

Abstract

IDENTIFICATION OF FACTORS THAT CONTRIBUTE TO AN INCREASE IN
LIFEGUARD COMPLACENCY

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The purpose of this thesis was to identify factors that predict lifeguard complacency in an effort to increase overall vigilance while lifeguarding. Three research questions were explored: (a) what factors contribute to lifeguard complacency, (b) what are the factors associated with the greatest risk for complacency, and (c) what preventative strategies can be implemented to reduce complacency in aquatic settings.

To address these research questions, a cross-sectional sample (N = 92) from different pools and aquatic facilities completed a researcher-designed instrument. Descriptive statistics, factor analysis, and multiple regressions were utilized to address the study's research questions. Stress and boredom were nearly equal in their positive association with complacency. Reportedly, secondary responsibilities were negatively associated with complacency, suggesting that lifeguards are more vigilant when reporting secondary responsibilities as part of their day-to-day work.

Recommendations include: (a) continuous educational efforts; (b) programs that specifically meet the needs of individual facilities; (c) encourage prevention strategies throughout all aspects of employment, from initial hiring, to ongoing inservice training and performance evaluation; and (d) assignment of secondary duties to increase accountability, but only during scheduled appropriate times.

IDENTIFICATION OF FACTORS THAT CONTRIBUTE TO AN INCREASE IN
LIFEGUARD COMPLACENCY

A Thesis

Presented to

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By

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November 2010

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DEDICATION

I hereby dedicate this thesis research project to my immediate family, significant other, and very close friends. Without your love, support, and most importantly at times, humor, I would not be able to celebrate in this accomplishment. You all have helped push me forward when giving up seemed like a good idea; and they provided the kind of understanding I could not give to myself at times. No matter what, they believed in me. I love you all very much!

This is for you:

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TABLE OF CONTENTS

LIST OF TABLES.....	iv
LIST OF FIGURES.....	v
CHAPTER 1: OVERVIEW OF THE STUDY.....	1
Introduction.....	1
Statement of the Problem.....	3
Purpose.....	3
Research Questions.....	4
Limitations.....	4
Definition of Terms.....	5
CHAPTER 2: LITERATURE REVIEW.....	7
Role and Function of a Lifeguard.....	7
History of the Professional Lifeguard.....	8
Certifying Bodies.....	8
The Professional Lifeguard.....	10
Complacency Theory.....	10
Types of Complacency.....	10
Complacency in the Workplace.....	11
At Risk Behavioral Model.....	11
Causes of Lifeguard Complacency.....	14
Fatigue.....	14
Boredom.....	15
Repetitive Activity.....	16

Task Intensity.....	16
Environment.....	16
Duration of Being a Professional Rescuer.....	18
Secondary Responsibilities.....	19
Flow Theory and Vigilance.....	19
Prevention Strategies.....	22
Health and Wellness.....	22
Breaks.....	23
Station Rotation.....	23
Lifeguard Accountability Awareness.....	25
Facility.....	25
Lifeguard Instructor Accountability.....	25
Lifeguard and Staff Training.....	26
Patron Education.....	27
CHAPTER 3: METHODOLOGY.....	29
Subjects and Subject Selection.....	29
Instrumentation.....	30
Procedures.....	31
Demographic Information.....	32
Certification and Employment Information.....	32
Perceptive Information.....	32
Data Analysis.....	32
CHAPTER 4: RESULTS.....	34

Descriptive Summaries.....	34
Factor Analysis.....	44
Analysis of Results.....	47
CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS.....	50
Summary of Analysis.....	50
Discussion.....	53
Factors of Lifeguard Complacency.....	54
Factors of Greatest Risk.....	55
Preventative Measures.....	57
Recommendations.....	58
Implications for Future Research.....	59
REFERENCES.....	62
APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL FORM.....	66
APPENDIX B: SURVEY COVER LETTER.....	68
APPENDIX C: SURVEY QUESTIONNAIRE.....	70

LIST OF TABLES

1.	Comparison of Lifeguard Certification Training Times for National U.S. Agencies.....	9
2.	Gender.....	34
3.	Age.....	35
4.	Race.....	35
5.	Pay.....	36
6.	Total Months Employed as a Lifeguard.....	37
7.	Total Number of Facilities Lifeguards Have Been Employed With.....	38
8.	Agency of Certification.....	38
9.	Certification Course Requirements.....	39
10.	Position Title.....	39
11.	Facility Type.....	40
12.	Total Lifeguards on Duty.....	40
13.	Average Patron Volume.....	41
14.	Professional Perception of the Job.....	42
15.	Secondary Responsibilities.....	43
16.	Factor Analysis – Scale Construction.....	45
17.	Factor Analysis – Three Factor Solution.....	46
18.	Correlation Between Study Variables.....	47
19.	Multiple Regression Analysis Testing the Effects of Stress, Boredom, and Secondary Duties on Complacency.....	48

LIST OF FIGURES

1.	Overall Vigilance.....	2
2.	At Risk Behavioral Model.....	13
3.	Relationship of Challenge Level and Skill Level.....	20
4.	Flow Theory.....	21

CHAPTER 1: OVERVIEW OF THE STUDY

It is estimated that there are 7.4 million public and residential swimming pools in use within the United States (Otto, 2006). Every year, more than 360 million people visit swimming pools, spas, lakes, and oceans, making recreational swimming activities the third most popular recreational activity in the U.S. (Otto, 2006). Unfortunately, a large amount of risk is associated with this area as well. In 2005, a total of 3,582 fatal unintentional drownings were reported in the United States; this is an average of 10 deaths per day (Centers for Disease Control and Prevention, 2010).

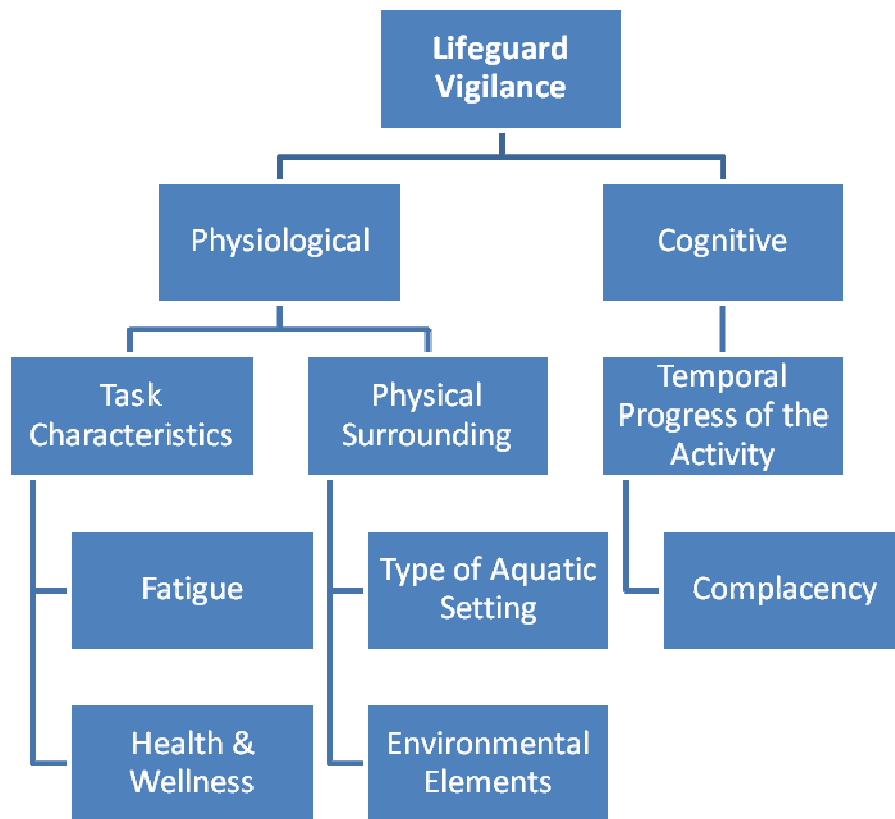
An average of one in every four drowning victims are children 14 years of age or younger, and for every child who drowns, another four children receive nonfatal emergency care for submersion injuries (CDC, 2010). For those near drownings that are nonfatal, brain damage can result in long term disability; these include memory problems, learning disabilities, and permanent loss of basic functioning, also known as a vegetative state (CDC, 2010).

Issues surrounding aquatic facility safety and the increasing number of injuries involving accidental drowning have been on the rise and contribute to manager concerns. Lifeguards are directly responsible for maintaining safety at aquatic facilities. They must ensure that patrons are free of harm and act responsibly to protect their welfare (Vogelsong, Griffiths, & Steel, 2000). However, 19 percent of aquatic related injuries where children are involved occur in public swimming pools where certified lifeguards are on duty (Infant Swim Resource, 2006).

If lifeguards on duty are trained to first prevent injuries and then quickly and effectively respond should such an emergency occur, why is it that both injuries and accidental drownings are on the rise at aquatic facilities? Due to the nature of an active environment, which is highly demanding on a sensory level, lifeguards must maintain a consistently high degree of vigilance

for the duration they are on duty. Factors that contribute to lifeguard vigilance can be classified into two categories: 1) physiological and 2) cognitive. Of these classifications, vigilance can be further subcategorized as 1) task characteristics, 2) physical surroundings, and 3) temporal progress of the activity (Applied Anthropology, 2001). This is illustrated in Figure 1.

Figure 1: Overall Vigilance



Some research exists to suggest that complacency is a factor that can decrease the vigilance of lifeguards. Complacency is defined as self-satisfaction especially when accompanied by unawareness of actual dangers or deficiencies (“Complacency”, 2009). Although this is an attitude that can determine how we respond to certain situations, complacency eventually leads to inaction (Tan, 2004).

There are several elements that contribute to complacency in professional lifeguards, including: stress, monotony, boredom, repetitive activity, task intensity, environmental setting, duration of being a professional lifeguard, perception of job importance, and secondary responsibilities of a lifeguard. With consideration to these factors, it can be suggested that as complacency increases, vigilance decreases.

Statement of Problem

The greatest threat to organizations today is not competition, increasing customer demands, or the change of pace caused by globalization; it is complacency (Tan, 2004). Complacency in the field of lifeguarding can lead to acts of negligence, which can contribute to aquatic related injuries, such as nonfatal or accidental drownings. Failure to recognize a victim in distress, failure to perform an important or necessary procedure, or performing a procedure in a careless or unskilled manner violates the standard of care, as outlined in lifeguard training (Dworkin, 1993). Despite the effort of research in aquatic safety, to date, little research has been conducted on factors contributing to complacency in the field of lifeguarding.

Purpose

The purpose of this study was to examine critical components of lifeguard complacency in an effort to identify prevention strategies that could be formulated into standards that reduce the risk of this state, increasing the safety of aquatic facilities.

Lifeguards are entrusted to provide safety at all times. Therefore, it is of great necessity to study underlying factors that influence lifeguard complacency and how these factors relate to overall safety; specifically critical components in outlining preventative strategies. This study helps to address some of the challenges facing aquatic managers, and includes:

- 1) The challenge of keeping lifeguards poised and ready for preventing and responding to aquatic emergencies.
- 2) Decreasing negative perceptions of professional lifeguards, both from the lifeguards themselves, as well as the community.

Research Questions

The following questions were used as the focal point of the study to assist aquatic facility managers:

- 1) As a component of vigilance, what factors contribute to complacency in the field of lifeguarding?
- 2) What are the factors of greatest risk that contribute to complacency?
- 3) What preventative measures can be outlined to reduce complacency?

Limitations

Due to the design and nature of this study, several inherent limitations exist. One limitation was lack of generalizability, as the lifeguards in this study were sampled from pool facilities in eastern North Carolina, and may not be representative of other locations or types of water-based recreation areas such as open water sites (i.e., natural waterways) and water parks. The study was also limited to lifeguards and aquatic professionals who were 18 years of age and older. Other limitations are related to the study instrument. First, the study instrument was a self-report measure created by the researcher. The study instrument did not undergo significant reliability and validity testing. Furthermore, there are no guarantees that the questionnaires were answered honestly or with complete accuracy; therefore, data may be skewed slightly.

