Internal Noise Distractions in Lifeguarding

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A momentary lapse in supervision can be costly when it comes to lifeguarding. Drowning is quick and quiet and can happen in a matter of seconds so distractions can be deadly. Lifeguards are trained to watch the water and avoid distractions. The biggest distraction causing lapses in supervision is often in their heads. Lifeguards might be looking at patrons in the water, with rescue tube in hands, but not really *seeing* the patrons in the water due to internal noise. Internal noise is a huge distraction because it is difficult for lifeguards to recognize when they are distracted by internal noise, usually impossible for others to see and a challenge to manage. We define internal noise as thoughts and emotions that distract an individual from a task. This paper presents results from our international survey with 839 lifeguard participants, uncovering the types and frequencies of internal noise that distract lifeguards from their lifesaving job.
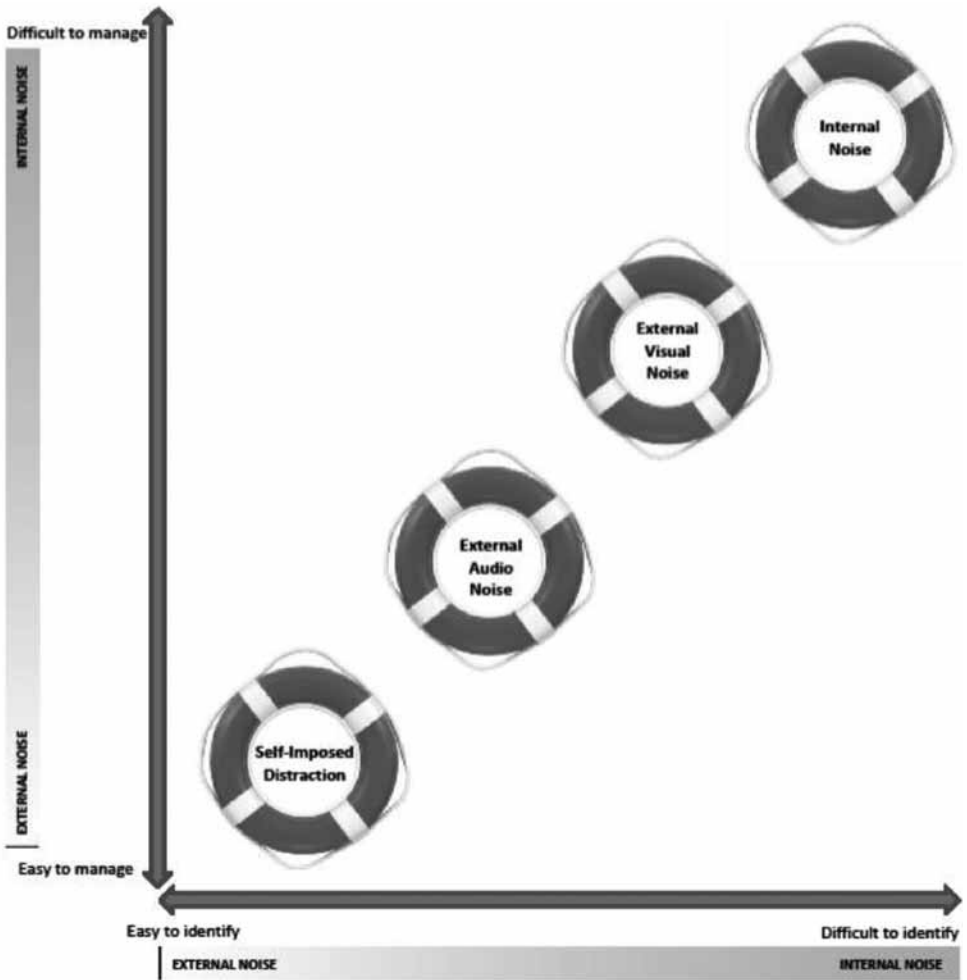
Distractions are everywhere, especially in a lifeguard environment at pools, water parks, lakes, and oceans. Lifeguards are subject to weather extremes, noise from the immediate environment, and an abundance of other distractions. Focusing on patrons in the water is a lifeguard's primary responsibility, yet one of the biggest challenges.

Distraction is defined as an "involuntary division of attention" (Sen, 1983, p. 53). External distractions are diverting stimuli originating from an individual's outside environment. Internal noise is far more difficult to recognize and more challenging to manage than external distraction. Internal noise is diverting stimuli from *thoughts* and *emotions* that can distract an individual from a task. Internal noise can easily distract a lifeguard from focusing on patrons in the water. At the same time, internal noise often cannot be easily detected. When lifeguards have their eyes on the water, it seems like they are watching the water, both from their own perspectives and from others. Many don't realize their own thoughts and emotions may blind them from actually "seeing." This study explores the degree to which lifeguards report and experience internal noise while on duty (see Figure 1).

