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Understanding incident reporting:

The employee perspective

A thesis

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by

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ABSTRACT

The objective of the present research was to explore the number of accidents and near misses that occur in New Zealand organisations, the proportion of these incidents that are reported, and the factors influence that their reporting. Most of the research in the area of incident reporting, underreporting and promoting reporting has used qualitative analysis, asking participants to discuss the barriers to reporting incidents. By applying decision making theories to incident reporting, a framework was created for assessing previous research, as well as collecting data on factors that influence employee’s decisions to reporting incidents.

A sample of 689 participants took part in the study by completing a 26-item questionnaire. Twelve New Zealand organisations, two providing health services, three involved in power supply, four involved in construction, two supplying heavy machinery and equipment and one government department, provided a sample of employees that was representative of their business to complete the questionnaire. Where practical organisations provided a copy of their current incident form, so that differences in incident form design could be compared to questionnaire answers.

On average, the participants in the present research reported experiencing 3.61 incidents annually, and reported 86.1% of the incidents they experienced. Based on the differences in organisation incident and reporting rates, the present research has supported the conclusion that incident reporting is associated with lower incident rates (Phimister et al., 2000; Reason, 1990, Storgard et al., 2012).

The key factors associated with increased incident reporting were training on what and how to report an incident, confidence in one’s understanding of the reporting process, incident form usability, and whether the time estimated to complete an incident form was perceived as reasonable. All of positive, negative and practical reasons for reporting or not reporting incidents that were presented to participants were found to be important to employees. It appears that the combination of these factors influence incident reporting. However, overall positive reasons were rated the most important, followed by practical, and negative reasons.

The present research has expanded the knowledge and understanding of employee perceptions of incident reporting. If an organisation would like to promote incident reporting in their workplace, an organisation specific approach is required. However, key actions include ensuring that all employees are trained in what and how to report an incident, and ensuring that their incident form is quick and easy to use. When considering the incident form, the design and usability
should be reviewed from an employee perspective. An organisation could also review how the positive, negative and practical reasons discussed in the present research could be motivating or deterring incident reporting in their workplace.

There are five key areas of interest that future research could address. These areas are the content of training and its impact on incident reporting, different elements of incident form design and their impact on incident reporting, how factors combine and interact to influence decisions to report incidents, whether the number of incidents experienced and reported differ across organisations, industries and countries, and the effect of accountability and individual responsibility on safety.
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CHAPTER 1:

Introduction

“No one goes to work expecting to suffer injury or die, yet the grim truth is that far too many Kiwis experience harm – be it acute, chronic or catastrophic” (Independent Taskforce on Workplace Health and Safety, 2013, p.4). For every serious incident, at least twenty-nine less serious incidents occur (Hendrick, 1959). Therefore, in the ideal world, every accident and near miss would be reported, investigated and actions taken to improve safety and prevent future incidents. However, the sheer number of workplace injuries and fatalities indicates that there is a flaw in the system. Despite the theoretical benefits that arise from incident reporting, in reality underreporting or high rates of employees not reporting incidents is an issue across a wide range of industries (Kongsvik, Fenstad, & Wendelborg, 2012). The present research explored the incident rate in New Zealand organisations, the reporting rate in New Zealand organisations and the factors that influence employee decisions of whether or not to report an incident.

Incidents

Each year in New Zealand, over 200,000 occupational injuries result in ACC claims, and over 100 of work-related incidents will be fatal (Ministry of Business, Innovation and Employment, 2014). This number is high when compared Australia, where in 2010-2011, there were 132,570 workers compensation claims for serious work related injuries (Safe Work Australia, 2014). Additionally, New Zealand has a high workplace fatality rate, with approximately 4 deaths per 100,000 employees. Again, this is significantly higher than Australia’s estimate of approximately 1.99 deaths per 100,000 workers (Safe Work Australia, 2014).

Businesses are required to report serious incidents to the Ministry of Business and Innovation (Health and Safety in Employment Act, 1992). However, the workplace incident rate in New Zealand is difficult to obtain (Independent Taskforce on Workplace Health and Safety, 2013). These difficulties occur from differences in definitions on incident, and practical difficulties in measuring and obtaining an accurate record of the number of incidents that occur. In an attempt to overcome this and provide an incident rate estimate, the Independent Taskforce on Workplace Health and Safety, (2013) explored how many serious incidents occur on a weekly basis. This was achieved by reviewing news reports distributed.
locally and nationally. In the first week of December 2012 there were five deaths, eight people with injuries that required hospital treatment, six livestock euthanized and a potential gas explosion averted. This suggests that the weekly incident rate of serious incidents is high across New Zealand workplaces. However, there is a need to determine the actual rates of serious and minor incidents.

For an individual business, Safety Management Group (2015) suggest that the expected annual incident rate can be calculated by the formula (total number of injuries and illnesses from previous year x 200,000) / number of hours worked by all employees. Based on this calculation, in the United States private sector the incident rate for 2007 was 4.2 cases per 100 employees. This declined from 4.4 cases per 100 employees in 2006 (Bureau of Labour Statistics, 2008). Incident rates (rate per 100 employees) were broken down into various industries with an incident rate of 4.4 cases for natural resources and mining, 5.4 for construction, 5.6 for manufacturing, 4.9 for trade, transport and utilities, 2.0 for information/media services, 1.4 for financial activities, 2.1 for professional and business services, 5.2 for education and health services, 4.5 for leisure and hospitality and 3.1 for other services (Bureau of Labour Statistics, 2008).

As the present research addressed perceptions of incident reporting, it was important to define an incident, and account for common perceptions and definitions of the word incident. To consider a common definition, the New Zealand Oxford Dictionary (2005, para. 1) defines incident as “a minor or detached event attracting the general attention or noteworthy in some way”. Additionally, “The noun incident is frequently used in the mass media to denote an action for occurrence that has or is likely to have serious, violent, or political consequences” (Good Word Guide, 2007, para. 1). Academic definitions usually take a broader perspective, such as an event or circumstance which could have or did cause harm to anyone or which resulted in a complaint, loss or damage (Handler et al., 2007). For the purposes of the Cooper (1978, p 277) study on anesthesia incidents, a critical incident was defined as “an occurrence that could have led (if not discovered or corrected in time) or did lead to an undesirable outcome, ranging from increased length of hospital stay to death or permanent disability”.

The differences between common or dictionary definitions and academic definitions are the inclusion of near misses. A near miss is defined as an incident that leaves no injuries, property or equipment damage, and may leave little or no evidence that the incident occurred. These are often referred to as narrow escapes (Reason, Hollnagel & Paries, 2006). An accident is defined as an event that results in injury and loss, environmental impact and/or significant downtime of production
processes. These events are often obvious and brought to the attention of management (Phimister et al., 2003). This distinction between near misses and accidents is the severity of the incident. The present research intended to include both near misses and accidents. Therefore an incident is defined as an event or circumstance which could have or did cause harm to anyone, or an event which resulted in a compliant, loss or damage (Handler et al., 2007).

Even the smallest hazard can result in an incident, which could have a significant impact on an employee, cause pain or serious injury, and may drastically affect the livelihood of that employee (Ministry of Business and Innovation, 2014). Additionally, where incidents are fatal, this is devastating for friends and family of the employee involved in the incident. This harm from involvement in an incident is unquantifiable. It can take the form of financial, psychological and/or physical harm for the employee, other staff or customers involved (Ahluwalia & Marriott, 2005, Hrymak et al., 2007).

At an organisational level, an incident can have serious negative consequences, especially for a small business (Ministry of Business and Innovation, 2014). The costs of an incident are high. In the United States, it is estimated that the annual cost of preventable adverse incidents is between $17 billion and $29 billion dollars (Thomas et al., 1999). Employer costs occur through a wide range of factors.

Costs associated with attending to the incident can include production and productivity losses, repair for damaged equipment, litigation costs and personal compensation costs for medical and travel expenses and loss of salary (Ahluwalia & Marriott, 2005; Hrymak et al., 2007, Ministry of Business, Innovation & Employment, 2014). To continue operating the business, an organisations expenses can include salaries for replacement staff, retraining costs, and costs resulting from increasing supervision in the workplace, (Hrymak et al., 2007). Furthermore, an incident can have long term consequences such as increases in insurance premiums, resentment from employees, and potential damage to the organisations reputation (Hrymak et al., 2007). As incidents can have a negative impact on both the individuals and organisations involved, it is important to consider what actions can be taken to promote incidents being reported, and prevent incidents.

**Incident Reporting**

Learning from previous incidents is important to improve safety (Di Lieto 2012; Kjellen, 2000; Prang & Jelsness-Jørgensen, 2014). Di Lieto (2012)
suggested that to improve safety regulations, an analysis of both how errors occur and how errors fail to be corrected is required. A workplace culture of safety is driven by a learning culture, where organisations actively seek out previous experiences of error so they can ensure the incident is not repeated. Hendrick (1959) suggested that for every serious incident, at least twenty-nine less serious incidents occur. Phimister et al., (2003) expanded this and suggested that for every serious injury, there may be 10 minor injuries, 60 incidents with property damage or loss, 600 incidents without damage or loss, and numerous unsafe hazards or conditions. Voluntary reporting of these less serious incidents can provide important information that cannot be obtained by other means (Adams, 2005). Incident reporting provides insight into the factors that contributed to an incident (Reason, 1990). Upon analysis an investigator can view how these factors could interact with other aspects of the system to cause future incidents. Storgard et al., (2012) found that higher rates of incident reporting are associated with improved safety. For this reason, incident reporting is a well-accepted practice in a range of industries and is recognised as a method for improving safety (Anderson et al., 2013).

The reporting method known as the Critical Incident Technique began in the aviation industry and was first described in 1954 (Flanagan, 1954). Since then, a wide range of organisations in numerous industries, and a number of government authorities have implemented a critical incident reporting process or system. Incident reporting processes, policies and systems vary across organisations and industries (Anderson et al., 2013, Wagner et al., 2013), but they share a common goal to enable learning through a reporting culture (Waring, 2004). The key step of a reporting system requires employees to routinely document and communicate their experiences (Waring, 2004). Incidents are then collated and analysed (Ahluwalia & Marriott, 2005).

The investigation of a critical incident has several aims which include identifying the relevant human and system causative factors, assessing current and future risk, identifying key learning and possible improvements, and meeting any local or mandatory reporting requirements. The key questions asked are ‘what could go wrong?’, ‘how badly could it go wrong?’ and ‘what needs to be done to prevent it going wrong?’ (Spath, 2003). Some form of feedback to employees, the organisation and relevant stakeholders usually follows an investigation. This feedback could take the form of discussions at regular multidisciplinary and/or departmental meetings, paper-based or electronic newsletters or bulletins,
postings on departmental or organisational websites, and targeted campaigns related to particular incidents or patterns of incidents (Spath, 2003).

In New Zealand, neither legislation nor the government authority, the Ministry of Business and Innovation specify how incidents should be recorded and processed. However, to be compliant with the Health and Safety in Employment Act (1992), employers are required to manage hazards before incidents occur, keep an up-to-date register of all workplace accidents and near misses, report all serious harm accidents to the Ministry of Business, Innovation and Employment using the Ministry’s supplied incident form, investigate all incidents, and keep copies of all incident reports and investigations (Ministry of Business, Innovation & Employment, 2014). One possible system suggested by the Ministry of Business, Innovation and Employment is to record all incidents (not just the serious harm incidents) on the Ministry’s incident form and keep copies in an accident register. This reporting system can then lead into active hazard management, investigating all accidents and near misses to identify hazards, and review how hazards can be managed through isolation, minimization or elimination.

If incident reporting is considered using systems theory, each incident report provides feedback on the current system and can be used as a means to assess and improve system performance (Mitchell, 2008). Each incident report is analogous to a medical “biopsy”, providing a sample of the system. Through collation and analysis of incidents over a period of time, and potentially over multiple sites and organisations, a comprehensive representation of current practices, knowledge and attitudes at different levels of the organisation can be built and evaluated (Anderson et al., 2013; Webb et al., 1993).

