ORGANIZATIONAL BEHAVIOR OF SORORITIES AT THE UNIVERSITY OF OREGON
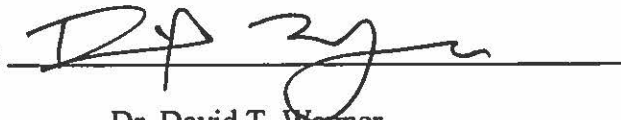
by

MARIE THERESE R. MAFFIT

A THESIS

Presented to the Lundquist College of Business
and the Robert D. Clark Honors College
in partial fulfillment of the requirements for the degree of
Bachelor of Arts

March 2016

An Abstract of the Thesis of

Marie Therese R. Maffit for the degree of Bachelor of Arts
in the Lundquist College of Business to be taken March 2016

Title: Organizational Behavior of Sororities at the University of Oregon

Approved: _____

Dr. David T. Wagner

The implications of sleep deprivation over a short period of time include the depletion of mental resources, which may oppress emotional regulation and influence mood. These factors may affect one's ability to assess an their relationship with others, especially in an organizational setting with leaders in power positions.

In a study of a Panhellenic sorority at the University of Oregon, four leaders (in supervisor roles) and thirty- one followers (effectively subordinates), were surveyed during a six-day period of Fall Formal Recruitment to gather data. This included quantity of nightly sleep, positive and negative affect, and relationship satisfaction.

Of the hypotheses tested, there was evidence from the study that indicated a statistically significant relationship between metrics such as follower and leader sleep, leader sleep and leader negative affect, leader sleep and positive leader affect, and that leader sleep predicted leader negative affect levels and leader satisfaction with followers.

Acknowledgements

I would like to thank Dr. Wagner for his dedication and for sharing his immense expertise with me. I can truly say I have learned so much about this field of research, and am thankful to have had you to guide me through this process. I am thankful for his encouragement and commitment through this research journey.

I would also like to thank Dr. Rosenberg, my Honors College representative and adviser. I have so enjoyed taking your classes and learning from you since my freshman year. Thank you for your continued support and knowledge. Additionally, I would like to thank Ms. Kate Harmon, my third committee member. Thank you for your continued support and helpfulness during this process.

I would like to take the time to thank those at the Lundquist College of Business and the Clark Honors College for providing inspiration and support during my academic career.

Lastly, I would like to thank my friends, family, and most of all my parents for always encouraging me in my pursuits and supporting me through my academic career. I am so thankful and appreciative of how my parents have provided so much opportunity for me, and instilled a love of learning.

Table of Contents

Introduction

John Maxwell once said, "People buy into the leader before they buy into the vision." By definition, a leader is one who commands a group, organization, or country. Leaders bring people together to inspire and execute a shared vision, to move a group toward a new path, to accomplish great feats. Therefore, the relationship between leader and follower, or supervisor and subordinate, is of critical importance. Leaders are entrusted with certain privileges. For example, these individuals are the ones called upon to make tough calls and hard decisions. In many cases, leaders are charged with being able to see the whole picture, and know how each facet of a decision affects those involved. Apart from the distinction of making decisions on behalf of a group, leaders are charged with being the face of an organization, creating a culture of harmony and trust within the group, and holding members accountable for actions.

Leaders often voluntarily and excitedly take on more responsibility in order to help move their organization forward, thrive, and succeed. They aim to communicate a shared vision, individually motivate subordinates, and work to better their organization. Now consider being a student, a collegiate leader. These individuals are tasked with a great amount of responsibility and duties to fulfill, all while maintaining course work for graduation requirements, possibly working to earn money for their education or living situation, and perhaps even participating in the occasional social outing. Leaders of student organizations often wear many hats, and typically disregard their need for sleep. Students in leadership roles often do not earn monetary compensation, but are working purely to better their organization, prepare themselves for professional work, boost their resume, or serve a need.

Often times, this responsibility requires many additional hours of work and higher level of commitment in leaders. Also, these individuals are tasked with the difficult feat of leading their peers; the same peers who may have chosen them for such a position, and who may be friends with them outside of the organization. This added amount of time now allotted for work is thus "borrowed" from other activities, such as studying, socializing, exercising, or sleep. (Barnes, Wagner, & Ghumann, 2012) Sleep is a basic need for proper human function, and people ages 18- 22 require at least six to eight hours of sleep per night. (Harvard Medical School)

Lack of sleep has many effects on the body, such as diminished cognitive function and slower motor skills. (Harvard Medical School) The most common effect of sleep deprivation is sleepiness, and more extreme effects include compromised concentration, working memory, mathematical capacity, and logical reasoning. (Harvard Medical School) These are all functions necessary for an individual to be able to make sound decisions.

Further, these are all functions needed by leaders and supervisors. Even followers require proper cognitive function in order to follow directions and interact appropriately in a group setting. Additionally, there is much research and literature to suggest that a lack of sleep has significant implications regarding one's ability to regulate emotion. (Girsh and Wagner, 2016) The ability to regulate emotions is an important, often overlooked, quality in leaders. When considering the importance of a group in harmony with their leaders in respect to the group's ability to function efficiently, emotional regulation is a necessity. It is especially important when

considering the importance of a positive relationship and satisfaction between leader and follower.

This paradox in wanting to serve an organization to the best of their physical and mental ability would have detrimental effects on the ability of a leader to effectively lead, due to the negative social and regulatory effects of sleep deprivation. In an admirable effort to see their organization succeed, leaders make choices about what to do with their precious time. As leaders have more tasks to accomplish in relation to their organization, sleep is often sacrificed. The very organization they have dedicated so much of their time, attention, and also sacrificed study time, sleep time, social time for, may be causing an amount of sleep deprivation that constitutes negative feelings from those they are trying to lead. Further, the subordinates, as they begin to feel less connected with those in leadership, may be less "on board" with the ideas the leaders in their organization are communicating.

This study looks into the effect of sleep deprivation on emotion of supervisors of an organization, and hypothesizes that as sleep diminishes in leaders and they become more emotionally unstable towards subordinates, the subordinates have a diminished sense of supervisor satisfaction. This paradox could have significant implications for the organization at hand. While there is substantial existing research on the correlation between lack of sleep and lack of emotional regulation, I will investigate this jump in emotion by looking at metrics such as relationships and communication within an organization by surveying supervisors and subordinates. This information is valuable because the results may have an effect on the productivity and efficiency of an organization, the leaders, and structure that would cause positive change. If there is a

correlation between emotion and supervisor satisfaction as a result of sleep deprivation, leaders of organizations may change habits and become more conscious of such habits. Further, this study may bring attention to the demands and strain student leaders face and cause student organizations to re-organize their approach to management and leadership. The practical application of this study may lend insights into how to better leadership training, recruitment processes, and organizational structure. Lastly, the areas of further research will give suggestion on how to improve the study and gain more significant results.

Literature Review

The focus of this thesis is centered on the leadership and followership dynamics of an organization at the University of Oregon, in which 185 women reported to 4 leaders during a six- day period of Formal Recruitment. This study looks in depth at the implications of sleep deprivation at an individual level at followers and leaders, how this deprivation affected emotion and affect, and finally how those factors contributed to relationship satisfaction between leaders and followers.

The Importance of Sleep

First, it is critical to understand the importance of sleep to the functionality of an individual and organization. The American Academy of Sleep Medicine defines sleep deprivation as "the failure of an individual to get enough sleep." This varies from individual to individual, and the amount of sleep a person needs may depend on factors such as age and health, but on average most adults need about seven to eight hours of sleep per night, teens need nine hours per night, and children at least nine hours per night. (American Academy of Sleep Medicine)

Harvard Medical School states sleep is critical to the body's immune function, metabolism, memory, and learning. The question of *why* humans need to sleep and why we seem to naturally form sleeping habits is one of evolution and survival. There are many theories outlining why humans and other animals sleep. Inactivity theory says that the inactivity of animals at night is an adaptation for survival to keep them out of danger during a particularly vulnerable time of day. (Harvard Medical) Animals stayed still,

and through natural selection, only those that were inactive at night and in the dark survived.

Another theory behind why humans sleep, and most pertinent to this thesis, are the restorative theory. (Harvard Medical) This is held in the belief that the act of sleeping provides the body time and rest to repair itself for the activities that occur when we are awake. Research has shown that sleep restores muscle growth, tissue repair, protein synthesis, and growth- hormone release. Some of these processes *only* occur during sleep. Additionally, other restorative powers of sleep pertain to cognitive function. (Harvard Medical)

Alhola and Polo-Kantola write in their study, *Sleep Deprivation: Impact on cognitive performance,* about the distinction between acute total and chronic partial sleep deprivation. Acute total sleep deprivation means individuals are kept awake for long periods of time, such as a 24-72 hour time span. This is equivalent to pulling an "all- nighter", as some college students may say. Chronic partial sleep deprivation, individuals get less sleep then needed for several consecutive nights. This thesis focuses mostly on partial sleep deprivation.

Alhola and Polo-Kantola go on to describe that sleep is regulated by two processes, which are a homeostatic process S and a circadian process C, and the interaction between these processes determines the sleep/ wake cycle. Sleep deprivation, of both types, interferes with the functioning of certain brain areas, impairing cognitive performance such as memory, alertness and responsiveness. The most famous theory on *sleep- based neuropsychological perspective* is the prefrontal vulnerability hypothesis, proposed first by Horne in 1993. This hypothesis implies that

6

sleep deprivation impairs cognitive function that depends heavily on the prefrontal cortex of the brain, which include functions such as language, executive functions, divergent thinking, and creativity.

Effects of Motivation

While these functions may decrease performance due to sleep deprivation, the compensatory effect of motivation during times of sleep deprivation of individuals is difficult to measure. However, Alhola and Polo-Kantola write it is of highly commonly held opinion that high motivation compensates for a decrease in performance.

This phenomenon of motivation regarding sleep deprivation and performance has been at the root of corporate cultures and businesses for some time now. In his article *I'll sleep when I'm dead,* Barnes discusses the importance of sleep in a corporate culture and how to manage "those too busy to sleep." He cites Richard Branson and Martha Stewart as CEOs who get on average four to six hours of sleep per night, putting them into the category of sleep deprivation. Barnes says that this behavior in an organization is dangerous, as it can lead to horrible accidents. He cites that 7.8% of all the Air Force Class-A mishaps (costing over one million dollars to taxpayers) have indicated sleep deprivation as a cause.

Additionally, sleep deprivation is a dangerous threat to organizations that are forced to operate around the clock, in different time zones, demand intense global travel of employees, or long shift hours. He goes on to point out that sleep deprivation leads to work place injuries, dysfunctional group dynamics at work, and poor affect amongst the group.

Sleep Deprivation and the Workplace

Bronwyn Fryer emphasizes this point in an article for *Harvard Business Review* (2006), citing examples of different types of jobs and occupations in which employees are constantly on the clock, sacrificing their health for the betterment of their organization, especially in the case of global travel. In the article, she cites Dr. Czeisler, a professor of Sleep Medicine at Harvard Medical School who claims "If you (corporations) want to raise performance- both your own and your organization's you need to pay attention to this fundamental biological issue."

Dr. Cziesler says there are four major sleep related factors that affect our cognitive performance, all of which can be traced to work strains and stress. The first factor is the homeostatic drive for sleep, which the human body may determine depending on how many hours it has been at work already. When the brain is sleepy, it can seize control involuntarily and a person may fall asleep within seconds- explaining the numerous tragic stories in the news cycle of people falling asleep at the wheel and dying. The second factor is the total amount of sleep one gets over several days- the partial sleep deprivation. Dr. Cziesler states, "If they average four hours of sleep a night for four or five days, they develop the same level of cognitive impairment as if they'd been awake for 24 hours- equivalent to legal drunkenness."

The third factor is the circadian pacemaker, which sends out its strongest signals in humans to stay awake a few hours before our homeostatic drive for sleep begins to peak. This may give individuals the motivation to stay up and continue to work. The fourth factor that affects performance is the fact that sleep inertia inhibits one's ability to make important decisions right when they wake up. The brain needs about twenty to

thirty minutes to be fully awake in order to be able to make sound decisions and process information fully. Dr. Cziesler goes on to say that this problem is prevalent in many organizations, and that sleep deprivation can too often have dangerous outcomes, "It is plain irresponsible to cultivate this behavior in employees from a management level."

Sleep deprivation is not a rare occurrence in today's demanding world. From the distractions of work to the demands of studying, it is estimated that in 1 in 5 adults fails to meet the seven to eight hours of sleep per night. (American Academy of Sleep Medicine) If 20% of the adult population is failing to meet their physiological demands for nightly sleep, how serious could the consequences be? As stated previously, the short- term effects of sleep deprivation include poor cognitive performance, over all sleepiness, poor judgment, and decreased ability to learn and retain information. (Harvard Medical)

Long- term Effects of Sleep Deprivation

The long- term effects of sleep deprivation are quite serious. Research has shown that long- term sleep deprivation increases an individual's risk of chronic disease, raises blood pressure, increased stress and risk of heart disease, impaired control of blood glucose, and increased inflammation. (Harvard Medical) Studies have also found that animals denied sleep for long period of time have died in a matter of weeks. Currently, there is research being done at Harvard to investigate whether adjusting one's sleep can reduce the risk of eventually developing a disease or lessening the severity of an ongoing disease. These diseases include diabetes, obesity, immune related diseases, mood disorders, and hypertension.