Internal Noise

Thoughts

Internal noise includes thoughts and emotions that distract an individual from a task. Thoughts are cognitive processes, and research shows thoughts can distract individuals from a task, even when their task is to look for an obvious target pre-

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Figure 1 — Picture area graph with types of distractions plotted from easy to identify and easy to manage to difficult to identify and difficult to manage.

sented directly in front of them. In a study by Mack and Rock (2000), subjects were told to look for a target that would unexpectedly be presented directly in their eye sight. Twenty-five percent of participants missed the "completely evident stimuli." When participants were distracted by "diverting stimuli," 80% missed the obvious target (Mack & Rock, 2000). Daydreaming, a diversion from the course of an ongoing motor performance or directed thought, is one form of internal noise (Singer, 1966, p. 63).

Emotions

Emotions are intertwined with thought and affect individuals physiologically. Humans tend to have a bias toward emotional stimuli. Most, Chun, and Widders (2005) conducted a study of attentional biases to emotional information. They found "emotional information induced a temporary inability to process stimuli that people actively sought" (Most, et al., 2005, p. 654). Even if individuals look for a specific target, such as when lifeguards scan for distressed patrons in the water, when they see an emotional stimulus such as patrons to whom they are attracted, the emotional stimulus tends to take precedence. This can blind lifeguards to other stimuli such as a swimmer in distress, even if their job is specifically to look for swimmers in distress. Niedenthal and Kitayama (1994) assert "when experiencing a certain emotion — a transient one, such as a happy state, or a chronic one, such as trait anxiety, an individual sees certain stimuli and ignores others" (p. 9).

Internal Noise Effects

Thoughts and emotions are not mutually exclusive; rather, they are "interactive and integrated in the brain" (Izard, 2009, p. 3): ". . . neural systems and mental processes involved in emotion, feelings, perception, and cognition interact" (Izard, 2009, p. 3). Internal noise can distract individuals, especially during simple, repetitive tasks such as scanning while lifeguarding.

Internal noise is a major distraction because it can significantly reduce focus and mental concentration. "Any drop in mental focus during the performance of safety-sensitive, high risk, or repetitive tasks can result in serious human and financial consequences, including death" (Beder & Webb, 2011). Additionally, The National Safety Council (2010) has reported that the ability to perform multitasking is a myth. The human brain only processes one stimulus at a time. Even though "multitaskers" perceive they are effectively engaged, they are less engaged and less effective (Beder & Webb, 2011).

Internal noise is difficult to recognize, because lifeguards are constantly experiencing distracting thoughts and emotions. It is difficult or sometimes impossible for individuals to recognize when their own thoughts and feelings start to deter from the task at hand and turn into a distraction. It is also challenging for a supervisor or an individual other than the lifeguard to identify if a lifeguard is mentally disengaged or distracted.

A moderate amount of anxiety is performance enhancing. On the contrary, too much anxiety can lead to performance detriment (Beder & Webb, 2011). If there is a focus on anxiety about performing a job, it can lead to hesitation and uncertainty (Beder & Webb, 2011). In the context of lifeguarding, hesitation can be the difference between life and death when there is a victim in the water. Drowning is unique depending on the person and can happen in a matter of seconds. Any delay at all can become the difference in saving a life. Internal noise can lead to disbelief, denial, and hesitation when there is a distressed swimmer. Delay in turn can lead to drowning or death.

Habits

If focusing on the water is left to automatic behaviors, the mind often will fall into distraction by internal noise. "When a habit emerges, the brain stops fully partici-

pating in decision making. It stops working so hard, or diverts focus to other tasks" (Duhigg, 2012, p. 20). Habits while lifeguarding, such as habits of scanning and keeping eyes on the water, are necessary for lifeguards to know what to do on duty. These habits such as scanning can result in excess internal noise. If an individual is lifeguarding solely out of automatic habit, vigilance behaviors become automatic as well and may leave space for one's mind to think unrelated thoughts. It is paramount to understand, acknowledge, and directly address the type and frequency of internal noise that lifeguards actually face.