There are multiple advantages associated with incident reporting. These include eliciting contextual details about the contributing factors of incidents, assisting the monitoring of underlying trends and patterns that increase the likelihood of incidents, promoting employees to suggest corrective strategies, allowing timely investigations to take place, promoting comprehensive recording of incidents which can assist if legal cases arise, and promoting feedback of accurate information to the parties involved (Ahluwalia & Marriott, 2005; Anderson et al., 2013; Webb et al., 1993). Additionally, when near misses are reported, this reduces the possibility of an outcome bias, which can arise from only incidents that caused serious impact or harm being reported (Webb et al., 1993). Jones, Kirchsteiger and Bjerke (1999) found a 60% reduction in lost time injuries occurring offshore and a 75% reduction in lost time injuries onshore as a result of increased incident reporting. Additionally, Anderson et al., (2013) found that most staff
perceived incident reporting had a positive impact as it led to changes in processes, but also to changes in staff attitudes and knowledge.

**Underreporting**

Underreporting is defined as a ratio of the number of incidents an employee reports to an organisation, compared to the number of incidents experienced by an employee (Probst & Estrada, 2010). Low reporting rates result in a lack of awareness and understanding of the actual incident rates, and the number of daily errors that occur in the workplace (Kohn, Corrigan & Donaldson, 2000). Underreporting is an issue across a wide range of industries (Kongsvik, et al., 2012). As a result, it is likely that only a fraction of incidents are reported (Webb et al., 1993). Psarros, Skjong and Eide (2010) estimated that 59-79 percent of incidents on marine tanker vessels were not reported. Other researchers estimated that voluntary reporting systems capture only ten percent of workplace incidents (Barach & Small, 2000; Jones et al., 2004). Hazell and Shakir (2006) considered underreporting of adverse drug reactions in a range of hospitals and departments. The average underreporting rate was 94 percent, with an interquartile range of 82-98 percent. The underreporting rates ranged from 6-100 percent. In another study, Probst, Brubaker, and Barsotti, (2008) found that 78 percent of workplace accidents were not reported.

Probst and Estrada, (2000) considered how many accidents employees experienced and how many accidents they reported, and found that 54.2 percent of employees reported experiencing but not reporting an incident. On average, for every accident reported to an organisation, 2.48 accidents were not reported (Probst & Estrada, 2000). Phimsister et al., (2000) considered 19 different corporate sites and found that annual incident reports per person ranged between 0-0.3 for eight businesses, between 0.3 and 1 for four businesses and seven businesses had a disclosure rate higher than 1.

Research suggests there are multiple reasons why incidents are not reported, and the problem of underreporting most likely stems from a complex mix of these factors (Prang & Jelsness-Jorgensen, 2014). Lack of awareness or recognition that an incident has occurred is acknowledged as a barrier to reporting incidents (Wakefield et al., 1995; Wakefield et al., 1999). The ability to notice incidents is influenced by the work environment where the incident occurs, and employee cognitive ability (Wagner, Castle & Handler, 2013). However, lack of awareness is distinctly different from actively deciding not to report an incident. Probst, Barbaraneli, and Petitta (2013) found that various factors motivate or deter
incident reporting. This suggests that when an incident occurs, first awareness of the incident is required, then a decision to report the incident. Researchers have identified a need for further research into the motivational elements incident reporting (Holden & Karsh 2007; Karsh et al., 2006; Wakefield et al., 1999).

**Decision Making Models**

A range of decision making models have been applied to incident reporting in an attempt to understand how employees may make the decision to report an incident. Either there are rules or heuristics that govern the decision of whether to report an incident, or reasons for reporting, and reasons against reporting are evaluated (Tversky & Shafir, 1992). Under Error Management Theory employees will conduct cost benefit analysis and consider the positive and negative outcomes (Johnson et al., 2013) that could result from reporting and not reporting an incident. Luce and Weber ‘s (1968) conjoint expected risk theory suggests employees will then estimate the probability of the expected outcomes, and estimate whether the outcome is likely to be positive or negative.

Under rank dependent theories, employees will give a weight and value to each of these factors, and the positive and negative outcomes that could occur (Birnbaum et al., 1992; Birnbaum, Thompson & Bean, 1997; Birnbaum & Beeghley, 1997; Birnbaum & McIntosh, 1996; Birnbaum & Viera, 1997; Mellers, Schwartz & Cooke, 1998). Figure 1 displays a diagram of the integration of these theories, indicating the process employees could take at a conscious or subconscious level when deciding whether to report an incident.

![Figure 1: Suggested process for deciding whether to report an incident.](image-url)
First an incident occurs and the employee becomes aware of the incident. The decision to report an incident is structured by first using Error Management Theory (Johnson et al., 2013) and breaking the decision down into an analysis of the positive and negative outcomes. Luce and Weber’s (1968) conjoint expected risk theory and rank dependent theories (Birnbaum et al., 1992; Birnbaum, Thompson & Bean, 1997; Birnbaum & Beeghley, 1997; Birnbaum & McIntosh, 1996; Birnbaum & Viera, 1997; Mellers, Schwartz & Cooke, 1998) have been integrated as it is suggested that the evaluation of the specific negative and positive outcomes is conducted by giving a weight to each outcome based on the probability (conjoint expected risk theory), and perceived importance (rank dependent theory) of that outcome.

Moving back into Error Management theory (Johnson et al., 2013), the positive and negative outcomes are grouped together and whether the combined weight of positive reasons outweighs the negative reasons is evaluated. If the combined weight of the positive outcomes is higher than the combined weight of the negative outcomes, the incident will be reported. If the combined weight of the negative outcomes is higher than the positive outcomes, the incident will not be reported. This framework was created to assist in evaluating previous research and to provide the framework for categorising research into the motivators and deterrents of incident reporting.

**Specific Factors That Influence Underreporting**

Most of the research in the area of incident reporting, underreporting and promoting reporting has used qualitative analysis, asking participants to discuss the barriers to reporting incidents. In reference to reason based choice (Tversky & Shafir, 1992), this type of questioning has essentially asked participants to share their stories about reporting incidents. Reasons can take the form of stories, or lists of pros and cons (Mellers, et al., 1998). Therefore, the factors found in previous research to influence decisions to report, were converted to a list of pros and cons to remain consistent with the framework that was created for evaluating and categorising previous research (discussed above).

**Positive Reasons.** Positive reasons are defined as positive outcomes that motivate employees to report an incident. These reasons represent the positive outcomes and factors that are considered when deciding whether to report an incident. Previous research in this area has mostly focused on what hinders reporting, with the notion of barriers to reporting well established within the
literature (Pfeiffer, Manser & Wehner, 2010). However, when taking a broader approach as suggested by Pfeiffer et al., (2010), some of the barriers mentioned represent a different side of the coin, and the opposite shows the motivators and positive reasons for reporting incidents. For example, statements such as "never heard feedback on quality improvement projects arising from reports" (Pfeiffer et al., 2010, p.7) are often discussed as lack of feedback hindering reporting. However, when the positive side is viewed, this indicates feedback could be motivating reporting. In this situation the action of giving feedback motivates reporting, and the inactive form of not giving feedback deters reporting. Factors are categorised based on the active form of the factor, and positive reasons represent motivators to reporting incidents and negative reasons represent factors that hinder reporting.

**Reporting will make a difference.** Previous research has indicated that whether incident reporting is perceived to make a difference influences decisions to report (Beasley, Escoto & Karsh, 2004; Coyle et al, 2005; Evans et al, 2006; Jeffe et al., 2004; Kingston et al, 2004; Merchant & Gully, 2005; Pfeiffer et al., 2010; Schectman & Plews-Ogan, 2006; Taylor et al., 2004; Uribe et al., 2002; Vincent et al., 1999; Waring, 2005; Wu et al., 2008). This difference can take the form of the problem being fixed (Storgard et al., 2012; van der Schaaf & Kanse, 2004), reporting resulting in a change (Wagner, Capezuti & Ouslander, 2006), or the organisation learning from the incident (Jeffe et al., 2004; Pfeiffer et al., 2010; van der Schaaf & Kanse, 2004; Wild & Bradley, 2005).

When health and safety personnel were perceived to already know about the problem (Wagner et al., 2013), or were perceived to be incompetent (Beasley et al., 2004; Schectman & Plews-Ogan, 2006; Waring, 2005), employees were deterred from reporting. This implies health and safety personnel follow up actions influence the perception of whether incident reporting makes a difference.

Wagner et al., (2013) found that employees were more likely to report infrequent rather than frequent events, and other researchers have found that employees believed harmless errors were not worth reporting (Chiang et al., 2010; Kessler et al., 2011). In the health sector the outcome of the incident, for example whether a patient is harmed, influenced whether incidents were reported (Evans et al., 2006; Karsh et al., 2006; Merchant & Gully, 2005; Schectman & Plews-Ogan, 2006; Taylor et al., 2004; Uribe et al., 2002; Vincent et al., 1999; Wakefield et al., 1996; Wakefield et al., 1999; Wild & Bradley, 2005). This suggests that employees are filtering the type of incidents they report. This filtering could be based upon whether they perceive that reporting will make a difference.
Feedback. A number of researchers have found that feedback is important to the decision to report an incident (Beasley et al., 2004; Chiang et al., 2010; Coles et al., 2001; Coyle et al., 2005; Evans et al., 2006; Garbutt et al., 2008; Handler et al., 2007; Jeffe et al., 2004; Kingston et al., 2004; Mahajan, 2010; Schectman & Plews-Ogan, 2006; Storgard et al., 2012; Wagner et al., 2012; Walsh, Burns & Antony, 2010). Additionally, the amount of feedback given on earlier incident reports influences incident reporting rates (Kongsvik et al., 2012). Prang & Jelsness-Jorgensen (2004) found that nurses felt feedback was important as it provided solutions and enhanced understanding of how to approach similar situations in future.

Probst & Estrada (2010) found that whether employees perceive management had responded to the incident was important. This supports the conclusion feedback is important. Been et al., (2009) suggest that feedback to staff about incidents and the actions taken is crucial to the learning cycle of a health and safety system, and Gandhi et al., (2005) state feedback is a key feature for creating a culture of safety awareness.

A supportive environment. Wu et al., (2008) found that the expectation of others and the norms of an organisation influence reporting. Additionally, whether organisations and their staff encourage employees to report incidents can motivate or deter reporting (Braithwaite et al., 2008; Coyle et al., 2005; Prang & Jelsness-Jorgensen, 2004; Vincent et al., 1999). Brondino, Silva & Pasini (2012) found that both supervisors and colleague’s play a significant role in safety climate.

Zohar and Luria (2005) suggested that the policies and procedural actions of management and the everyday practices of the supervisor set the standard of behavior expected by employees. Kongsvik et al., (2012) found that the captain of a ship heavily influenced the degree of health and safety compliance on board. Additionally, supervisors’ and managers’ attitudes and reactions to incident reports have been found to influence incident reporting in numerous studies (Mayo and Duncan, 2004; Prang & Jelsness-Jorgensen, 2004; Williamsen, 2013).

Whether colleagues support an employee’s decision to report an incident has been found to influence decisions to report (Chiang et al., 2010; Evans et al., 2006; Prang & Jelsness-Jorgensen, 2004; Storgard et al., 2012; van der Schaaf & Kanse, 2004; Vincent et al., 1999; Wagner et al., 2006). Colleagues can offer additional information, show behavioral support for desired practices and discourage others, and may offer additional forms of mentoring. When compared to supervisors, colleagues had the most influence and impact on the safety climate of an organisation (Brondino et al., 2012).
Negative Reasons. The present research defined negative reasons as negative outcomes that prevent employees from reporting an incident. When reviewing the literature, a conceptual difference between some of the negative reasons exists. This difference arises out of the nature of the outcomes, and how business could resolve these reasons or factors in the workplace. A large number of the negative reasons would need to be addressed by considering the culture of an organisation, or actions taken after the incident is reported. For example, concerns about being blamed (Pfeiffer et al., 2010) could be reviewed by considering whether there is a blame culture in the organisation, and ensuring employees are not blamed during incident investigations.