In the study *Effects of Partial and Acute Total Sleep Deprivation on Performance across Cognitive Domains, Individuals and Circadian Phase*, circadian clocks are used to understand the effects of sleep deprivation and sleep debt in regard to performance of cognitive tasks. In this study, thirty- six healthy men and women experienced seven nights of sleep restriction that also included a prior period of acute total sleep deprivation. Subjects were tested in ways that measured the effects of sleep deprivation on metrics including alertness, sustained attention, working memory, executive functions, and motor control. The research found that sleep loss primarily affects sustained attention, with smaller effects on working memory. Additionally, the study found that circadian rhythm of melatonin during sleep was affected by partial sleep deprivation. This means that the deeper an individual is in sleep debt, the more difficulty their body has with producing melatonin, which assists with the ability to fall asleep. Melatonin is able to induce sleep when the homeostatic drive to do so is lacking, keep individuals asleep, and induce phase shifts in the circadian clock. This study emphasizes the importance of sleep for body functions, and that daily sleep is a necessary investment to have better sleep in the future as well as perform better cognitively.

The Relationship between Sleep and Emotional Processes

While it is clear sleep deprivation has a tremendous negative effect on cognitive processes and other functions in the brain, until recently there has not been concrete research to prove that sleep deprivation has any effect on emotional processes and emotional regulation. Sleep deprivation has been shown (in some studies) to decrease emotionality (Talbot, McGlinchey, Kaplan, Dahl, & Harvey, 2010) and reduce

emotional intelligence. (Kilgore et al., 2008) However, some studies have shown that there is an increased emotionality after sleep loss as shown by exaggerated responses to negative stimuli and increased amygdala activity. This means that subjects responded more negatively to negative stimuli when they experienced sleep loss then when they got the sleep they needed. Emotional intelligence is defined as one's ability to recognize one's own emotions, the emotions of others, and discriminate between different feelings. Emotional intelligence also has to do with one's ability to use that information as a guide when acting towards others.

In one study, (Alfarra, Fins, Chayo & Tartar, 2014) subjects that experienced one night of sleep deprivation were exposed to neutral, positive, and negative visual stimuli. It is known that negative stimuli elicit more attention and capture attention more effectively than positively stimuli. The aim of this study was to understand emotion processing after 24 hours of sleep deprivation. This study had interesting findings: sleep deprivation did not impair attention differently between the emotional stimuli (the positive and negative images). This may be due to the fact that decreased attention from lack of sleep has an impact on one's ability to switch emotions between positive, negative, and neutral stimuli quickly enough to have a response to such stimuli. (Alfarra, Fins, Chayo, &Tartar, 2014)

With this information on the importance of sleep to the human body, daily functioning, and long- term health, it is devastating how many individuals treat sleep as a luxury instead of a necessity. In the daily lives of college students, the focus of this study, it is clear that the long hours of commitment to the organization and acclimation to the first week of school often take a toll on the recommended amount of nightly sleep

they obtain. However, this sleep deprivation may occur at any point during the school year, not just the time of Fall Formal Recruitment. Whether the reason is work, midterms or finals, group projects, social outings, or balancing other areas of life, sleep typically takes the back seat in the life of a college student.

When asked about this phenomenon, college students at the University of Oregon (who chose to remain anonymous) said, "Sleep is great if it happens. There's just too much I have to do and want to do to get more than 6 hours a night." Another student echoed similar sentiments when asked why they do not prioritize sleep, even when they know how critical it is to their health, "I feel like it's not even my choice that I don't get to sleep. From work to school and projects, there's a lot of pressure to constantly be doing something that sleeping is something that definitely is neglected."

Many college students will experience both types of sleep deprivation at one point or another during their collegiate career: acute total sleep deprivation and partial sleep deprivation. As stated earlier, acute total sleep deprivation may occur after an individual goes without sleep for over twenty-four hours. This often prevails during midterms and finals, when some students choose to pull all- nighters in order to cram study time in before an exam. When students consecutively get less than the recommended seven to eight hours of sleep per night needed by adults, they have chronic partial sleep deprivation.

There are ways to mitigate sleep deprivation, such as taking naps during the day or sleeping more before or after the deprivation has occurred. While caffeine is often used as a stimulant to increase alertness and performance when sleepy, nothing can

truly replace the restorative physiological process of sleep. (American Academy of Sleep Medicine)

Having discussed the detrimental physiological effects of sleep deprivation, we must now examine the effects this has on the individual level. This study focuses on the effects of sleep deprivation on the individual, and how the individual will then react in a leader/ followership relationship of an organization. Research has shown that sleep loss in individuals may cause problems with alertness, attention span, memory, and emotional distress. (Goldstein & Walker, 2014) To understand this groundwork, we must examine the topics of emotion, affect, emotional regulation, self- regulation, and personality.

Understanding Affect

Affect is an encompassing term that includes mood and emotion, and describes the experience of feeling mood and emotion. (Gish &Wager, 2015) By definition, emotions are discrete, intense, and short-lived. Moods typically have an unclear cause, lower intensity, and are diffuse. (Gish & Wagner) Emotions can include anger, happiness, contempt, fear, disgust, or surprise. Moods are more ambiguous, and can be generally described as positive or negative.

While the purpose of this paper is scientific, one may find additional clarity when thinking of the literary usage of mood and emotion. Moods are often ambiguous, atmospheric, and provoke the readers to a particular vibe. When characters in literature experience emotion it is because of a discrete event, and drives relationships and actions.

As previously discussed, sleep is a restorative process that is critical to health. Sleep deprivation is defined as getting less sleep than one needs, and therefore is different from individual to individual with most adults needing about seven to eight hours per night. While the phrase, "You got up on the wrong side of the bed today" may imply a relationship between the quantity and quality of hours and one's emotional state the next day, this implication reigns true in the research community as well. Everyone has their own story or has experienced what it may be like to not get enough sleep, and have to continue on with their routine in the morning only to be cranky, unpleasant, and tired. Studies have shown that even small changes to nightly sleep patterns (resulting in sleep deprivation) inhibit emotional regulation the day after. (Wrzus, Wagner, & Riediger, 2014) In fact, research has shown that accumulated sleep deprivation will lead an individual to experience negative emotion when responding to daytime experiences and also bringing the individual to be less inclined to feel benefits of goal- setting activities. (Zohar et al., 2005)

Ego- Depletion

When speaking about self-regulation, it is crucial to remember the role of personal motivation and ego depletion. Ego- depletion is the idea that self- control draws from a limited pool of mental resources that may run out. Further, when the energy for mental activity is low, self-control is impaired. Baumeister and Vohs wrote a paper that examined the role of motivation in self- control and surmised that a reduction in ego resources can be temporarily overcome by strong motivation. (Baumeister & Vohs, 2012) They state that self- regulation is "the self's capacity for altering its behaviors…greatly increases the flexibility and adaptability of human behavior…"

They define motivation as the general drive or inclination to do something, and point out that cognition is "a tool in service of motivation."

But what would lead someone to forge past his or her natural mental ability to do something? The authors cite culture, short- term- interests of self, and social acceptance as motivators that may overcome ego depletion. Ego depletion may result from sleep deprivation, as cognitive abilities diminish and it is harder to draw on the mental resources that did not undergo the necessary restorative processes.

In this sense, this paper is pertinent to this thesis in that when an individual, or group, is collectively focused on one goal, it may be possible to motivate yourself (and others) to work harder even when you are drawing on depleted mental resources due to lack of sleep. The motivation to make this sacrifice is aligned with social acceptance reasoning. Humans are driven for the need of social acceptance by our survival instincts. (Baumeister & Vohs, 2012)

Whatever one's motivation may be, this is an important relationship for leaders to recognize in organizational settings. When working in teams, or in any type of collaborative setting, individuals want to feel included, important, and a sense of belonging. This may mean individuals will sacrifice their own resources to work harder for the organization. Additionally, if leaders are leading and taking the time to manage their followers to the point they are depleting their own resources, they may be less capable of making decisions and leading effectively.

In one study by Muraven and Slessareva (2003), participants demonstrated that, though mentally depleted and experiencing ego depletion, they were able to effectively

self-regulate if offered an incentive. This demonstrated that motivational incentives could be enough compensation to work past depletion.

From a physiological standpoint in relation to emotional regulation, there is research showing that individuals who experience sleep deprivation experienced higher activation in the amygdala of their brain, and less activation in their medial prefrontal cortex. (Yoo, Gujar, Hu, Jolesz, and Walker, 2007) Also important, this study found that the part of the brain that is wired to connect the amygdala and medial prefrontal cortex was barely there, but fully present in the group of individuals who had gotten proper sleep. Sleep deprivation caused 60% amplification in amygdala activity and reactivity to emotional stimuli in individuals. Therefore, it is believed that this connection is vital to emotional regulation, as the sleep deprived group responded to emotionally provocative stimuli with their amygdala (the primal response) instead of their medial prefrontal cortex (higher- order) as the individuals who did sleep responded. The researchers go on to point out that this relationship between the amygdala and medial prefrontal cortex is of high importance to emotional regulation and making choices.

Building on this idea, research has been done to examine the effects of sleep deprivation (no more than 6.5 hours per night) on discrete emotions, namely anxiety. (Talbot et. al., 2010) Anxiety is an important emotion for humans; it helps us plan for the future, keeps us alert, and is critical in face of danger, as known in the *fight or flight* theory. While it is important to humans and has helped the species survive over the years, anxiety has negative effects on cognitive performance, is related to depression, and may inhibit other brain activity such as the medial prefrontal cortex.

In the 2010 Talbot study, adults and adolescents that were under conditions of sleep deprivation (having slept no more than six and a half hours) were faced with a task. The aim was to test if sleep deprived folk would experience less positive affect and more negative affect, including discrete emotions pertaining to each category. The second goal was to examine the effect of sleep deprivation on anxiety by measuring responses on five questions relating to anxious feelings during the battery affective test. The results of the study found that sleep deprived individuals felt less positive affect than those who were not sleep deprived but did *not* feel more negative affect, with no distinction between adults and adolescents. Additionally, sleep deprived participants did report they felt more anxiety. They did not feel this anxiety with regard to feeling worried, but in regard to a task.

In another study, the idea that individuals would experience elevated negative affect in response to stressors when sleep deprived was further examined. (Minkel et. al., 2012) In this study, researchers used the premise that stress and poor sleep often occur simultaneously in individuals, and both impact affect. Researchers tested the effects of one night of total sleep deprivation in individuals by having them respond to low and high stress cognitive tests. Stress was manipulated by changing the difficulty level of the tests, time pressures placed on individuals, and feedback. When operating under conditions of sleep deprivation in low- stress tests, individuals reported higher levels of subjective stress, anxiety, and anger than individuals who got enough sleep. The tests with high- stressors elevated negative mood and stress conditions equally for those who slept and did not. Researchers deducted that these results mean that an

17

individual operating when sleep deprived has a lower threshold for stress perception in cognitive demands.

Consider the implications of these results in the work force, when an executive or manager must make important decisions about the future of his or her organization. Or, consider these implications in the medical profession: doctors and nurses are constantly under stressful conditions, and very well may be sleep deprived due to the nature of their work. When their psychological threshold for stress is lower, their ability to regulate the stress and handle the situation is imperative. However, if these professionals are already under conditions of sleep deprivation, their ability to make emotionally charged decisions and regulate their emotions is also impaired. Sleep deprivation can initiate a vicious positive feedback cycle.

Another important concept when thinking about sleep and its relationship with affect and emotion is that of affective tone. Affective tone is defined as the emotional backdrop, or "blanket", that encompasses our memories in our brains. Naturally, our brains couple memories with affect and emotion. (Goldstein & Walker, 2014) REM sleep, or rapid eye movement, is part of the natural sleep cycle and is said to have its own restorative properties to the brain. During REM sleep, the brain is getting the rest it needs to mediate the relationship between triggered memories and affective tone. This is positive for a person because, if left unpaired, affective tone in regards to memories may cause an individual to develop chronic anxiety. As previously discussed, sleep deprivation intensifies negative affect and makes it more difficult for individuals to feel positive affect. When speaking of chronic sleep deprivation, sleepless individuals are

18

more prone overall to anxiety, paranoia, and depression. (Kahn-Greene, Killgore, Kamimori, Balkin, & Killgore, 2007)

Personality Type and Daily Sleep Needs

The nightly amount of sleep required per individual varies, as does the emotional response of individuals who are sleep deprived. This is in part due to personality type of an individual. You may consider yourself a "morning person" or a "night owl" and it is true that depending on which you are, you experience different emotions at different times of the day. Researchers have coined these terms as *lark* and *owl* Horne and Ostberg. (1976) The cycle peaks for decision- making and alertness are naturally different for larks and owls, sometimes regardless of the amount each has slept but dependent on the time of day.

Another factor affected by sleep deprivation on the individual level is job satisfaction. Job satisfaction relates greatly to how you feel and performance: cognitive and affective metrics. If an individual is sleeping poorly or for not enough time each night, his or her cognitive and affective abilities to regulate decrease. Not enough sleep may also contribute to negative work culture and job burnout. Too little sleep was identified in one study of 388 people that less than six hours of sleep was the number one factor that led to burnout of fifteen employees. (Soderstrom, Jeding, Ekstedt, Perski, and Akerstedt, 2012)

Sleep deprivation not only affects those in the work force. Significant research has been done on the effects of sleep deprivation on college students. College students are faced with the obligations and rigors of academia, activities and commitments, some working full time, holding internships, some with a spouse and/ or children, and

19

maintaining a degree of social life. When faced with all of these pressures, sleep often takes the back seat. In these scenarios, sleep may be thought of as an economic resource. During times of particular stress, such as finals or midterm season, students stay up for periods of twenty-four consecutive hours in order to study and cram. Additionally, it is not uncommon for students to binge in caffeine and take prescription drugs that aid in focus and alertness. Trade- offs are made between resources in order of perceived value. There are many detrimental effects when sleep is not made a priority of time resources for college students. This can result in increased sleepiness during the day, which is often compensated during class thus defying the purpose of not sleeping.