Focusing Strategies

Lifeguards receive training to do their jobs. Research shows "preferential processing can be modulated through attentional strategy," which can help manage internal noise (Most et al., 2005, p. 659). Some lifeguard training programs currently include modulation of preferential processing by including focusing strategies in training. Part of some lifeguard training programs includes ways to help manage distraction and stay focused, such as the "Five Minute Scanning Strategy" (Fagan & Griffiths, 2003). The Five Minute Scanning Strategy developed by Griffiths helps manage challenges to focusing on patrons in the water. The strategy involves moving positions every five minutes, alternating between sitting, standing, and walking, to help combat boredom, fatigue, and other distractions. Jeff Ellis & Associates integrated this lifeguard strategy into their lifeguarding program. The Pool Management Group uses the "Sit, Stand, and Stroll" adaptation of The Five Minute Scanning Strategy (J. Ellis, personal communication, 2000).

There are many techniques humans organically and automatically adopt to help concentration in addition to strategies taught by instructors and supervisors. Many people don't realize just how frequent and distracting internal noise can be, thus an emphasis is needed on current and improved strategies to help focus.

Method

Participants

Participants (n = 839) were individuals with lifeguard experience who voluntarily completed an online survey through SurveyMonkey®. Participants provided informed consent in the survey for their participation in the research study. The first three questions regarding age, sex, and experience level of the participants were optional. The remaining questions in the survey required answers.

Age.   Of the lifeguard participants, 302 (36.1%) were ages 17 and younger; 242 of participants (28.9%) were 18-20; 176 participants (21.1%) were 21-29; 32 participants (3.8%) were 30-39; 41 participants (4.9%) were 40-49; 32 participants (3.8%) were ages 50-59; and 11 participants (1.3%) were 60 or older; 63.9% of the participants were older than 17. Age was an optional question. Three participants (less than 1% of the sample size) declined to answer and their ages are unknown, but statistically insignificant. All age ranges are represented in the sample size from younger than 17 through older than 60.

Sex.   The number of female and male lifeguard participants in the sample was fairly evenly distributed. Male lifeguards comprised 379 (45.3%) of the sample

size and 458 participants (54.7%) were female. Two participants opted out of answering this question.

Experience level.   The experience level that had the highest number of respondents in the survey, 254 lifeguards (30.3%), was 1 to 3 years of experience as a lifeguard. This was followed by less than 1 year experience with 218 (26%) respondents, while 119 participants (14.2%) had more than 10 years of experience. Finally, 111 participants (13.3%) had 3-5 years of experience as a lifeguard; 84 individuals (10%) had 5-7 years; and 51 respondents (6.1%) reported having 7-10 years of experience as a lifeguard.

Thus, 73.9% of the sample size had more than one year of experience and almost half of the participants (43.6%) had been lifeguards for more than five years. The lifeguards surveyed were mostly lifeguards with at least several years of experience as a lifeguard. Two people also declined to answer this optional question, but this would not have a statistically significant impact on our results.

Instrumentation

The study was a self-report survey. A survey was the most appropriate method to discover thoughts and feelings of lifeguards. The International Internal Noise Lifeguard Survey asked lifeguards first-hand the thoughts and emotions (internal noise) they actually experience while lifeguarding. The survey consisted of 10 questions. The questions were geared toward discovering the types and frequencies of internal noise that lifeguards experience. The final two questions in the survey regarded external distractions, which asked about frequency of phone calls and texting while lifeguarding. These two external distractions can lead to internal noise through "disconnectivity anxiety," defined as "a persistent and unpleasant condition characterized by worry and unease caused by periods of technological disconnection from others" (Taylor, 2010). Phone and text conversations also can lead to internal noise through the thoughts that are spurred by or involved in the conversation. When individuals are in a conversation via text or telephone, their mind is elsewhere.

Results

Thoughts

Participants were asked to list five topics they think about while they are on duty as a lifeguard. This was an open-ended question where respondents could reveal thoughts that cross their minds while lifeguarding. A text analysis was conducted to decipher the most prevailing thoughts lifeguards had while on duty. The most prominent word participants expressed (239 responses) they thought about while on-duty lifeguarding was "pool." The next most common responses were "relationships" (184 responses), "patrons" (115 responses), "family" (111 responses), "plans after work" (108 responses), "weekend plans" (91 responses), and "doing after work" (76 responses); see Figure 2.

The most important responses determined through a text analysis of words and phrases mentioned were placed into two categories for further analysis: thoughts

Activities 4 Beach Doing after Work Facility

Family Girlfriend 4 Girls Going Hot it is 4 Ideas

Lesson Plans Patrons Pay People Swimming

Plans after Work Pool Reading

Relationships 2 Sex Sleep Staff Stroke Techniques

Training Trouble Weak Swimmers Weekend Plans Wish

Figure 2 — Text analysis (word cloud) of the top words in response to open-ended question: What lifeguards think about while lifeguarding.

about lifeguarding responsibilities and thoughts unrelated to lifeguarding responsibilities. Thoughts related to lifeguarding responsibilities while the lifeguards were on duty were mentioned 440 times. Participants mentioned thoughts unrelated to lifeguarding responsibilities while on the stand in 867 cases. Therefore, 34% of the most common thoughts mentioned in response to what lifeguards think about while on duty were related to lifeguard responsibilities, while 66% were unrelated to lifeguarding responsibilities (see Figure 3).