In contrast, there are a number of practical reasons identified in research. For example, these factors include an inappropriate form, lack of time and not knowing where to find an incident form (Pfeiffer et al., 2010). These factors directly affect the person reporting, at the time of reporting the incident. To address these problems in workplace an employer could make the reporting process easier, less time consuming, and more accessible. Because negative and practical reasons are conceptually different they will be discussed separately.

Fear of being blamed. Chiang et al., (2010, p.23) found that people “see errors as personal responsibility and defects in work performance”. This perception implies that when reporting an incident, it is believed someone is at fault. Fear of being blamed for an incident discourages incident reporting (Beasley et al., 2004; Evans et al., 2006; Garbutt et al., 2008; Jeffe et al., 2004; Karsh et al., 2006; Kingston et al., 2004; Probst & Estrada, 2010; Schectman & Plews-Ogan, 2006; Vincent et al., 1999; Wagner et al., 2013; Wakefield et al., 1996; Wakefield et al., 1999; Wild & Bradley, 2005). Additionally, Chiang et al., (2010) and Waring (2005) refer to the “blame culture” of the hospital affecting the rate of reporting. Furthermore, research suggests employees hold concerns about how their incident report could affect others, with concerns about blaming others acting as a barrier to incident reporting (Chiang et al., 2010; Kingston et al., 2004; Prang & Jelsness-Jorgensen, 2004; Schectman & Plews-Ogan, 2006; Taylor et al., 2004; Uribe et al., 2002).

According to the attribution bias (Kelley, 1967), when people experience a positive outcome they will attribute the success to internal factors, and negative outcomes will be attributed to external factors. In comparison, when other people experience positive outcomes or success this is attributed to external factors, and when negative outcomes occur these are attributed to internal factors (Kelley,
1967). For example, if one’s sports team wins a game, the result is attributed to superior skills and their teamwork. However, if one’s sports team loses a game, the result is attributed to bad weather, key players being away or sick, or other factors beyond their control, ignoring the other team’s abilities.

Therefore, it is not surprising that society is constructed in a manner that promotes finding a person to be blamed and punished for negative outcomes or accidents. Media uses terms like driver error, pilot error and human error to create juicy stories, our legal system seeks to apportion blame in order to make appropriate settlements, and health and safety professionals can get caught arguing for the case of an employer and apportioning blame to the injured employee (Robotham, 2014). Additionally, articles promoting the need for individual accountability and responsibility can be found in the health and safety training resources (Regulatory Training Centre, 2014). Theoretically, the fear of being blamed could be enhanced if strong attitudes of individual accountability exist within an organisation.

_Fear of negative career outcomes_. Previous research has found that fear discourages incident reporting. These include fears that employment will be directly affected through negative performance appraisal (Adams, 2005; Chiang et al., 2010; Probst & Estrada, 2010; Waring, 2005), disciplinary actions, or punishments (Wagner et al., 2006; Lubomski et al., 2004; Probst & Estrada, 2010; Wagner et al., 2013, Walsh, et al., 2010), or termination of employment (Probst et al., 2013).

Additionally, this includes fears that could indirectly affect employment through tarnishing ones reputation, reducing the ability to gain references (Waring, 2005), facing challenges to professional credibility (Chiang et al., 2010), or having their competence questioned (Allsop & Mulcahy, 1998; Coyle et al., 2005; Kingston et al., 2004; Schectman & Plews-Ogan, 2006; Taylor et al., 2004; Wakefield et al., 1996; Wakefield et al., 1999; Waring, 2005).

These concerns can also occur at an organisational level, with concerns about ruining company “no accident” records or “safe employee” perceptions, found to be important (Probst et al., 2013; Waring, 2005). Furthermore, fear of legal liability or lawsuits has also been reported as a barrier to incident reporting in multiple studies (Beasley et al., 2004; Evans et al., 2006; Jeffe et al., 2004; Kingston et al., 2004; Merchant & Gully, 2005; Schectman & Plews-Ogan, 2006; Uribe et al., 2002; Wagner et al., 2006; 2013; Waring, 2005).

_Fear of colleague reactions_. The importance of a supportive environment has being discussed as a positive reason. However, lack of support also takes the
active form of criticism or teasing from colleagues, with embarrassment (van der Schaaf & Kanse, 2004), humiliation from peers (Wagner et al., 2006), verbal bullying and exclusion from social settings (Jackson et al., 2010; Prang & Jelsness-Jorgensen, 2004) found to act as barriers to incident reporting. Several studies have indicated that nurses have been deterred from reporting incidents based on previous reporting experiences that resulted in anxiety, depression and social exclusion (Braubacher et al., 2011; Jackson et al., 2010; Jackson et al., 2010; Jackson et al., 2011; Mountzogou, 2010; Peters et al., 2011).

**Fear of uncertainty.** Chiang et al., (2010) found that fear of uncertainty is a barrier to incident reporting. Hsu et al., (2005) found that in uncertain situations the brain acknowledges a decision must be made while information is missing, and attempts to overcome this by seeking the relevant information. If this information is not available, subjective probabilities of ambiguous events are made. Therefore, the decision to report an incident is likely to be influenced by the amount of information people know about the reporting and investigation processes and the outcomes that could follow incident reporting. Hsu et al., (2005) suggested that this decision would also be affected by how ignorant people feel compared to others, suggesting employee’s confidence in their knowledge could be a relevant factor.

**Practical Reasons.** Practical reasons are defined as conditions that make reporting impractical or difficult and as a result prevent employees from reporting an incident. Chiang et al., (2010) discussed the burden of reporting. This burden takes different forms and occurs as a result of the practical barriers an employee must overcome to report an incident.

**Time.** Incident reporting is often considered too time consuming (Coyle et al.; 2005, Evans et al.; 2006, Garbutt et al.; 2008, Handler et al.; 2007, Jeffe et al.; 2004, Kessler et al.; 2007, Merchant & Gully 2005; Prang & Jelsness-Jorgensen 2004; Schectman & Plews-Ogan, 2006; van der Schaaf and Kanse, 2004; Uribe et al., 2002; Vincent et al., 1999; Wakefield et al., 1996; Wakefield et al., 1999). Reporting an incident is perceived as additional to an employee’s workload rather than neatly integrated into a day’s work (Beasley et al., 2004; Coyle et al., 2005; Karsh et al., 2006; Uribe et al., 2002; Vincent et al., 1999; Wu et al., 2008). Additionally, difficult work conditions (van der Schaaf & Kanse, 2004), and external demands and tasks (Kongsvik et al., 2012) limit the time available to report incidents. Flanagan (1954) found that the longer the time lapse between an incidents occurring and incidents being reported, was associated with less
mundane incidents reported. This filtering of incidents has been supported by research (Prang & Jelsness-Jorgensen, 2004).

**Inadequate reporting systems.** Research indicates flaws and practicalities in reporting systems or process, can affect incident reporting rates (Prang & Jelsness-Jorgensen, 2004; Wagner et al., 2013). Lack of adequate reporting systems deter reporting (Wagner et al., 2013; Walsh et al., 2010). In support of this, a preference for an alternative reporting system, can reduce incident reporting (Evans et al., 2006; Schectman & Plews-Ogan, 2006; Vincent et al., 1999). Alternative systems can be as simple as discussing the issue with the relevant stakeholders, sending an email, or mentioning the issue to the manager.

**Incident forms.** Whether or not the incident form is immediately available can influence reporting (Webb et al., 1993). Additionally, incident forms that are difficult to use, too complicated, require too many details, or are perceived as not appropriate or relevant discourage incident reporting (Beasley et al., 2004; Coles et al., 2001; Evans et al., 2006; Braithwaite et al., 2008; Karsh et al., 2006; Kingston et al., 2004; Merchant & Gully, 2005; Schectman & Plews-Ogan, 2006; Taylor et al., 2004; Uribe et al., 2002). Form medium can affect influence reporting (Ammenwerth et al., 2003; Prang & Jelsness-Jorgensen, 2004). Ammenwerth et al., (2013) found that some employees expressed wishes to be able to report on paper-based systems and stated they reported less incidents after new electronic reporting systems were implemented. This preference for paper incident forms was a result of lack of confidence using electronic systems.

**Lack of knowledge.** Firstly, to report an incident, employees need to be aware that an incident reporting system exists (Vincent et al., 1999; Wild & Bradley, 2005). Additionally, a lack of understanding of what to report, where to report and how to report, are found to limit incident reporting (Beasley et al., 2004; Evans et al., 2006; Jeffe et al., 2004; Kingston et al., 2004; Merchant & Gully, 2005; Prang & Jelsness-Jorgensen, 2004; Probst & Estrada, 2010; Schectman & Plews-Ogan, 2006; Taylor et al., 2004; Uribe et al., 2002; Vincent et al., 1999; Wakefield et al., 1999; Wakefield et al., 1996; Walsh et al., 2010; Waring, 2005; Wild & Bradley 2005). Confusion over what to report can refer to how severe incidents should be, to warrant reporting (Prang & Jelsness-Jorgensen, 2004; Malmedal, Hammersvold & Saveman, 2009). Furthermore, Coles et al., (2001) found that uncertainty about the purpose of reporting influenced reporting rates.

**Employee perceptions.** Employee beliefs that incident reporting is not part of their job, are found to reduce incident reporting (Evans et al., 2006; Merchant & Gully, 2005; Schectman & Plews-Ogan, 2006; Taylor et al., 2004;
Vincent et al., 1999; Waring, 2005). Additionally, this belief can be accompanied with the perception that accidents are just part of the job (Waring, 2005), which is particularly apparent in high-risk industries (van der Schaaf & Kanse, 2004). These perceptions can deter reporting. Furthermore, not liking paperwork, or perceiving paperwork as not part of the job hinders incident reporting (Antonsen, 2009; Waring, 2005).

The Present Research

The present research expands the knowledge and understanding about incident reporting; in particular, employee perceptions of incident reporting. This allows the present research to provide information that could assist businesses in deciding the best strategies for increasing incident reporting rates, and therefore increasing safety (Storgard et al., 2012). This was achieved by addressing the following research questions.

1. What is the Incident Rate in New Zealand organisations?

The available statistics suggest New Zealand incident rates are high (Independent Taskforce on Workplace Health and Safety, 2013). However, it is possible these statistics only represent severe incidents, therefore underestimating the incident rate in workplaces. Therefore, there is a need to explore and establish an estimate of the incident rate of both severe and minor incidents in New Zealand workplaces.

2. What is the Reporting Rate in New Zealand organisations?

Numerous studies have found that underreporting incidents is an issue (Hazell & Shakir, 2006; Probst et al., 2008; Probst & Estrada, 2010; Psarros et al., 2010). Incident rates were expected to vary across organisations, industries and countries. Therefore, the present research explored whether underreporting is an issue in New Zealand, and to what extent. Additionally, the present research explored the reporting rate in a range of New Zealand businesses and compared these estimates to incident rates found in other research.

3. What Factors Influence an Employee’s Decision to Report an Incident?

As discussed above, a wide range of factors influence employee decisions to report incidents. The perceptions of a number of positive, negative and practical reasons were explored and their relationship with incident reporting evaluated.
**Overall importance ratings.** Overall ratings of the importance of positive reasons, negative reasons and practical reasons were measured. When Error Management Theory (Johnson et al., 2013) is applied to incident reporting, the decision to report an incident is essentially the sum of positive reasons, minus negative reasons, minus practical reasons. If the sum is positive, the incident will be reported as the positive reasons were outweighing the negative and practical reasons. If the sum is negative, the incident will not be reported as either the negative or practical reasons were outweighing the positive reasons. As underreporting is a problem in a wide number of industries (Kongsvik, et al., 2012) and underreporting estimates range from approximately 50-90 percent (Hazell & Shakir, 2006; Probst et al., 2008; Probst & Estrada, 2010; Psarros et al., 2010). This suggests that either the negative reasons or practical reasons were outweighing the positive reasons, and were therefore seen to be the most important.

