

# **JUDGEMENT AND DECISION MAKING UNDER STRESS – MAKING THE RIGHT CHOICE, A STORMWATER INDUSTRY PERSPECTIVE.**

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## **ABSTRACT**

Stress in professional industries, such as the stormwater field, is portrayed in a negative light by the media and in the workplace and is commonly linked to illness, absenteeism, productivity loss, cognitive impairment, depression and increased aggression. Considering the perception of stress, this paper demonstrates that the negative stress perception in our industry could be causing us as practitioners to be prone to health problems and in the worst case premature death. In addition, being stressed and making decisions under uncertainty makes it more likely that we are leaving a legacy of choices that are made without all the information or adequate risk assessment.

The paper provides thought leadership on how we could combat the impacts of stress in our industry, by positively-framing stressful situations and undertaking decision making in challenge situations rather than threat situations. The paper also challenges the industry to acknowledge and focus on the significant positive outcomes for people and the environment as this will enhance the impacts of participants in the industry itself. We should be focusing on this positive stance when under stress, and record, share and celebrate the positive outcomes as a benefit for all.

## **KEYWORDS**

Stress, coping, stormwater engineering,

## **PRESENTER PROFILE**

Britta Jensen and Josiah Simmonds are stormwater specialist engineers for WSP – Opus in Hamilton. Since graduating in Adelaide and Christchurch, Britta and Josiah have seen enormous change in the approach to the stormwater engineering profession, and expectations of engineers with respect to project delivery and the changing face of business in our sector.

## **1 INTRODUCTION**

Stress increases when “environmental demands, internal demands, or both, tax or exceed the adaptive resources of an individual” (Monat & Lazarus, 1991). Stress in professional industries, such as the stormwater field, is portrayed in a negative light by the media and in the workplace. Stress has been cited as a “growing plague” (Blythe, 1973) and an “epidemic” (Wallis et al., 1983, p. 1). Stress is also linked to illness, absenteeism, productivity loss, cognitive impairment, depression and increased aggression (Crum et al., 2013). As such, stress is pervasive and debilitating, with almost one third of Americans rating their average stress levels as extreme (American Psychological Association, 2008).

Considering this “stress perception”, this paper questions, through literature review and through the experience in the storm water industry, whether this focus on the destructiveness of stress — this “stress about stress” — is a mindset that may be contributing to its negative impact (Crum et al., 2013) by influencing the judgement and decision making that is critical to our profession. It is the authors hope that this paper can start discussions on how to arm practitioners with knowledge that can help to avoid decisions that can negatively impact lives, of both practitioners and the public; and in the most extreme situations save lives.

## **2 HOW DOES STRESS PERCEPTION AND DECISION MAKING UNDER STRESS IMPACT OUR INDUSTRY?**

Stress perception is subjective and with the complexity of the stormwater industry, sources of stress may vary between practitioners. Making decisions under uncertainty and stress is a common occurrence in many industries and is becoming more frequent (Crum et al., 2013). As experienced by the authors and through discussion with stormwater industry participants, increasing stress in our industry could be attributed to:

- Frequent role reconfiguration and role ambiguity, and regular workplace restructuring.
- Changes in work output and timeline reduction to meet client/stakeholder expectations.
- Pressure to solve difficult or expensive problems.
- Frequent changes in tools and methods for delivering stormwater projects.
- Uncertainty about the future, such as, increasing development, climate change.
- Increased public and key stakeholder visibility and political scrutiny.
- Constant high workload for a small workforce or limited budgets due to decades of under investment in infrastructure.
- Stress regarding job security either due to cyclic nature of economic growth in the private sector or restructuring and budget cuts in the public sector.

### **2.1 STRESS PERCEPTION OUTCOMES**

The mental health sector has traditionally emphasised “treating the problem” of negative stress outcomes (Liu et al., 2017). Similarly, current findings suggest that the layperson, including people in the stormwater industry, views stress as an avoidable problem (Liu et al., 2017).