Specific examples of answers included "what are my friends and girlfriend up to at the moment," "money— how much money I am making that day," "how to get a new song stuck in my head," and "day dream situations that could go wrong and how to handle it." Lifeguards do think about the pool while they lifeguard, but also *frequently* and *overwhelmingly* have a myriad of completely unrelated thoughts (see Figure 4).
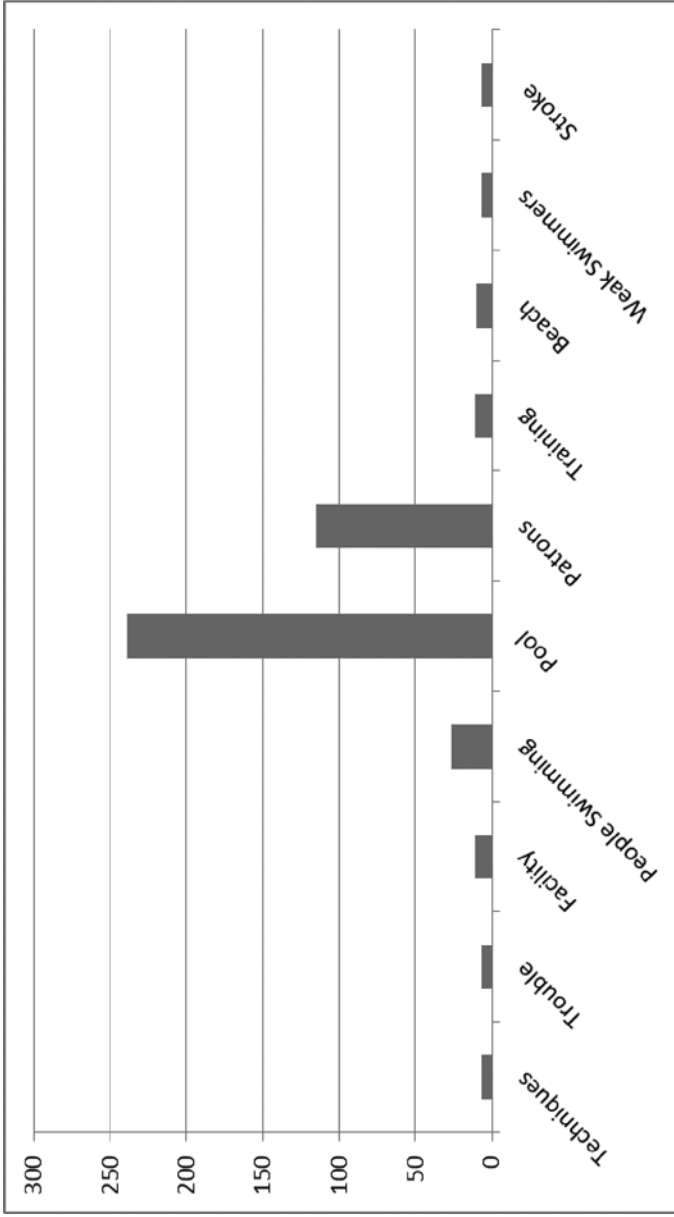
Emotions

Lifeguards were asked to describe emotions they feel when they supervise the pool as a lifeguard. This was an open-ended question. A text analysis revealed lifeguards most commonly responded they felt "bored" "happy," "nervous," "calm," "responsible," "stressed," "worried," "confident," and "anxious" while lifeguarding (see Figure 5).

Emotions most commonly expressed were grouped into categories of dissonance ("nervous," "stressed," "worried," "anxious," "responsible"), mindfulness ("calm," "vigilant," "thoughtful," "aware," "ready," "focused"), positive feelings ("happy," "confident," "proud," "joy/enjoy" "satisfied," "powerful") and boredom. Feelings of dissonance felt by lifeguards on duty represented 37% of the most common emotion responses, positive feelings were described in 27% of the most common emotion responses, mindful feelings represented 14% of the most common emotion responses, and boredom was mentioned in 22% of these cases (see Figure 6).