Steps were taken to minimize the impact of these limitations. Great care was taken in the selection of sites to sample. These sites were active pools having staff with varied experience and

training. The instrument utilized in the study was also reviewed by the researcher's thesis committee, who incorporated many suggested changes before the instrument was distributed for data collection. These limitations aside, this study represents a foray into the under-studied area of lifeguard vigilance, and serves to provide useful insight to guide training and lifeguard practice.

Definition of Terms

The following terms were operationally defined for the purpose of this study. The definitions were outlined or tailored to assist in the reader's understanding and comprehension.

- 1) Cognitive Factors of Vigilance - ability to detect unforeseeable and slightly supra-threshold signals, as it relates to lifeguarding (Lifeguard Vigilance Bibliographic Study, 2001).
- 2) Complacency - self-satisfaction especially when accompanied by unawareness of actual dangers or deficiencies ("Complacency", 2009).
- 3) Drowning - death from suffocation (asphyxia) caused by a liquid entering the lungs and preventing the absorption of oxygen leading to cerebral hypoxia and myocardial infarction (Lunetta & Modell, 2005).
- 4) Lifeguard - a person trained in lifeguarding, CPR and first aid skills, which ensures the safety of people at an aquatic facility by preventing and responding to emergencies (Bonifer, Deibert, Espino, Fischbein, Harvey, Hendrickson, . . . Oaksmith, 2007).
- 5) Near Drowning - the survival of a drowning event involving unconsciousness or water inhalation, which can lead to serious secondary complications, including death, after the event (Dueker & Brown, 1999).

- 6) Physiological Factors of Vigilance - the excitability of the central nervous system as it relates to lifeguarding (Applied Anthropology, 2001).
- 7) Vigilance - the state of paying close and continuous attention, being watchful and prompt to meet danger or emergency, or being quick to perceive and act; it is related to a psychological, as well as to a physiological state (Jung & Makeig, 1994).

CHAPTER 2: LITERATURE REVIEW

This chapter begins with a historical overview of the professional lifeguard and provides background on the field of aquatics in the United States, as well as select international countries. It also reviews scholarly commentary related to this discipline and assembles a critical review of literature examining complacency theory and prevention strategies in the active field of lifeguards.

Role and Function of a Lifeguard

Lifeguards are directly responsible for maintaining safety at aquatic facilities. They must ensure that patrons are free of harm and act responsibly to protect their welfare (Vogelsong, Griffiths, & Steel, 2000). While owners and facility managers of public aquatic facilities are obligated to provide safe environments to patrons, it is the lifeguards' primary role to ensure patron safety and protect lives, including their own (Bonifer et al, 2007). This is accomplished by constant, vigilant supervision in an effort to proactively prevent accidents (Griffiths, 2002). There are several ways in which lifeguards execute this task. Lifeguards prevent injuries by minimizing or eliminating hazardous situations or behaviors; educate patrons about safety and regulations, as well as recognize and respond quickly and effectively to all emergencies, providing care as needed (Bonifer et al, 2007).

Secondary responsibilities of lifeguards may include filling out required records and reports on schedule and submitting them to the proper person or office; and performing maintenance or other tasks assigned by a supervisor (Bonifer et al, 2007). Being ready, alert, and conscientious is the benchmark of being an effective lifeguard.

History of the Professional Lifeguard

Certifying Bodies

Over time, the quality of lifeguarding programs and life saving techniques has benefited from competition between several accrediting agencies active in certifying professional lifeguards (Griffiths, 2003). However, some differences in rescue philosophy also exist, because of the presence of these accrediting bodies. For the purpose of this research, four nationally recognized organizations are identified in this section.

Due to the lack of a consistent lifeguard presence at public swimming areas the Young Men's Christian Association (YMCA) developed a volunteer National Lifesaving Service in 1912. In 1914, Commodore Wilbert E. Longfellow established the American Red Cross Lifesaving, which trained swimmers throughout the United States in lifesaving and resuscitation, organized them into a volunteer corps, and encouraged them to accept responsibility for supervision of bathing activities in their communities (Newell, Starr, Beshers, Carney, Edwards, Espino, . . . Stearns, 1995). This organization trains approximately 170,000 lifeguards each year in specific rescue procedures, including first responder cardiopulmonary resuscitation (CPR) and water rescues (American Red Cross, 1995).

In 1964, the United States Lifesaving Association (USLA) was founded by members of several California surf lifeguard agencies to enhance lifesaving efforts and drowning prevention, standardize beach lifeguard practices, educate the public about water safety, and improve professionalism among beach lifeguard organizations around the country (Newell et al, 1995).

In the early 1980s, Jeff Ellis devised a National Pool & Waterpark Lifeguard Training Course, and created a total risk management program for water parks (Ellis, 2010). The dynamics of the firm are such that the courses and materials can be modified yearly, enabling the

organization to adopt new techniques rapidly, and stay on the cutting edge of technical and medical information. In many instances, Ellis & Associates set the standard in the aquatics industry.

In 1983 and 1986, the American Red Cross and YMCA expanded their training programs to provide nationally standardized instruction for lifeguards at both swimming pools and beaches (Newell et al, 1995). These three certifying agencies established standards, which are universally adopted for lifeguard training.

The Boy Scouts of America (BSA) and the American Red Cross have joined forces to provide a high quality lifeguard training program at a reasonable price of only five dollars per scout. This is a saving of about 90% compared to the average community participant. The primary goal of the agreement is for each Council to become self-sufficient with its own instructors and trainers of instructors so that BSA staff and volunteers are available to teach the courses whenever and wherever best meets local scouting needs (Boy Scouts of America, 2009).

TABLE 1:
Comparison of Lifeguard Certification Training Times for National U.S. Agencies

Type of Training	American Red Cross	Ellis & Associates	YMCA	USLA
Lifeguard Training	33 hrs	20 hrs	28 hrs	40-48 hrs
Lifeguard Training & CPR / PR	29 hrs	26-29 hrs	37 hrs	49-57 hrs
First Aid	4 hrs	Part of LGT	4-6 hrs	40 hrs

The Professional Lifeguard

Earning a lifeguarding certification means a candidate has successfully completed course material and passed written and skill tests on a given date; this process is not exhaustive and lifeguards are expected to continue their education as an effort to remain abreast of current techniques and practices. It is important that lifeguards maintain their professionalism by preserving their knowledge and skills at an appropriate level.

A lifeguard is defined as a person trained in lifeguarding, CPR and first aid skills, which ensures the safety of people at an aquatic facility by preventing and responding to emergencies (Bonifer et al, 2007). Professional lifeguards should be mentally, physically and emotionally prepared at all times to perform their job to standard. Characteristics of professional lifeguards include being knowledgeable and acquiring appropriate skills, reliable, mature, courteous and consistent, positive, professional, healthy, and physically fit (Bonifer et al, 2007).

A lifeguard team is formed when two or more lifeguards are on duty. Team members may be trained and evaluated together. Team members practice working together as a unit. To be a good team, all staff must practice the facility's emergency action plans (EAP's) together until everyone knows their responsibilities and can perform them correctly (Bonifer et al, 2007).

Complacency Theory

Types of Complacency

Complacency is defined as self-satisfaction especially when accompanied by unawareness of actual dangers or deficiencies ("Complacency", 2009). This is an attitude that can determine how we respond to certain situations and can take four forms: 1) comfortable complacency, 2) cozy complacency, 3) arrogant complacency, and 4) lack of vision complacency. Complacency in any form, though, eventually leads to inaction (Tan, 2004).

Complacency in the Workplace

The greatest threat to organizations today is not competition, increasing customer demands, or the change of pace caused by globalization; it is complacency (Tan, 2004). When ethics are new and strong, employees are on top of things, but when growth occurs, people begin to get too comfortable for their own good (Tan, 2004). Complacency in the workplace is defined as a sense of excessive comfort combined with a lack of urgency to address issues or areas in need of improvement and growth (Tan, 2004). Complacency can lead to blind spots, poor quality, excessiveness, inaction, vulnerability, and deterioration of the overall mission (Tan, 2004).

The Workplace Complacency Trend in accident prevention states that there is occasionally a level of complacency present in the workplace, prior to the occurrence of a major accident. Then, during a span of time following an accident, complacency eventually returns accident prevention efforts to pre-accident levels. As a result, the majority of the work force flows along, putting moderate effort into accident prevention, until an accident occurs. Immediately following an accident, overall accident prevention efforts often spike to significantly improve these efforts (Folk, 2007).

This theory suggests that when a human being performs a particular task, or series of tasks, repetitively, there is a natural tendency for them to become bored or complacent with these tasks, and thus, begin performing them almost at a level of subconsciousness (Folk, 2007).

At Risk Behavioral Model

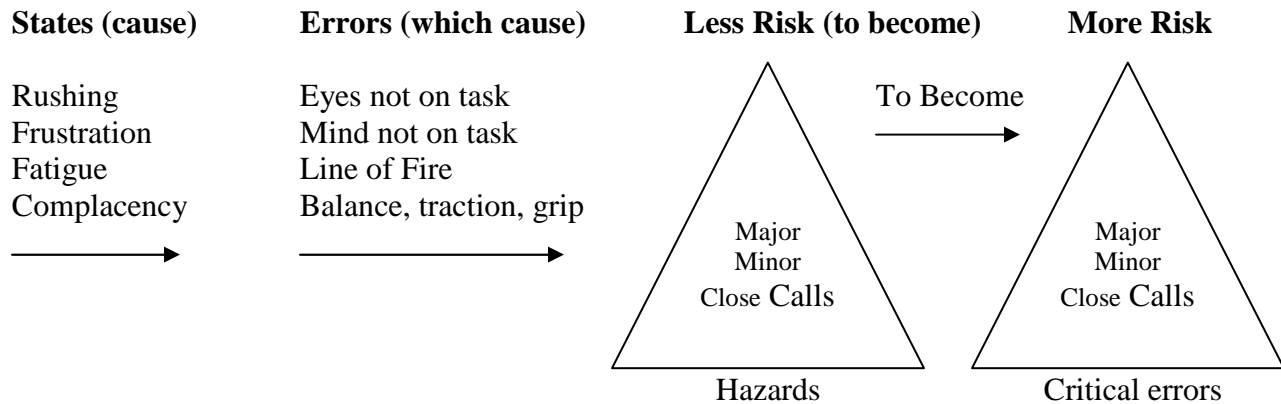
The At Risk Behavioral Model consists of six parts: types of risk behavior, sources of unexpected events, critical errors leading to injury, states of being contributing to errors, hazard awareness, and critical error reduction techniques.

First, there are three types of risk behaviors. Intentional Risk Behavior occurs when employees know fully that the activities they are doing are not safe and that there is a significant amount of risk associated with the activity. Conversely, Unintentional Risk Behavior is where employees are unaware of the risks. Habitual Risk Behavior happens when employees know the risks, but have been doing the activity for so long their level alertness to risks has significantly diminished (Higbee, 2002).

Second, there are three sources of unexpected events. To get hurt one must have, at a minimum, enough energy to cause an injury, and then come into contact with that energy, as something unexpected happens. Mechanical events occur when something breaks, usually due to mechanical failure. Some events involve someone else doing something the person or employee does not expect. Employees can also do something they never intended to do in the first place (Higbee, 2002).

