)	0% (0/2)	48% (12/25)
	Sheriff	66% (2/3)	50% (4/8)	36% (4/11)	50% (1/2)	100% (1/1)	48% (12/25)
	HP	50% (1/2)	42% (3/7)	63% (7/11)	25% (1/4)	100% (1/1)	52% (13/25)
	Totals	45% (5/11)	44% (11/25)	56% (14/25)	55% (5/9)	50% (2/4)	49% (37/75)

Table 2 below seeks to correlate "Gets Enough Sleep to Experience" as a law enforcement official. The hypothesis is that more experienced officers, similar to age, have learned through experience that getting enough sleep is preferable to not getting enough sleep. This correlation also takes into consideration the type of agency.

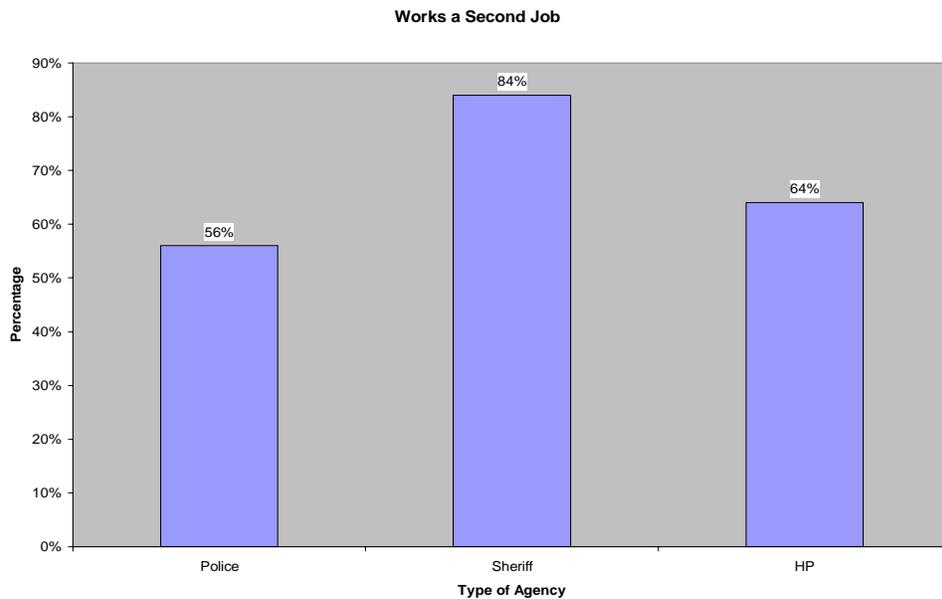
Table 2. Percentage of respondents who stated that they get enough sleep. n = 25 per agency. Raw numbers in parens.

		Experience (in years)			Totals
		1-5	6-10	11 +	
Gets Enough Sleep	Police	64% (9/14)	42% (3/7)	50% (2/4)	56% (14/25)
	Sheriff	62% (5/8)	14% (1/7)	50% (5/10)	44% (11/25)
	HP	50% (2/4)	55% (5/9)	50% (6/12)	52% (13/25)
	Totals	61% (16/26)	39% (9/23)	50% (13/26)	50% (38/75)

Again, the findings do not support the hypothesis that experience can explain getting enough sleep. To the contrary, for the municipal police and sheriffs, it appears that having less experience as a law enforcement officer results in getting more sleep, a counterintuitive finding. This finding raises the suspicion that many factors beyond the scope of this research affect whether a law enforcement officer gets enough recommended sleep.

One of those factors is the number of hours worked per week. We begin with a look at the number of hours worked per week with a look at the percentage of respondents for each agency who have a second job. Figure 1 below indicates that a large percentage of all respondents worked at another job (or a third) in addition to their full-time position with their agency.

Figure 1. Percentage of Respondents Who Work a Second Job. n = 25 per agency.