A wide array of emotions was expressed by survey participants (see Figure 7). These are the most explicated from the respondents and revealed that while lifeguards felt positive emotions such as confidence, happiness, and a sense of pride while lifeguarding, many also had dissonant feelings of anxiety, stress, and nervousness. The majority of individuals who felt nervousness or anxiety while lifeguarding were worried about having to make a rescue or missing a victim. For example, some specific responses included, "When I supervise the pool I feel nervous sometimes because I do not want to let anyone drown" and "I feel nervous; these people are relying on me to keep them and their loved ones safe."
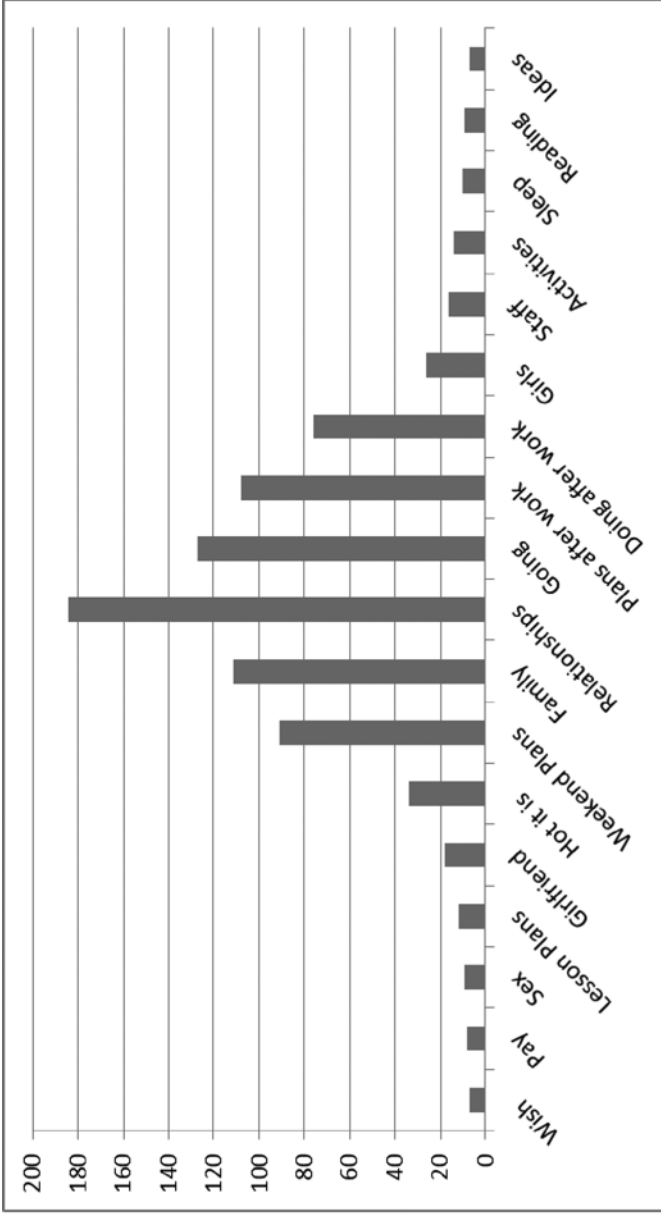
An additional question asked how often the participants feel each of the following emotions while lifeguarding: happiness, boredom, fatigue, excitement, preoccupation, annoyance, hunger, anger, and daydreaming. Lifeguards who reported at least sometimes feeling happy while lifeguarding represented 94.8% of participants, and 54.4% claimed they often felt happy while lifeguarding.

At least sometimes, 76.5% of participants felt bored while lifeguarding, 63.9% felt tired, and 67.6% felt excited. At least sometimes, 35.5% of participants felt preoccupied while lifeguarding, 41.3% felt annoyed, and 72% felt hungry. Many participants in the survey (83.5%) reported they *rarely* or *never* felt angry while

Figure 3 — Self-reported thoughts participants provided that were related to lifeguarding responsibilities.

Figure 4 — Self-reported thoughts participants provided that were unrelated to lifeguarding responsibilities.

Anxiety Aware Bored Boredom Calm Children Confident Edge Emotions Enjoy Focused Happen Happy Hurt Joy Lives Look Nervous Pool Powerful Proud Ready Responsibility Satisfaction Stress Think Vigilant Worry

Figure 5 — Text analysis (word cloud) of the top words in response to open-ended question: What emotions lifeguards feel while lifeguarding.