Third, there are four critical errors leading to injury. “Eyes not on task” means not looking at what one is doing or not looking before one moves their hands, feet, or body. “Mind not on task” refers to not thinking about the task one is doing. “Being in or moving into the ‘Line of Fire’” makes a person aware of placing oneself in the line of fire. “Losing our balance, traction, or grip” simply identifies slipping or tripping that causes an individual to lose one’s balance or fall. When someone makes one of these four errors, that person does not actually get hurt every time, but that person does increase the likelihood of an injury and the potential severity of that injury every time (Higbee, 2002). This relationship is displayed in Figure 2.

Figure 2:
At Risk Behavioral Model



(Higsbee, 2002)

Next, the four states of being are rushing, frustration, fatigue, and complacency. There are other states like depression, elation, illness, and fear that can take one’s mind and eyes off the current task, but complacency is the most difficult to deal with (Higbee, 2002).

Awareness is an immediate state. In injury causation, the most critical aspect that counts is awareness in the present, not the past or the future. If anything draws attention away from the hazard it is by chance whether a person comes in contact with the hazard or not (Higbee, 2002).

Training directed toward an error involves relying on awareness and, to some degree, a little luck to improve safety performance. The goal is moving from the limited effectiveness of awareness and luck-based safety training, to a focus that is more skill-based. There are four critical error reduction techniques to consider. “Self Trigger on the State” implies that one may not trigger at all or soon enough to practice is problematic. Even when rushing, one should work on increasing alertness and focus on the task at hand. “Analyze Close Calls and Small Injuries” helps individuals learn from experience. Mistakes should be analyzed to see what states were involved, and if the state was not contributory, maybe it was a habit on which to work. “Observe

Others” states that when observing others in the state to error pattern, where the potential of a serious event is evident, the following actions typically occur: (1) get away from that person to avoid being caught up in that person’s risk behavior, (2) recognize the error and be aware not to do the same, and (3) see the state to error pattern in co-workers before they do. “Work on our Habits” provides awareness to always move one’s eyes before moving one’s body (Higbee, 2002). By working on habits, reduction of individual errors occurring is possible.

Causes of Lifeguard Complacency

The problem of vigilance is not exclusive to professionals such as pilots and automobile drivers, but to lifeguards, as well. Complacency in the field of lifeguarding can lead to acts of negligence. Failure to recognize a victim in distress, failure to perform an important or necessary procedure, or performing a procedure in a careless or unskilled manner would violate the standard of care that lifeguards are trained to enact (Dworkin, 1993). In a 1996 survey, only 72% of lifeguards reported that they were very confident in their abilities to make a successful water rescue, and approximately 7% of these lifeguards indicated that they were either “unsure”, “fairly unconfident”, or “very unconfident” in their abilities to rescue a patron in the water (Vogelsong, Griffiths, & Steel, 2000).

Fatigue

Fatigue is defined as weariness or exhaustion from labor, exertion, or stress, and may result in the temporary loss of power to respond that is induced in a sensory receptor or motor end organ by continued use (Webster, 2009). Fatigue is not the same thing as sleepiness, although it is often accompanied by a desire to sleep, and a lack of motivation to do anything else (Mayo Clinic, 2010).

Circadian rhythms can play a role in a lifeguard's alertness patterns. Most people experience a natural cycle of peak alertness in the early to mid-morning hours and again in the late afternoon (Griffiths, 2003). However, this does not usually coincide with busy times at aquatic facilities. Typically, fatigue begins to set in between noon and the early hours of the afternoon, which is not good news for lifeguards and aquatic administration, as aquatic facilities tend to see increased patron volumes during this time (Griffiths, 2003).

Boredom

Vigilance is defined as the ability to detect unforeseeable and slightly suprathreshold signals; monotony leads to boredom, which leads to a lack of vigilance (Griffiths, 2003). This reduction in vigilance is one of the greatest problems for lifeguards. Because lifeguard surveillance can be very tedious and it is nearly impossible for humans to remain vigilant for long periods of time, lifeguards can easily become distracted and miss victims in trouble (Griffiths, 2003).

Boredom is a complex mental phenomenon involving the attention span, emotional influences, and thinking components, such as creativity, understanding, thinking, problem solving, and memory (i.e., solving a problem by assessing the stimulus and the response) (Esman, 1979). Boredom is associated with monotony in a job, and may be associated with a high degree of frustration (Perkins & Hill, 1985). Boredom and monotony are generally considered to be negative factors that can have adverse effects on morale, performance, and quality of work. This, coupled with a need to maintain high levels of alertness, may combine to cause considerable stress to lifeguards and aquatic administration (Thackray, 1981). For optimal performance, a higher level of arousal or activation is required for simple tasks and a lower level of arousal is necessary for more difficult tasks (Griffiths, 2003).

According to the Yerkes-Dodson Law, very high and very low levels of arousal can be used to predict performance; in most cases, moderate levels of arousal produce the best performances (Griffiths, 2003). Because excessively high levels of arousal produce panic and “choking” and very low levels of arousal lead to lackadaisical and unmotivated performances, these are not ideal states for lifeguards (Griffiths, 2003).

Repetitive Activity

At low levels of arousal during any repetitive task, such as patron surveillance, it is almost impossible to maintain attention, concentration, and vigilance for extended periods of time (Griffiths, 2008). Time duration associated with patron surveillance can be a contributing factor in this area. Numerous studies have confirmed that half of the reduction in lifeguard vigilance occurs during the first 30 minutes of patron surveillance, but some instances of declination can begin as early as 15 minutes into surveillance (Griffiths, 2008). Related to flow theory, if the task is viewed as lacking challenge, it can lead to boredom and take away from vigilance.

Task Intensity

Another aspect of vigilance deals with the complexity or difficulty of the task being performed. For optimal performance, a higher level of arousal or activation is needed for simple tasks, and a lower level of arousal is needed for more difficult tasks (Griffiths, 2008). As related to flow theory, if the task is perceived to be too difficult, it can lead to stress and reduced vigilance.

Environment

Time and events may reduce vigilance and concentration spans (Koelega, Verbaten, van Leeuwen, Kenemas, Kemmer, & Sjouw, 1992). As the level of environmental bombardment

increases, such as noise, activity, or any other distraction, the level of a lifeguard's usefulness decreases. As these bombardments increase, lifeguards become less aware of peripheral objects and events (Korte & Grant, 1980).

Temperature can also have a negative impact on vigilance (Griffiths, 2003). Mackworth found that when temperature rose above 84 degrees Fahrenheit, a noticeable decline in performance occurs (Griffiths, 2003). This is especially problematic for lifeguards because as the temperature increases, so does the attendance at aquatic facilities, undermining significantly the need for greater vigilance (Griffiths, 2008).

Aquatic setting could also play a key role in the vigilance of lifeguard performance. Considering states of arousal, oceanfront and waterpark lifeguards have a variety of stimuli to keep them alert, but for the thousands of lifeguards scanning boring, rectangular pools with low attendance, this is not the case; therefore, ocean and waterpark guards tend to be more vigilant than traditional pool guards (Griffiths, 2003). As that less automobile accidents occur due to drowsiness on windy, curvy roads, in part by the kept attention of the driver, it is logical to theorize that lifeguards would stay more attentive at crowded facilities, waterparks, and oceans, opposed to less populated ones, such as smaller pools (Griffiths, 2008). However, both very low and very high attendance can lead to poor lifeguard performance and decreased vigilance (Griffiths, 2003).

In addition to physical characteristics contributing to complacency, are the attitudes of those responsible for training and employing lifeguards. If complacency exists in those who train and impress standards upon lifeguards, these trainers will likely model complacency to the lifeguards they train. Research has shown that participants, regardless of whether they were lay or professional, are often poorly trained and have seldom mastered the techniques required to

perform life saving skills better than 80% correct (Kaye, Rallis, Mancini, Linhares, Angell, Donovan, Zajano, & Finger, 1991). An 80% performance level may not be sufficient to save a life if one of the vital steps was missed or performed improperly (Ward, Ward, & Jones, 1997).

The possibility that there are lifeguards in the field who are less informed or more poorly trained than in the past should be a great cause for concern. Due to lack of diligent training, both initially and ongoing, lifeguards do not always follow acceptable or established standards while on duty (Griffiths & Vogelsong, 1997).

Complacency from instructors and facility managers can exist from blind spots, onset by strings of successful ignorance. For example, if facilities do not routinely practice their emergency action plan because their lifeguard team is substantial in preventative lifeguarding, they are comfortable with the success of that positive attribute, but not planning for when prevention is not enough and response is required. However, this state of complacency can block future sustainability and growth through the failure to develop vital skills and techniques necessary of lifeguards. It may also exist as a result of organizations over extending their training and leadership staff. The result is quality for quantity (Tan, 2004). Lack of quality can soon shift from complacency to burnout. When leaders are complacent, they no longer think strategically about the future of the role they are fulfilling; they become too comfortable and their thinking becomes short-term with a narrow vision (Tan, 2004).

Duration of Being a Professional Rescuer

Time spent in the field can be a major indicator of workplace complacency. Young lifeguards may have an inaccurate perception of the responsibilities of a lifeguard, while a seasoned veteran could take the profession more seriously with passing time or get nostalgic, causing lazy behavior patterns.

Research indicates that the majority of lifeguards are relatively young, inexperienced, and require supervision (Vogelsong, Griffiths, & Steel, 2000). Improperly trained lifeguards have slipped through the cracks of their respective certification agencies, due to lack of quality in training, and are working in an environment where they are responsible for the safety of the patrons. A relatively large number of lifeguards have serious doubts about their training and abilities to complete a successful rescue in a variety of settings and situations (Vogelsong, Griffiths, & Steel 2000).

Secondary Responsibilities

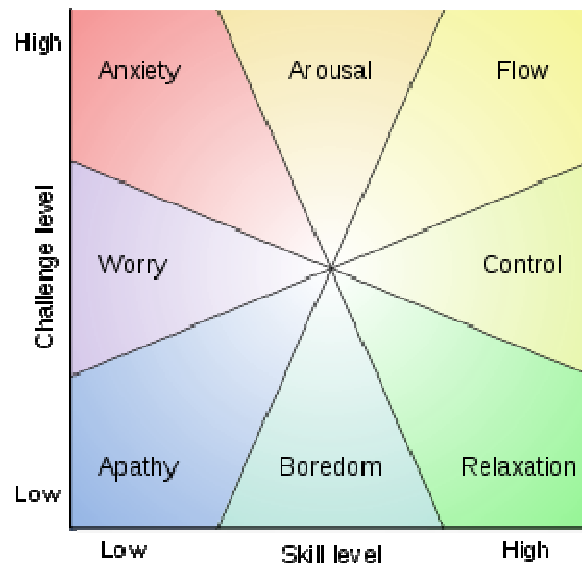
Supervisors and managers at aquatic facilities sometimes make the mistake of assigning lifeguards unrelated duties to perform, while also expecting them to conduct effective patron surveillance (Branche & Stewart, 2001). While some non-intrusive secondary requirements may be applicable to position responsibilities, these should only be scheduled during down time, and not take away from the primary role of maintaining patron safety.

Flow Theory and Vigilance

Flow is defined as the mental state of operation in which a person in an activity is fully immersed in a feeling of energized focus, full involvement, and success in the process of the activity (Csikszentmihalyi, 1990). There are three conditions needed to meet flow. First, one must be involved in an activity with a clear set of goals. This adds direction and structure to the task. Next, one must have a good balance between the *perceived* challenges of the task at hand and his or her own *perceived* skills, meaning one must have confidence that he or she is capable to do the task at hand. Lastly, the task at hand must have clear and immediate feedback, as this serves to better help the person negotiate any changing demands and allows one to adjust one's performance to maintain the flow state (Csikszentmihalyi, 2005). There is an illustrated

relationship between the perceived challenges of a task and an individual's perceived skills (Csikszentmihalyi, 1988) in Figure 3.