Additionally, common sense suggests people make time for something, and will overcome practical barriers if they perceive something to be important and worthwhile. Numerous research states lack of time is a barrier to incident reporting (Coyle et al., 2005; Evans et al., 2006; Garbutt et al., 2008; Handler et al., 2007; Jeffe et al., 2004; Kessler et al., 2007; Merchant & Gully, 2005; Prang & Jelsness-Jorgensen, 2004; Schectman & Plews-Ogan, 2006; van der Schaaf & Kanse, 2004; Uribe et al., 2002; Vincent et al., 1999; Wakefield et al., 1996; Wakefield et al., 1999). Based on the assumption that people would overcome the barrier of time if they perceived reporting to be important, positive reasons were not perceived important enough to make time to report incidents.

The effects of the positive reasons often occur after the investigation process has taken place. Mellers et al., (1998) found that when an outcome is delayed in time, the value of the outcome may be reduced or discounted, and people often select an inferior option now rather than the superior option later. This could be influencing the perceived value of the positive reasons. This finding is supported by Kahneman & Tversky’s (1979) choice behavior research. Therefore, it is hypothesised that either or both negative and practical reasons will be more important than positive reasons.

**H1.** *Either or both negative and practical reasons will be perceived as more important than positive reasons.*

**The relative importance of positive, negative and practical reasons.** Three lists of reasons representing factors that influenced decisions to report
incidents were derived from research, so the relative importance could be evaluated. Eight positive reasons, eleven negative reasons and eight practical reasons were identified. Participants were given the three lists, asked to select the five most important positive, negative and practical reasons and rank these in order of importance. No hypotheses were made about which reasons will be perceived as the most important.

Accountability. In addition to the list of negative reasons, perceptions of accountability were explored. Chiang et al., (2010, p.23) found that people “see errors as personal responsibility and defects in work performance”. This perception implies when reporting an incident, it is believed someone is at fault. Robotham, (2014) suggests society is constructed in a manner that promotes finding a person to be blamed and punished for negative occurrences such as accidents. Additionally, articles promoting the need for individual accountability and responsibility can be found in the health and safety training resources (Regulatory Training Centre, 2014). The present research explored whether a belief for individual accountability and responsibility exists in New Zealand organisations. As these perceptions could enhance fears of negative outcomes, it was expected that accountability perceptions would have a relationship with negative outcomes, in particular fear of being blamed.

H2. Perceptions of a need for individual accountability and responsibility will have a positive relationship with overall importance ratings negative outcomes.

H3. Perceptions of a need for individual accountability and responsibility will have a positive relationship with fear of being blamed.

Additional practical reasons. A range of practical reasons were explored in further detail to expand the knowledge on how they could be influencing incident reporting.

Lack of knowledge. A lack of understanding of what to report, where to report and how to report, were found to reduce incident reporting. (Beasley et al., 2004; Evans et al., 2006; Jeffe et al., 2004; Kingston et al., 2004; Merchant & Gully, 2005; Prang & Jelsness-Jorgensen, 2004; Probst & Estrada, 2010; Schectman & Plews-Ogan, 2006; Taylor et al., 2004; Uribe et al., 2002; Vincent et al., 1999; Wakefield et al., 1996; Wakefield et al., 1999; Walsh et al., 2010; Waring, 2005; Wild & Bradley 2005).
The amount of information missing and how ignorant people feel can influence a decision. When information is missing; people will make decisions based on subjective probabilities of ambiguous outcomes occurring (Hsu et al., 2005). If employees clearly understand the steps of the process, the amount of information missing is reduced. Therefore, the amount of accommodation for possible negative outcomes is expected to reduce.

The level of participant knowledge and understanding of the reporting process was explored. Additionally, how confident participants were in their understanding of the reporting process was explored. It was hypothesised that both an increased knowledge and understanding of the reporting process, and perceived confidence in one’s understanding, would have a positive relationship with incident reporting.

**H4. Knowledge and understanding of the reporting process will be associated with increased incident reporting.**

**H5. Perceived confidence in understanding of the reporting process will be associated with increased incident reporting.**

**Factors that impact the level of knowledge of reporting process.** A number of factors were expected to influence incident reporting, by affecting the level of knowledge of incident reporting and incident reporting processes. Health and safety training, or specific incident reporting training is expected to cover what and how to report an incident. Therefore training is expected to be associated with increased knowledge and increased incident reporting. Additionally, whether information about the follow up stages of the reporting process was provided on the incident form was measured. This was also expected to be associated with increased knowledge and increased incident reporting.

**H6. Training will be associated with increased knowledge and understanding of the reporting process.**

**H7. Training will be associated with increased incident reporting.**

**H8. Information provided on the incident form about the incident reporting process will be associated with increased knowledge and understanding of the reporting process.**

**H9. Information provided on the incident form about the incident reporting process will be associated with increased incident reporting.**

**Time.** Participants perceptions of the time estimated to complete an incident form were explored. Lack of time has been found to deter incident reporting in numerous research (Coyle et al., 2005; Evans et al., 2006; Garbutt et al., 2008; Handler et al., 2007; Jeffe et al., 2004; Kessler et al., 2007; Merchant &
Therefore, it is hypothesised that incident reporting will have a negative relationship the time required to complete an incident form.

\textit{H10. Incident reporting will have a negative relationship with the amount of time estimated to complete an incident form.}

**Incident form design features.** Incident form design features have been found to influence incident reporting (Beasley et al., 2004; Braithwaite et al., 2008; Coles et al., 2001; Evans et al., 2006; Karsh et al., 2006; Kingston et al., 2004; Merchant & Gully, 2005; Schectman & Plews-Ogan, 2006; Taylor et al., 2004; Uribe et al., 2002). The incident form design features of form medium (whether incident forms were paper or electronic), and question style (whether multiple choice questions were included) were explored. Additionally, whether any relationships with incident reporting were explored. No hypotheses about possible relationships were made.

**Incident form usability.** Incident forms that were too complicated or confusing and require too many details hinder incident reporting (Beasley et al., 2004; Braithwaite et al., 2008; Coles et al., 2001; Evans et al., 2006; Karsh et al., 2006; Kingston et al., 2004; Merchant & Gully, 2005; Schectman & Plews-Ogan, 2006; Taylor et al., 2004; Uribe et al., 2002). Perceptions of incident form usability were measured. It was hypothesised that when incident forms were perceived as easy to use, incident reporting would be increased. Additionally, incident forms that were easier to use were expected to take less time to complete.

\textit{H11. Incident form usability will have a positive relationship with incident reporting.}

\textit{H12. Incident form usability will have a negative relationship with the amount of time estimated to complete an incident form.}

**Demographic information.** The demographic information of gender, whether employees were engaged in full time or part time work, whether participants were employees, supervisors, health and safety personnel or business owners, age, tenure and organisation were collected. These variables were primarily collected to describe the sample. However, relationships between the demographic variables and other variables were explored to evaluate whether differences participant perceptions or incident reporting existed.
CHAPTER 2:

Method

Participants

Participants were selected through their employment in one of the organisations that opted to be involved in the study. Organisations were approached through email, cold calling, networking, and safety orientated groups that operate in the New Zealand framework. This included postings to social media through the New Zealand Institute of Safety Management (2012) LinkedIn page and emails sent through the Safeguard OSH Solutions forum (Thomas Reuters New Zealand Limited, 2014).

Twelve organisations were involved in the present research. Two organisations provide health services, three involved in power supply, four involved in construction, two equipment supply services and one a government department. Organisations were asked to provide a sample of employees that were representative of their business to complete a questionnaire. Organisations were told the ideal participants were frontline employees and/or employees that hold the highest probability of experiencing incidents. However, selection of the sample of employees for each business was dependent on the organisation. This meant the sample and selection of employees from each business was varied.

689 participants participated in the survey. They were employed by a New Zealand organisation, and were working in New Zealand at the time they participated in the survey. Due to drop out rates, and some participants choosing not to answer demographic information, there were some missing values when discussing demographic variables. Of the 510 participants (74.02% of all participants) who indicated their gender, 245 participants were male and 265 participants were female. 509 participants (73.88% of all participants) indicated their employment classification. 444 were employed on a full time basis and 65 were employed on a part time basis. 385 participants identified themselves as employees, 93 identified themselves as supervisors and 31 participants identified themselves as health and safety advisors or managers, or business owners, and 180 participants chose not to answer this question. Only 470 participants (68.21% of all participants) indicated their age, participants ages ranged from 19-68, with an average age of 43. Of the 503 employees that mentioned their tenure with their current organisation, the average time was 8.77 years with a range of 0.25 to 42.5 years.
Questionnaire distribution was tailored to each organisation and their business needs. This meant a range of distribution methods were implemented. For paper based questionnaires, this included walking around business requesting employees’ complete surveys, distributing during health and safety training, and surveys being printed by organisations or posted to organisations and being distributed by health and safety managers. For surveys completed through the online survey software (Qualtrics, 2014), a link to the survey was either emailed to participants or posted on electronic communication boards.

This impacted response rates, and the ability to determine response rates for all organisations. The average response rate was 78.42%. For individual organisations response rates ranged from 44.1% to 100% of surveys completed and returned. For three organisations the distribution and collection of surveys was completely controlled by the organisation and response rate could not be determined.

Materials

All participants were completed a 26-item questionnaire, which was created for the purpose of the present research. It measured incident rates, incident reporting rates, and a selection of positive, negative and practical reasons identified in previous research to influence employee decisions to report incidents. Additionally, where practical organisations provided copies of their incident forms. Form medium, question style, and whether information was provided about the follow up stages of reporting incidents were evaluated. This research was granted ethical approval by University of Waikato Research an Ethics Committee of the School of Psychology and the questionnaire is presented in Appendix 1.

Measures

The incident and reporting rates in New Zealand organisations. In order to address the first two research questions, incident rate and incident reporting rates were measured. Hayes and colleagues (1998) measured incident reporting rate by asking employees how many safety accidents they had experienced and reported to company officials, and how many safety accidents they had experienced and not reported to company officials over the past 12 months. This was adapted by Probst & Estrada (2010), and was further adapted to measure incident rates and incident reporting rates in this study.

Incident rate was measured by asking participants how many incidents, accidents, close calls or near misses they had experienced over the past twelve
months. Participants were then asked how many accidents, close calls or near misses they had reported in the last twelve months. These terms were expected to be common terms used in the workplace. The reporting ratio was calculated by comparing the number of incidents reported with the number of incidents experienced. However, this variable does not account for participants that had experienced zero incidents, which gave them no opportunity to report. Therefore, participants that experienced zero incidents were excluded from reporting ratio analysis.

The factors that influence employee decisions to report incidents.

Eight positive reasons, 11 negative reasons and 8 practical reasons (see Table 1) identified in literature to influence decisions to report incidents were presented to participants.

Table 1: The positive, negative and practical reasons measured in this research.