In one study, forty-four college students were put under conditions of twenty-four hours of sleep deprivation or were permitted to have 8 hours of sleep. (Pilcher and Walters, 1997) Participants then completed a cognitive task and assessed themselves on two different questionnaires, each asking about reported effort, concentration, estimated performance, and the other asking about off- task cognitions. Sleep deprived students performed worse on the cognitive task than the students who got eight hours of sleep. Interestingly, the sleep deprived students rated their concentration and effort higher, as well as their perceived performance than the non- sleep deprived participants.

Researchers found this to mean that college students are "not aware of the extent to which sleep deprivation negatively affects their ability to complete cognitive tasks." Additionally, it can be inferred that this scenario is common amongst students before exams and may result in poorer grades but perceived higher expectations of exam performance. Students who were able to get sleep had a more accurate prediction about

their test performance, reported they did not require as much concentration or effort, and overall performed better.

These findings may reflect the popular notion that students and professionals create amongst themselves: to perform well, you must stay awake that much longer to be perceived as working harder. This culture can be seen at any academic or professional setting, and is self- perpetuating. We all have stories about a manager, a leader, peer, or perhaps our own premonitions that we need to stay up all night in order to have "studied hard enough." If people with these attitudes and habits are in positions of leadership, whether formal or informal, this can create a harmful and unhealthy culture in an organization and community.

In any organization or community, there will be a plethora of personality types and individuals who perform and react differently under pressures such as sleep deprivation. In 2002, Gray and Watson completed research to examine the link, if any, between differences in personality types, sleep, and performance measures. They used the Five Factor Model to assess personality, and found that the trait of Conscientiousness was a significant factor in predicting academic performance. The five types of personality used to measure in this study were neuroticism, extraversion, openness to experience, agreeableness, and consciousness.

Previous research had shown that conscientiousness is significant to positive job and academic performance. Conscientiousness was highly correlated to one factor of sleep: sleep schedule. This study showed that highly conscientious individuals kept a routine sleep schedule. Sleep was measured in terms of quality, quantity, and schedule.

The research went on to describe that there is not a significant overall correlation between estimated nightly sleep and the Big Five dimensions. However, they did find that poor sleep quality is substantially related to Neuroticism. Additionally, they point out that other literature associates morning "lark" types to be introverted and evening "owl" types to be extraverted. (Jackson & Gerard, 1996) According to other studies, morning folk report higher positive affect throughout the day than evening people. (Clark, Watson, & Leeka, 1989)

In this study, researchers found that sleep quantity was not a significant predictor of any personality scales in this study. This study, which used college students, did not find any significance in relationship between sleep quantity and negative or positive emotionality. While this finding is contrary to traditional sleep studies, it may be due to the fact that college students are accustomed to taking naps during the day, more willing to sacrifice sleep and therefore do not feel negatively having done so. However, this study did find that sleep *quality* was critical to long- term well-being.

While this thesis does not take into consideration the Big Five personality traits or specific identified traits of participants, it is important to note the findings regarding affect and sleep quantity in college students. Additionally, knowing that personality is a factor when studying sleep is an important idea for this study. Personality type is always important regarding organizations, not just for sleep study purposes but also for leadership and followership dynamics and styles.

Emotional Labor Processes

Sleep quality and self- control have been found to have an interesting relationship to the daily emotional labor process, which is the expression via face and body to meet organization requirement of one's emotions. (Diestel, Rivkin, & Schmidt, 2015) For example, this can mean that a person feels they need to look alert and happy and alter their body language and facial expressions to convey this false emotion to their peers and superiors. Past literature has posed that this daily emotional labor places high demands on self- control and takes away limited regulatory resources, touching on ego depletion theory. This can have negative effects on well-being for individuals facing this labor and mental depletion.

The Diestel, Rivkin, and Schmidt study examined two known moderators of the daily emotional labor process: day- specific sleep quality and individual self- control capacity. They tested whether or not sleep quality affected the influence of emotional dissonance, which is the discrepancy between actual and required emotions on ego depletion. This is of particular relevance to this study, as it is formulated around a time of Fall Formal Recruitment. In this setting, participants must exert a required upbeat emotion of happiness, excitement, and love of the organization to potential new members in order to recruit. Clearly, all of the participants in this study may not always feel this way, and must draw on resources that result in ego depletion. Previously, it was discussed how sleep regulates emotional processes but during times of emotional labor, one must draw on their own resources to regulate and communicate a perceived emotion.

The Diestel, Rivkin, and Schmidt study found that day- specific sleep quality was a significant factor when indicating well- being and that self- control "moderates this interaction." This three- way interaction is important to consider because all are factors that can influence sleep, affect, and leadership/ followership satisfaction in an organization.

Scarcity Theory

Pertinent to understanding this causal relationship hypothesized in this thesis are many important theories, ideas, and models: scarcity theory, ego depletion theory, the idea of sleep as a slack resource, and emotions as social information model. These theories and models of thinking are at the center of much academic study in research relating to sleep, affect, individuals, organizational behavior, and leadership/ followership satisfaction.

To start, the economic principle of scarcity states that a "limited supply of a good, coupled with a high demand for that good, results in a mismatch between the desired supply and demand equilibrium." (Investopedia) This problem arises because people have unlimited wants, but have limited resources. The scarcity of a good will change the way consumers value the good. This principle could therefore be applied to commodities with high demands such as oil, Duck student football tickets, and the amount of time a person has to dedicate to an activity, cognitive function, or sleep. Between the demands of long work days, tending to family and personal matters, and going through other daily demands, people often have to make choices about how they value their time in regards to sleep. There are only so many hours in one day, only so

many hours between responsibilities, and sleep is often, if not always, the first resource to be cut in order to "make time" for more highly valued activities.

Edwards and Rothbard examined this aspect of time and scarcity theory in their study *Mechanisms Linking Work and Family: Clarifying the Relationship Between Work and Family Constructs.* (2000) This study recognized the importance of this relationship to organizations, as organizations are demanding more of their employees' time, taking their time away from families and life at home, thus potentially straining the work- life balance and overall satisfaction. Some employees may even find this reason enough to quit their jobs. They define resource drain as an important linkage between work and family, and as the "transfer of finite personal resources, such as time, attention, and energy, from one domain to another."

They go on to say that these finite resources "yields a negative direct relationship between work and family resources," meaning that when an individual uses their finite resources for work (or family) it is no longer available for family (or work). The authors say that these choices in regards to allocation of finite resources were intentional by consumers. Whether a student or working adult with a family, everyone has experienced having to make the choice between spending time with loved ones or working (or studying). These are intentional choices that we make, based on the value we see of allocating our time and resources to each action.

To further this research, researchers looked at sleep as an activity that also competes with work and family commitments. (Barnes, Wagner, and Ghumann, 2012) Researchers suggest that as people cannot attain more time in the day, they must

"borrow from sleep" to use this time to spend working or with family. This study draws on scarcity theory, in addition to the idea of slack resources.

Slack Resources

The term slack resource was first used in 1963 by researchers Cyert and March when discussing organization slack. They defined the term as "resources in excess of what is required to reward the dominant collation that governs the organization." (Cyert and March, 1963) These resources relieve the impact of scarcity in organizations. In regards to organizations, a slack resource may be an increase in the amount of personnel hired to prevent work burnout from overworking a lower number of employees. (Barnes, 2011) For some organizations, this may sound like an expensive way to mitigate a problem they were otherwise unaware existed. However, having more people to work efficiently, safely, and productively will cut down on injuries, employee stress, increase satisfaction, and improve overall culture and health. (Barnes, 2011) Barnes, Wagner, and Ghumman state, regarding slack resources and scarcity: "as slack resources are consumed, there is less of a buffer to soak up further increases in demands. Once slack resources are totally gone, any increase in demands will come at the expense of current activities." They go on to say that slack time can be considered the time an employee has to do things besides work, family, or sleep, and is a resource that may be completely depleted if demands from work, family, or sleep are required. For example, if an employee must attend an unplanned two hour meeting, they must reallocate their slack time (previously dedicated to an excess activity such as watching Netflix or knitting) to this new demand.

Barnes, Wagner, and Ghumman explore the previously underappreciated idea that employees have an array of activities that may occur outside of work that do not necessarily involve family, such as sleep. By taking data from a Bureau of Labor Statistics survey of 10,741 individuals and measuring metrics such as work time, family time, and time spent sleeping they found the following results: "On average, a 1 hour increase in time spent working is associated with a decrease in sleep by 14 minutes in the first study and 7 minutes in the second study. On average, a 1 hour increase in time spent with family is associated with a decrease in sleep by 14 minutes in the first study and 6 minutes in the second study." This may not sound overly significant, but given the knowledge that most people experience this phenomenon for multiple hours, over multiple days per week the sleep deprivation begins to accumulate.

In 1989, researchers Biddle and Hamermesh conducted research in conjunction with the National Bureau of Economic Research to look into the impact of sleep deprivation and wages in *Sleep and the Allocation of Time*. The authors noted that there was little to no evidence on the determents of individual differences in sleep allocation; however, there are some discrepancies in amount of time slept and metrics such as gender and age. (Biddle and Hamermesh, 1989) Through their examination of international surveys regarding time spent sleeping and time spent working, they found that each additional hour of work reduces sleep time by seven minutes. (Biddle and Hamermesh, 1989) Additionally, they found that men slept more than women, often due to the role of women as mothers. Also, they found that increased educational attainment reduces sleep duration. In total, their analysis found that "at least part of sleep time is a

27

reserve on which people can draw when economic circumstances make other uses of time more attractive…for they respond to economic incentives."

The "Marginal Price" of Sleep

Biddle and Hamermesh's most important finding, and most relevant to this study, is their conclusion that time spent sleeping is inversely related to wages and the amount of time spent in the labor market (working). When thinking about sleep as an economic resource, it is important to recognize that the "marginal price of sleep" differs greatly than the marginal price of other activities. Individuals have much more to gain (and lose) from one additional hour of sleep than choosing to read for an hour, take up a new hobby, or spend time with other people in terms of physiological and cognitive benefit. Thinking about sleep as a scarce resource, that can have marginal benefit, is a key factor when comparing the choices people make. Also, it may help economically minded individuals to understand the consequences of their choices when they deplete sleep as a resource, when managers do not have enough personnel to fill in as slack resource, or as executives plan how to create a healthy culture.

EASI Model

An important model in understanding the relationship between sleep, affect, and relationship satisfaction is Gerben A. Van Kleef's EASI model, which he discusses in his paper *How Emotions Regulate Social Life*. Van Kleef created this model to reflect and illustrate previous research that had been done on emotions on behavior in personal relationships including leadership, based on the idea that "emotional expressions affect observers' behavior by triggering inferential processes and/or affective reactions in

them." An individual's affective state influences his own cognitions, motivations, and behavior. (Van Kleef, 2004) Van Kleef states that when an individual expresses emotion, they provide information to others about themselves, and this information may influence observer's behavior. This ability to draw information from emotional expression begins at infantry. In one study, infants were shown a visual cliff, and were found to be more likely to cross this cliff when their mom smiled at them than when she appeared fearful. (Klinnery et al., 1983) This informational process is an evolutionary survival tool for humans.

Van Kleef's model helps us to understand and predict the relationship between observer's affective reactions and observer's inferences about another individuals' emotions. He claims, "Emotional expressions may affect observers' behavior by providing relevant information about the situation and affecting observers' emotions and liking of the expresser." Additionally, the two classes of moderators for these factors are the observers' information processing and the social relational factors.

The other guiding force behind Van Kleef's model is affective reactions. He states that "emotions may spread directly from expresser to observer via emotional-contagion processes" and that these emotional expressions may affect impressions and liking of one another. This is a phenomenon that occurs in everyone's daily life- the way we present ourselves in our body language, reactions, tone, and expressions may define our social relationships. That said, we inherently are drawn to people who interpret information and show similar emotional expressions as us.

Van Kleef cites one of his previous studies when discussing the importance of information processing. In this leadership study (Van Kleef et al., 2008), he found that

followers of leaders who had higher dispositional information- processing motivators performed much better when their leader displayed anger because this motivated them to work harder. Followers with low information processing motivation performed better when the leader displayed happiness because this communicated positivity. As a leader, it is important to know how and what emotions you are intentionally, or unintentionally, communicating to your followers and how that will affect their emotions, their perception of you, and their motivation to work harder.

Ego Depletion Theory and Mental Resources

As aforementioned, ego depletion theory states that self-power and self- control draws from a limited pool of mental resources that can be used up. This state of ego- depletion may be reached when the energy for mental activity is low, such as in states of ego- depletion.

In one study, *Is the Active Self a Limited Resource* by Baumeister, Bratslavsky, Muraven, and Tice (1997), researchers aimed to test hypothesis of ego depletion in an effort to learn more about the human's self executive function. They postulate that a lot of human behavior is influenced by automatic or non-conscious processes, and use this idea, as well as ego depletion, to draw out four different experiments.

Important to this study is the idea of volition. According to the researchers, volition is "making choices and decisions, taking responsibility, initiating and inhibiting behavior, and making plans of actions and carrying out those plans." Volition draws from one's mental capacity, thus making it relevant to studies of ego depletion and mental resources. Also important to this study are the terms agent and executive function. According to researchers, an agent is someone who acts on another's behalf.

30

Executive function refers, in this capacity, to one's ability to make choices and use their mind to do so. (Baumeister, Bratslavsky, Muraven, and Tice, 1997)

The idea of the ego dates back to the times of Freud, who in 1923 "described the ego as the part of the psyche that must deal with the reality of the external world by mediating between conflicting inner and outer pressures." (Baumeister, Bratslavsky, Muraven, and Tice, 1997) Thurs, according to Freud, the ego holds a huge responsibility and requires a great deal of energy to function properly and maintain those processes.