Here again, the municipal police officers stand out. By comparison, fewer municipal police work a second job, especially when compared to sheriff deputies. Over three out of every four

sheriff's deputies works a second job in addition to their full-time employment as a law enforcement officer. One reason for this, again, may be the greater relative pressure and stress placed on urban cops who patrol high crime areas compared to sheriff's deputies who often patrol the bucolic outskirts of a county jurisdiction or who are charged with the escort of visiting dignitaries. Street cops may endure the pressure better by working fewer hours per week. Salary, which is not controlled for, would be a worthwhile variable to explore to explain why so many more sheriff's deputies work another job when compared to municipal police officers. In sum, it is notable to discover how many law enforcement officials work a second job, in addition to their full-time duties as a police officer.

Table 3 below focuses on the greatest total number of hours worked per week in the last month for the respondents.

Table 3. Averages for "Most Hours Worked Per One Week" during the last 30 days. n = 25 per agency.

	Police	Sheriffs	HP
Avg. Max. Hrs. Per/wk Worked in Last 30 Days	65.75	74.95	66.66
SD	14.69	13.47	10.99
Variance	215.98	181.54	120.83
Maximum	100	100	90
Minimum	40	50	40
Chi Square 3.511 NS			

At this point in the study, it seems predictable that the sample of municipal police officers will fare better by comparison when it comes to the sleep and work correlation, and it is true in Table 3 above. While all three sub-samples worked substantially more number of hours per week compared to a standard 40-hour work week (or the federally defined 36-hour full-time work week), it appears that the sample of municipal police are less likely to burn the midnight oil by comparison, although the variation between the sub-groups is not great. As an average, sheriff's deputies amazingly doubled the federally defined 36-hour work week. This fact is significant due to the corresponding fact that the sheriff's sample gets the least amount of recommended sleep by comparison.

Table 4 below cross tabulates the variables of work and sleep while differentiating between agencies.

Table 4. Sleep by Amount of Hours Worked by Agency. n = 25 per agency.

	Police			Sheriffs			HP		
	Amt Sleep/24 Hrs Avg								
MaxHrs Work/Wk	0-2	3-6	7-9	0-2	3-6	7-9	0-2	3-6	7-9
0-40	1	0	0	0	0	0	0	0	0
41-60	6	1	1	1	3	2	6	0	1
61 +	7	4	1	7	6	2	7	9	0
Totals	14	5	2	8	9	4	13	9	1

While the variation between the agencies is not substantial, the table above highlights the idea of a relative lack of sleep, while working a large number of hours per week. For all three agencies, the modal amount of sleep was the lowest (0-2 hrs in 24 hrs) for the highest category of hours worked per week. Said differently, most of the respondents work extensively and get less sleep than those who work less; those who need the sleep the most, get it the least.

Table 4 below examines sleep and work by looking at the number of accidents and performance errors sustained in each agency within a five-year period from 2001-2005. The research hypothesis draws

a correlation between sleep and accidents. It should be noted for purposes of operational definitions that "Accidents" and "Performance Errors" are also known as "diminished performance." "Accident" is operationalized as vehicular accidents as well as, for example, accidentally breaking a window or damaging a computer during a search. "Performance Error" is operationalized as, for example, failure to backup a fellow officer in a timely manner.

**Table 5. Sleep by Accidents/Performance Errors by Agency.**

	Police	Sheriffs	HP
Agency Accidents/ Performance Errors (2000-2005)	168	171	177
Pct. Get Enough Sleep (self reported)	56% (14/25)	44% (11/25)	52% (13/25)

The data in Table 4 indicate that the municipal police get the most sleep and have the fewest accidents. From the other analyses above, we might expect sheriff's deputies to be involved in the most accidents since they get the least amount of sleep and work more at second jobs, but this finding was only marginally supported. It is the highway patrol officers who appear to be involved in the most accidents.

One drawback to the correlation in Table 4 above is that the accident data is cumulative within the entire agency and not specific to the sample. The sample may have caused the accidents but may not have. Each agency was legally prohibited from disclosing further details about who caused the accidents in their agency. In addition, the officer sleep pattern data is from 2005, while the accident data is from 2001-2005. Nevertheless, the data supports the research hypothesis that the agency that gets the most sleep commits the fewest errors on-the-job.