<table>
<thead>
<tr>
<th>Positive reasons</th>
<th>Negative Reasons</th>
<th>Practical Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reporting will result in the problem being fixed</td>
<td>1. Concerned I might be blamed for the incident</td>
<td>1. Lack of time due to high work demands or time pressures</td>
</tr>
<tr>
<td>2. The organisation will learn from my incident report</td>
<td>2. Concerned about negative performance appraisal</td>
<td>2. Lack of time due to difficult working conditions</td>
</tr>
<tr>
<td>3. Improvements or changes will occur as a result of my incident report</td>
<td>3. Concerns of disciplinary actions or other punishments</td>
<td>3. Not liking paperwork</td>
</tr>
<tr>
<td>4. Knowing my supervisor will support my decision</td>
<td>4. Worried about tarnishing company records</td>
<td>4. Paperwork is not part of my job</td>
</tr>
<tr>
<td>5. Knowing my colleagues will support my decision</td>
<td>5. Concerned I could be seen as incompetent</td>
<td>5. Not having an adequate reporting system</td>
</tr>
<tr>
<td>6. Knowing management will read my report and find it useful</td>
<td>6. Concerns about my reputation or professional credibility</td>
<td>6. Not knowing what to report</td>
</tr>
<tr>
<td>7. Receiving written feedback on my incident report</td>
<td>7. Concerns about legal liability or actions</td>
<td>7. Not knowing where or how to report</td>
</tr>
<tr>
<td>8. Receiving verbal feedback on my incident report</td>
<td>8. Not knowing how the incident report will be used</td>
<td>8. A difficult or impractical incident form</td>
</tr>
<tr>
<td></td>
<td>9. Not knowing who is responsible for the incident</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. Concerned I could be criticised or teased by my supervisor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11. Concerned I could be criticised or teased by my colleagues</td>
<td></td>
</tr>
</tbody>
</table>
For each of the three lists of reasons, participants were asked to select the five reasons they perceived as the most important when deciding whether or not to report an incident, and rank these in order of importance. Next participants were asked to consider the three lists as three groups of reasons. Participants rated the overall importance of positive, negative and practical reasons on a six-point rating scale that ranged from not at all important to very important. Additionally, participants were asked whether there were any other positive, negative and practical reasons not mentioned on the lists that influenced their decision to report an incident.

**Additional Questions.** To expand the knowledge in this area, additional questions were added to explore accountability perceptions, the level of knowledge and understanding of the reporting process, whether training has occurred, the perceptions of the time associated with completing an incident form, the usability of incident forms, and a range of incident form design features.

**Accountability.** To measure accountability perceptions, participants rated on a 6-point Likert scale, how strongly they agreed or disagreed with the statement “I believe an individual should be held accountable after a major accident”.

**Understanding and knowledge of the reporting process.** Participant understanding and knowledge of the reporting process was measured by requesting participants list the process of reporting an incident for their organisation. A seven-step framework was created to assess and compare understanding of the reporting process. Each answer was evaluated for whether they mentioned the following steps: initial management of incident, finding the incident form, completing the incident form, handing in the incident form, investigation of the incident, corrective actions taken, and feedback given. These steps did not need to be mentioned in order, or use the same wording, but needed to suggest each step to be counted as being included in an individual answer. Where the lack of a step was written down, for example ‘don’t hear any feedback’, this was counted as mentioning the step, in this example feedback. This enabled an overall understanding of reporting process to be computed. This calculation was the number of steps mentioned, divided by seven, the number of possible steps.

In order to limit biases affecting the data, three raters coded the answers. The Cronbach’s Alpha was calculated to measure the agreement between raters.
As the Cronbach’s Alpha statistic of 0.911 is above 0.80, this indicates a good level of reliability and consistency between raters (Field, 2009).

Additionally, participants were asked to rate on a six point Likert scale, whether they agreed or disagreed with the statement “I am confident in my understanding of the incident reporting process”. This provided a measure of perceived confidence in understanding of the reporting process.

**Training.** Training was measured by inquiring whether participants had received training on what and how to report an incident.

**Time.** Participants were asked three questions in regards to their perceptions of the time associated with completing incident forms. Firstly, participants were asked to provide an estimate of the time they expect it to take to complete an incident form for their current organisation. Secondly, participants answered whether they perceived their estimated time to be reasonable. If participants perceived the time they estimate to complete their incident form as unreasonable, they provided a time they perceived was reasonable.

**Incident form usability.** The usability of the incident forms used by organisations involved in the present research was assessed. This was achieved by asking participants to rate how easy the incident form is for their organisation on a six point rating scale ranging from very difficult to very easy.

**Incident form design features.** Three incident form design features were measured, these were from medium, question style, and whether the incident form provided information on the follow up stages. Form medium was a binomial variable and whether incidents forms were paper or electronic based was recorded.

In reference to the questions used in incident forms, very little differences were clearly identifiable. Most incident forms were one page long, and there was not much variation in the number of questions asked. One difference was question style. Forms were classified into two categories, using multiple choice questions or only open ended questions. If an incident form had at least one question, with at least ten multiple choice options, it was classified as using multiple choice questions.

Additionally, whether information was provided on the incident form about the follow up stages of reporting was evaluated. If any information about the follow up stages of the reporting process was provided on the incident form, it was categorised as providing information. This included sections for supervisors or health and safety personnel to complete.

**Demographic Information.** The demographic variables of gender, employment classification, age, tenure and organisation were measured to
describe the sample. However, relationships were variables were explored to evaluate whether participants perceptions differed. Employment classification referred to whether employees were full time or part time employees and measured employment level. Employment level was initially classified into four levels; a) employees, b) supervisors, c) health and safety advisors or mangers, d) business owners. Participants were requested to select the most relevant category. Due to the small sample size of business owners, health and safety personnel and business owners were combined for analysis.
CHAPTER 3:

Results

Results are organised and described by the three research questions addressing; incident rate, reporting rate, and the factors that influence an employee’s decision to report an incident.

1. What is the Incident Rate in New Zealand organisations?

On average, the participants in this study experienced 3.61 (SD = 8.59) incidents, accidents, near misses or close calls over a 12 month period. The present research explored whether incident rates differed between demographic groups. However, incident rate estimates demonstrated skewness, as the statistic of 7.23 was higher than 2.58, and demonstrated kurtosis, as the statistic of 68.3 was higher than 3.29 (Field, 2009). Therefore, the assumption of normality was violated. To overcome this, non-parametric tests were conducted to explore differences and relationships.

A Kruskal-Wallis test revealed organisations differed in the number of incidents experienced, $H(11, 634) = 44.45, p < .001$. These differences are displayed in Figure 2.

![Figure 2: The number of incidents experienced by each organisation. Horizontal line is the overall mean and vertical lines indicate the 95% confidence interval.](image-url)
Six organisations had confidence intervals below the mean, suggesting a lower risk of incidents occurring. These were categorised as ‘low risk organisations’, and the remaining 6 organisations were categorised as ‘high risk organisations’. A Mann-Whitney test confirmed this difference was significant, finding low risk organisations experienced fewer incidents (Mdn = 1.00) than high risk organisations (Mdn = 2.00), U = 32634, p < .001. This classification was used in later analysis to explore whether incident rate demonstrated a relationship with reporting rate, and whether participants from low risk organisations perceived factors that influence decisions to report incidents differently. The purpose of this exploration was to provide insight into factors that could be influencing this difference in incident rate.

A Mann-Whitney test indicated that females experienced more incidents (Mdn = 2.00), than males (Mdn = 1.00), U = 24822, p = .018. As gender differences were unexpected, the ratio of males to females per organisation was explored. Seven organisations were predominantly male and 4 organisations were predominantly female. A Chi-Square test revealed a significant relationship between organisation and gender, χ²(11, 509) = 284, p < .001. Therefore, as genders were not evenly distributed across organisations, the differences between organisations could bias this result. Consequently, the present research cannot determine whether gender differences actually exist, so gender was not explored or discussed further.

A Mann-Whitney test indicated no difference between the incident rates of full time and part time employees, U = 11464, p = .32. Additionally, a Kruskal-Wallis test found no difference between employment level (employee, supervisor, health and safety personnel or business owner) incident rates, H(2, 475) = 2.00, p = 0.37. Spearman’s correlation tests found no relationships with age, r(441) = - .091, p =.055, or tenure r(468) = -.064, p =.17

2. What is the Reporting Rate in New Zealand organisations?

When the number of incidents, accidents, near misses or close calls which participants reported was compared with the number of incidents experienced, the mean reporting ratio was 0.86 (SD = 1.71). This indicated that approximately 86.1% of incidents were reported, leaving an underreporting rate of 13.9%. This variable demonstrated skewness and kurtosis, violating the assumption of normality, requiring non-parametric tests to analyse relationships.

A Kruskal-Wallis test indicated that organisations differed in their reporting ratios H(11, 424) = 30.61, p < .001). When categorised into low (mean incident
rate < 3.61) and high (mean incident rate > 3.61) risk organisations, a Mann-
Whitney test revealed low risk organisations have higher reporting ratios \((Mdn = 1.00)\), when compared to high risk organisations \((Mdn = 0.80)\), \(U = 14484, \rho = .006\).

When considering employment classification, a Mann-Whitney test indicated that full time employees had higher reporting ratios \((Mdn = 1.00)\), than part time employees \((Mdn = .50)\), \(U = 3642, \rho = .004\). However, a Kruskal-Wallis test revealed no differences between employment level (employees, supervisors, health and safety personnel or business owners) reporting ratios, \(H(2, 316) = 1.52, \rho = .47\). Additionally, Spearman’s correlation tests found no relationships with age, \(r(296) = .033, \rho = .58\) or tenure \(r(315) = .021, \rho = .71\).

3. What Factors Influence an Employee’s Decision to Report an Incident?

A number of positive, negative and practical reasons that could influence employee’s decisions to report were explored. Additionally, whether relationships existed with incident reporting ratio were evaluated through multiple analysis of covariance tests. This test allowed for the inclusion of control variables, and did not rely on the assumption of a normal distribution. As this test required multiple dependent variables, the number of incidents experienced and the number of incidents reported were included as the reporting ratio was derived from these measures. Additionally, as relationships were demonstrated with organisation, gender and employment type (full time, part time), these were included as within-subjects factors. However, these were excluded in the models evaluating the relationship with reporting ratio as they needed to be controlled for but were not the variable of interest.

The relative importance of positive, negative and practical reasons.
The present research explored the relative importance of eight positive reasons, eleven negative reasons and eight practical reasons that previous research indicated influenced incident reporting. Participants were presented three lists of reasons (positive, negative and practical reasons). For each list, participants selected the five reasons they perceived as most important, and ranked these in order of importance. Wilcoxon sign ranked tests were conducted to evaluate whether the differences in rankings were significant. This analysis, along with the mean ranks is attached in Appendix 2.
The positive reasons in order of importance were:

1. Reporting will result in the problem being fixed
2. Improvements or changes will occur as a result of my incident report
3. The organisation will learn from my incident report
4. Knowing management will read my report and find it useful
5. = Knowing my supervisor will support my decision
   = Receiving written feedback on my incident report
6. = Knowing my colleagues will support my decision
   = Receiving verbal feedback on my incident report

The negative reasons in order of importance were:

1. Concerned I might be blamed for the incident
2. = Concerned I could be seen as incompetent
   = Concerns of disciplinary actions or other punishments
   = Concerns about my reputation or professional credibility
   = Concerns about legal liability or actions
   = Not knowing how the incident report will be used
7. = Not knowing who is responsible for the incident
   = Concerns about negative performance appraisal
9. = Worried about tarnishing company records
   = Concerned I could be criticised or teased by my colleagues
   = Concerned I could be criticised or teased by my supervisor

The practical reasons in order of importance were:

1. Lack of time due to high work demands or time pressures
2. Lack of time due to difficult working conditions
3. Not knowing what to report
4. A difficult or impractical incident form
5. = Not having an adequate reporting system
   = Not knowing where or how to report
   = Not liking paperwork
8. Paperwork is not part of my job

All positive, negative and practical reasons presented to participants were ranked as important. Therefore all of these reasons were perceived by some participants to influence their decisions to report incidents. However, when relationships with incident reporting ratio were explored, of the 27 reasons...
presented to participants, only 2 demonstrated relationships with the incident reporting ratio. As the majority of relationships were not significant, only the significant results are discussed.