Figure 3:
Flow – Relationship of Challenge Level and Skill Level



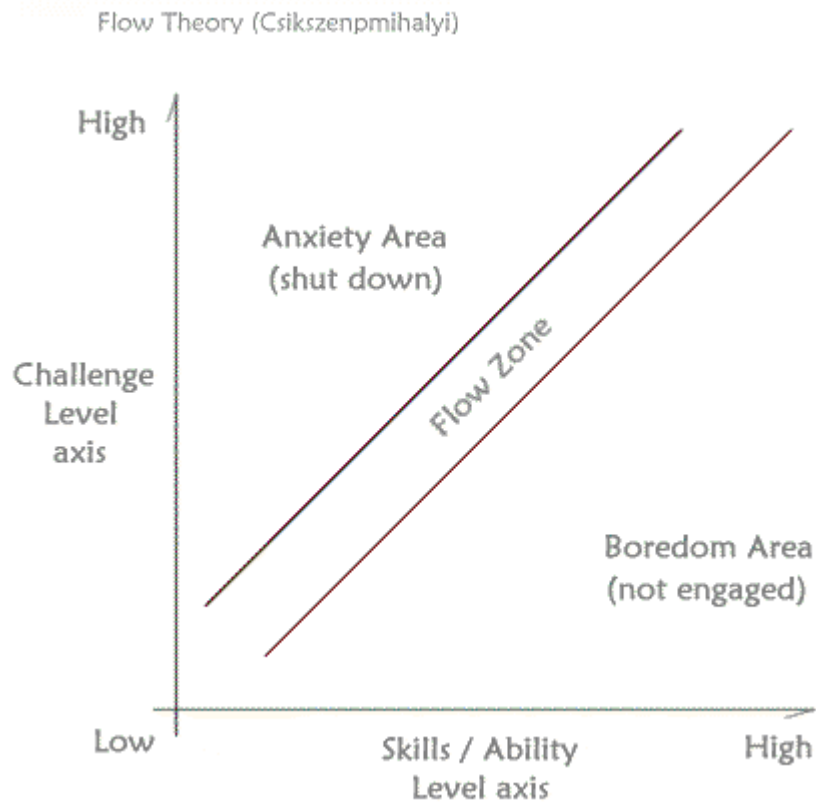
(Csikszentmihalyi, 1990)

As shown in Figure 3, flow can only occur when the activity at hand is a “higher-than-average” challenge (above the center point) and requires “above-average” skills (to the right of the center point). The center of this graph (where the sectors meet) represents a person's average level of challenge and skill. The further from the center an experience is, the greater the intensity of that state of being (whether it is flow, anxiety, boredom, or relaxation) (Snyder & Lopez, 2007).

The majority of lifeguards in this country are teenagers, and motivating this demographic to continuously maintain focus on preventing accidents is of the utmost importance (Griffiths, 2003). Flow theory is classified as a theory of emergent motivation, and illustrates how

employees bring meaning and significance to even the most boring tasks (Csikszentmihalyi, 1990). To obtain optimal performance and experience, individuals must possess the skills and abilities necessary to meet challenges of the particular job; for lifeguards, they must maintain a balance of challenge with skill level (Csikszentmihalyi, 1990). Tasks that offer challenges that are in accordance with or just beyond one's skill level and abilities are thought to induce optimal arousal or flow states. Tasks that are low in challenge, and where one is highly skilled often lead to boredom. Tasks that offer challenge far beyond one's skill level often induce anxiety (Csikszentmihalyi, 1990). On the following page, Figure 4 illustrates this relationship.

Figure 4:
Flow Theory



(Csikszentmihalyi, 1990)

The perception of the skills one possesses are as important as having these skills. Flow Theory provides direction to lifeguards and has implications for teaching creative concentration and energetic focus that can help bring significant meaning to lifeguard jobs, by concentrating on the task at hand (Csikszentmihalyi, 1990). By appealing to the balance of challenge and ability needed to attain flow states, patron surveillance improves, as lifeguards become in tune with their environment and can better see situations before they occur.

Prevention Strategies

The key to reducing exposure to risk is to minimize the number of preventable injuries and diminish the severity of accidents that do occur (Vogelsong, Griffiths, & Steel, 2000). A proactive defense against negligence is to reduce the chance of ending up in court by ensuring that lifeguards have acted responsibly and not breached any standard of care in providing a safe environment for patrons (Vogelsong, Griffiths, & Steel, 2000). There are a variety of factors that can contribute to these prevention strategies.

Health and Wellness

A balanced dietary and exercise regimen is essential for sustaining physical requirements of being a lifeguard, as well as maintaining focus while on duty. Even mild physical exercise before or between lifeguard shifts may increase lifeguard attentiveness (Griffiths, 2003). Water rescues differ from land rescues in a couple of ways. First, lifeguards must be physically capable of swimming to and returning with the victim, while completing specific rescue procedures. Second, the water itself is an unstable environment, compared to land; rescuers have to overcome form, frictional, and wave drag resistance forces and there is a need to compensate for buoyancy factors (Ward, Ward, & Jones, 1997). The best way lifeguards can keep their knowledge and skills current, as well as stay in peak physical condition, is by participating in in-service training

sessions (Bonifer et al, 2007). For these reasons, health and wellness is specifically important to performing the job at hand.

Fatigue is a cause in the deterioration of focus and may be caused by the actual work of lifesaving, such as dehydration, tiredness, eyestrain, and exposure to the sun, wind, or both. The United States American Red Cross recommends that lifeguards have a 15 minute break every hour so that they can refresh their senses and better detect the surface struggle of a drowning non-swimmer within 20 to 60 seconds, or a routine rescue may become a submersion or fatality (Bonifer et al, 2007). Lifeguards need arrive at work well rested, not showing lingering effects from outside activities, and should avoid medications influencing their brain efficiency (Fenner, Leahy, Buhk, & Dawes, 1999).

Breaks

Reduction in complacency can be achieved by frequent, short breaks and even changes in activities (Griffiths, 2003). If it is possible to work a lifeguard shift and then teach a swim lesson, this would be ideal to break the monotony of performing the same task for hours on end. Also, if temperatures are high, lifeguards should dip into the water or use water misting during breaks to help them keep cool and attentive (Griffiths, 2003).

Station Rotation

Movement and mild exercise during surveillance tasks can stimulate the muscles and increase blood flow that oxygenates the brain (Griffiths, 2003). According to Plum and Posner (1972), the Ascending Reticular Activating System (ARAS) receives pathways from, and is stimulated by, every major somatic (organ) and every sensory (nerve) pathway. Visual stimuli, as well as stimuli from muscle groups, centers from respiration and increased sympathetic tone from minimal exertion, all feed into the ARAS (Plum & Posner, 1972). This area then primes

the brain cortex for stimulus reception that focuses this energy for heightened arousal (Plum & Posner, 1972). The pre-frontal cortex of the dominant right hemisphere helps maintain attention and the parietal cortex plays a role in shifting attention (Plum & Posner, 1972). Therefore, moderately increased movement, respiration, and heart rate of a lifeguard acts to stimulate the neurological pathways for improved attention and concentration (Griffiths, 2003).

While patrons are participating in aquatic activities, lifeguards and supervisors should be appropriately and effectively positioned to provide maximum security to the clientele through vigilant surveillance (Dworkin, 1993). While on duty, lifeguards should change their posture (sit, stand, walk, etc.) and incorporate a visual scanning pattern every five minutes. Not only does this technique ensure that lifeguards will be more vigilant, but supervision and patron impressions also improve due to the observable changes that occur on a regular basis (Vogelsong, Griffiths, & Steel, 2000).

Lifeguard Accountability Awareness

As far as the lifeguard's individual commitment, the quality of training that lifeguards retain is directly proportional to the level of sincerity they apply to their training, and continue to practice on the job (Giles & Giles, 1998). Lifeguards should create mental and physical drills while on duty, as well as mentally rehearse rescue scenarios, so they are engaged and prepared to respond safely and appropriately if and when an emergency actually does occur (Griffiths, 2003).

Lifeguards also need to take necessary steps to combat their natural biological shifts into fatigue. They can utilize techniques including, but not limited to, being aware of the opportunity of danger, engage muscle activity, mindfulness of alert switches during circadian down time, avoid sleep deprivation, avoid ingesting foods or chemicals that contribute to drowsiness, and adjust for environmental factors, such as light, temperature, sound, and aroma (Griffiths, 2003).

Facility

Facility managers, from the organizational president to the pool operator, should serve as the driving force behind company compliance with safety programs, demanding supervisory and employee participation (Folk, 2007). Supervision of a lifeguard staff should be about coaching, mentoring, and providing an atmosphere of socialization in acceptable ways in order to make progress fulfilling their deficiency needs (Griffiths, 2003). Through working with lifeguards, especially young teenagers, managers and senior lifeguards should realize that these less seasoned employees are still growing and are impressionable (Griffiths, 2003). This is where managers can really make a difference in the lives of lifeguards, as well as their facilities and the patrons they service.

Budgetary commitments must be made for in-service training sessions, as the responsibility of maintaining a highly trained and reliable staff falls on these managers (Giles & Giles, 1998). Without ongoing education and training, lifeguards cannot be expected to accurately maintain the skills necessary to respond in emergency situations. The repetition of skills training can better guarantee accurate execution of rescue skills.

Regularly scheduled drills should be used to test the lifeguards' alertness and preparedness; in the instance that an emergency should take place lifeguards will be better innately prepared to respond quickly and without hesitation (Giles & Giles, 1998). This preparation shows the facility's commitment to the safety of its patrons.

Lifeguard Instructor Accountability

A lifeguard instructor is the point of entry into the field of lifeguarding. It is here that a future lifeguard will receive basic lifesaving skills necessary to obtain a professional job as a lifeguard. Although it is the responsibility of the national training agency to routinely review the

techniques used for proper lifeguarding procedures, in the case of lifeguards demonstrating poor rescue skills after hire, one may want to look at the individual's certification course instructor before blaming the national training agency as a whole (Giles & Giles, 1998).

Lifeguard and Staff Training

If properly trained and routinely practiced, lifeguards can significantly enhance public safety (McManus, Storrs, & Brewster, 2008). A lifeguard's certification may be a ticket to acquiring a job, but the "real" training should commence once a lifeguard is hired (Giles & Giles, 1998). Facility managers should be diligent in proactively enhancing the basic training of aquatics staff, through in-service training sessions, and not depend on national training agencies to prepare lifeguards for every possible situation (Giles & Giles, 1998).

Lifeguards should have annual certification training, especially seasonal lifeguards, as they can lose knowledge and skills during the off-season. Lifeguards should also be tested periodically or asked to demonstrate their skills and knowledge as a measure of their training and readiness (Vogelsong, Griffiths, & Steel, 2000).

Specific training should be focused on the visual scanning and visual attention of lifeguards, as recognition is the first step in injury prevention or response. From the perspective of prevention, scanning is the most important part of a lifeguard's job. It may detect a person, or persons who are, or may be in a high risk category and more likely to get into trouble in the water, or in assessing developing problems, both in and out of the water (Fenner, Leahy, Buhk, & Dawes, 1999).

Visual scanning and attention can be described as observing, recording, and making an assessment of the water area that is being surveyed (Newell et al, 1995). Thus, scanning is the use of the visual system to feed information about the outside world to the brain, allowing

strategic planning and management functions for the lifeguard that result in a safer environment for the patrons (Fenner, Leahy, Buhk, & Dawes, 1999). Visual attention encompasses many areas of the human brain. Visual information bombards the retina, but using selective mechanisms, this information is broken down to allow the higher levels of the brain to process only the most important facts. Visual attention has been compared to a spotlight, where the area of the spotlight has the majority of the information processed in some detail, whereas the rest of the area has much less information available to process (Steinman, & Steinman, 1998). Before each new area is to be assessed, the attention has to be directed to the specific area and be primed to notice significant features or events. Thus, the bombardment of information in the visual scan is intense, and an alert and trained brain is essential for successful and efficient scanning (Fenner, Leahy, Buhk, & Dawes, 1999). The successful achievement of this skill should increase lifeguards' ability to pick out anything unusual in the water more quickly, such as a distressed or drowning person.