		Frequency of words mentioned	% of words mentioned
Emotions	Dissonant	320	37%
	Positive	227	27%
	Mindful	122	14%
	Boredom	185	22%

Figure 6 — Categories of emotions participants self-reported feeling while providing supervision.
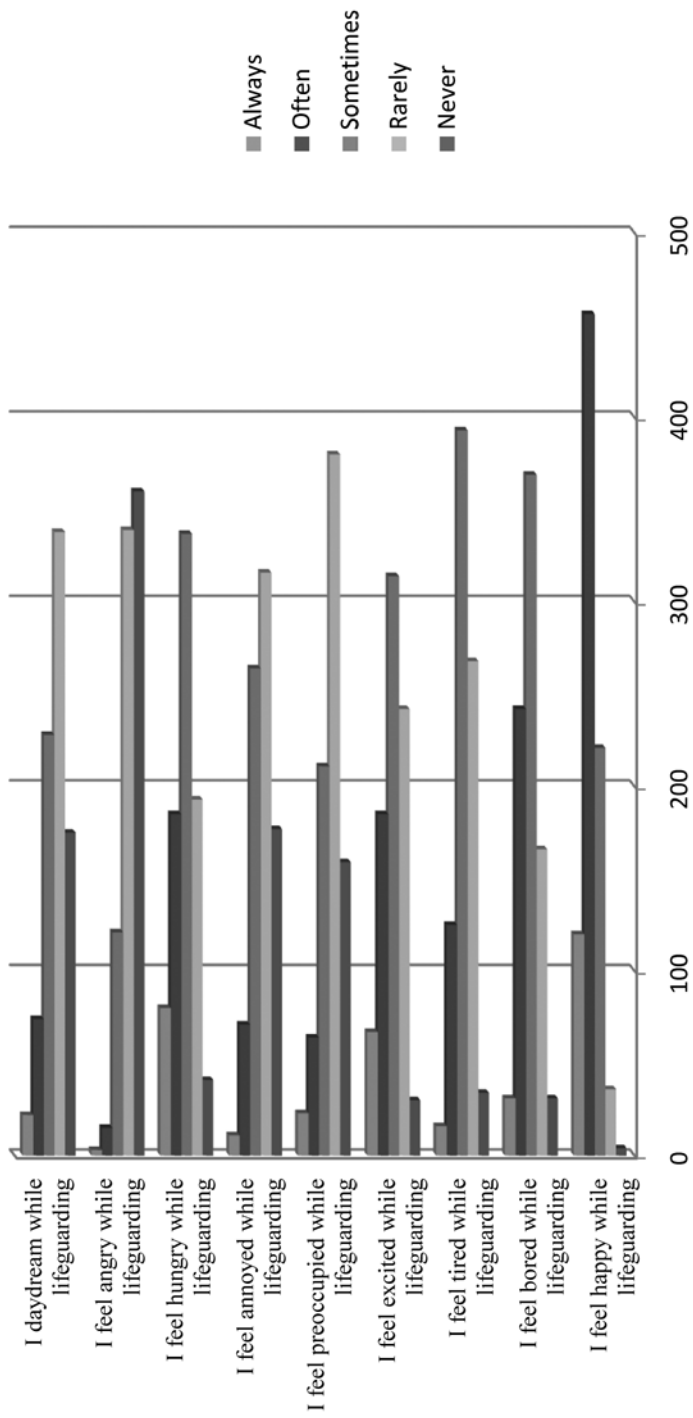
lifeguarding. Additionally, 61.1% of lifeguards said they at least sometimes daydreamed while on duty. Of the 61.1% of participants who sometimes daydreamed while on duty, 11.4% admitted to daydreaming often or always.

Focusing Strategies

Lifeguards currently practice a variety of strategies to help their attentional focus and concentration. Lifeguards utilize strategies they learn to help concentrate while on the job. They also naturally develop strategies to help manage distractions, whether they realize it or not. Our survey asked an open-ended question regarding what strategies the lifeguard participants use to help stay focused while lifeguarding. The most common responses were "scan," "count people," "focus," "count patrons," "count heads," "change positions," "think," and "walk." These were followed by the next most popular responses "stand," "sit," "move," and "listen."