Despite the multivariate result revealing a result that was not significant, Pillai’s Trace = .083, $F(15, 762) = 1.45$, $p = .12$, the univariate F result $F(5, 252) = 3.03$, $p = .011$, indicated a significant relationship with perceptions of concerns about negative performance appraisal. The post hoc least significant difference test indicated that participants who perceived this reason as the third most important negative reason had higher reporting ratios than the participants who did not rank this reason and the participants who perceived it as the most important negative reason.

In regards to the relationships between reporting ratio and perceptions of not knowing what to report, the multivariate test did not yield a significant result, Pillai’s Trace = .094, $F(15, 759) = 1.64$, $p = .059$. However, the univariate F result revealed a significant relationship, $F(5, 253) = 3.04$, $p = .011$. Post hoc, least significant difference tests indicated that participants that ranked this as the fifth important practical reason had higher reporting ratios than other participants.

**Overall importance ratings.** Participants were asked to consider the three lists as three groups of reasons. Participants then rated the overall importance of positive, negative and practical reasons on a six point rating scale, ranging from very unimportant to very important. Table 2 indicates the means, standard deviations, medians, skewness and kurtosis statistics for these variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Mdn</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Reasons</td>
<td>571</td>
<td>4.84</td>
<td>1.06</td>
<td>5</td>
<td>-1.02</td>
<td>1.08</td>
</tr>
<tr>
<td>Negative Reasons</td>
<td>566</td>
<td>3.77</td>
<td>15.1</td>
<td>4</td>
<td>-.43</td>
<td>-.72</td>
</tr>
<tr>
<td>Practical Reasons</td>
<td>569</td>
<td>4.36</td>
<td>1.29</td>
<td>5</td>
<td>-.90</td>
<td>.45</td>
</tr>
</tbody>
</table>

$n =$sample size, $M =$mean, $SD =$standard deviation, $Mdn =$Median

Wilcoxon Signed rank tests were conducted to evaluate the differences in ratings. Positive reasons were rated higher than both negative reasons, $Z = 12.2$, $p < .001$ and practical reasons $Z = 7.21$, $p < .001$. Additionally, practical reasons were rated higher than negative reasons $Z = 8.20$, $p < .001$.

When evaluating the relationship with reporting ratio, the multivariate result, Pillai’s Trace = .046, $F(12, 900) = 1.17$, $p = .30$, and the univariate result, $F(4, 300) = 1.52$, $p = .20$, revealed no relationship with the overall importance ratings of
positive reasons. Additionally, the multivariate result, Pillai’s Trace = .073, $F(15, 891) = 1.48$, $\rho = .11$, and the univariate result, $F(5, 297) = 1.45$, $\rho = .206$, indicated no relationship with the overall importance ratings of negative reasons. When considering the overall importance of practical reasons, the multivariate result was not significant, Pillai’s Trace = .081, $F(15, 897) = 1.65$, $\rho = .055$. However, the univariate F result was significant $F(5, 299) = 2.53$, $\rho = .029$. A post hoc least significant difference test indicated that reporting ratios were higher when practical reasons were perceived as very unimportant.

**Accountability.** Participants rated how strongly they disagreed or agreed with the statement “I believe an individual should be held accountable after a major incident” on a six point Likert scale. The mean rating was 3.50 ($SD = 1.38$). The assumption of normality was upheld.

When considering whether accountability perceptions were associated with reporting ratio, both the multivariate result, Pillai’s Trace = .045, $F(15, 882) = .90$, $\rho = .57$, and the univariate F result $F(5, 294) = 1.76$, $\rho = .12$, indicated no relationship existed. It was expected that perceptions of accountability could enhance perceptions of the specific negative reasons, in particular fear of blame, so relationships were explored. First relationships with the overall importance ratings were evaluated. A Pearson’s correlation test indicated a significant positive relationship between accountability perceptions and the overall importance ratings of positive reasons $r(510) = .10$, $\rho = .024$, suggesting as perceptions of a need for accountability and individual responsibility increased, perceptions of the importance of overall positive reasons increased. Pearson’s correlation tests indicated no relationships between accountability perceptions and the overall importance ratings of negative, $r(506) = 0.069$, $\rho = .12$, or practical reasons, $r(509) = .003$, $\rho = .94$.

Spearman’s correlation tests were conducted to evaluate relationships with the specific negative reasons. As overall positive reasons demonstrated a relationship with accountability, relationships with the specific positive reasons were also explored. The majority of relationships were not significant. Of the eleven negative reasons, one demonstrated a positive relationship and one a negative relationship with accountability perceptions. As perceptions of accountability increased, rankings of being worried about tarnishing company records increased $r(434) = .10$, $\rho = .034$, and rankings of concerned I could teased or criticised by my supervisor decreased $r(432) = -.11$, $\rho = .034$. Of the eight positive reasons, two positive relationships were found. As perceptions of
accountability increased, rankings of reporting will result in the problem being fixed
\( r(470) = .090, \rho = .044 \), and knowing management will read my report increased
\( r(467) = 0.95, \rho = .040 \).

**Lack of knowledge.** As previous research suggested that the level of knowledge and understanding of the reporting process could influence decisions to report, the level of participants’ knowledge was explored. 419 participants (60.8% of all participants) provided a list of the steps required to report an incident for their current organisation. This was measured by breaking reporting processes down into seven steps, initial management of incident, finding an incident form, completing an incident form, handing in an incident form, investigating the incident, corrective actions taken, and providing feedback to employees. Out of the seven possible steps a participant could provide, the mean number of steps included was 3.72 (\( SD = 1.29 \)). Furthermore, participants rated how confident they were in their understanding of the reporting process on a 6 point Likert scale. The mean rating was 4.53 (\( SD = 1.15 \)). A Spearman’s correlation test indicated that as knowledge of the reporting process increased, ratings of perceived confidence in understanding of the reporting process increased \( r(418) = .13, \rho = .008 \).

When considering whether a relationship between participant understanding and reporting ratio existed, both the multivariate result, Pillai’s Trace = .089, \( F(18, 732) = 1.25, \rho = .22 \), and the univariate F result \( F(6, 297) = .726, \rho = .63 \), were not significant. However, in regards to perceived confidence in understanding of the reporting process, both the multivariate result, Pillai’s Trace = .097, \( F(15, 891) = 1.99, \rho = .013 \), and the univariate F result \( F(5, 297) = 2.44, \rho = .035 \), indicated a significant relationship. Post hoc least significant difference tests indicated that participants who strongly agreed with the statement “I am confident in my understanding of the reporting process”, had higher reporting ratios than participants who somewhat agreed, somewhat disagreed, disagreed and strongly disagreed. The difference in reporting ratios increased as perceived confidence decreased.

**Training.** Training on what and how to report an incident was expected to impact the level of knowledge employees had, and as result increase incident reporting. 71.4% of participants had received training on what and how to report an incident.

When considering whether a relationship with reporting ratio existed, both the multivariate, Pillai’s Trace = .037, \( F(3, 299) = 3.80, \rho = .011 \), and the univariate
F result $F(1, 301) = 6.70$, $\rho = .009$, indicated a significant relationship. Participants who had received training had higher reporting ratios ($M = 0.88$, $SD = 1.07$), than participants who had not received training ($M = 0.55$, $SD = 0.54$).

A Chi-Square test indicated no relationship between training and the level of participant knowledge and understanding of the reporting process $\chi^2(6, 417) = 4.44$, $\rho = .62$. However, a significant relationship was demonstrated with perceived confidence in their understanding of the reporting process $\chi^2(5, 518) = 95.9$, $\rho < .001$. Participants that had received training were more confident in their understanding ($M = 4.18$, $SD = 1.15$), than participants that had not received training ($M = 3.41$, $SD = 1.24$).

**Time.** In previous research, lack of time was found to deter incident reporting. The present research explored participants’ perceptions of the time required. Participants estimated that it takes a mean time of 13.0 minutes ($SD = 14.3$) to complete an incident form for their current organisation. This variable demonstrated skewness and kurtosis, violating normality, and requiring non-parametric tests to explore relationships.

530 participants (76.9%) perceived their estimated time to complete an incident form as reasonable. Additionally, 156 participants (22.7%) provided an alternative time they perceived to be reasonable. The mean time was 9.82 minutes ($SD = 14.1$). A Mann-Whitney test indicated that participants who perceived their estimated time to be reasonable estimated shorter times to complete their incident forms ($Md = 10.0$) than participants who perceived their estimated time to be unreasonable ($Md = 17.5$), $U = 12769$, $\rho < .001$.

A Spearman correlation test indicated no significant relationship between reporting ratios and the times estimated to complete incident forms, $r(410) = -.091$, $\rho = 0.066$. However, a Mann-Whitney test indicated that participants who perceived their estimated time as reasonable had higher reporting ratios ($Md = 1.00$), than participants who perceived their estimated time as unreasonable ($Md = 0.50$), $U = 13128$, $\rho = .004$.

**Incident form usability.** Previous research suggested that incident forms were too complex and difficult to use. Therefore, perceptions of the incident form were explored. Participants rated how easy it was to complete their current organisations’ incident form on a six point rating scale, ranging from very difficult to very easy. The mean rating was 3.94 ($SD = 1.27$).
When considering the relationship between reporting ratio and incident form usability, both the multivariate, Pillai’s Trace = .10, $F(15, 822) = 1.98$, $p = .015$, and the univariate F result $F(5, 274) = 3.03$, $p = .011$, indicated a significant relationship. Post hoc least significant difference tests indicated participants that perceived their incident form as very easy to use had higher reporting ratios.

A Spearman’s correlation test indicated as perceptions of usability increased, the estimated time to complete an incident form decreased, $r(507) = -.32$, $p < .001$. A Chi-Square test revealed that participants who perceived their estimated time as reasonable rated their incident forms easier to use ($M = 4.30$, $SD = 1.07$), when compared to participants who perceived their estimated time as unreasonable ($M = 2.89$, $SD = 1.04$), $\chi^2(5, 529) = 149$, $p < .001$.

**Incident form design features.** Organisations were asked to provide a copy of their incident form so that elements of incident form design could be evaluated and relationships explored. As organisations were located around New Zealand, this caused practical barriers in obtaining access to incident forms. As a result this information was only collected for some organisations.

Incident form medium (paper, electronic), was known for 8 of the 12 organisations. Five organisations (368 participants) used a paper based incident form and 3 organisations (230 participants) used an online reporting system. When considering the relationship with reporting ratio, both the multivariate result, Pillai’s Trace = .030, $F(3, 265) = 2.72$, $p = .045$, and the univariate F result $F(1, 267) = 7.24$, $p = .008$, indicated a significant relationship. Participants using paper based incident forms had higher reporting ratios ($M = .80$, $SD = .67$) than participants using electronic incident forms ($M = .58$, $SD = .57$).

In regards to the relationship with time, a Mann-Whitney test revealed that participants estimated electronic based incident forms took longer to complete ($Mdn = 10.0$, $M = 15.1$, $SD = 19.6$), when compared to paper based incident forms ($Mdn = 10.0$, $M = 12.6$, $SD = 11.5$), $U = 31664$, $p = .043$. Additionally, a Chi-Square test indicated the percentage of participants that perceived their estimated time as reasonable was higher for paper based incident forms (85.6%), than electronic based incident forms (62.2%), $\chi^2(1, 583) = 42.2$, $p < .001$. When considering incident form usability, a Chi-Square test indicated that paper based incident forms were easier to use ($M = 4.15$, $SD = 1.11$) than electronic incident forms ($M = 3.41$, $SD = 1.26$), $\chi^2(5, 300) = 14.0$, $p = .015$. To summarise, participants using paper incident forms had higher reporting ratios, estimated shorter times to complete their
incident form, were more likely to perceive their estimated time as reasonable, and rated their incident form easier to use.