Researchers tested ego depletion and the idea that "one act of volition will have a detrimental impact on subsequent volition" through four different experiments regarding temptation resistance, preliminary act of choice, the effects of ego depletion with consideration to task performance, and that the effects of ego- depletion would make people more passive in decision making. This means that they were testing whether or not being put under the stress of one particular volition would impact their ability negatively on a subsequent volition, and if the participants became more passive in responses due to ego depletion.

Their experimental strategy was to experiment and test on factors that seemed irrelevant from one to another. Between all four experiments, each contained different factors used to test different things. For example, to test temptation and willpower in Experiment 1, researchers used radishes and chocolate, followed by a task. While researchers did not use sleep deprivation as variable, but still tested ego depletion and will power in a way that created relevant results.

The results of the four very different, independent studies all pointed toward a broad pattern supporting ego depletion and the idea that one act of volition would lead to a subsequent act. Researchers state, "In each of them, an initial act of volition was followed by a decrement in some other sphere of volition." It is important to note, however, that none of the four studies had any way of directly measuring the limited resource (the mind). Therefore, there is no direct evidence that some inner quantity was diminished by acts of volition.

The results of the study imply that an individual to complete the following tasks uses the same single, internal resource: to make decisions, respond actively, and exert self- control. This mental resource appears to be very limited and susceptible to depletion. For example, in Study 1, participants lasted only five minutes to before they were unable to exert self- control and eat chocolate.

This study on whether the active mind is a limited resource provides insight into the different implications of ego depletion, regarding temptation, making difficult choices, and controlling one's willpower. These factors were thoroughly affected by independent variables in each of the four studies, so it is fair to presume that something so direct as one's own amount of sleep would have a greater affect on one's ability to use their ego effectively.

While the depleting effects of sleep deprivation have been thoroughly examined in studies and sleep has been accepted as a economic resource with the ability to be depleted, some wonder whether willpower is actually a resource or whether that is up to the individual's belief in its capacity as a resource.

Self- control vs. Limited Resource Theory

Job, Dweck, and Walton examine whether individual beliefs about willpower being a resource have an effect on their ability for self- control by drawing on ego depletion theory. (Job, Dweck, and Walton, 2010) Here, they discuss the differences between strength model of self-control and the limited-resource theory. Researchers state that, "self- control is not limited and perhaps even that engaging in a strenuous task can activate self- control resources." (Job, Dweck, and Walton, 2010) Whether a person draws more from the strength model of self- control and easily depletes their resources or finds more strength when their resources are depleted may depend on personality traits, mental capacity, and previous personal experience that dictates how they view challenges and willpower.

The first three studies the researchers conducted found that only participants who were under the impression that their willpower as a limited resource showed signs of ego depletion. However, those participants that were led to be under the impression that willpower was not a limited resource (under non-limited resource theory) did not show signs of ego depletion, and were actually able to perform better on tasks.

The final study conducted showed that when more people were operating under limited resource theory while completing tasks, their self- regulation capabilities were decreased outside of the study (in the real world) when demands to self- regulate were high. Through the four individual studies, the overall study found that reduced self-control after a depleting task or during demanding periods may reflect an individual's own beliefs about the availability of their own willpower, rather than true resource depletion.

The *Is it all in your head?* study draws on several important theories and beliefs, showing the exceptions in readily accepted research regarding ego depletion and resource depletion. Factors such as personality and personal motivation to complete tasks may contribute to whether an individual has a tendency to find them operating under limited resource theory or non-limited resource theory. This study becomes more interesting when you consider the implications the researchers' findings when considering an employee completing at task, leadership styles, organizational culture, and the potential productivity of an organization depending on all of the aforementioned factors.

For example, depending on an individual's own regard toward willpower as a resource and the phenomenon of ego depletion, this may contribute to their affect towards other employees, towards followers, or leaders. Previously in this paper, the Emotions As a Social Information model (Van Kleef) was discussed. This model has direct ties to one's ability to regulate their expressions and have the emotional intelligence to process the information at hand and react accordingly.

Taking this into consideration, two individuals may handle the same exact situation completely differently depending on their own ability to exercise willpower, which depends on how they view their own willpower. Someone who sees their willpower and self- control as a direct result of how much mental capacity they have, based on how much sleep they got last night (for example), may react quite differently to completing a long, grueling work task. Their performance, affect, and overall experience would be completely different, as well as the interpreted performance by their co- workers and supervisors. In turn, this can severely inhibit or prohibit

supervisor and follower satisfaction in an organization, contributing to productivity and organizational culture.

Group Affect

Additionally, consider the idea of leadership. Would you want someone as your boss with the mentality that willpower is a finite resource, or not? As an employee in an organization, do you want your supervisor to promote a culture where they work themselves to the bone, sleeping very little, and value productivity above all else? It is fascinating how all of these different factors, ranging from a person's affinity and ability towards a good night's sleep may affect their personal cognition, relationships, affect, self- regulation, performance, ability to control willpower, and how all of these may contribute to the organization they are a part of.

The theories and models discussed become of even more relevance when put into perspective regarding group affect, how they affect relationships, supervisor satisfaction, and organizational behavior. Discussed previously, affect is an umbrella term encompassing emotion and mood, and can be further defined as an observable expression of emotion. Previous research has identified affect as an "umbrella term that encompasses trait affect, state affect, and discrete emotion." (Ashforth & Humphrey 1995, Barsade & Gibson 2007, Young 1961) While individual affect is a key part of this study, the idea of group affect remains important to the study of organizations as well.

In a 2015 review of group affect, Barsade and Knight define the term in two different ways: 1) where group affect is viewed wholly, as in the "characteristics and properties of the group acting upon the emotions of the individuals within it", and 2) where group affect is a sum of its parts, in which the end result was the "aggregate of

35

the individual group members' affective states and traits." (Barsade & Gibson, 1998) These top- down and bottom-up models have been further developed, and research has found that there are both implicit and explicit affective transfer processes that serve as channels for transferring affect amongst group members. (Kelly and Barsade, 2001) These include emotional contagion, which is the tendency for two individuals to converge emotionally, as well as behavioral entrainment and vicarious affect. (Barsade and Knight, 2015) Over the quarter- century worth of research done on group affect, it has become known that affect in groups develops toward homogeneity. (Barsade and Knight, 2015) This is due to the natural and evolutionary need of humans to seek acceptance and inclusion in group, as well as factors such as groupthink.

The two different definitions of group affect have different manifestations on the group or organization. Barsade and Knight claim that the bottom-up perspective of group affect may manifest as emotional convergence or affective diversity, which is "divergence in group members' individual affect." In 1987, a model was created called the attraction-selection-attrition model (Schneider, 1987) to explain three occurrences. One, that individuals seek work groups made up of people who are similar to them in respect to affect; two, organizations hire/ recruit/ invite individuals who are similar in affect; and three, members of a work group "most dissimilar in affect are most likely to turn over." Due to these three factors, group affect and composition become increasingly homogenous over time periods. (George, 1996)

They state that the top- down perspective of group affect is seen in the emotional culture of an organization and in dynamic processes that change over the organization's life span. (Barsade and Knight, 2015) Emotional culture is defined as the "behavioral

norms, artifacts, and underlying values and assumptions reflecting the actual expression or suppression of culture, and the degree of perceived appropriateness of these emotions, transmitted through feeling and normative mechanisms within a social unit." (Barsade and Gibson, 1998)

These two definitions of group affect are critical to this study and understanding the intricacies between the leadership and followership dynamic of a relationship, emotional contagion, and how this stems from one's ability to regulate emotion and communicate affect. A follower in an organization may root a lot of their own individual affect from what their leader is communicating, via emotional displays. As stated, this may affect the entire culture of an organization, having serious implications on supervisor satisfaction, performance, and the group's future.

Individual Characteristics and Group Affect

Barsade and Knight also discussed that the extent of group convergence or divergence in affect also partially depends on individual personality characteristics. Drawing from research about individual differences in susceptibility to emotional contagion, (Doherty, 1997) research has found that individuals are highly susceptible to contagion, for whatever reason, are more susceptible to share affective experiences. An individual may be more susceptible to contagion based on their power (or lack thereof), age, influence, or personality traits. Convergence of affect in groups is based upon the theories of emotional contagion and the manifestation of such in facial mimicry, emotional comparison, and empathy. (Hatfield et al., 1994)

Additionally, it has been found that the extent to which an individual feels committed, with generally positive affect towards their organization or group may have

an influence to the individual's affect as a group- member and how it contributes to the collective affect of the group. (Totterdell et al., 1998)

Unsurprisingly, it is leader's interest to do their part in keeping group affect positive. In one study of leadership and teams (Chi et al., 2011), team members who shared in their positive affective experiences together ended up being more satisfied with their teammates, more committed to teams, and engaged in a more helpful behavior than team members who did not share in positive affective experiences. It is important to note that these members did not necessarily feel negative affect, or something other than positive affective; they did not *share* in these positive team experiences. This subtlety is something that leaders need to be emotionally intelligent enough to pick up on in order to identify and moderate the dynamic for the sake of the group's performance.

The leaders (top management) in a team greatly shape team members' interactions, including conflict resolution and cooperativeness. (Barsade et al., 2000) In a 2002 study, it was discovered that positive emotional contagion was positively correlated to measures such as self- report ratings and team member cooperativeness, and negatively related to group conflict. (Barsade et al., 2000) Research on group affect has consistently shown that displayed group leader moods and emotions (affect) influence the experienced affect of the followers. (George, 1995) In another study regarding leadership, team affect, and performance, with small business leaders and employees as the participants, it was found that a "positive, significant relationship between team positive affect" and the success of new ventures. (Hmieleski et al., 2012)

In addition to group cooperativeness and conflict resolution, positive group affect has been linked to higher work performance, and thus higher profit. In one study, survey data of 26 work groups showed that "the mean trait negative affect of the group was (positively) related to the shared negative group mood... less prosocial behavior toward customers and greater employee absenteeism." (George, 1990) These implications of individual and group affect are critical when an organization is serving others, who take in emotional cues as information as discussed in Van Kleef's model. This may have great influence on an organization's ability to makes sales, negotiate deals, recruit effectively, and maintain relationships with customers, other businesses, and in their own organization. Whatever an organization's mission and values may be, it is valuable for leaders to recognize the scientific research that may assist in leading and managing employees towards their goals.

Emotional Contagion in Groups

In a 2005 study, Barsade further investigated the implications of emotional contagion in groups, stating its importance due to the fact that more firms are changing their structure so as to promote team orientation. (Barsade, 2005) He defines emotional contagion as "a process in which a person or group influences the emotions or behavior of another person or group through the conscious or unconscious induction of emotion states and behavior attitudes." (Schoenewolf, 1990) Barsade says it is critical to note that the transfer of affect is not at all similar to the transfer of ideas, in that emotions and affect are communicated through nonverbal cues. (Mehrabian, 1972) The mechanisms of communication for emotions are subconscious or more conscious emotional comparison processes. Second, he explains that emotional contagion research

has found that emotions are communicated on a "less conscious level, based on automatic processes and physiological responses." (Hatfield, Cacioppo and Rapson, 1994)

Barsade tested six different hypotheses regarding emotional contagion in a group setting, with the ultimate goal of finding out if unpleasant or pleasant emotions are likely to lead to mood contagion, by what degree, and if that has an effect on the handling of group conflict. Ultimately, his results led to the following conclusions: 1) confirm that emotional contagion does occur in groups, 2) people are continually influencing the affect of others and judging others' behaviors, 3) find that there was no degree of contagion as a function of the emotional degree and energy level. (Barsade, 2005) Ultimately, he found that "emotional contagion was shown not only to influence people's moods in the group but…it was also shown to influence subsequent group dynamics among group members, both at an individual and group level." (Barsade, 2005)

The findings of this study overall confirm accepted knowledge in the field of emotional contagion, but it is worthwhile to note that there was degree to which positive or negative group affect changed due to emotional contagion, and that energy level did not play a factor either. Positive and negative affect was just as powerful as the other, with energy having either "mixed or no effect on contagion." (Barsade, 2005) This is an interesting notion when regarding one's mental ability to communicate emotion and have an effect on the emotional contagion with the rest of a group when sleep deprived. According to Barsade's findings, if energy level were to decrease due to sleep

deprivation, the overall power of this would not be enough to have an effect on the power of contagion.

Leadership

Continuing the discussion of depleted psychological resources and behaviors, let us consider the role of the leader in organizations. Leaders vary based on the demands of their role, personal experience, dynamics and culture of their organization, sphere of influence, and personal leadership style. However, all humans are built the same physiologically, with the same cognitive processes. There has been much research done on the effects of abusive supervision and followers' well- being, but only recently have studies inspected the effects of depleted leaders. In a 2012 study, researchers hypothesized that depletion in leaders of organizations would result in "lower levels of transformational leadership, and higher levels of abusive supervision" as predicted by leaders' depressive symptoms, anxiety, and workplace alcohol consumption. (Byrne et al., 2012)

This study aims to look into leaders' well- being as a precursor of their behaviors, drawing upon conservation of resources theory, knowledge of abusive supervision, and transformational leadership. The conservation of resource theory states that individuals who "lack personal resources will experience stress, and will also is prone to further resource loss." (Hobfoll, 1989) Therefore, in an effort to prevent future suffering, people protect these resources such as psychological characteristics, energies, and conditions. The conservation of resource theory explains why depleted employees are more likely to experience burnout, job dissatisfaction, job tension, turnover intentions, and reduced job performance. (Byrne et al., 2012)

41

But why are leaders particularly susceptible to this resource depletion? The researchers of this study examined the demands of leadership and, more specifically, transformational leadership. They ascertain that leaders are charged with many responsibilities and complex tasks, such as "influencing goals and strategies, employee commitment and compliance, organizational culture, social relationships, team effectiveness, and decision- making. (Byrne et al., 2012) Thus, it can be inferred that effective and successful leaders require a sufficient number of mental resources. This becomes more apparent when considering effective, positive leadership, such as transformational leadership.