External Distractions

The emphasis of the survey was internal noise. There were two questions measuring external distraction. The questions pertain to texting and talking on the phone while lifeguarding. It is important to discover how many lifeguards are distracted
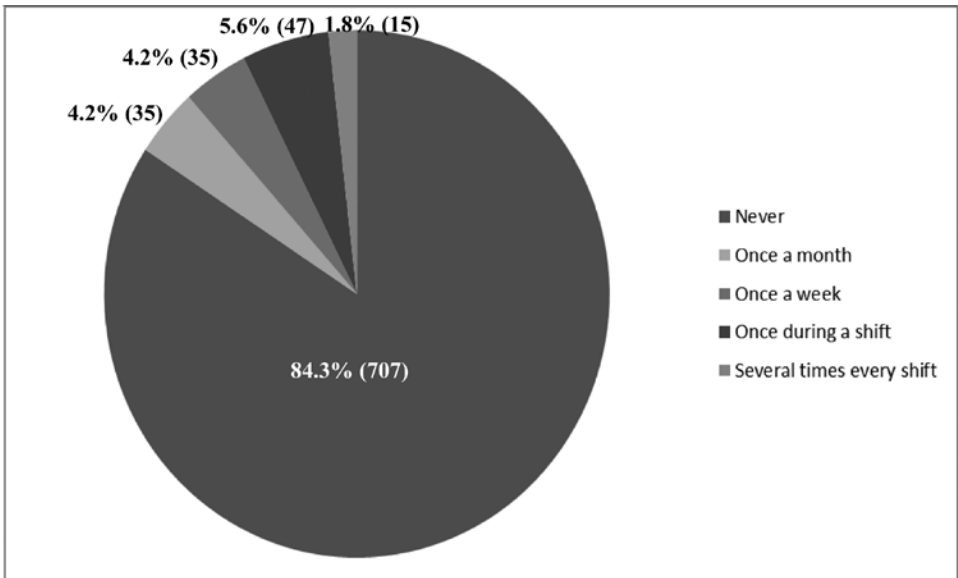
Figure 7 — Self-reported frequencies that lifeguards experienced emotional, physical, and cognitive feelings while lifeguarding.

by talking on cell phones and texting, as these technologies and interference in lifeguarding are relatively new.
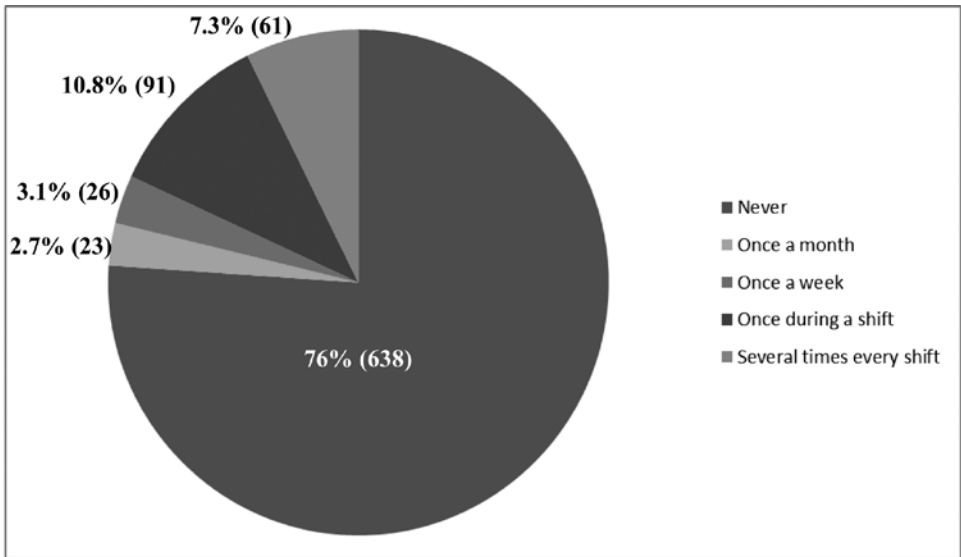
Talking on the phone.   In our survey, 707 (84.3%) of participants responded that they never talked on the phone while lifeguarding. But, 47 lifeguards (5.6%) surveyed admitted to talking on the phone at least once a shift. Another 35 (4.2%) talked on the phone once a month while lifeguarding, and an additional 35 (4.2%) talked on the phone once a week while lifeguarding. Finally, 15 lifeguards (1.8%) admitted to talking on the phone several times every shift (see Figure 8).

Texting.   Texting is a prevailing means of communication in general. Over 75% of teenagers use texting as their primary means of communication and send an average of 100 texts per day (Texting and Driving Facts, 2010). There were more than 196 billion text messages in June 2011 alone (Texting and Driving Facts, 2010). Additionally, brain activity is reduced by 37% when using a cell phone while driving (Just, Keller, & Cynkar, 2008).

In our survey, texting was a more popular medium utilized while lifeguarding than talking on the phone. Of the lifeguards surveyed, 76% said they never text while lifeguarding. A remaining 24% of lifeguards, nearly 1 in 4, reported texting while on duty lifeguarding. Of those who text while lifeguarding, the majority reported texting at least once during a shift (91 respondents, 10.8%). The next highest response was for texting several times every shift, which was reported by 61 lifeguards (7.3%). Another 26 (3.1%) of the lifeguards admitted to texting once a week while lifeguarding and 23 (2.7%) reported they text once a month while on lifeguard duty (see Figure 9).