Patron Education

Aquatic facility participants should be educated on state public swimming pool and special use pool laws and facility standards that are in place to keep them safe. Despite the best efforts of some aquatic facilities, some patrons will not be exposed to public education related to aquatic safety. Those who are exposed may ignore it. Even after being aware, some will overestimate their personal capabilities or simply be overwhelmed by unexpected water conditions (McManus, Storrs, & Brewster, 2008). UCLA offers a national certification program for non-lifeguard responders such as firefighters, sheriff deputies, and others who may respond to situations, so that these first-responders may be capable of assisting in aquatic rescues (McManus, Storrs, & Brewster, 2008).

It should also be required that parents watch their children. Even the most thoroughly trained and vigilant lifeguards cannot provide the detailed attention that a child's parent can (Griffiths & Griffiths, 2009). The perception that that lifeguards are glorified baby sitters should cease and parents should take an active role in the safety of their children while visiting aquatic facilities.

CHAPTER 3: METHODOLOGY

This chapter discusses methodology, which includes identifying subjects and subject selection, study design, procedures, instrumentation, and data analysis. The purpose of this study was to examine critical components of lifeguard complacency in an effort to identify prevention strategies that could be formulated into standards that would reduce the risk of this state, increasing the safety of aquatic facilities. Design of an effective prevention program was based on recommended implementation methods compiled from research findings. This research was a quantitative study designed to determine relationships between factors of complacency and displayed or perceived complacency acts. The perspectives of aquatic professionals who operate or work at different facilities were collected for insight directly related to the field of lifeguarding.

Due to the nature of an active environment, which is highly demanding on the sensory level, lifeguards must maintain a consistently high degree of vigilance for the duration they are on duty. Factors that contribute to lifeguard vigilance can be classified into two categories: 1) physiological and 2) cognitive. Of these classifications, vigilance can be further subcategorized as 1) task characteristics, 2) physical surroundings, and 3) temporal progress of the activity (Poseidon, 2001).

Subjects and Subject Selection

An area listing of aquatic facilities in eastern North Carolina was compiled to access possible respondent information. While a minimum age of 18 years was required to participate, there was no maximum age limit. Lifeguards currently certified and employed at aquatic facilities were surveyed to contribute to a greater understanding of lifeguard vigilance. The

sampling goal for this study was to obtain a minimum of 100 currently certified and employed lifeguards to complete the study questionnaire.

Instrumentation

A list of potential contributors to complacency was compiled which framed the structure of the questionnaire. Multiple questions were drawn from variables identified in the literature that play a role in complacency. These include: 1) stress, 2) monotony, 3) boredom, 4) repetitive activity, 5) task intensity, and 6) the secondary responsibilities of lifeguards. A researcher developed questionnaire included questions consisting of demographic characteristics, background and training, and perceptive insight from lifeguards based on their view of certain job related aspects. The creation of the instrument was reviewed by a panel of professionals before implementation.

The final product included three sections: (a) demographic information which included six items that provided background on the respondent; (b) certification and employment information utilized six items to better understand the requirements of the respondents' certification and their current facility of employment; and (c) the perceptive information included a section of 17 items with Likert scale response for lifeguards to express their opinions about their current job, as well as a 14-item listing to identify what secondary duties may be required of these lifeguards. Overall, these questions were designed to assist the researcher in ensuring that data and respondents qualified to participate.

In an effort to avoid survey fatigue, it was advised that the total questionnaire length not exceed three pages. This would minimize the time spent completing the questionnaire to no more than 10 minutes. A lengthier questionnaire may not have been received as well or with as much accuracy. A sample of the questionnaire is included in Appendix C.

Procedures

After submitting the purpose of the study and study design, IRB granted approval, to proceed with the research. Consent from aquatic facilities in eastern North Carolina was obtained by means of professional letter requesting participation in a survey questionnaire. By completing the questionnaire, respondents consented to participating in this study. All identifiable respondent information was left anonymous, as the questionnaire did not request respondents' names or ask them to identify the name of the facility they were currently employed at. The questionnaires were numbered, but only for the purposes of data entry.

A local directory was used to identify aquatic organizations in eastern North Carolina within a 20 mile radial area, and questionnaires were distributed to these facilities in person. Aquatic department managers were asked to distribute physical copies of the questionnaire to all lifeguards who were currently employed by the facility and willing to participate. Lifeguards filled out the questionnaire on site, using either a pencil or pen. One week after the initial questionnaire distribution, a follow up letter of reminder was sent to all facility managers. This follow up letter reminded those who had not yet completed the questionnaire to do so, and thanked those who had already responded.

Upon return, completed questionnaires were coded for data entry and entered in the SPSS data analysis program. Although only participants who were 18 years of age and older were allowed to participate, if an ineligible respondent participated, the corresponding questionnaire was thrown out. This was confirmed through requesting the respondent's age in the first section of the questionnaire. The mailing list was kept confidential in a locked filing cabinet, and the questionnaires were void of respondent or facility name, making these unidentifiable to ensure anonymity.

Demographic Information

In the first section of the survey questionnaire used for data collection, basic demographic information was requested such as gender, age, race, current rate of pay, experience as a lifeguard, and total number of facilities respondents had worked at. These items were of importance to provide background on respondents and make distinction between groups if needed.

Certification and Employment Information

In addition to demographic information, the second section of the questionnaire inquired about respondents' primary role in the field of aquatics and levels of experience regarding pool management and safety. Question items included agency of certification, duration of certification training, current level of position held, current facility type, total number of lifeguards on duty at a time, and average daily patron volume. This section provided valuable information in regards to differentiation between training and environment of employment.

Perceptive Information

Perceptive information was compiled for the understanding of how lifeguards view multiple aspects of their job. Gathering this data was important to help determine possible factors related to complacency. In addition to lifeguards' perception of job importance and satisfaction, a listing of potential additional duties was provided to assess if additional responsibilities were required while employees were on duty.

Data Analysis

The analysis of data for the present study incorporated the SPSS computer based analysis software program for statistical analysis procedures. Descriptive frequencies were run for each survey question to determine the number and percentage of times the question was answered.

Frequencies and cross tabulations were calculated to identify and rank relevant issues independently, as well as within subgroups. Correlations were drawn between each independent variable (e.g., stress, boredom) and complacency to examine the significance of relationships between these variables.

The dependent variable for this study was complacency. This variable was measured by Likert-scaled items related to motivation and perceptions of job characteristics. The independent variables were: 1) stress, 2) monotony, 3) boredom, 4) task intensity, and 5) the secondary responsibilities of lifeguards.

Listed below are the research questions that helped guide the present study, along with the methods of statistical analysis used to explore these questions. Research Question (1), “As a component of vigilance, what factors contribute to complacency in the field of lifeguarding?” First, an exploratory factor analysis was performed to see if items formed factors as specified for this study. Then a multiple regression analysis was employed to test the relationship between each of independent variables and the dependent variable, complacency.

Research Question 2, “What are the factors of greatest risk that contribute to complacency?” Standardized regression coefficients (β) derived from the regression model provided insight into which independent variables accounted for the greatest direct effect on complacency.

Research Question 3, “What preventative measures can be outlined to reduce complacency?” In addition to the findings from data collection and analysis, a review of the literature on lifeguard training and vigilance was used to address the areas that have the largest impact on complacency.

CHAPTER 4: RESULTS

The results and data analysis of the study are discussed in this chapter. For clarity, the chapter is divided into three sections.

The results of this study are organized into the following sections: a) a descriptive summary of questionnaire items, b) a descriptive summary of the factor analysis and scale construction for measures of boredom, stress, complacency, and the summative index of secondary responsibilities, and c) a presentation of results related to research questions one and two.

Descriptive Summaries

A series of questions on the questionnaire were asked to establish a profile of study respondents. Demographic questions included gender, age, race, pay, total months employed as a lifeguard, and the total number of facilities at which respondents worked as lifeguards. Although 92 lifeguards completed the questionnaire, not all respondents answered each question. These results are presented in Tables 2-7.

TABLE 2:
Sample Demographics - Gender

Gender	<i>N</i>	%
Male	39	42.4
Female	53	57.6
TOTAL	92	100

As shown in Table 2, more females than males completed the questionnaire; 42.4% of the 92 respondents were male and 57.6% were female. Another important piece of demographic information was age. This is summarized in Table 3.

TABLE 3:
Sample Demographics – Age

Age	<i>N</i>	%
18	18	19.6
19	14	15.2
20	16	17.4
21	20	21.7
22	8	8.7
23	5	5.4
24	2	2.2
25	3	3.3
28	2	2.2
34	1	1.1
50	1	1.1
52	1	1.1
54	1	1.1
TOTAL	92	100
Mean = 21.63	St. Dev. = 6.157	Range = 18-54

According to Table 3, the lifeguards were most likely between the ages of 18 – 21 years old, with the highest percentage being 21 years of age. The mean age was 21.63 years old, and the ages reported ranged from 18 – 54 years old.

TABLE 4:
Sample Demographics – Race

Race	<i>N</i>	%
White / Caucasian	89	96.7
African American	3	3.3
Native American / Pacific Islander	0	0
Hispanic	0	0
Other	0	0
TOTAL	92	100

As Table 4 indicates, almost 97% of respondents were Caucasian. Only 3.3% were African American. No lifeguards reported any other racial background.

Pay was a factor that was divided into two different reporting types. Respondents declared either an hourly pay rate or the equivalent of an annual salary. Typically, frontline lifeguards and head lifeguards reported hourly pay rates, while salary-based pay was reserved for pool managers whose responsibilities included lifeguarding. This detail is depicted in Table 5.

TABLE 5:
Sample Demographics – Pay

Pay	N	%
Hourly Pay		
\$7.00 - \$7.99	40	43.4
\$8.00 - \$8.99	25	27.2
\$9.00 - \$9.99	9	9.8
\$10.00 - \$10.99	8	8.7
\$11.00 - \$11.99	4	4.4
\$13.00 +	1	1.1
Mean = 8.41	St. Dev. = 1.178	Range = 7.14 – 13.00
Annual Pay		
\$26,000.00	1	1.1
\$41,500.00	1	1.1
Mean = 33,750.00	St. Dev. = 10,960.16	Range = 26,000-41,500
TOTAL	89	96.8

As seen in Table 5, hourly pay ranged from \$7.14 - \$13.00 per hour. The mean hourly pay of respondents was \$8.41. Lifeguards were most likely to be paid around \$7.75 per hour at facilities where they were currently employed. This accounted for about 14% of hourly pay rates. Only about 2% of the respondents identified being paid an annual salary. These were

most likely to be full time, management positions at indoor aquatics facilities. The mean annual salary for permanent employees was \$33,750.00, ranging from \$26,000 - \$41,500.00. Only two respondents reported an annual salary. Three respondents did not answer this question or report their rate of pay.

Duration of employment is an important element to consider, as it conveys lifeguard experience and may determine different position ranking and/or rate of pay. Table 6 provides a summary of lifeguard experience.

TABLE 6:
Sample Demographics – Total Months Employed as a Lifeguard

Total Months Employed	<i>N</i>	%
0 – 12 (1 year)	19	20.6
13 – 24 (2 years)	12	13.1
25 – 36 (3 years)	17	18.6
37 – 48 (4 years)	9	9.7
49 – 60 (5 years)	11	12.0
61 – 72 (6 years)	3	3.3
73 – 84 (7 years)	11	12.1
85 – 96 (8 years)	3	3.3
97 – 108 (9 years)	1	1.1
109 – 120 (10 years)	1	1.1
121 + (11 years or more)	3	3.3
TOTAL	90	97.8

Mean = 44.11; St. Dev. = 44.24; Range = 1 - 324

As shown in Table 6, 52.3% of lifeguards had 36 months of experience or less, while 47.7% of lifeguards had more than three years of experience. The mean duration of lifeguard employment was 44.11 months; a little over three and a half years. Employment ranged from 1 –

324 months (27 years). Two respondents did not answer this question or did not report their active experience as a lifeguard.