Research over the past decade suggests that society’s preoccupation with negative aspects of stress could be causing worse outcomes. Keller et al’s. (2012) study examined the relationship between the amount of stress, the stress perception and health, and mortality outcomes in a nationally representative sample of U.S. adults (186 million participants). The study analysed the 1998 National Health Interview Survey data and linked participants with the National Death Index mortality data through to 2006. The results showed that, when controlling for sociodemographic, health behavior, and access to health care factors, those who reported a high degree of stress and considered that stress impacted their health negatively had increased premature death risk compared to those that were stressed and did not perceive that stress effected their health, or those that reported not to be stressed at all.

### **2.2 DECISION MAKING UNDER STRESS**

In addition to our negative stress perceptions having detrimental health impacts, researchers have found that when participants are put under stress and are making decisions under uncertainty they pay attention to positive information and discount negative information (Starcke & Brand, 2016). When making a difficult decision stressed participants pay more attention to the upsides of the alternatives and less to the downsides (Cook et al., 2005). Participants under stress also tended to make the decisions before all the available information had been sourced (Keinan, 1987).

Real world examples of poor decision making under stress include the 2011 Brisbane River Flooding disaster and the Hurricane Katrina disaster. The inquest into the Brisbane River flooding found that poor decisions regarding releasing dam flows were made because the stressed operators neglected forecasts of further rainfall and selected the more positive scenario of ‘no rainfall’ (Van den Honert & McAneney, 2011). The Hurricane Katrina disaster saw the disaster management lead favor positive information over the large amount of negative information and

issue an inaccurate situation report stating that the levees had not been breached (Campbell et al., 2009).

## **2.3 IMPACT ON THE STORMWATER INDUSTRY**

The research indicates that the negative stress perception in our industry could be causing us as practitioners to be prone to health problems and in the worst case premature death. In addition, being stressed and making decisions under uncertainty makes it more likely that we are leaving a legacy of choices that are made without all the information or adequate risk assessment. The author questions if this could be influencing the advice we are providing our clients or stakeholders on risk. Decisions are likely being made without accounting for all the data, which is likely affecting delivering a holistic best for project, best for society, and best for organisation approach.

## **3 CAN WE CHANGE STRESS FROM A DEBILITATING PROBLEM TO A MOTIVATING FORCE?**

It is likely that stress and decision making under stress will always be a part of our personal and professional lives. This pressure could be harnessed and directed to be an effective and positive force in our personal and professional lives.

### **3.1 LIMITATIONS OF STRESS MANAGEMENT TECHNIQUES CURRENTLY ADOPTED IN THE INDUSTRY**

Many stress management programs adopted in the stormwater industry are shaped by negative perceptions, proposing coping techniques or methods to avoid stressful situations. These programs include ideas and techniques on how to communicate effectively, practice mindfulness, manage our time and monitor our device usage. They also focus on exercising regularly, eating healthily and recognising the symptoms of stress and burnout in ourselves and our peers (Crum et al., 2013). Whilst acknowledging that these methods are effective, beneficial and should not be discounted, there are several limitations to these methods in a holistic stress management approach:

1. Often it is impractical to reduce the pressure we face in the stormwater industry due to project challenges. Attempting to reduce stress may cause more stress later (such as avoiding challenging tasks or meeting deliverables) (Crum et al., 2013).
2. Recommended coping processes that can be used in many circumstances, are not always suitable for certain situations (Cheng, 2003). For example, using practical coping mechanisms to tackle stressful situations such as problem-solving, time-management or social support can be useful in "controlled situations" where there is a goal for an outcome (such as project deadlines) (Pascoe & Richman, 2009). However, it is not always possible to use problem-focused strategies as in situations where it is beyond the individual's control to remove the stress sources, such as job insecurity (Nes & Segerstrom, 2006).
3. Advocating and perpetuating the mindset that stress is debilitating is not only somewhat inaccurate but may be counterproductive to coping with stress (Crum et al., 2013). It could also be said that during a stressful situation these methods may not help with decision making or reducing morality (i.e. distinction between right and wrong or good and bad behavior) if stress is still perceived negatively.

### **3.2 PROPOSED ALTERNATIVE STRESS MANAGEMENT TECHNIQUES**

Understanding the limitations of the current stress management techniques, the literature review investigated alternative methods for stress reduction and better decision making under stress in the stormwater industry.