Researchers of this study define transformational leadership as a reflection of four factors: idealized influence, inspirational motivation, intellectually stimulating, and individualized consideration. (Bass & Riggio, 2006) In total, transformational leadership is the practice of creating a shared vision with followers, and enhancing motivation, morale, and performance through different methodology. This may include setting a good example for followers and being especially emotionally intelligent of the needs and wants of their followership. Transformational leadership has received much attention over the years in scientific study due to its effectiveness in organizations. There is much philosophic debate over what characteristics contribute to effective leadership, and whether an individual can learn these traits, or they are born.

Researchers affirm that enacting transformational leadership "requires access to sufficient personal resources." (Byrne et al., 2012) Previous research has shown that transformational leadership is associated with higher levels of positive affect (Walter & Bruch, 2007), characteristics such as optimism, hope, and resiliency (Peterson et al.,

2009), and self- confidence. (Ross & Offerman, 1997) These resources have all been included within conservation of resources theory.

Other evaluative metrics included in the study were abusive supervision, depressive symptoms, and work place alcohol consumption. Researchers then defined abusive supervision as the act of supervisors engaging in "ongoing displays of verbal and non-verbal (not physical) hostility, such as public ridicule, inappropriate assignment of blame, rudeness, and/ or invasion of privacy. (Tepper, 2000) Depressive symptoms and anxiety, often contributing to sleep deprivation in an individual, were also included as measures in depletion in predicting leadership behavior.

With all of this information in mind, researchers drew on the conservation of resources approach that suggests leaders' symptoms, anxiety, or workplace alcohol consumption hard leadership behaviors that require a considerable amount of resources, including transformational leadership. They tested the following hypothesis: 1) leaders' symptoms of depression/anxiety/ workplace alcohol consumption with be negatively associated with transformational leadership; 2) leaders' depression/ anxiety/ workplace alcohol consumption will be positively associated with abusive supervision; 3a) multiple forms of resource depletion will interact to exacerbate the negative impact of resource depletion on transformational leadership; 3b) multiple forms of resource depletion will interact to exacerbate the positive impact of resource depletion on abusive supervision.

Their study utilized a survey response method for pairs of leaders and followers. The results of their study confirm their notions that leaders' resource depletion predicts leadership behaviors. The three states of depletion discussed all independently

43

negatively impacted transformational leadership and positively related to the prevalence of abusive supervision. The most significant metric relating to low levels of transformational leadership was anxiety.

This study is important to this thesis in that it provides insight into the effects of depletion onto leaders' and their ability to lead. Leaders are often the ones working the hardest, trying to organize projects and accomplish goals while depleting their own resources that make them effective leaders, such as the mental resource that promotes positive affect. Leaders carry so much responsibility, and are often chosen or selected in some fashion for their ability to exercise characteristics that require high levels of resources. While this study did not directly measure sleep as a factor, sleep deprivation promotes resource depletion in individuals just as depression, anxiety, and workplace alcohol consumption do. Thus, it can be inferred that sleep deprivation may have contributed to the effects of this study as well.

Transformational and Charismatic Leadership

The previous study discussed the idea of transformational leadership in organizations; another idea central to leadership studies is that of the charismatic leader. When one says *charismatic leader*, we all may have different ideas of who an example may be; but they all have the undeniable magnetic quality and ability to draw people in, make them believe in the vision, and are often great communicators. One definition states, "The guidance provided to an organization… seen as heroic or inspiring and who have therefore been granted the organizational power to make dramatic changes and extract extraordinary performance levels from followers."

Previous studies have found that leader charisma positively associated with followers' positive affect and negatively with followers' negative affect. (Erez et al.) Charismatic leaders should experience more positive affect than negative due to their natural dispositions and personality. (Erez et al.) These individuals are highly emotionally intelligent and able to draw on their mental resources to communicate positive affect. Additionally, researchers have found that there are cognitive effects that charismatic leaders have on followers, assisted by processes such as identification and internalization (Etzioni, 1975) a well as rhetoric and communication style. (Awamleh & Hardner, 1999)

While cognitive processes are essential to the understanding of leaders' charisma and affect, emotional processes are equally responsible for understanding charismatic relationships. Researchers examined the following hypotheses (among others): 1) leader charisma is positively associated with positive affect/ negatively associated with negative affect; 2) leader charisma is associated positively with positive displays/ expressions; 3) leaders' positive affect mediates, to some level, the relationship between leader charisma and followers' positive/ negative affect. Drawing on such theories as emotional contagion, emotional mimicry, emotional arousal, and emotional intelligence.

This study's results found that "leader charisma was positively associated with the positive affect of followers and negatively associated with the negative affect of followers." This supports the popular stereotype that charismatic leaders are able to connect with followers by contributing to followers' positive affective states. People are naturally drawn to charismatic leaders because they are able to make them feel this

way- positive and happy. Charismatic leaders can effectively lead a group of people due to their skills in improving followers' affect, thus making people more compliant with their direction. A leader's ability to draw on their charismatic side to improve followers' affect can greatly improve the culture of an organization and overall supervisor satisfaction.

Affect in organizations is of high importance, contributing much to the dynamics of organizational behavior and metrics such as performance. The study of organizational behavior is concerned the dynamic between people on work organizations, and work organizations on people. (Brief and Weiss, 2002) Additionally, it is the study of how the attitudes and feelings of workers toward their organizations have an effect on the organizations itself. Every organization is different, due in part to the fact that they are composed on individuals, with different motivations, resource capabilities, leadership styles, and cognitive abilities.

The research done on organization behavior has led the field to several conclusions thus far. For one, it is a known that positive affect on the individual and group- level lead to higher job and supervisor satisfaction. (Brief and Weiss, 2002) Also, job satisfaction and general temperament mutually influence one another. (Watson and Slack, 1993)

An important factor when studying organizational behavior are exogenous factors that may carry over into the workplace, such as cycles in feelings, stress, and personal factors relating to lifestyle choices and home life. These factors influence an individual's affect, which can lead to negative group affect due to emotional contagion. It is often the role of leaders to mediate these negative affective states of individuals or

groups, while maintaining their own positive affective states and being conscious of using their mental resources wisely. Research has found that rewards and punishments produce affect in organizations as well, whether negative or positive. (Brief and Weiss, 2002)

The literature cited all contribute meaningful data and implications to this study, beginning from individual sleep habits and consequential sleep deprivation to the effects of such on the individual, group, and organizational level. This affects all matters of organizational behavior, from supervisor satisfaction, leadership styles and ability to effectively lead, organizational culture, and performance.

Hypothesis Development

This thesis is primarily concerned with the effects of sleep deprivation in the individuals of the organization on their self- reported positive and negative affect, and self- reported levels of supervisor satisfaction. This model is based on the independent variable of sleep. Over the six- day period of Fall Formal Recruitment, I anticipated both leaders and followers to experience some sleep deprivation, if not severe. I assumed sleep deprivation would occur, and measured the variance of this deprivation. Of course, this varies based on individual need, with some persons needing more or less than this.

I aimed to find out if sleep deprivation, as defined as less than seven hours of sleep per night, increases negative affect in individuals as well as negative feelings towards leaders and followers. Additionally, I looked into the relationship between positive and negative affect and its relation to satisfaction levels to see if the degree to which participants experience affect influences their satisfaction levels accordingly.

Based on the literature I had researched, my predictions based on personal knowledge and observations of the recruitment environment as well as the organization's culture, I constructed the following hypotheses:

Due to the demanding schedule of Fall Formal Recruitment, along with activities including attending class, completing schoolwork, working, playing on sports teams, etc. I predicted that both leaders and followers would experience sleep deprivation. This may also have to do with the individuals' need to please the others, proving a commitment to the group. As discussed in the Literature Review, motivation and the human need for social acceptance (Baumeister & Vohs, 2012) may drive

individuals to sacrifice sleep in order to "work harder." As Barnes discusses in his article, *I'll sleep when I'm dead,* sleep deprivation in an organization stemming from leader (CEO) sleep deprivation is dangerous to productivity, use of resources, and culture. (Barnes, 2011)

- *Hypothesis 1: Daily leader sleep is positively related to daily follower sleep.*

Based on the research connecting sleep deprivation to lower cognitive ability, ego- depletion, and therefore a decreased ability to regulate emotion, I predict that as sleep levels decrease in leaders, leader positive affect levels will decrease and leader negative affect levels will rise. Additionally, based on the EASI Model (Van Kleef, 2009), I predict that a decreased cognitive ability due to lack of nightly sleep will have a poor effect on how leaders communicate their own emotions and understand the emotions of their followers, thus lowering satisfaction with followers.

- *Hypothesis 2a: Low levels of leader sleep relate to low levels of leader positive affect.*

- *Hypothesis 2b: Daily leader sleep is negatively related to daily leader negative affect.*

- *Hypothesis 2c: Leader sleep is positively related to leader satisfaction with followers.*

- *Hypothesis 2d: Leader satisfaction with followers is related to levels of sleep and daily leader positive affect.*

- *Hypothesis 2e: Leader sleep is related to daily leader negative affect levels and leader satisfaction with followers.*

As stated earlier, sleep deprivation has been shown to reduce one's ability to regulate emotion and to decrease emotionality. (Talbot, McGlinchey, Kaplan, Dahl, & Harvey, 2010) I predict that as followers experience sleep deprivation, they will feel lower levels of positive affect and higher levels of negative affect due to their depletion of mental resources. Since they are sleep deprived, they are using more mental resources just to get through the daily routine and mediate the stressful environment they are in.

- *Hypothesis 3a: Low follower sleep is positively associated with low levels of follower positive affect.*

- *Hypothesis 3b: Low daily follower sleep is positively associated with follower negative affect levels.*

The above predictions tie into Hypothesis 3c; as follower sleep levels drop, as do their positive affect levels and emotional regulation (Alfarra, Fins, Chayo & Tartar, 2014), they will be less satisfied with their relationship with their leaders.

- *Hypothesis 3c: Daily follower sleep levels negatively associate with follower satisfaction with leaders.*

Based on literature and research that correlates group affect to individual levels of emotional regulation, I hypothesize that low sleep levels in followers and leaders will inhibit their ability to regulate their emotions and deplete mental resources. Drawing from ego- depletion theory (Baumeister, Bratslavsky, Muraven, and Tice, 1997), and the notion of slack resources (Edwards and Rothbard, 2000; Cyert and March, 1963), I predict that follower negative affect, follower positive affect, and follower satisfaction with leaders relates to levels of both follower and leader sleep. This positive feedback

50

loop is dangerous in organizations, but occurs as chronic sleep deprivation is experienced during times of high stress.

- *Hypothesis 4: Follower negative affect/ positive affect/ satisfaction with leaders is negatively associated with levels of both Follower and Leader sleep.*

Drawing on research regarding the effects of charismatic and transformational leadership, I predict that daily follower positive affect levels relate to daily follower satisfaction with leaders. (Wrzus, Wagner, & Riediger, 2014) The more a leader is able to create a sense of purpose and belonging to a follower, the more positive emotions the follower will feel, and the more satisfied they will be with their organization's leadership.

- *Hypothesis 5: Daily follower positive affect levels relate to daily follower satisfaction with leaders.*

Hypothesis 6 is based on research regarding group affect and ego-depletion. This organization is particularly interesting in that there is a group of leaders and a group of followers, creating for two different sub- cultures of group affect within one organizational unit.

Since the followers listen to the leaders, I predict that as daily leader and daily follower sleep diminish, leaders will be less satisfied with their followers. (Minkel et. al, 2012) This is due to their own ability to lead throughout the week once they are sleep deprived, how they regulate and communicate their own emotions, and how that motivates the group.

- *Hypothesis 6: Together, daily leader sleep and follower sleep have a negative association with leaders' daily satisfaction with followers.*

When predicting levels of follower satisfaction with leaders, I considered the research done that describes the relationship between an individual's sleep, individual affect, (American Academy of Sleep Medicine) and also group affect. (Kelly and Barsade, 2001) I predict that as daily sleep levels in followers, and leaders, decrease so will positive affect. Negative affect will rise however, and this diminishes overall follower and leader satisfaction with each other, and vice versa.

- *Hypothesis 7a: Follower satisfaction with leaders relates to daily follower sleep levels and daily follower positive affect and daily follower negative affect.*

- *Hypothesis 7b: Follower satisfaction with leaders relates to daily leader sleep, as well as daily follower positive affect and daily follower negative affect.*

To test these hypotheses, I conducted a daily diary survey of members of a Panhellenic organization. This study was done during a time of Fall Formal Recruitment, notorious for sleep deprivation in these students. I chose to conduct the study during this time, rather than during the school year at a less stressful time, to see the effects of sleep deprivation when all participants would be experiencing deprivation and lacking resources.

These hypotheses were tested through a survey designed to measure sleep quality and quantity (Monk et al., 1994) positive and negative affect through self-reported Likert scale (Mackinnon, Jorm, Christensen, Korten, Jacomb, & Rodgers,

1999), and supervisor or subordinate satisfaction levels. (Vida Scarpello and Robert J. Vadenberg, 1984)

It is important to consider the nature of the organization the study is being conducted on. The organization is a collegiate women's group, a sorority at the University of Oregon. All participants are full- time students, many of whom also have other commitments besides this organization and academics. Their membership is voluntary, and the leaders of the organizations are also students- all in their senior year. No one is paid for their work or compensated for their time. The participants are friends with each other, live with each other, and overall spend much time together.

Methodology

Participants

  The participants of this survey- based study are thirty- five women of a Panhellenic Women's Greek organization, otherwise known as a sorority or chapter, at the University of Oregon. They range in age from 18-22, are students who attend the University of Oregon, and are members of the same organization. No information was taken regarding the participants' demographics, socio-economic standing, academic performance, or background.