## DISCUSSION AND CONCLUSION

While the findings from this study provide the criminal justice community new information about variations between different types of agencies, the degree of speculation in the study has not escaped the authors' attention. Meaning, the data identify the correlation between the number of hours of sleep and the potential of diminished job performance, but the subjects used to measure sleep quality may or may not be the subjects for the data on diminished performance. For the sake of argument, it is possible that the data on diminished performance may be attributable to officers who sleep great. The logical opposite may also be true. That is, officers who sleep terribly may have a meticulous accident record. Future research can fill this gap.

In the meantime, prior research unequivocally establishes a scientific correlation between sleep, fatigue, and diminished job performance. To further probe this unequivocal correlation, at the 2005 ASC (American Society of Criminology) meetings in Toronto, Ontario, one of the authors asked expert Brian Vila how it can be ascertained with confidence that it is sleep, and not another variable such as police subculture, which causes police accidents/errors. Vila stated, "Police subculture may be a factor . . . but we know scientifically enough about the role of fatigue to state with certainty that lack of sleep plays a role in police accidents" (Personal Interview with Bryan Vila, November 21, 2006).

Since the literature has made a strong case with the sleep and work correlation, it is useful to draw a tighter focus on specific variables which shape this correlation. In this study, age was examined to explain sleep as well as experience on-the-job. This study also looks at officers who work a second job, and the total number of hours they work per week. For readers unacquainted with the research on these topics, the data is almost hard to believe. For example, 56 percent of the sheriff's deputies get between 3-6 hours of sleep per night while they averaged a maximum 75.1 hours of work per week at one, two, or more jobs. In addition, Table 4 above highlights unmistakably that the officers who work the most, sleep the least, indeed a startling piece of data. Needless to say, these officers are called on to breakup volatile domestic quarrels, handle delicate evidence, and testify on cross before an aggressive defense attorney to name only a few duties inherent to the field of law enforcement. When family commitments, as well as rest and relaxation are figured into an officer's work week, it appears there would be little time available for rest and relaxation. Finally, we can further speculate on a type of "vicious cycle" dilemma where a lack of sleep causes various types of accidents where more work may be needed to pay for the accidents (caused by working too much and sleeping too little).

Why do they put themselves through it? One reason is the lack of priority placed on sleep, either from coworkers or supervisors. To reasonably speculate, sleep is often viewed as a weakness or part of laziness, or even an inability or unwillingness to perform to the militaristic standards of a police agency. Police subculture theory also suggests that machoism is an important value to law enforcement officials. Presumably, taking a nap would not fit well within the language of police subculture. Whether social messages or subculture cues, these mores create an unrealistic expectation that police will carry out their duties with vigilance and attention, regardless of the amount of sleep they get. The additional income derived from work may also be a driving force behind this phenomenon.

Perhaps the main contribution of this study is the distinction between types of agencies. While at the outset of this project, it appeared that the differences within each of the three samples would be greater

than the differences between each agency. In the end, however, it was clear that distinctions between agencies are present and worth reporting. For example, street cops (municipal police), simply stated, appear to be more careful about getting the recommended sleep they need. In addition, street cops work less, they have fewer second jobs, and work fewer numbers of hours per week, and they have fewer accidents and performance errors compared to sheriff's and highway patrol officers. It should be noted that street cops are no paragon of a life of leisure. They work a mean of 65 hours per week, as a maximum number (50 hours minimum). However, street cops seem to work less and get better rest than the other two sub-samples in this comparison.

Recommendations stemming from this research are straightforward. Starting at the top, it behooves administrators to educate their officers to be sensitive to the dangers which stem from working too much and sleeping too little. Officers may put themselves and others at risk and may inadvertently injure themselves, other officers, and citizens. As noted in the literature review, the potential for fatigue-induced fatal accidents is easy to imagine and is historical fact. It would be unfortunate for an officer to cause a fatigue-induced accident only because that officer was working overtime and getting tired in order to provide for his or her family. Legal liability is also a factor to bear in mind for police administrators. Section 1983 lawsuits can easily stem from a fatigue-induced accident by an officer, and these lawsuits can bankrupt a municipality; plaintiff's attorneys are more than willing to bring these lawsuits. While the effort put forth by the law enforcement community to protect and serve is laudable, officers must be cautious about excess work and minimal sleep in order to protect themselves and better protect the public.

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