TABLE 7:
Sample Demographics – Total Number of Facilities Lifeguards Have Been Employed With

<i>N</i>	Not Reported	Mean	St. Dev.	Range
91	1	2.70	1.912	1-10

According to Table 7, the mean number of facilities where respondents have previously been employed was 2.70, and ranged from 1 – 10 facilities. One respondent did not answer this question or did not report the number of facilities they had worked with.

The certification profile of respondents who completed the questionnaires includes the agency under which they were certified and the duration of the training required to complete the certification. These results are presented in Tables 8-9.

TABLE 8:
Sample Demographics – Agency of Certification

Agency	<i>N</i>	%
American Red Cross	89	96.7
American Green Cross	0	0.0
Ellis & Associates	2	2.2
Other	0	0.0
TOTAL	91	98.9

Table 8 illustrates that at 96.7%, of lifeguards received their certification from the American Red Cross. Ellis & Associates certified only 2.2% of lifeguards. One respondent did not answer the certification background question.

Total duration of training hours to complete certification varies according to certifying organization, Lifeguard Instructor and teaching methods, class size, and training site(s). While not all of these variables were included in the questionnaire, total hours required to complete training certification is summarized in Table 9.

TABLE 9:
Sample Demographics – Certification Course Hourly Requirements

<i>N</i>	Not Reported	Mean	St. Dev.	Range
71	21	26.44	14.064	2-90

According to Table 9, the mean duration of the certification course was 26.44 hours. It ranged from 2 – 90 hours. Twenty-one respondents either could not recall how long the certification training was or did not report the amount of time.

The facility profile of the respondents who completed the questionnaires includes current position title, the type of facility the lifeguard was currently employed with, the maximum number of lifeguards on duty at a time, and the estimated daily patron volume at the facility. These results are presented in Tables 10-13.

TABLE 10:
Sample Demographics – Position Title

Position	<i>N</i>	%
Lifeguard	73	79.3
Head Lifeguard	4	4.3
Pool Manager	12	13.0
TOTAL	89	96.7

Table 10 reveals that 79.3% of respondents were lifeguards, and 4.3% were Head Lifeguards. In addition, 13% were pool managers. Three respondents (3.3%) did not answer the question or report their position.

Staffing model structure varies according to difference in facility type, and in relation to the needs of the facility to serve its patrons. Whether facilities operate seasonally versus year round also impact this make up. The facility types included in this study were indoor, year round and seasonal, outdoor pools. These are summarized in Table 11.

TABLE 11:
Sample Demographics – Facility Type

Facility Type	<i>N</i>	%
Indoor Pool	41	44.6
Outdoor Pool	51	55.4
TOTAL	92	100

As shown in Table 11, there was almost even spread of facility type with 44.6% of respondents currently employed at indoor pools and 55.4% at outdoor pools. Although the distribution is close, the majority of the facilities surveyed were seasonal, outdoor pools.

Respondents were also asked to indicate approximately how many lifeguards were typically on duty at one time at the facility where they work. This may vary according to facility type and time of day or day of the week.

TABLE 12:
Sample Demographics – Total Lifeguards on Duty

<i>N</i>	Not Reported	Mean	St. Dev.	Range
92	0	2.99	1.757	1-8

Table 12 indicates that the mean number of lifeguards on duty at a time was about three. Although the standard deviation of 1.8 was rather small, the responses ranged from a single lifeguard to eight lifeguards on duty at a time.

TABLE 13:
Sample Demographics – Average Patron Volume

Average Patron Volume	<i>N</i>	%
1 – 50 Patrons	22	23.9
51 – 100 Patrons	36	39.1
101 – 200 Patrons	20	21.7
More than 200 Patrons	13	14.1
TOTAL	91	98.9

Table 13 reveals that 39.1% of lifeguards reported working at facilities with patron volumes of 51 – 100 people a day. In addition, 23.9% had bather loads of 1 – 50 patrons, 21.7% had 101 – 200 patrons, and 14.1% had more than 200 patrons per day. Only respondent (approximately 1%) did not know the average patron volume, or did not report this usage.

The perceptible profile of the respondents who completed the questionnaire includes Likert-scale responses to a list of items pertaining to lifeguards’ perceptions about the job itself. In relation to scoring, the scale was coded as 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. For purposes of analysis, indicated items were reverse coded to offer consistency. These results are presented in Table 14.

TABLE 14:
Sample Demographics – Professional Perception of the Job

Statement	N	Not Reported	Mean	St. Dev.	Range
*I feel like what do is valuable	91	1	1.67	.870	1-5
I chose this job to relax for the summer	92	0	2.02	1.139	1-5
*This is an interesting place to work	92	0	2.13	1.008	1-5
*I chose this job because I think it is important	92	0	2.13	1.102	1-5
*Working here is fun	92	0	2.17	1.044	1-5
*I am always worried about patron safety	91	1	2.35	1.353	1-5
There is not too much work associated with being a lifeguard	92	0	2.41	1.121	1-5
*I manage to find new things to keep me busy at work	92	0	2.50	1.032	1-5
Nothing exciting happens here	91	1	2.58	1.174	1-5
Nothing ever changes here	92	0	2.88	1.185	1-5
*I chose this job to meet new people	92	0	3.04	1.194	1-5
*Sometimes there are too many pool patrons for me to watch	92	0	3.21	1.200	1-5
*My job is overwhelming at times	92	0	3.36	1.297	1-5
My job is easy to perform	92	0	3.54	.999	1-5
*My pay reflects the importance of my job	92	0	3.55	1.296	1-5
*I find this job exhausting	91	1	3.56	1.118	1-5
The tasks that I am responsible for do not change much from day to day	92	0	4.01	.989	2-5

**Designates items that were reverse coded for analysis consistency.*

According to Table 14, lifeguards were most likely to agree with the item that stated “the tasks they are responsible for do not change much from day to day.” This produced a mean score of 4.01. They were also least likely to agree the item that stated, “what they do is valuable”, which averaged 1.67. Averaging a score of 3.04, the item involving the greatest neutrality was that respondents chose to become lifeguards to meet new people. In addition to the perceptive section, the questionnaire also examined the secondary responsibilities of respondents. Items in this part of the questionnaire asked about a list of additional tasks that lifeguards typically complete while on duty. These results are presented in Table 15.

TABLE 15:
Sample Demographics – Secondary Responsibilities

Task	<i>N</i>	Not Reported	Yes	%	No	%
Mow grass and maintain landscaping	91	1	5	5.4	86	93.5
Operate concession stands	91	1	25	27.2	66	71.7
Operate cash registers	91	1	33	35.9	58	63.0
Backwash filters	91	1	41	44.6	50	54.3
Brush walls and floor of pool	91	1	60	65.2	31	33.7
Handle customer service	91	1	65	70.7	26	28.3
Clean locker rooms/rest rooms	91	1	68	73.9	23	25.0
Discipline non-swimming patrons	91	1	69	75.0	22	23.9
Check and maintain proper pool chemistry	90	2	74	80.4	16	17.4
Monitor water clarity	91	1	78	84.8	13	14.1
Skim pool surface	90	2	79	85.9	11	12.0
Vacuum pool	91	1	81	88.0	10	10.9
Empty skimmer baskets	91	1	84	91.3	7	7.6
Clean pool deck	90	2	89	96.7	1	1.1

As shown in Table 15, the most likely secondary responsibility required of lifeguards was cleaning the pool deck. This accounted for 96.7% of respondents answering this item. The sample also identified the following, in order of frequency, as most likely to be required: 1) clean pool deck, 2) empty skimmer baskets, 3) vacuum pool, 4) skim pool surface, 5) monitor water clarity, 6) check and maintain proper pool chemistry, 7) discipline non-swimming patrons, 8) clean locker rooms/rest rooms, 9) handle customer service, and 10) brush the walls and floor of the pool.

Factor Analysis

Perceptive items measured monotony, stress, task intensity, boredom, and motivation were entered into a factor analysis to discern unique factors, and to understand how constructs formed to reflect a model of complacency. These results are displayed in Table 16.

TABLE 16:
Factor Analysis – Scale Construction*

Independent Variable	Statement	Response				
		1	2	3	4	5
Stress	Sometimes there are too many pool patrons for me to watch	-	.714	-	-	
Stress	My job is overwhelming at times	-	.834	-	-	
Stress	I am always worried about patron safety	-	-	.490	-	
Monotony	The tasks that I am responsible for do not change much from day to day	-	-	.736	-	
Monotony	Nothing ever changes here	-	-	.705	-	
Monotony	I manage to find new things to keep me busy at work	.496	-	-	-	.411
Task Intensity	My job is easy to perform	-	-	-	.615	
Task Intensity	There is not too much work associated with being a lifeguard	-	-	-	-	-.466
Task Intensity	I find this job exhausting	-	.688	-	-	
Boredom	Nothing exciting happens here	.512	-	-	-	
Boredom	Working here is fun	.776	-	-	-	
Boredom	This is an interesting place to work	.797	-	-	-	
Motivation	My pay reflects the importance of my job	-	-	-	.625	
Motivation	I feel like what do is valuable	.707	-	-	-	
Motivation	I chose this job to meet new people	.627	-	-	-	
Motivation	I chose this job to relax for the summer	-	-	-	-	.813
Motivation	I chose this job because I think it is important	.649	-	-	-	-
Eigen Values		3.593	2.629	1.505	1.433	1.193

*Items below .40 were removed from factor loadings

All items were entered into a principal components analysis using Varimax rotation. Factors were extracted using the standard of Eigen values greater than or equal to one. In addition to this strategy, a scree plot was used to identify the distance between Eigen values.

Items were then reviewed within factors to examine the structure and conceptual basis for factors. Items where cross-loadings were higher than .40 were removed from the factors.

The decision to utilize the three-factor solution came after thoughtful review by the researcher and the thesis co-advisors. Three factors related to complacency, stress, and boredom were observed within this process. The scree plot demonstrated that a three-factor solution was a viable alternative solution to the original factor analysis. The decision to utilize a three-factor solution was conceptually based as the literature indicates that stress and boredom undermine vigilance and lead to complacency. The final factor analysis is displayed in Table 17.

TABLE 17:
Factor Analysis – Three Factor Solution

	1 Complacency	2 Stress	3 Boredom
This is an interesting place to work	.824		
Working here is fun	.795		
I feel like what I do is valuable	.706		
I chose this job to meet new people	.600		
I manage to find new things to keep me busy at work	.566		
Nothing exciting happens here	.560		
My job is overwhelming at times		.816	
Some times there are too many pool patrons for me to watch		.776	
I find this job exhausting		.732	
Nothing every changes here			.788
The tasks that I am responsible for do not change...			.651
I am always worried about patron safety*			.546
Cronbach's Alpha (α)	.774	.747	.603

*Item dropped to improve scale reliability

According to Table 17, the components were as follows: (1) complacency, (2) stress, and (3) boredom. The complacency items include lifeguards' perceptions of their jobs and factors related to motivation. Stress contains items that contribute to a lifeguard's level of anxiety, and boredom consists of items which may contribute to a lifeguards' lack of arousal. Tests of internal consistency (e.g., Cronbach's Alpha) were performed to check reliability on these new scales. The scale measuring boredom was adjusted to improve reliability, as dropping one item, "I am always worried about patron safety," improved reliability and were consistent with the nature of this construct. Following this adjustment, all scales met acceptable reliability for scales with six items or less (Cortina, 1993).