Six organisations supplied their incident forms. Five of these incident forms were paper based, and the other a print out of the electronic system. This bias was caused by difficulties in accessing interactive electronic systems. Nevertheless, incident form design features were analysed for the sample collected (6 incident informs, representing 372 participants). These incident forms varied in how they required a description of the incident, from one word questions such as “description”, to a series of what, where, how questions, to selecting the type of incident that occurred. Incident forms demonstrated little distinctive differences in length, with most being one page, and incident forms had a similar number of questions. Four incident forms (used by 294 participants) included multiple choice questions with at least 1 question with over 10 possible selections. The other 2 forms (used by 78 participants) used only open ended questions.

When exploring the relationships with question style (multiple choice questions, open ended questions), both the multivariate result, Pillai’s Trace = .013, $F(3, 178) = .77$, $\rho = .51$, and the univariate F result $F(1, 180) = .18$, $\rho = .68$, indicated no relationship with reporting ratio. However, a Mann-Whitney test indicated that participants using incidents forms with only open ended questions estimated shorter times to complete their organisations incident form ($Mdn = 5.00$), when compared to participants using forms that included multiple choice questions ($Mdn = 10.0$), $U = 8057$, $\rho = .002$. Additionally, a Chi-Square test indicated that the percentage of participants that perceived their estimated time as reasonable was higher for open ended questions (93.4%), than multiple choice questions (83.7%), $\chi^2(1, 365) = 4.62$, $\rho < .032$. A Chi-Square test indicated the same trend for incident form usability $\chi^2(5, 300) = 14.0$, $\rho = .015$. Participants using forms with open ended questions rated their incident form as easier to use ($M =4.59$, $SD = 0.97$), when compared to participants using multiple choice questions ($M =4.03$, $SD = 1.11$). In conclusion, incidents forms with open ended questions were associated with shorter times to complete the incident forms, participants were more likely to perceive their estimated time as reasonable, and rated their incident form easier to use. However, when compared to multiple choice questions participants using open ended questions demonstrated no difference reporting ratios.

Three incident forms (used by 312 participants) included information on the follow up stages of the reporting process. For 2 organisations this was on the back page of the incident form, and the other attached to the front. When exploring relationships, both the multivariate result, Pillai’s Trace = .003, $F(3, 178) = .17$, $\rho =$
.92, and the univariate F result $F(1, 180) = .075, \rho = .78$, indicated no relationship with reporting ratio. In regards to time, a Mann-Whitney test indicated that the estimated time to complete an incident form was shorter for forms that did not include this information ($\text{Md}_n = 5.00$), than forms that included this information ($\text{Md}_n = 10.0$), $U = 5446, \rho < .001$. A Chi-Square test revealed that the percentage of participants that perceived their estimated time as reasonable was higher when incident forms did not include this information (98.3%), than when incident forms included this information (83.3%), $\chi^2(1, 365) = 9.30, \rho = .002$. Additionally, a Chi-Square test indicated that incident forms that did not include this information were rated easier to use ($M = 4.05, SD = 1.120$), than incident forms that included this information ($M = 4.64, SD = .89$), $\chi^2(1, 300) = 12.2, \rho = .033$.

As providing information on the incident form was expected to be associated with increased knowledge of the reporting process, this relationship was explored. However, Chi-Square tests indicated no relationships with participant knowledge and understanding $\chi^2(6, 234) = 12.1, \rho = .059$, or perceived confidence in knowledge and understanding $\chi^2(5, 288) = 10.9, \rho = .054$. To summarise, providing this information on the incident did not appear to be helpful. It was not associated with increased knowledge or incident reporting, and when this information was included participants estimated longer times to complete the incident form, were less likely to perceive their estimated time as reasonable, and rated their incident forms harder to use.

**Differences between high and low risk organisations.** As mentioned earlier, organisations were categorised into high risk and low risk organisations depending on whether their incident rate was above or below the mean incident rate. Low risk organisations (incident rates below the mean) demonstrated higher reporting ratios. Therefore, relationships between low and high risk organisations and the factors that influence incident reporting were explored to evaluate whether these factors could account for the difference in incident and reporting rates.

As previously discussed, perceived confidence in knowledge of the reporting process, training on what and how to report an incident, whether the time estimated to complete an incident form was perceived as reasonable, incident form usability and incident form medium demonstrated relationships with incident reporting ratios. Consequently, these variables were used as a starting point for evaluating differences between low and high risk organisations.

A Chi-Square test indicated that the percentage of employees trained in what and how to report an incident was higher for low risk organisations (84.0%),
when compared to high risk organisations (66.7%), \( \chi^2(1, 681) = 21.5, \ p < .001 \). As training was associated with increased confidence in understanding of the reporting process, it is not surprising that a Chi-Square test indicated that participants from low risk organisations were more confident in their understanding \((M = 4.73, \ SD = .93)\), than participants from high risk organisations \((M = 4.42, \ SD = 1.24)\), \( \chi^2(5, 581) = 23.3, \ p < .001 \). However, in regards to participant knowledge of understanding the reporting process, a Chi-Square test indicated that participants from high risk organisations had higher levels of knowledge of the reporting process \((M = 3.87, \ SD = 1.22)\), than participants from low risk organisations \((M = 3.50, \ SD = 1.38)\), \( \chi^2(6, 417) = 15.6, \ p = .016 \).

When considering the time required to complete an incident form, a Mann-Whitney test indicated no difference between the times estimated to complete an incident form for low and high risk organisations, \( U = 40170, \ p = .053 \). However, a Chi-Square test indicated that the percentage of participants that perceived their estimated time as reasonable was higher for low risk organisations (90.8%), when compared to high risk organisations (74.1%), \( \chi^2(1, 665) = 24.1, \ p < .001 \).

A Chi-Square test revealed the incident forms used by low risk organisations were rated easier to use \((M = 4.61, \ SD = 0.90)\), than incident forms used by high risk organisations \((M = 3.73, \ SD = 1.24)\), \( \chi^2(5, 533) = 59.7, \ p < .001 \). When considering specific incident form design elements, a Chi-Square test indicated a relationship with form medium (paper, electronic), \( \chi^2(1, 598) = 119, \ p < .001 \). All 3 low risk organisations used paper based incident forms. In contrast, of the 5 high risk organisations, 2 used paper incident forms and 3 used electronic systems.

Additionally, 6 incident forms were analysed for design features, 3 belonged to low risk organisations and 3 were from high risk organisations. A Chi-Square test indicated a significant difference in the question styles (multiple choice questions, open ended questions), \( \chi^2(1, 372) = 156, \ p < .001 \). One low risk organisation included multiple choice questions, compared to all 3 high risk organisations. Furthermore, a Chi-Square test indicated a difference in whether information on the follow up stages of the reporting process was included on the incident form \( \chi^2(1, 372) = 39.7, \ p < .001 \). Two low risk organisations included this information on their incident form compared to 1 high risk organisation.

In regards to perceptions of accountability, a Chi-Square test indicated that participants from low risk organisations were more likely to agree with the statement “I believe an individual should be held accountable after a major incident” \((M = 3.79, \ SD = 1.32)\), when compared to participants from high risk
organisations \((M = 3.32, SD = 1.40), \chi^2(5, 511) = 16.7, \rho = .005\). Additionally, all positive, negative and practical factors explored in this study, were all perceived as important by a portion of participants. Therefore, whether participants from low and high risk organisations differed in their perceptions was explored. The results of this exploration is attached as Appendix 3. A Chi-Square test indicated that participants from low risk organisations perceived positive reasons to be more important \((M = 4.88, SD = 1.20), \chi^2(5, 511) = 16.7, \rho = .005\). Although other significant differences were found, these did not appear conceptually significant.

Differences between full time and part time employees. As previously mentioned, full time employees had higher reporting ratios \((Mdn = 1.00)\), than part time employees \((Mdn = .50)\). Relationships with the factors found to influence incident reporting were explored to gain further understanding of this difference.

When considering training on what and how to report an incident, a Chi-Square test indicated that the percentage of full time employees trained was higher (82.9%), than the percentage of part time employees (70.5%). In regards to the level of knowledge of the reporting process, Chi-Square tests indicated no relationship between employment type (full time, part time), and the level of knowledge and understanding of the reporting process, \(\chi^2(6, 407) = 6.34, \rho = .39\), or perceived confidence in knowledge of the reporting process, \(\chi^2(5, 503) = 7.12, \rho = .21\).

When evaluating perceptions of the perceived time to complete an incident form, a Mann-Whitney test indicated no difference between the times estimated by full time and part time employees, \(U = 11035, \rho = .24\). Nevertheless, a Chi-Square test indicated that the percentage of full time employees that perceived their estimated time as reasonable was higher (82.9%), than the percentage of part time employees that perceived their estimated time as reasonable (70.5%), \(\chi^2(1, 493) = 5.40, \rho = .020\). Additionally, a Chi-Square test indicated that full time employees demonstrated higher ratings of incident form usability \((M = 4.14, SD = 1.22)\), than part time employees \((M = 3.65, SD = 1.52), \chi^2(5, 389) = 13.1, \rho = .022\).

In regards to perceptions of importance, all relationships were explored through Chi-Square tests, but only significant relationships are discussed. Part time employees perceived written feedback as more important \((M = 1.36, SD = 1.34)\), than full time employees \((M = .77, SD = 1.21), \chi^2(5, 464) = 21.6, \rho = .001\). When considering negative reasons, full time employees perceived disciplinary actions or punishments as more important \((M = 1.79, SD = 1.81)\), than part time
employees ($M = 1.05, SD = 1.51$), $\chi^2(5, 429) = 11.8, \rho = .038$. In contrast, part time employees rated not knowing how the incident report will be used as more important ($M = 2.02, SD = 2.01$), than full time employees ($M = 1.32, SD = 1.87$), $\chi^2(5, 429) = 11.8, \rho = .038$. Additionally, part time staff perceived not knowing who is responsible for the incident as more important ($M = 2.02, SD = 2.00$), than full time employees ($M = 1.06, SD = 1.63$), $\chi^2(5, 431) = 20.0, \rho = .001$. 
CHAPTER 4:

Discussion

The objective of the present research was to explore the number of incidents that occur in New Zealand organisations, the proportion of these incidents that were reported, and the factors influence their reporting.

Findings

The present research found an annual incident rate of 3.61 (8.59 SD) incidents per employee. This measure was different to other measures of incident rate. Rather than evaluating statistics of previous incidents, participants were asked how many incidents, accidents, close calls or near misses they had experienced over the past twelve months. In addition to the differences in measurement, statistics are expected to reflect serious incidents, rather than near misses. Therefore, this estimate may refer to a broader definition of incident rate. Consequently, comparisons with other measures of incident rates are limited.

Nevertheless, based on the Safety Management Group’s (2015) calculation of the (total number of injuries and illnesses from previous year x 200,000) / number of hours worked by all employees, the estimated incident rate for the United States private sector in 2007, was 4.2 cases per 100 employees (Bureau of Labour Statistics, 2008). The incident rate found in the present research is significantly higher than this estimate. The Independent Taskforce on Workplace Health and Safety (2013) suggested that the New Zealand fatality rate is higher than other countries. The present findings indicated possible support for this claim, however due to the differences in measurement, this cannot be accurately determined.

The second research question addressed what proportion of the incidents experienced were reported. For participants who reported experiencing an incident, the mean reporting ratio was 0.86 (1.71 SD), indicating approximately 86.1% of incidents were reported, leaving an underreporting rate of 13.9%. Other researchers have found underreporting rates of 59-79% (Psarros, et al., 2010), 78% (Probst et al., 2008), 90% (Barrach 2000; Jones 2004), and 94% (Hazell & Shakir, 2006). The underreporting rate found in the present research is significantly lower than rates found in previous research.

The present research explored the factors that influence incident reporting. Perceptions of a number of positive, negative and practical reasons that could influence employee’s decisions to report were explored, and relationships with
reporting ratio evaluated. Key findings are discussed first which has resulted in the hypotheses being discussed out of order.