### **3.2.1 POSITIVELY-FRAMING STRESS**

Several studies have examined the interactions between participants' stress perceptions and how positively-framing stress can change the performance and health outcomes for participants in a positive way (Liu et al., 2017; Jamieson et al., 2010). This could involve viewing the stressful situation as a challenge rather than a threat, or presenting positive bodily responses of being in stressful situation rather than the negative health impacts. For example, several studies found that under stress conditions (without positive moderation) heart rate and blood pressure rose. However, if positive framing of the stressful situation took place there was a significantly smaller increase in heart rate and blood pressure following stress when comparing the positive to the negative framing conditions (Liu et al., 2017; Jamieson et al., 2010).

A key example of the benefits of positively-framing stress is shown in Crum et al. (2013) where managers reporting stress within the financial industry during the financial crisis were analysed. The managers exhibiting stress were separated into two groups and each shown a three-minute video. The first group watched a video detailing findings about how stress is debilitating. The second group watched a video explaining how stress enhances the human brain and body. The latter information is less well known, but equally true (Crum et al, 2013). The findings of the study were significant: when an individual thought of stress as enhancing they embraced the reality of their current stress level and used it to their advantage. The negative parts (distress) diminished because the fight-or-flight response was not activated and the individual felt more productive and energetic, and reported fewer physical symptoms associated with distress (Crum et al., 2013). Productivity, life satisfaction and happiness scores also increased (Crum et al., 2013).

Studies also attribute stress reframing to better decision making under uncertainty. For example, research by Pascoe & Richman (2009), Nes & Segerstrom (2006), Blascovich, et al. (2004), Chalabaev et al. (2009), Jones, et al. (2009), Jones, et al. (2013) demonstrate that if a participant frames stress as a challenge situation (something is gained from the exercise) rather than a threat situation (there is something to lose from the situation) then less risks are taken in the decision-making exercise and more of the available data is analysed.

### **3.2.2 HELPING OTHERS**

A study following 846 people over five years by Poulin, et al. (2013) demonstrates that the act of helping others can reduce stress and mortality. At the start of the study the researchers interviewed participants about the stressful events in their lives (such job loss, financial difficulties, or the death of a family member). They also asked participants whether they had helped friends, neighbors, or relatives over the past year, and how much time they'd spent doing so. The study found that when dealing with stressful situations, those who had helped others during the previous year were less likely to die in the following five years than those who had not helped others. For non-helpers each stressful event increased the chance of dying over the next five years by 30 percent. This leads to the outcome that acts of kindness buffer the "giver" against the harm of psychological stress that occurs when stressful events happen in their lives.

## **3.3 HOW CAN THESE FINDINGS BE USED IN THE STORMWATER INDUSTRY?**

In summary, the literature review has found that if participants construe stress as constructive (challenge) rather than destructive (threat), this can frame stress positively rather than negatively, and can undertake acts of kindness they are likely to achieve a longer and healthier life, make better decisions, have increased life satisfaction and improved professional performance. Methods to implement these changes include:

- Encouraging pro bono/community work as an industry norm. This could include delivering corporate social responsibility through individual contributions/interactions to charity organisations requiring technical stormwater support.
- Encourage our profession to reflect on what we have done to help people and the change and impact we have had on our communities. Celebrate and share the difference we have made during times of stress.

- Provide education to stormwater practitioners regarding how our bodies perform under stress and the positive reaction to stress that can benefit us.
- Reduce focus on the negative impacts of stress.
- Focus on reframing of stressful situations as challenges rather than threats.
- Educate stormwater practitioners that to find the good in the stress in our lives is to view it as an opportunity to learn and grow (McGonigal, 2015).

## 4 CONCLUSIONS

Through a literature review and through experiences of a participant in the stormwater industry this paper demonstrates that a focus on the destructiveness of stress may be contributing negatively to our profession by influencing the judgement and decision making that is critical to our work. Being stressed and making decisions under uncertainty makes it more likely that we are leaving a legacy of choices that are made without all the information or adequate risk assessment.

The paper also provides thought leadership on how we could combat the impacts of stress in our industry, by positively-framing stressful situations and undertaking decision making in challenge situations rather than threat situations. The paper also challenges the industry to acknowledge and focus on the significant positive outcomes for people and the environment as this will enhance the impacts of participants in the stormwater industry. We should be focusing on this positive stance when under stress, and record, share and celebrate the positive outcomes as a benefit for all.

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