Analysis of Results

Once the factor analysis was run, correlations were processed to see if significant relationships existed between the dependant variable complacency and the independent variables of stress, boredom, and secondary duties. This information is displayed in Table 18.

TABLE 18:
Correlation between Study Variables

Variable†	1.	2.	3.	4.
1.Complacency	-	.137	.251*	-.231*
2.Stress	.137	-	-.140	.225*
3.Boredom	.251*	-.140	-	-.259*
4.Secondary Duties	-.231*	.225*	-.259*	-

† Numbers at the top of columns correspond with each numbered variable

* $p < .05$

As shown in Table 18, the dependent variable, complacency, is significantly related to boredom ($r = .251, p = .017$), which at the bivariate level, indicates that increased levels of boredom were related to increased complacency. An inverse relationship is shown to exist

between complacency and secondary duties ($r = -.231, p = .029$). At the bivariate level, this means that when lifeguards are engaged in more secondary activities, they are less likely to report being complacent.

In addition to the dependent variable, some of the independent variables proved to have significant relationships with each other. A positive relationship exists between stress and secondary responsibilities ($r = .225, p = .032$), meaning that increased stress was related to the presence of more secondary responsibilities and vice versa. An inverse relationship between boredom and secondary duties ($r = -.259, p = 0.14$) also exists; meaning that as secondary responsibilities increased, boredom was likely to decrease. Once correlations were made between the dependent and independent variables, a multiple regression was used to examine how these relationships existed within a multivariate analysis. These values are displayed in Table 19.

TABLE 19:
Multiple Regression Analysis Testing the Effects of
Stress, Boredom, and Secondary Duties on Complacency

	<i>B</i>	Std. Error	β	<i>t</i>	Sig.
Stress	.174	.075	.239	2.303	.024
Boredom	.180	.081	.233	2.222	.029
Secondary Duties	-.060	.029	-.218	-2.052	.043
Model $R^2 = .15$					

As displayed in Table 19, a multiple regression analysis yielded a final predictive model that regressed all three independent variables on the dependent variable, complacency. Boredom ($\beta = .239, t = 2.303, p = .024$) and stress ($\beta = .233, t = 2.222, p = .029$) were positively related to complacency in this final model, while the variable secondary duties was negatively related to

complacency ($\beta = -.218, t = -2.052, p = .043$). The strongest relationships between the independent variables and dependent variable were nearly equal between stress and boredom with stress having a slightly stronger relationship than boredom. Secondary duties had a weaker association with the dependent variable, and this variable was also negatively related to complacency, suggesting that the presence of more secondary responsibilities is related to lower levels of complacency. However, while significant, this association is rather weak and should only be interpreted as suggestive. The final model accounted for approximately 15 percent of the variation in the measure of complacency.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

The purpose of this exploratory study was to examine critical components of lifeguard complacency in an effort to identify prevention strategies that could be developed into standards. A secondary purpose of this study intended to improve safety levels at aquatic facilities by reducing the risk of lifeguard complacency, and, hopefully, increase the safety of patrons. The study sampled lifeguards with experience varying from entry level to pool managers, who completed questionnaires that sought to assess the various direct and indirect elements of complacency. The following research questions guided this study:

Q1: As a component of vigilance, what factors contribute to complacency in the field of lifeguarding?

Q 2: What are the factors of greatest risk that contribute to complacency?

Q 3: What preventative measures can be outlined to reduce complacency?

This chapter summarizes the theory and methods used in data collection and analysis, as well as the overall results of the research. The discussion section interprets the findings of the study and places these within the context of the literature. Finally, recommendations for practice and implications for future research are discussed.

Summary of Analysis

The researcher found that the majority of respondents were frontline lifeguard staff with a mean age of 22 years old. More than half of the sample (57.1%) was female, and most respondents were Caucasian from the eastern North Carolina region. Slightly over half of the respondents were currently employed at outdoor aquatics facilities.

The mean hourly pay for all non-permanent lifeguard positions was \$8.41 per hour, while the two permanent year round positions had a mean salary of \$33,750.00 per year. Pay is usually

related to the duration of experience, and in this sample, the average time of lifeguard experience was about 44 months, or about three and a half years. Since becoming professional lifeguards, respondents reported working at an average of three aquatic facilities since becoming certified. These findings are hardly surprising considering that employment opportunities for lifeguards are typically at seasonal pools, and that very few year-round salaried positions are available.

The American Red Cross certified most of the lifeguards in the sample. On average, respondents reported spending 26.5 hours completing certification training courses. Generally, there were a maximum of three lifeguards on duty at a time, and respondents reported working at facilities where patron volumes were between 50-100 people per day.

In the area of lifeguard perception, the majority of lifeguards disagreed that their job was valued and agreed that the tasks they were responsible for did not change much from day to day. As part of their employment, more than half of the lifeguards sampled reported performing 10 of 14 secondary duties assessed by the study questionnaire; the most common of which were cleaning the pool deck, emptying the skimmer baskets, and vacuuming the pool.

To determine which factors contributed to complacency (research question one), the researcher performed a factor analysis on the perceptive section of the questionnaire. Three factors were derived after careful consideration of the study's conceptual basis. Factors fell into categories: 1) stress and 2) boredom, which served as independent variables, and 3) complacency, which served as the dependent variable. A third independent variable, number of secondary duties, was also included to explore the second research question: These relationships were first tested at the bivariate level examining bivariate correlations. Pearson's r correlations were examined between complacency and the three independent variables. Of these, the strongest relationship existed between complacency and boredom, where higher levels of

boredom were associated with higher levels of complacency. Complacency and secondary duties were negatively related, meaning that the presence of more secondary duties was linked to lower levels of complacency.

In addition to the dependent variable, some of the independent variables proved to have significant relationships with each other. A positive relationship existed between stress and secondary duties, suggesting that the more stress may also mean participation in more secondary duties. Also, an inverse relationship between boredom and secondary duties existed, suggesting that boredom decreased in the presence of secondary duties. However, correlations between these variables do not account for the presence of other variables, and for this reason, multivariate analyses using linear regression were performed.

The regression model simultaneously examined the relationship between the three independent variables and complacency, thus accounting for the effect of each in the presence of the other independent variables. Boredom ($\beta = .239, t = 2.303, p = .024$) and stress ($\beta = .233, t = 2.222, p = .029$) were positively related to complacency in this final model, while the variable, secondary duties, was negatively related to complacency ($\beta = -.218, t = -2.052, p = .043$). Stress and boredom were nearly equal in their association with complacency, while secondary duties had a weaker association with the dependent variable. The final model accounted for approximately 15 percent of the variation in the measure of complacency. The analysis illustrates that the more stress a lifeguard experiences, the less complacent they will become. However, if extreme stress exists, anxiety will occur. In addition, the less bored lifeguards are, the less likely they will be to become complacent while on duty. Secondary duties counter complacency, and based on the bivariate analysis, may also alleviate boredom.

Based on the reviewed literature, this study asserts that complacency should be considered a catalyst affecting lifeguard vigilance. To examine this assumption, complacency theory and the workplace complacency model, along with flow theory provided guidance for this study. This study explored relationships between complacency and stress, boredom, and secondary duties as guided by this framework. In addition, it demonstrated that boredom and stress are nearly equal in their association with complacency and may indirectly relate to a reduction in lifeguard vigilance. The discussion frames these results within the literature, and examines the practical considerations for lifeguard supervisors and administrators.

Discussion

The greatest threat to lifeguards today is complacency (Tan, 2004). There is an apparent need for effective complacency prevention strategies, especially targeting aquatic facility staff, as complacency in the field of lifeguarding can lead to lifeguards neglecting their duties and their vigilant behavior. Failure to recognize a victim in distress, failure to perform an important or necessary procedure, or performing a procedure in a careless or unskilled manner violates the standard of care in lifeguard training (Dworkin, 1993). By studying complacency prevention research, aquatic professionals can better reduce complacency of lifeguards, and as a result, reduce the possibility of aquatic emergencies. However, this goal requires a multi-faceted approach and quality efforts by all staff involved because one strategy alone will not prevent complacency. Aquatic professionals should enlist all resources available to them, and adapt methods appropriate to fit the criteria of their facility.

The literature identifies both complacency theory and flow theory as contributors to states of vigilance. This is a state that is in desperate need of reduction in the field of professional lifeguarding. From studying the Workplace Complacency Trend, a perpetual cycle of comfort

and complacency is inevitable without solid preventative strategies. Flow Theory provides guidance for facilitating conditions to support optimal arousal and engagement.

Flow is defined as the mental state of operation in which a person in an activity is fully immersed in a feeling of energized focus, full involvement, and success in the process of the activity (Csikszentmihalyi, 1990). Flow can be utilized to target favorable conditions, which may contribute to increased states of awareness. In the field of professional lifeguarding, the goal is to find the balance between ensuring that the challenge of the activity is “higher-than-average” and requires “above-average” skills, but does not cause the lifeguard distraction or anxiety. Whether or not lifeguards achieved flow during their shifts was not specifically tested in this study. However, the relationships found between the factors of boredom, stress, and complacency certainly supports the idea that challenging lifeguards without causing them to become over-anxious may help them achieve a desired state that minimizes complacency and promotes vigilance.

Factors of Lifeguard Complacency

Research Question 1: “As a component of vigilance, what factors contribute to complacency in the field of lifeguarding?”

Lifeguards and aquatic professionals assessed perceptive questionnaire items and identified items that can be linked to lifeguard complacency, as related to flow. Two factors emerged that were related to complacency: (1) stress and (2) boredom. In Flow Theory, stress occurs from being faced with too much challenge. Stress can lead to poor performance and withdrawal from activity (Csikszentmihalyi, 1990). Conversely, boredom is theorized to develop in situations that lack challenge. In the case of lifeguard vigilance, complacency would detract or be evident of lack of vigilance, because one is not attuned to the task at hand. Flow theory

posits that flow experiences are those where one is engaged and aroused sufficiently that one can anticipate what is to come next and is totally immersed in an activity. Vigilance shares these same elements with flow. It is very likely that promoting engagement by decreasing situations that are conducive to stress or boredom will lead to lifeguard vigilance. Tactics to promote vigilance are discussed later in this chapter.

Respondents were also asked to identify a variety of secondary duties, if any, that were required as part of their job. The sample identified the following, in the order of frequency, as most likely to be required: a) clean pool deck (96.7%), b) empty skimmer baskets (91.3%), c) vacuum pool (88%), d) skim pool surface (85.9%), e) monitor water clarity (84.8%), f) check and maintain proper pool chemistry (80.4%), g) discipline non-swimming patrons (75%), h) clean locker rooms / rest rooms (73.9%), i) handle customer service (70.7%), and j) brush the walls and floor of the pool (65.2%). Keeping the pool deck clean was the most frequently required secondary duty with 96.7% of respondents being requested to do so.

The above responsibilities are standard tasks that lifeguards are regularly required to complete as a condition of their employment. What is unknown, however, is the scheduling of these duties within a lifeguard's shift or the dedicated time needed to complete each task. These may vary according to facility and position type, but they are mostly consistent with those that may be used for measurement in future studies.

Factors of Greatest Risk

Research Question 2: "What are the factors of greatest risk which contribute to complacency?"

Through information compiled by the respondents' questionnaire answers, it was determined that both boredom ($\beta = .239, t = 2.303, p = .024$) and stress ($\beta = .233, t = 2.222, p =$

.029) were positively related to complacency in this final model, while secondary duties were negatively related to complacency ($\beta = -.218$, $t = -2.052$, $p = .043$). Stress and boredom were nearly equal in their association with complacency, while secondary duties had a weaker association with the dependent variable. Because lifeguard surveillance can be very tedious and it is nearly impossible for humans to remain vigilant for long periods of time, lifeguards can easily become distracted and miss victims in trouble (Griffiths, 2003). It appears that secondary duties prevent distraction. However, there is some concern that these duties can also contribute to stress.