  The organization is recognized by the University, and had a membership of 131 prior to Fall Formal Recruitment. After Fall Formal Recruitment, a process for recruiting new members for the National Panhellenic Chapters (NPC), the new member pledge class brings in about 65 women, bringing the total up to 196 members. The maximum membership for NPC groups at the University of Oregon is 211 women.

  The University of Oregon's Panhellenic community is composed of eleven National Panhellenic Chapters (NPC), four National Pan-Hellenic Chapters (NPHC), and one local chapter, serving 2,180 women. According to the University of Oregon's Fraternity and Sorority Life website, "Fraternities and sororities are values-based organizations focused on four main areas: leadership, scholarship, civic engagement, and brotherhood/sisterhood. Beginning in the 1700s, our organizations connect collegiate and alumni members with the college or university for a lifetime."

  These organizations are operated and led by students in leadership positions, with local alumni serving as advisors. Each organization is organized quite differently

in terms of leadership roles, elections, culture, membership composition, and structure. While every organization has its own mission statement and core set of values, their objective to promote friendship, high academic performance, involvement on campus and the community, and to prepare for life beyond college all hold true. That said, it is important to note that the leaders of these groups are peers with the followers and they are each other's friends; most women in leadership roles are upperclassmen (junior and senior standing at the University).

Thirty-one of the women taking the survey are members of the sorority chapter who do not hold leadership positions during the year, or during Fall Formal Recruitment. Eleven sophomores, ten juniors, and ten seniors will compose this group. They are considered to be subordinates. Members are responsible for maintaining a certain GPA, completing a certain amount of community service hours and participating in philanthropic events, following the rules outlined by their organization regarding conduct, and contributing to the harmony of the fraternal organization.

Ten of these organizations are housed at the University of Oregon are housed, meaning that they operate and function out of a chapter house in which an average of sixty women live. It is important to consider the dynamic of these organizations, as well as student organizations in general, in that the membership and leadership are often entwined with friendship.

The four remaining women will be members of the chapter hold leadership positions, and are considered to be supervisors. Their roles include Chapter Vice President, Chapter Recruitment Chair, Chapter Personnel Chair, and Chapter

Recruitment Information Chair. Women are elected to these positions in a slating process that occurs each fall, and office is held for one calendar year.

Leaders of these organizations are elected by their peers, and among their responsibilities (as outlined below) they are charged with holding their members accountable, communicating with volunteer alumnae advisors and campus officials such as the Office of Fraternity and Sorority Life and Dean of Students, and reporting to the National Officers at their organizations headquarters. No one officer holds more power than others; often times discussions are collaborative and require that many officers and advisors take part in decision making.

The responsibilities of each leader are outlined as follows:

- Chapter Vice President: Responsible for maintaining chapter scholarship, creating programming to promote academics, keeps and updates chapter bylaws annually. Fulfills role of President if necessary.

- Chapter Recruitment Chair: Responsible for organizing Fall Formal Recruitment and an optional Informal Winter/ Spring Recruitment, instructs the chapter on proper recruitment techniques, and creates programming to help the chapter recruit PNMs (Potential New Members).

- Chapter Personnel Chair: This officer is responsible for holding all members accountable to the rules and regulations set by the chapter, and is the main officer in charge of setting punishments when those rules are not followed. This officer is charged with handling confidential matters including grades, financial concerns, or private issues.

- Chapter Recruitment Information Chair: This officer is charged with handling the computer information systems during the weeks before, and during, recruitment. This is a time consuming job, with long hours required into the night during the week of Fall Formal Recruitment in order to turn in paperwork each day.

All participants' identities will be concealed throughout the survey- taking process through the use of code names. These code names are used on each survey the participant takes, so that their responses may be tracked sequentially.

Design

The design of Fall Formal Recruitment was not left to me, but it is intended to provide the most fair and equal chance to every PNM going through Recruitment, as well as every Panhellenic chapter. It is the job of Panhellenic Executive Council to ensure that chapters are following the rules agreed upon, including Strict Silence, "no frills recruitment", and dry recruitment to name a few.

Unfortunately, the timing of Fall Formal Recruitment (FFR) is always during the school year and actual amount of time that FFR consume from a student's perspectives is vast and often difficult to manage. Recruitment activities can consume an average of four to fourteen hours of a student's day, leaving little room for activities such as sleep, environmental acclimatization to the University, relationship development, work, and schoolwork. These other activities are critical during the first few weeks of school and can greatly positively or negatively affect a students' fall term experience and GPA. The average student at the University of Oregon takes sixteen credit hours a term, meaning they are in class for at eight hours and spending an additional eight hours

completing assignments, or studying each week. On top of academic responsibilities, many students (especially in Fraternity & Sorority Life) work part- time or full- time, or have other commitments such as clubs, sports teams,

Many other universities and colleges elect to go through their Formal Recruitment processes before the academic year starts, or only have different rounds on weekends. For example at our neighboring Pacific- 12 institution, the University of Washington, their Panhellenic association is larger than that of the University of Oregon's. UW has eighteen national chapters on campus serving 1,500 students, and has existed for over 100 years. Their recruitment occurs over a one- week period, with a full week gap between the conclusion of Recruitment and the first day of classes.

The survey was taken by thirty- five members of this organization, and was designed to gather information on number of quality hours slept, number of hours spent on academic activities, positive and negative affect, as well as satisfaction levels towards supervisors and subordinates. Survey measures were adapted from surveys used in subsequent fields of research, and have been proven to be accurate measures.

Procedure

The participants, after having volunteered to participate in the study and signing a consent form, took the survey once a day during the six- day Fall Formal Recruitment time. All participants, both leaders and followers, selected their own code names, which were then ensured to all is different. Participants filled out their surveys daily, after each round of recruitment concluded.

For the year 2015, Fall Formal Recruitment took place at the University of Oregon from Wednesday, September 30th to Tuesday, October 5th. This occurred during Week 1 and Week 2 of fall term.

The daily Fall Formal Recruitment Schedule was as follows for subordinates:

- Wednesday, September 30th to Friday, October 2nd: Leadership Day rounds and post- round work for chapter from 5:30 pm to 11 pm.

- Saturday, October 3rd: Philanthropy Day round and post- round work from 9 am to 2 am the next day.

- Sunday, October 4th: Sisterhood Day round and post- round work from 9 am to 4 am the next day.

- Monday, October 5th: Preference Night round and post- round work from 5 pm to 1 am the next day.

This is a total of approximately 63.5 hours of work over a period of six days for subordinates.

The daily Fall Formal Recruitment Schedule was as follows for leaders:

- Wednesday, September 30th to Friday, October 2nd: Leadership Day rounds and post- round work from 5 pm to midnight.

- Saturday, October 3rd: Philanthropy day prep, round, and post- round work from 6 am to 3 am the next day.

- Sunday, October 4th: Sisterhood day prep, round, and post- round work from 6 am to 4:30 am the next day.

- Monday, October 5th: Preference night prep, round, and post- round work from 4 pm to 4 am the next day.

This totals approximately 76.5 hours of work for leaders over a period of six days.

This study methodology was submitted and approved to the University of Oregon's Internal Review Board as it concerns human subjects, and was approved for study in July of 2015. The surveys for leaders and followers, labeled "Supervisor Survey" and "Survey" respectively, can be found in the Appendix of this thesis.

The nested data was organized into a three level model in which the thirty- one followers were evenly distributed among the four leaders. Each of the four leaders in the organization are charged with similar workload in different areas, and therefore have equal influence and power among the followers of the organization. Followers were "assigned" to leaders in order to more rigorously test the effects, if any, on the different metrics and relationships. By grouping followers to leaders, and therefore increasing the number of groups within levels, I aimed to decrease the effects of statistical power. Power is dependent on the number of observers, *n,* and the number of groups within models.

The three- level model is illustrated thus:
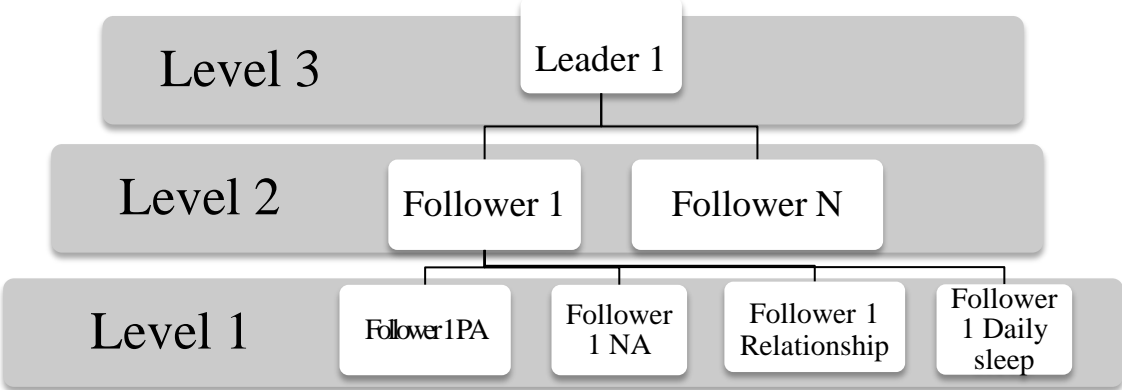
Additionally, to test the relationships between metrics in just the leader pool of
data, the following two- level model was used. At Level 1, day level effects are seen:

Level 2			Leader 1		
Level 1	Leader1 PA	Leader 1 NA	Leader1 Relationship	Leader1 Sleep	
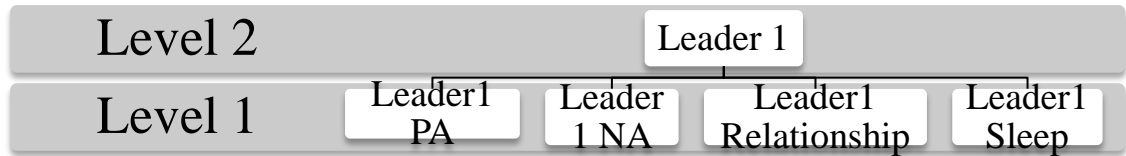
Analysis

The data was organized into the two models described previously in the Methodology section. This ordinal survey data is quantitative, as observers reported number of hours slept, and reported their positive affect/ negative affect/ and relationship satisfaction metrics on a scale of one to five.

To analyze the data, the reports from metrics for both followers (follower positive affect, negative affect, and relationship satisfaction with leaders) and leaders (leader positive affect, negative affect, and relationship satisfaction with followers) was scaled on a daily basis. This was the appropriate method to structure the data before running statistical analysis because scaling allows for the data to be standardized. This is also known as data normalization, and allows tests to be run and comparisons to be made within groups.

When running HLM, the input variables were centered. This method of analysis is necessary in regressions with multiple explanatory variables for similar reasons of comparison and normalization as scaling.

Additionally, I kept sleep as a daily metric for both leaders and followers throughout the study and analysis. This was important due to the fact that all of the metrics were recorded on the same survey, for the same time period as daily sleep was being reported. For example, on Day 2 leaders and followers were reporting the amount of sleep they got the previous night and their positive affect/ negative affect/ relationship satisfaction for *that same day.*

Lastly, I ran reliability measures to ensure the internal reliability of each set of variables before proceeding with analysis. For this, I used Cronbach's alpha, which is a

measure of internal consistency. A high alpha (a reliability of .70 or above) reflects high

consistency within the group. Alphas of .70 are considered "acceptable"; > 0.80 are

"good"; > .90 are "excellent."

Once scaled, the Cronbach's alphas for the study were as follows:

|	Cronbach's alpha
Leaders' Positive Affect	.793
Leaders' Negative Affect	.734
Leaders' Relationship Satisfaction (with followers)	.881
Followers' Positive Affect	.883
Followers' Negative Affect	.866
Followers' Relationship Satisfaction (with leaders)	.942

Results

The data gathered over the course of the six- day period was organized and the hypotheses were tested through a three- level model using Hierarchal Linear Modeling statistical software. Instantly the patterns of sleep deprivation, defined as nightly sleep less than seven hours per night, became evident within leaders and followers.

Leader sleep by day, over six days:
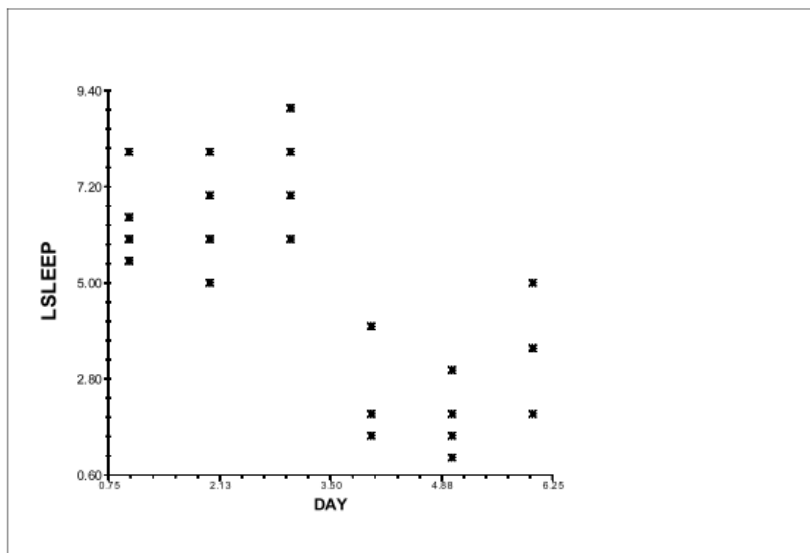
Follower sleep by day, over six days:
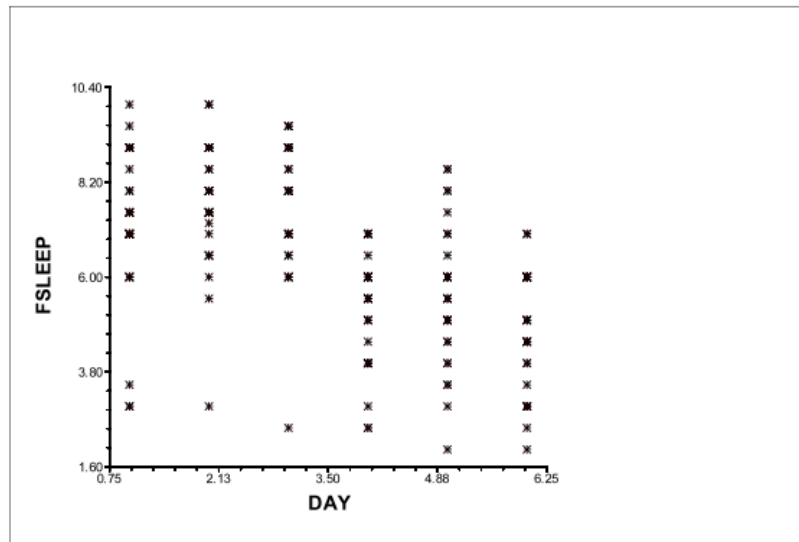
Given the small number of leaders and followers, the study lacked the power to detect even moderate effects. Robust standard errors were used to account for outliers or other small departures in model assumptions. Also, metrics were scaled to best represent the data in relation of the larger population, which allows for the comparison of corresponding values. That is, each followers' and leaders' affective measures were scaled to account for questions asked, by day.