Figure 8 — Frequencies lifeguards self-reported talking on the phone while on duty.

Figure 9 — Frequencies lifeguards self-reported texting while on duty.

Discussion

Our study described internal noise lifeguards actually experienced. These findings can help describe lifeguards' behaviors realistically, including their limitations as human beings. This strongly demonstrates the need for additional drowning prevention strategies as well as improving current measures, including lifeguard training, vigilance, supervision, and supplementing supervision.

Internal noise can distract lifeguards from their task of watching the water. Even when lifeguards look at the water, it does not necessarily mean they perceive the scene where their eyes are directed. The human brain is capable of effectively processing one thought at a time. Therefore, with a multitude of unrelated thoughts and emotions, lifeguards' minds can easily be distracted from where their eyes seem to be focused.

Staying focused on the patrons in the water is the most important responsibility of a lifeguard. Our data indicates lifeguards experience a myriad of internal noise and external distractions frequently. There are many strategies that may help manage internal noise and external distractions, such as the Five Minute Scanning Strategy and additional strategies lifeguards adopt on their own, such as counting patrons or singing songs. Unfortunately, there is little or no research evidence supporting the efficacy of these "strategies" on improved attentional focus among lifeguards.

Instructing lifeguards to stay focused on patrons in the pool and scanning, however, is not enough. "Ironic process theory finds inherent flaws in attempting mental control" (Wegner, 1994, p. 34). In fact, attempts to control one's mind often result in the opposite of the intended control (Wegner, 1994, p. 34). For example,

when lifeguards are told to "stay focused," their minds might start racing and do everything *except* focus, resulting from internal noise. Further, many people don't realize they are distracted by internal noise and to what extent the toll of internal noise takes. Even if a lifeguard counts the patrons, they may end up counting out of habit and drifting into other thoughts and not having sufficient focus.

Human beings are bombarded with diverse thoughts and emotions that interact simultaneously and constantly. Based on our data, we suggest strengthening supervision through improved methods to manage distractions (both internal and external) as well as supplementing supervision with as many layers of protection as possible.

Managing Distractions

Informing lifeguards in training about the distraction of internal noise alone can help lifeguards manage internal noise. Many people may not know how much internal noise affects mental concentration. Awareness that thoughts and emotions can be blinding can help lifeguards catch themselves and regain focus and concentration, just by recognizing they are experiencing internal noise. Additional strategies should be utilized to help manage distractions while scanning the water such as increased physical activity, engaging as many senses as possible (listening, looking, speaking), variety in scanning strategies, and relaxation exercises.

It is important to note that strategies to help focus can depend on the individual. Some strategies may help some lifeguards focus, while the same strategies could be distracting to others. Finding strategies that work for the unique individual lifeguard should be taken into account.

Supplementing Supervision

Our data show the limitations of human concentration. It is important not only to strengthen concentration to improve supervision, but also to supplement supervision. Technologies are not subject to internal noise and can provide effective layers of protection such as Poseidon Technologies underwater surveillance systems, life jackets for nonswimmers, swim lessons, self-locking gates, effective safety signage, and Safety Turtle alarm wristbands.

Suggestions for Future Research

The type of supervisors who passed this survey onto their lifeguards tended to provide extensive, quality training to their lifeguards. The majority of lifeguards in our survey had at least a few years of lifeguarding experience and many had more. This sample is representative of experienced, well-trained lifeguards. Further research should take into account more inexperienced lifeguards at mainstream pools as opposed to primarily pools with consistent, quality training for lifeguards. Future samples should reflect a more diverse group of lifeguards. Future studies also should continue to look at the impact of internal noise on lifeguard vigilance in various ways. As the digital age and new technologies continue to emerge with incredible speed, future research should study how current and new forms of technology may pose new distractions and challenges for lifeguards.

As a self-report survey, our assumption was that even though the survey was anonymous, some participants might not want to admit to texting or talking on

the phone while lifeguarding. We believe the data reflecting lifeguards texting and talking on the phone while on duty might have revealed higher percentages if the survey were conducted with a different method such as through observation.

Even when lifeguards' eyes are on the water, their mind is often far away. This causes inattention to what is happening in the pool, even if the lifeguards intend to be actively scanning and looking where they should. Vigilant, responsible, well-trained lifeguards still need improved strategies to help manage internal noise and external distractions. Internal noise distractions in a lifeguard's situation can mean life or death. This International Internal Noise Lifeguard study and our findings can significantly help in developing improved strategies to manage internal noise as well as demonstrate the importance of supplementing supervision.

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