According to the literature, the study was expected to find negative relationships associated with secondary duties, of which was presumed to be the most significant contributor to complacency. Supervisors and managers at aquatic facilities sometimes assign lifeguards unrelated duties to perform, while also expecting them to conduct effective patron surveillance (Branche, 2001). However, it is not clear whether these duties assigned to the sample were required during patron surveillance or during other parts of scheduled shifts. While some non-intrusive secondary requirements may be applicable to position responsibilities, they should only be scheduled during down time, and not take away from the primary role of maintaining patron safety.

Although there is little research to support the assignment of secondary responsibilities as a means to decrease complacency, it can be comparable to the notion of station rotation. The purpose of this is to refresh the scenic area of zone coverage and keep surveillance sharp. Moderately increased movement, respiration, and the heart rate of lifeguards act to stimulate the neurological pathways for improved attention and concentration (Griffiths, 2003). The same can

be conceived of when adding secondary duties. Breaking the shift up into multiple areas can help break the monotony of job.

Preventative Measures

Research Question 3: “What preventative measures can be outlined to reduce complacency?”

A proactive defense against negligence is the best approach to reduce the chance of ending up in court. Ensuring that lifeguards have acted responsibly and not breeched any standard of care in providing a safe environment for patrons is the charge of all supervisory staff (Vogelsong, Griffiths, & Steel, 2000).

Of the preventative measures identified in the literature, the most applicable to this study was the cultivation of the flow state. Lifeguards should experience enough stress to keep them vigilant, but not increased amounts, which may cause prolonged anxiety. While it has been suggested that the use of flow theory, as a means to overcome lack of boredom, is highly effective, this study also suggests the use of assigning additional responsibilities can be effective. Although it is not recommended to require duties that will take away from patron surveillance while on duty, lifeguards may experience an increased sense of accountability through being assigned these responsibilities during other parts of their scheduled shifts. Furthermore, the additional duties may help time pass more quickly for lifeguards and thus reduce the amount of boredom that they experience.

In addition, though it is not ideal for lifeguards to be intentionally immersed in overwhelming or high risk situations, results from this study seem to suggest that efforts should be made to reduce boredom. These include the following:

- The more active an aquatics facility is, the less likely lifeguards are to become bored and complacent while on duty. While maintaining proper lifeguard staff to patron ratios, facilities should strive to maintain patron usage throughout the day.
- To keep lifeguards engaged, the scheduling of appropriate programming is useful for staff to keep awareness levels heightened.
- Movement and mild exercise during surveillance tasks can stimulate the muscles and increase blood flow that oxygenates the brain (Griffiths, 2003). Rotation of lifeguard stations, where the lifeguards on duty can change the angle and view of their zone coverage would decrease scenic boredom.

Recommendations

The results of this study are congruent with the literature and appear to be valid for use in the aquatic profession. This section outlines recommendations with respect to the current study and includes:

1. Cultivate environments conducive for flow states to occur more freely and efficiently.
2. Although not tested in this study, educational efforts should be made to help lifeguards understand the potential consequences of complacency, as well as to help them identify symptoms (boredom and stress) that are linked to complacency. Managers should update and communicate these undertakings on a continuous basis.
3. A facility specific program that includes measures for reducing boredom and stress to combat lifeguard complacency should be developed and implemented.
4. Encourage prevention strategies as an ongoing endeavor during initial hiring and training, as well as at staff meetings, in-service trainings, performance evaluations, and during

daily operation to decrease the occurrence of complacency among lifeguards while on duty. The goal is moving from the limited effectiveness of awareness and luck-based safety training, to primarily a skill-based focus.

5. Secondary duties should only be assigned to qualified and capable staff, outside of scheduled surveillance or in the safest manner possible. Staff should not be assigned tasks that take attention away from their primary responsibility of patron safety.

However, managers should be made aware of the potential boredom reduction that secondary duties may provide and assign them in a manner that enhances these benefits without diminishing the primary duties of vigilant patron watching.

Implications for Future Research

The results of this study should help promote complacency prevention awareness and the issues surrounding the contribution of it to aquatic related emergencies, and hopefully encourage future research. Future research is necessary to identify new and evaluate existing complacency prevention strategies in an effort to determine more effective strategies. Additionally, further research is necessary to evaluate effective implementation methods of complacency prevention education. In conclusion, it is extremely important for aquatics professionals to take a proactive and collaborative approach to prevent complacency within their facility staff, as well as communicate their requirements to the community it protects.

Based on the results of this study and the limitations cited in the first chapter, the following implications for future research have been identified to improve insight in the significance of lifeguard complacency:

1. Future research should address additional questions concerning complacency prevention issues in an effort to generate a comprehensive view of the increasing problem this has on

overall lifeguard vigilance. These should include implementation methods that are facility specific and meet the overall goal of the organization's safety mission.

2. The nature of secondary duties, time spent doing each, and the relationships of specific duties and complacency should be tested in future studies. This study examined the number of tasks as opposed to the time spent doing specific secondary tasks and how these relate to complacency. A study of this type would clarify the specific associations between common secondary tasks and complacency.
3. Additional research is needed to create new and evaluate existing strategies to reduce complacency, including, but not limited to: lifeguard protocol reinforcement training, effective patron communication, fundamentals in teaching for Lifeguard Instructors and pool managers, station rotation, and job variety. This is based on the literature and the findings of this study.
4. Continuous research is needed to evaluate such implementation methods for effectiveness.
5. Future researchers, using a modified version of this study's questionnaire, should consider rewording some of the verbiage in the demographic and perceptive information sections to make its intentions more clearly understandable to the respondent.
6. With regard to participants' age, additional research is needed to include respondents under the age of 18. This should attempt to investigate how age relates to factors which make contribute to complacency. If so, can complacent habits be corrected before they become bad habits.

7. Additional research is needed to include facilities such as water parks, open water sites, and clinical settings, as well as the indoor and outdoor pool facilities represented in this study. This will make the study more representative of various aquatic facility settings.
8. Finally, future research should include a larger area of coverage to provide a greater number of respondents. This will make the study more representative of the lifeguard profession, which will increase the reliability of the study overall.

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APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL FORM



EAST CAROLINA UNIVERSITY

University & Medical Center Institutional Review Board Office
11-09 Brody Medical Sciences Building • 600 Moyer Boulevard • Greenville, NC 27834
Office 252-744-2914 • Fax 252-744-2284 • www.ecu.edu/irb

Date: June 3, 2010

Principal Investigator: Rebecca Phillips
Dept./Ctr./Institute: 1310—4 Thomas Langston Road
Mailstop or Address: Winterville, NC 28590

RE: Exempt Certification *KK*
UMCIRB# 10-0293
Funding Source: Unfunded

Title: "Complacency Theory as it Relates to the Decrease of Lifeguard Vigilance."

Dear Rebecca Philips:

On 6.1.10, the University & Medical Center Institutional Review Board (UMCIRB) determined that your research meets ECU requirements and federal exemption criterion #2 which includes research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects and any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

It is your responsibility to ensure that this research is conducted in the manner reported in your Internal Processing Form and Protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB Office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification Request at least 30 days before the end of the five year period.

Sincerely,

Chairperson, University & Medical Center Institutional Review Board

Cc: Hans Vogelsong, PhD

APPENDIX B: QUESTIONNAIRE COVER LETTER

Dear Desired Survey Participant:

I am a graduate student seeking my Master's degree in the College of Health and Human Performance at East Carolina University.

The purpose of the enclosed survey is to gather information about factors which may contribute to the complacency in the field of lifeguarding, causing an overall decrease in lifeguard vigilance. In addition, there are a few questions that request your opinion about the perceived importance of lifeguards.

The survey will take approximately 5 minutes to complete. All your responses will be kept confidential within reasonable limits. Only people directly involved with this project will have access to the surveys.

Completion of this survey will indicate voluntary consent to participate in this study. Please place completed survey in the individually sealed, white envelope provided, then place white envelope in larger envelope packed, to be picked up by the researcher.

Questions about this study can be directed to the researcher or the supervising professor, Dr. Hans Vogelsong, Department of Recreation and Leisure Studies, East Carolina University, Greenville, NC 27834.

Phone Number: 252-328-9373 vogelsongh@ecu.edu

Thank you for taking time to assist in this research.

Name: Rebecca Phillips
Phone Number: 252-916-8993
Email: phillipsr99@students.ecu.edu

This project has been reviewed and approved by the University and Medical Institutional Review Board. Questions concerning you rights as a participant in this research may be addressed to the Committee Chairperson, UMCIRB Office, East Carolina University, Greenville, NC 27834. Phone (252) 744-2914.

APPENDIX C: SURVEY QUESTIONNAIRE

Survey of Lifeguard Complacency

I. Demographic Information

- 1) Gender: _____
- 2) Age: _____
- 3) Race:
 - White / Caucasian
 - African American
 - Native American / Pacific Islander
 - Hispanic
 - Other: _____
- 4) Current Rate of Pay: _____ per hour *or* _____ annual salary
- 5) Total time employed as a lifeguard: _____ years & _____ months
- 6) Total # of aquatics facilities I have worked at: _____

II. Certification and Employment Information

- 1) Agency of Certification
 - American Red Cross
 - American Green Cross
 - Ellis & Associates
 - Other: _____
- 2) About how many hours did the certification course require to complete? _____
- 3) Current Position Title:
 - Lifeguard
 - Head Lifeguard
 - Pool Manager
 - Owner
 - Other: _____
- 4) Current facility type:
 - Indoor Pool
 - Outdoor Pool
 - Water Park
 - Open Water (lake, ocean, etc.)
 - Other: _____
- 5) Total # of lifeguards on duty at one time: _____
- 6) On average, what is the daily patron volume that visits the aquatic facility?
 - 1 – 50 patrons
 - 51 – 100 patrons
 - 101 – 200 patrons
 - More than 200 patrons

III. Perceptive Information

Please indicate the extent to which you agree with the following statements on a scale of 1 to 5, with 5 indicating the highest level of agreement.

Please circle the appropriate number for each item that indicates how much you agree with each statement.

Statement	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
Sometimes there are too many pool patrons for me to watch	1	2	3	4	5
My job is overwhelming at times	1	2	3	4	5
I am always worried about patron safety	1	2	3	4	5
The tasks that I am responsible for do not change much from day to day	1	2	3	4	5
Nothing ever changes here	1	2	3	4	5
I manage to find new things to keep me busy at work	1	2	3	4	5
My job is easy to perform	1	2	3	4	5
There is not too much work associated with being a lifeguard	1	2	3	4	5
I find this job exhausting	1	2	3	4	5
Nothing exciting happens here	1	2	3	4	5
Working here is fun	1	2	3	4	5
This is an interesting place to work	1	2	3	4	5
My pay reflects the importance of my job	1	2	3	4	5
I feel like what I do is valuable	1	2	3	4	5
I chose this job to meet new people	1	2	3	4	5
I chose this job to relax for the summer	1	2	3	4	5
I chose this job because I think it is important	1	2	3	4	5

In addition to lifeguarding, my job requires me to complete the following tasks:

Please circle the appropriate response for each item that indicates whether your facility requires that task of you.

Task		
Clean locker rooms/rest rooms	Yes	No
Skim pool surface	Yes	No
Vacuum pool	Yes	No
Empty skimmer baskets	Yes	No
Backwash filters	Yes	No
Clean pool deck	Yes	No
Check and maintain proper pool chemistry	Yes	No
Monitor water clarity	Yes	No
Brush walls and floor of pool	Yes	No
Operate cash registers	Yes	No
Operate concession stands	Yes	No
Mow grass and maintain landscaping	Yes	No
Handle customer service	Yes	No
Discipline non-swimming patrons	Yes	No