Two of the hypothesis, Hypothesis 1, 2b, 2c and Hypothesis 2e came back with statistically significant results.

The results are as follows:

Hypothesis 1

Hypothesis 1 predicted that daily leader sleep is positively related to daily follower sleep. I anticipated that as leaders got less sleep each day, followers would also get less

sleep daily. Results revealed that daily leader sleep was positively related to daily follower sleep.

- B=. 28418, p=. 002 (<. 05), and a T-ratio of 3.158.

Hypotheses 2a-2e

Hypothesis 2a predicted that low levels of daily leader sleep would relate to low levels of leader positive affect. That is, as leaders got less sleep daily, they would also report lower levels of positive affect. The data did not support this.

- B= .038, p=. 64 (>.05), and a T-ratio of .469.

Hypothesis 2b predicted that daily leader sleep is negatively related to daily leader negative affect, meaning that as leaders got less sleep daily they would report feeling more negative emotions. The data did support this.

- B= -.116, p=. 044 (<. 05), and a T-ratio of -2.134.

Hypothesis 2c stated daily leader sleep is positively related to leader satisfaction with followers, meaning that as leaders received less sleep their satisfaction with followers would also diminish. The data did support this.

- B= .052466, p= .046 (<. 05), and a T-ratio of 2.114.

Hypothesis 2d predicted that leader satisfaction with followers is related to levels of leader sleep and daily leader positive affect. That is, as leaders are sleeping less their positive affect levels would also decrease, thus decreasing their satisfaction with followers. The data did not support this.

- B=. 231, p=. 106 (>.05), and a T-ratio of 2.194.

Hypothesis 2e predicted that daily leader sleep is related to daily leader negative affect levels and leader satisfaction with followers. This means that daily leader sleep predicted how the following day's negative affect levels and follower satisfaction levels for the leaders. The data did support this.

- Leader Satisfaction: B= 1.59, p= .004 (<. 05), and a T-ratio of 3.274.

- Leader NA: B= -1.0329, p= .14 (>.05), and a T-ratio of -1.533.

Hypothesis 3a-3c

Hypothesis 3a predicted that low follower sleep is positively associated with low levels of follower positive affect, meaning that as followers got less sleep daily, they would also report lower levels of positive affect. The data did not support this.

- B= .012, p= .863 (>.05), and a T-ratio of .173.

Hypothesis 3b stated that low daily follower sleep is positively associated with follower negative affect levels, meaning that as followers got less sleep daily they would report feeling more negative emotions. This may be attributed to their inability to utilize resources for emotional intelligence. The data did not support this.

- B=. 019, p= .763 (>.05), and a T-ratio of .302.

Hypothesis 3c: Daily follower sleep levels negatively associate with follower satisfaction with leaders. The data did not support this.

- B= .0396, p= .527 (>.05), and a T-ratio of .633.

Hypothesis 4

Hypothesis 4 predicted that follower negative affect/ positive affect/ satisfaction with leaders is negatively associated with levels of both Follower and Leader sleep.

Follower negative affect, positive affect, and satisfaction with leaders were used individually as outcomes. The data did not support any of the three predictions.

- Negative affect as outcome: B= .03, p= .64 (>.05), and a T-ratio of .468.

- Positive affect as outcome: B=. 053, p= .424 (>.05), and a T-ratio of .802.

- Satisfaction with leaders as outcome: B=. 05, p=. 458 (>.05), and a T-ratio of .744.

Hypothesis 5

Hypothesis 5 predicted that daily follower positive affect levels relate to daily follower satisfaction with leaders. The data did not support this.

- B=. 148, p=. 189(>.05), and a T-ratio of 1.32.

Hypothesis 6

Hypothesis 6 predicted that together, daily leader sleep and follower sleep have a negative association with leaders' daily satisfaction with followers. The data did not support this.

- B= .05, p= .458 (>.05), and a T-ratio of .744.

Hypothesis 7a-7b

Hypothesis 7a predicted that follower satisfaction with leaders relates to daily follower sleep levels and daily follower positive affect and daily follower negative affect. The data did not support this.

- B= .149, p= .188 (>.05), and a T-ratio of 1.322.

Hypothesis 7b stated that follower satisfaction with leaders related to daily leader sleep, as well as daily follower positive affect and daily follower negative affect. The data did not support this.

- B=. 154, p=. 139 (>.05), and a T-ratio of 1.486.

Controlling for Days

Upon noticing the sleep patterns in both leader sleep and follower sleep through the six days, I wanted to test Hypothesis 1 further. Looking at the sleep charts in the previous section, it is apparent that collectively followers and leaders slept more during Days 1-4 than Days 5-6. I wanted to see whether this was due to the schedule of Recruitment, or perhaps for a more significant reason relating the two groups.

To do this, I controlled for days, and tested Days 1-4 leader sleep against Days 1-4 follower sleep, as well as Days 5-6 leader sleep against Days 5-6 follower sleep. When controlling for days and using leader sleep to predict follower sleep, the results were as follows:

Leader sleep: B= .392453, p= 0.00 (<.05), and a T-ratio of 4.796.

This does provide significance and lend insight that when controlled for variance in days, leaders and followers were collectively sleeping less. This could be due to the culture of the organization and the environment the leaders provided.

Discussion

Of the hypotheses tested, four came back statistically significant. The small sample size, four leaders and thirty- one followers, created a statistic environment where power restricted the data.

H1: B=. 28418, p=. 002 (<. 05), and a T-ratio of 3.158.

H1 predicted that as leader sleep decreased each day, follower sleep would also decrease. This returned a high T-ratio and low p-value indicating that this has significance. According to research previously cited, there could be many reasons for this occurrence.

In many organizations, as leaders are experiencing sleep deprivation they communicate this fact knowingly and unknowingly to their subordinates. This occurs for many reasons; perhaps they believe it will encourage their followers to put in as much effort and time as they perceive themselves to be or they may believe it will excuse any behavior that is due to lack of slack resources, resulting from sleep deprivation. This interaction and culture created by leaders on the high value placed on working long hours until the organization's goal is met, is often contagious. Studies have shown that organizations where leaders encourage, knowingly or not, a "work-hard at the cost of sleep" mentality may encourage sleep deprivation in employees.

In this study, given the Fall Formal Recruitment Schedule and incremental increase of hours demanded by the organization throughout the six day period, it is possible this could have caused sleep deprivation in both leaders, and followers. While the extremity of sleep deprivation varied in individuals, and between the leaders and

followers, all thirty-five individuals experienced this at least twice during the six- day period.

H2b: B= -.116, p=. 044 (<. 05), and a T-ratio of -2.134.

Hypothesis 2b predicted that daily leader sleep is negatively related to daily leader negative affect, meaning that as leaders got less sleep daily they would report feeling more negative emotions. As leaders get less and less sleep each night, and the responsibilities of running an organization accumulate through the Recruitment process, their affinity towards stress heightens.

This could be attributed to lack of mental restoration in these individuals. If they are sleeping less, they are less able to regulate emotions and may feel more negative emotions. This is especially true in Days 5 and 6, where sleep is very limited.

H2c: B= .052466, p= .046 (<.05), and a T-ratio of 2.114.

Hypothesis 2c stated daily leader sleep is positively related to leader satisfaction with followers, meaning that as leaders received less sleep their satisfaction with followers also diminished. This is closely related to Hypothesis 2b, in that as leaders are sleeping less and less each night, and do not have time or make time to compensate for this stress (with naps, etc.), their sleep debt accumulates. As a result, leaders are using their mental resources just to make it through the day, and unable to draw on these resources for purposes such as emotional regulation or to mediate their social interactions. When these individuals are sleep deprived, they feel emotions more intensely, such as negative emotions.

H2e: B= 1.59, p= .004 (<. 05), and a T-ratio of 3.274.

H2e predicted that leader sleep was a function of daily leader negative affect levels and daily relationship satisfaction levels (reported by leaders, based on relationship with followers). This means that the relationship between daily leader negative affect and daily relationship satisfaction levels was a strong indication of how much sleep a leader would get that night. This means that leader sleep would decrease if daily leader negative affect was strong (high reported levels) and daily relationship satisfaction levels were low; put simply, if leaders were dissatisfied with their interpretation of their relationship with followers that day, this would increase their emotions relating to negative affect. This combination of stress inhibited leader sleep that same night.

Research does indicate that emotional stressors, such as depression, do associate with sleep deprivation. The emotional burden of relationships and negative feelings may be enough to cause individuals to get less sleep. As discussed in the literature review, this is often a positive feedback cycle as these factors only perpetuate the sleep deprivation in an individual. As Van Kleef discussed, this may be due to the EASI model, in which emotions communicate as social cues. In this scenario, negative affective emotions would communicate and create negative relationships, further perpetuating sleep deprivation.

Days of the week also ended up being confounding variables; it appears that leaders and followers collectively got more sleep on Days 1-4 than Days 5 and 6.

Additionally, one reason for this statistical correlation between both groups of sleep hygiene diminishing may lay within the methodology and construction of the

survey. Both the leader and follower groups were taking the same survey, with the same

rating scale for metrics. This means that if someone had rated all fives that particular

day, a relationship would appear.

Areas for Future Research

While many of the hypotheses were inconclusive, they were very close to the statistic standards that would deem them "significant." These results do point towards area for future research. In order to achieve statistically significant results using the same model, in the future it would be of critical importance to have a larger sample size regarding leaders and followers. This will increase statistical power, thereby increasing the probability of gathering more statistically significant information that is representative of the entire population. A larger sample size will ensure that statistical power is less of an issue and generate higher T-ratios.

To gain more accuracy on all levels, it is necessary to gain more groups within those levels and more individuals. To truly gain insight into the issue of sleep, affect, and supervisor satisfaction within the Panhellenic community, I would recommend surveying the entirety of its leaders and followers. That is, survey all 180 women of each of the eleven NPC organizations on campus during the week of Fall Formal Recruitment. This is the only way to know if the patterns seen from one organization are unique to that group, or if it is truly a phenomenon happening in all of these student organizations during this time.

Using all of the sororities would increase the number of groups, as well as boost the number of individuals. To further increase the sample size of individuals and groups, if the resources allow it would be interesting to conduct this study at the University of Oregon and another University that either 1) has a similar recruitment schedule, as in recruitment occurs during the academic year or 2) recruitment occurs before the academic year.

If there were major discrepancies between the results of affect and relationship satisfaction between the two different recruitment systems, it may then be inferred that the added stressor of recruitment is a true factor on students' sleep, the ability to manage an organization, the effectiveness of an organization, and test leadership. Additionally, it may shed light and provide the necessary evidence to University administrators that these processes, as trivial as they may seem, are things that affect a large population of students and their physical and mental health during the first weeks of school.

This study aimed to inspect the relationship between leaders and followers, dependent on their respective daily sleep hygiene and ensuing affect levels and relationship satisfaction. These factors and relationships can be found in any organization: student or professional, during high- stress times or low- stress times. Another way to conduct this study in the future would be measure these metrics during a time of low- stress in an organization, and compare the results against a high- stress time. This would be valuable for managers to gain feedback on their leadership performance during these high- stress times, and reevaluate their style and methods of leading. Additionally, this study could be run on student organizations such as ASUO (Associated Students of the University of Oregon), an athletic team, or a body of students, such as the Clark Honors College.

If I had the opportunity to run this study once more, I would absolutely factor these in order to obtain more data, more significant data as it relates to my hypotheses, and gain stronger insight into the relationships. If I had the evidence to do so, I would look into writing a proposal to submit to the Division of Student Life and Office and

Fraternity and Sorority Life to move FFR to abridge the academic year. Besides my

evidence to support this, I have anecdotal experience as both a member and leader of an

organization, a Potential New Member going through Recruitment, and leader on

Panhellenic Executive Staff that runs the Recruitment process.

Conclusion

The physiological needs of young adults are an overlooked factor in student life at many Universities, and while this culture is self- perpetuating and often determined by a perceived vision of success, individual health and relationships should not be sacrificed for the process of an organization. Student organizations so richly supplement education, provide real- life opportunities for learning and personal growth, and are critical to a collegian's experience. Strides need to be made in order to make these organizations and individuals in charge aware of the relationships and toll taken through sleep deprivation, in order to create more sustainable and healthier outlets for students to thrive.

Appendices

Figure 1: Follower Survey

Survey Code Name:_____
Please write the same Code Name on your surveys each day.
Date:_____

Sleep/Study Time:
Instructions: Please respond accordingly about your sleep data from **last night.**
I went to bed **last night** at: _____
It took this many minutes until I fell asleep: _____
I finally woke at: _____
After falling asleep, woke up this many times during the night: _____
I spent this many hours in class/ doing school activities today:_____

Emotion
Instructions: Below is a list of words describing emotions you may or may not feel. On a scale of 1 (very slightly or not at all) to 5 –(extremely) indicate to what extent you feel this way **right now**:

__Inspired   __Afraid
__Alert   __Upset
__Excited   __Nervous
__Enthusiastic   __Scared
__Determined   __Distressed

Leader Satisfaction
Instructions: Below are several statements about you, which you may agree or disagree. Using the response scale below, indicate your agreement or disagreement with each statement. Please use the following scale of **1 (very slightly or not at all) to 5 – (extremely) to record your responses.**
___ After today, I feel that my leaders and I have a good relationship.
___ Today, I feel my relationship with my leaders is very stable.
___ Today, I feel our relationship is strong.
___ Today, I tried my best to make my followers feel like part of the team.
___Today, I believed I communicated in an effective way with my leaders.
____Today, I was receptive and open to feedback from my leaders about the job I was doing.

Figure 2: Leader Survey

Supervisor Survey

Survey Code Name: _____
Please write the same Code Name on your surveys each day.
Date:_____

Sleep/Study Time
Instructions: Please respond accordingly about your sleep data from **last night.**
I went to bed **last night** at: _____
It took this many minutes until I fell asleep: _____
I finally woke at: _____
After falling asleep, I woke up this many times during the night: _____
I spent this many hours in class/ doing school activities today:_____

Emotion
Instructions: Below is a list of words describing emotions you may or may not feel. On a scale of 1 (very slightly or not at all) to 5 –(extremely) indicate to what extent you feel this way **right now**:

__Inspired   __Afraid
__Alert   __Upset
__Excited   __Nervous
__Enthusiastic   __Scared
__Determined   __Distressed

Estimate of Subordinate Satisfaction
Instructions: Below are several statements about you, which you may agree or disagree. Using the response scale below, indicate your agreement or disagreement with each statement. Please use the following scale of **1 (very slightly or not at all) to 5 – (extremely) to record your responses.**

Measures:
___ After today, I feel that my followers and I have a good relationship.
___ Today, I feel my relationship with my followers is very stable.
___ Today, I feel our relationship is strong.
___ Today, I tried my best to make my followers feel like part of the team.
___Today, I believed I communicated in an effective way with my followers.
____Today, I was receptive and open to feedback from my followers about the job I was doing.

Figure 3: Human Subject Consent Form

Consent Form for Subjects
CONSENT TO PARTICIPATE IN RESEARCH

The current research is being conducted by Marie Therese R. Maffit for purposes of her senior thesis study from the Robert D. Clark Honors College in conjunction with the Lundquist College of Business from the University of Oregon. The purpose of this research is to study sleep of supervisors and subordinates in relation to emotions and supervisor satisfaction. Your participation will involve filling out a one- page survey once a day, for 7 days during Fall Formal Recruitment. The completion of all material should take approximately 3-5 minutes per day. The results of this research may be used for publication in an undergraduate thesis. Participation in the study is voluntary. Since the researcher (Maffit) also serves as President of this organization, subjects will be given the option to use code names when filling out the daily surveys. You have the right to withdraw your consent at any time and you may also choose to skip question(s) if you do not feel comfortable answering them. Your decision whether or not to participate will not affect your relationship with your Panhellenic organization.

You will be asked to provide information about the number of hours slept the previous night, as well as rate different metrics regarding emotion you are feeling at this moment and your relationship with those in chapter leadership. Marie Therese has access to and retains this information, which is used to distribute the debriefing email, and to match demographic data with survey responses. Your answers will remain confidential and will be analyzed and reported only in aggregate with no reference to specific individuals. All personal identifiers linked to your participation in the research and survey responses will be permanently destroyed within two weeks of the completion of the term. While we will take measures to protect your privacy and the confidentiality of the data, a loss of privacy and a breach of confidentiality are risks of participation in this research.

If you have any questions regarding this research, contact Marie Therese Maffit at (818) 337- 8350 or at mmaffit@uoregon.edu. You may be provided with a hard copy of this consent form if you request it. Thank you again for your help with this research study.

By signing this form, you are agreeing to participate in this study and provide the requested information.

Name: _____

Signature: _____

Date:_____

Please know you have the right to contact the University of Oregon Research Compliance Services at any time, if you have any questions.
researchcompliance@uoregon.edu
(541) 346-2510

List of Terms

1. Sorority: A society for female students in a university or college, typically for social purposes.

2. Panhellenic Council: Governing body at a University of College that organizes all sorority chapters on campus. Creates bylaws, organizes recruitment.

3. National Panhellenic Conference: The umbrella organization of 26 national sororities who are member- groups. Founded in 1902.

4. Fall Formal Recruitment: Mutual selection process by which a Potential New Member has the opportunity to visit every chapter on her campus to potentially earn a bid, or invitation to join the chapter.

5. Potential New Member: A collegiate woman of any age who is not affiliated with a sorority.

6. Bid: An invitation to join a Panhellenic chapter.

7. Rounds: Different types of themed days within values- based FFR. At the University of Oregon, our rounds are Leadership Day, Philanthropy Day, Sisterhood Day, and Preference Night. At the end of each round, PNMs and chapters mutually select whom to invite back for the next round, and eventually who to extend bids.

8. Mutual selection: Mutual ranking process in which chapters and PNMs privately rank each other to find the best fit.

9. Rho Gamma: Recruitment guide; this woman is a second or third year sorority members that is disaffiliated from her chapter from summer until Week 2 when recruitment is over. These women each guide a group of about 20-25 PNMs through the scheduled formal recruitment process and serve as their counselors.

10. T- Ratio: A ratio of the departure of an estimated parameter from its notional value and its standard error. For a 95% confidence internal, the ratio is equal to 1.96.

11. Multilevel model: A statistical model of parameter that varies at more than one level. These models are appropriate for research designs where data for participants are organized at more than one level. The units of analysis are usually individuals who are nested within aggregate units from a higher level.

12. Confidence Interval: An interval estimate combined with a probability statement; used to express the degree of uncertainty associated with a sample statistic.

13. Degrees of Freedom: The number of values in the final calculation of a statistic that are free to vary.

Works Cited

Alfarra, Ramey, Ana I. Fins, Isaac Chayo, and Jaime L. Tartar. "Changes in Attention to an Emotional Task after Sleep Deprivation: Neurophysiological and Behavioral Findings." Biological Psychology 104 (2015): 1-7. Web.

Barnes, Christopher M. "I'll Sleep When I'm Dead." Organizational Dynamics 40.1 (2011): 18-26. Web.

Barnes, Christopher M., David T. Wagner, and Sonia Ghumman. "Borrowing from Sleep to Pay Work and Family: Expanding Time-Based Conflict to the Broader Nonwork Domain." Personnel Psychology 65.4 (2012): 789-819. Web.

Barsade, Sigal G. "The Ripple Effect: Emotional Contagion In Groups." SSRN Electronic Journal SSRN Journal. Web.

Barsade, Sigal G., and Andrew P. Knight. "Group Affect." Annu. Rev. Organ. Psychol. Organ. Behav. Annual Review of Organizational Psychology and Organizational Behavior 2.1 (2015): 21-46. Web.

Baumeister, Roy F., Ellen Bratslavsky, Mark Muraven, and Dianne M. Tice. "Ego Depletion: Is the Active Self a Limited Resource?" Journal of Personality and Social Psychology 74.5 (1998): 1252-265. Web.

Baumeister, Roy F., and Kathleen D. Vohs. "Self-Regulation, Ego Depletion, and Motivation." Social Pers Psych Compass Social and Personality Psychology Compass 1.1 (2007): 115-28. Web.

Biddle, Jeff, and Daniel Hamermesh. "Sleep and the Allocation of Time." (1989). Web.

Brief, Arthur P., and Howard M. Weiss. "Organizational Behavior: Affect in the Workplace." Annual Review of Psychology Annu. Rev. Psychol. 53.1 (2002): 279-307. Web.

Byrne, Alyson, Angela M. Dionisi, Julian Barling, Amy Akers, Jennifer Robertson, Rebecca Lys, Jeffrey Wylie, and Kathryne Dupré. "The Depleted Leader: The Influence of Leaders' Diminished Psychological Resources on Leadership Behaviors." The Leadership Quarterly 25.2 (2014): 344-57. Web.

"Statistics and Probability Dictionary." Confidence Interval: Definition. Web. 29 Jan. 2016.

Cyert, Richard Michael, and James G. March. A Behavioral Theory of the Firm. Englewood Cliffs, NJ: Prentice-Hall, 1963. Print.

Diestel, Stefan, Wladislaw Rivkin, and Klaus-Helmut Schmidt. "Sleep Quality and Self-control Capacity as Protective Resources in the Daily Emotional Labor Process: Results from Two Diary Studies." Journal of Applied Psychology 100.3 (2015): 809-27. Web.

Edwards, Jeffrey R., and Nancy P. Rothbard. "Mechanisms Linking Work and Family: Clarifying the Relationship between Work and Family Constructs." The Academy of Management Review 25.1 (2000): 178. Web.

"What Is Statistical Power?" Effect Size FAQs. 2010. Web. 1 Feb. 2016.

Erez, Amir, Vilmos F. Misangyi, Diane E. Johnson, Marcie A. Lepine, and Kent C. Halverson. "Stirring the Hearts of Followers: Charismatic Leadership as the Transferral of Affect." Journal of Applied Psychology 93.3 (2008): 602-16. Web.

Fryer, Bronwyn. "Sleep Deficit: The Performance Killer." Harvard Business Review Oct. 2006. Print.

Goldstein, Andrea N., and Matthew P. Walker. "The Role of Sleep in Emotional Brain Function." Annual Review of Clinical Psychology Annu. Rev. Clin. Psychol. 10.1 (2014): 679-708. Web.

"Scarcity Principle Definition | Investopedia." Investopedia. 2010. Web. 26 Jan. 2016.

Job, V., C. S. Dweck, and G. M. Walton. "Ego Depletion--Is It All in Your Head?: Implicit Theories About Willpower Affect Self-Regulation." Psychological Science 21.11 (2010): 1686-693. Web.

Kleef, Gerben A. Van. "How Emotions Regulate Social Life: The Emotions as Social Information (EASI) Model." Current Directions in Psychological Science 18.3 (2009): 184-88. Web.

Lo, June C., John A. Groeger, Nayantara Santhi, Emma L. Arbon, Alpar S. Lazar, Sibah Hasan, Malcolm Von Schantz, Simon N. Archer, and Derk-Jan Dijk. "Effects of Partial and Acute Total Sleep Deprivation on Performance across Cognitive Domains, Individuals and Circadian Phase." PLoS ONE 7.9 (2012). Web.

Mackinnon, Andrew, Anthony F. Jorm, Helen Christensen, Ailsa E. Korten, Patricia A. Jacomb, and Bryan Rodgers. "A Short Form of the Positive and Negative Affect Schedule: Evaluation of Factorial Validity and Invariance across Demographic Variables in a Community Sample." Personality and Individual Differences 27.3 (1999): 405-16. Web.

Minkel, Jared D., Siobhan Banks, Oo Htaik, Marisa C. Moreta, Christopher W. Jones, Eleanor L. Mcglinchey, Norah S. Simpson, and David F. Dinges. "Sleep Deprivation and Stressors: Evidence for Elevated Negative Affect in Response to Mild Stressors When Sleep Deprived." Emotion 12.5 (2012): 1015-020. Web.

Monk, Timothy H., Daniel J. Buysse, David K. Welsh, Kathy S. Kennedy, and Lynda R. Rose. "A Sleep Diary and Questionnaire Study of Naturally Short Sleepers." Journal of Sleep Research J Sleep Res 10.3 (2001): 173-79. Web.

Pilcher, June J., and Amy S. Walters. "How Sleep Deprivation Affects Psychological Variables Related to College Students' Cognitive Performance." Journal of American College Health 46.3 (1997): 121-26. Web.

"Supplemental Material for A Meta-Analysis of the Impact of Short-Term Sleep Deprivation on Cognitive Variables." Psychological Bulletin (2010). Web.

Scarpello, V. "The Satisfaction With My Supervisor Scale: Its Utility for Research and Practical Applications." Journal of Management 13.3 (1987): 447-66. Web.

"American Academy of Sleep Medicine – Association for Sleep Clinicians and Researchers." Sleep Deprivation. Web. 15 Dec. 2015.

Statistical Tests. Wikimedia Foundation. Web. 2 Feb. 2016.

Talbot, Lisa S., Eleanor L. Mcglinchey, Katherine A. Kaplan, Ronald E. Dahl, and Allison G. Harvey. "Sleep Deprivation in Adolescents and Adults: Changes in Affect." Emotion 10.6 (2010): 831-41. Web.

"UOregon FSL." UOregon FSL. Web. 17 Jan. 2016.

"UW Panhellenic." UW Panhellenic. Web. 26 Jan. 2016.

Wagner, David T. "Sleep, Mood, & Emotions." Ed. J. Jeffrey Gish. University of Oregon, 2016. Print.

Watson, David. "General and Specific Traits of Personality and Their Relation to Sleep and Academic Performance." J. Person. Journal of Personality 70.2 (2002): 177-206. Web.

"Why Sleep Matters." Why Sleep Matters. Web. 10 Dec. 2015.

Wrzus, Cornelia, Gert G. Wagner, and Michaela Riediger. "Feeling Good When Sleeping In? Day-to-day Associations between Sleep Duration and Affective Well-being Differ from Youth to Old Age." Emotion 14.3 (2014): 624-28. Web.