Previous research found participants stated lack of knowledge and understanding of the reporting process deterred employees from reporting incidents (Beasley et al., 2004; Evans et al., 2006; Jeffe et al., 2004; Kingston et al., 2004; Merchant & Gully, 2005; Prang & Jelsness-Jorgensen, 2004; Probst & Estrada, 2010; Schectman & Plews-Ogan, 2006; Taylor et al., 2004; Uribe et al., 2002; Vincent et al., 1999; Wakefield et al., 1996; Wakefield et al., 1999; Walsh et al., 2010; Waring, 2005; Wild & Bradley 2005). However, hypothesis four, that knowledge and understanding of the reporting process will be associated with increased incident reporting, was not supported.

Despite this, hypothesis five, that perceived confidence in understanding of the reporting process will be associated with increased incident reporting was supported. This provided support for Hsu and colleagues (2005) research that suggested that decisions are influenced by how ignorant people feel. In regards to incident reporting, it seems it is not the level of knowledge that matters but the level of confidence in one’s knowledge that influences incident reporting.

It was hypothesised that training would have a positive relationship with participants’ knowledge and understanding of the reporting process, and this would result in a positive relationship with incident reporting. However, training was associated with increased confidence in their understanding of the reporting process, but not their actual understanding. Nevertheless, hypothesis seven, training will be associated with increased incident reporting was supported. This indicated that training is associated with increased incident reporting.

To expand the knowledge surrounding incident reporting, perceptions of the incident form were explored. It was hypothesised that incident reporting ratios would be higher when incident forms were quicker to complete and easier to use. However, no relationship was found between the time estimated to complete an incident form and participant’s incident reporting ratios. Consequently, hypothesis ten was not supported. Despite this, participants who perceived their estimated time as reasonable had higher reporting ratios. Therefore, in regards to time, whether the time to complete the incident form is perceived as reasonable is the important factor. Additionally, as the median time provided by participants who perceived their estimate as reasonable was 10 minutes, and mean alternative reasonable time provided was 9.82 minutes, incident forms that take less than 10 minutes to complete were more likely to be perceived as reasonable.
Reporting ratios were higher when incident forms were perceived to be easy to use, supporting hypothesis eleven. Additionally, hypothesis twelve was supported, as the estimated time to complete an incident form decreased as perceptions of usability increased.

Three features of incident form design were analysed. These were form medium (paper versus electronic), question style (multiple choice versus open ended questions) and whether information on the follow up stages of the reporting process was included on the incident form. Participants using paper based incident forms had higher reporting ratios, estimated less time to complete their incident form, were more likely to perceive the estimated time as reasonable, and perceived their incident form as easier to use than participants using electronic mediums. This supports the research of Ammenwerth and colleagues (2003) and Prang and Jelsness-Jorgensen (2004) who found incident form medium influences incident reporting.

When indicating the steps required to report an incident for their organisation, participants using an electronic system indicated steps of the reporting process that may not be considered by incident form designers. These steps included getting lost trying to find the electronic incident form, forgetting and resetting passwords, and inability to log on to computer systems, requiring the need to find someone to assist. Furthermore, some participants included three of four steps, in reference to click here, then here, then here, before completing the incident form, indicating the incident reporting process does not start with the incident form for participants using electronic incident forms. This suggests that employee perceptions of the time required and the usability of electronic systems should be considered.

When considering the style of questions used on incident forms, no relationship was demonstrated with reporting ratio. However, participants using forms with open ended questions estimated less time to complete their incident form, were more likely to perceive the estimated time as reasonable, and perceived their incident form as easier to use.

The reporting ratios of participants using forms that included information on the follow up stages of reporting were no different from participants using forms that did not include this information. However, when this information was excluded, participants estimated shorter times to complete their incident form, were more likely to perceive the estimated time as reasonable, and perceived their incident form as easier to use. Additionally, the inclusion of this information showed no relationship with incident reporting or the level of understanding of the reporting
process. Therefore, the inclusion of this information does not appear to be very beneficial.

However, when each of the seven steps of the reporting process were considered, the inclusion of this information on the incident form was associated with an increased likelihood of including “handing in the incident form” as a step in the reporting process. This suggests including this information assists in reminding participants of where they are meant to hand in their completed incident form.

When asked whether there were any other practical reasons that influence participants’ decisions to report incidents, a range of comments were made about incident forms. The availability of the incident form is important, with some participants stating they struggle to locate the incident form, and there is a need for clarity of process to follow to report an incident. Additionally, one participant referred to attitudes surrounding completing the incident form, stating when the incident form is completed incorrectly, the focus turns from safety to completing the incident form and ticking the right boxes. This process becomes frustrating for employees. This suggests a need for the purpose of incident reporting to main the focus during incident reporting.

Some participants discussed the appropriateness of incident forms for special circumstances. For example, one participant mentioned the difficulty in reporting a fatality, as this is a key incident, a sensitive topic, and it can be difficult to explain adequately in writing. Additionally, stress was mentioned, which is deemed a hazard but difficult to report, in particular reporting that a colleague appears stressed. This suggests a possible need for an alternative reporting system for special circumstances that are difficult to record in writing.

The present research explored the relative importance of eight positive reasons, eleven negative reasons and eight practical reasons that previous research indicated influenced incident reporting. These represented the specific outcomes that could be weighted and factored into a decision to report an incident.

All reasons were ranked in the top five reasons by a portion of participants, supporting previous research in the area research. The relative importance of these reasons is attached as Table 3.
Table 3: The relative importance of positive, negative and practical reasons.

<table>
<thead>
<tr>
<th></th>
<th>Positive Reasons</th>
<th>Negative Reasons</th>
<th>Practical Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most Important</strong>&lt;br&gt; &lt;br&gt;(Rank 1)</td>
<td>• Reporting will result in the problem being fixed</td>
<td>• Concerned I might be blamed for the incident</td>
<td>• Lack of time due to high work demands or time pressures</td>
</tr>
<tr>
<td><strong>Very Important</strong>&lt;br&gt; &lt;br&gt;(Rank 2-5)</td>
<td>• Improvements or changes will occur as a result of my incident report</td>
<td>• Concerned I could be seen as incompetent</td>
<td>• Lack of time due to difficult working conditions</td>
</tr>
<tr>
<td></td>
<td>• The organisation will learn from my incident report</td>
<td>• Concerns of disciplinary actions or other punishments</td>
<td>• Not knowing what to report</td>
</tr>
<tr>
<td></td>
<td>• Knowing management will read my report and find it useful</td>
<td>• Concerns about my reputation or professional credibility</td>
<td>• A difficult or impractical incident form</td>
</tr>
<tr>
<td></td>
<td>• Knowing my supervisor will support my decision</td>
<td>• Concerns about legal liability or actions</td>
<td>• Not having an adequate reporting system</td>
</tr>
<tr>
<td></td>
<td>• Receiving written feedback on my incident report</td>
<td>• Not knowing how the incident report will be used</td>
<td>• Not knowing where or how to report</td>
</tr>
<tr>
<td><strong>Important</strong>&lt;br&gt; &lt;br&gt;(Rank &lt;5)</td>
<td>• Knowing my colleagues will support my decision</td>
<td>• Not knowing who is responsible for the incident</td>
<td>• Not liking paperwork</td>
</tr>
<tr>
<td></td>
<td>• Receiving verbal feedback on my incident report</td>
<td>• Concerned about negative performance appraisal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Concerned I could be criticised or teased by my colleagues</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Concerned I could be criticised or teased by my supervisor</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Worried about tarnishing company records</td>
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</tbody>
</table>
The first four positive reasons refer to changes that occur after the incident has been reported, investigated and managed. Additionally, when asked if there were any other positive reasons that influence their decision to report an incident, a number of comments confirmed the importance of the need for changes to occur after an incident. Comments included references to keeping mates and patients safe, and reporting can speed up the process of change and influence safety. This indicates the importance of making corrective changes after an incident report is lodged, improving safety and providing feedback to employees on the changes that have occurred.

In support of the importance of feedback, one participant suggested that feedback should be mandatory. Furthermore, the fact written feedback has been given a higher ranking than verbal feedback is interesting. Adams (1963) equity theory suggests employees strive to maintain a balance between their inputs and their outputs. This is to say employees consider what they are giving an organisation and what they gain in return. If an employee takes time to write an incident report, they may expect written feedback in return and verbal feedback may not suffice.

Unique to New Zealand, is the Accident Compensation Corporation (ACC) which provides comprehensive, no-fault personal injury cover (2013, August 15). Participants stated reporting incidents assisted and supported their ACC claims, or could provide evidence of an injury should the need for a claim arise. This motivated incident reporting.

When considering negative reasons, the first four negative reasons indicated negative outcomes that affect the individual directly, and hinting at a culture of blame. One participant mentioned the difference in approach from the CEO and the middle management, with the CEO promoting a learning culture, but management blaming employees for incidents. This indicated blame cultures could be existent in New Zealand organisations. Furthermore, one participant argued for a need for transparency of the outcomes that will occur after incident reporting. This suggests while the focus on system issues is the best method in theory (Phimister, 2000; Reason, 1990), focuses on individual issues may occur in practice.

All reasons presented to participants were perceived as important to employees when deciding whether or not to report an incident. However, the majority of reasons did not demonstrate a direct relationship with participants’ incident reporting ratios. Additionally, for the two reasons were a relationship was found, these relationships do not appear conceptually significant. This supports
Prang and Jelsness-Jørgensen’s (2014) conclusion that underreporting most likely stems from a complex mix of these factors.

When considering the overall importance of positive, negative and practical reasons, positive reasons were rated the most important, followed by practical reasons, and finally negative reasons. Therefore hypothesis one, either or both negative and practical reasons will be perceived as more important than positive reasons was not supported. Additionally, no relationship was found between reporting ratio and the overall importance of positive and negative reasons. However, participants reporting ratios were higher when practical reasons were perceived as very unimportant.

Robotham, (2014) suggests society is constructed in a manner that promotes finding a person to be blamed and punished for negative occurrences such as accidents. Therefore, participants were expected to agree with the statement “I believe an individual should be held accountable after a major accident”, and these perceptions were expected to be associated with negative reasons. However, the mean rating of 3.50 suggests participants neither agree nor disagree with this statement. Participants did not appear to like answering this question, with some circling both somewhat agree and somewhat disagree. In addition, there were numerous comments that stated participant’s agreed, but only in situations where an individual is genuinely at fault.

No relationships were found with the overall importance ratings of negative reasons or the majority of specific negative reasons, including fear of being blamed. Therefore hypotheses two, perceptions of a need for individual accountability will have a positive relationship with negative reasons, and hypothesis three, perceptions of a need for individual accountability will have a positive relationship with fear of being blamed were not supported.

Whether participants reporting ratios and perceptions of factors that influence incident reporting differed based on their demographic variables was explored. Organisations were categorised into high and low risk organisations depending on whether their mean incident rate was above or below the overall mean of 3.61 incidents experienced annually. Low risk organisations (incident rates below the mean), demonstrated higher reporting ratios. This provides support for the conclusion incident reporting enhances safety (Phimister et al., 2000; Reason, 1990; Storgard et al., 2012).

Participants from low risk organisations were more likely to be trained, estimated shorter times to complete their organisations incident form, were more likely to perceive their estimated time as reasonable, and rated their incident form
as easier to use. As these variables have demonstrated relationships with incident reporting, this could have enhanced incident reporting, allowing for management of hazards and reduction in incident rate.

In regards to perceptions of importance, a range of differences were found across low and high risk organisations. A key difference was participants from low risk organisations perceived overall positive reasons as more important. This suggests low risk organisations may place emphasis on positive reasons in the workplace, possibly ensuring positive outcomes occur as a result of incident reporting.

Furthermore, low risk organisations were more likely to agree with the statement “I believe an individual should be held accountable after a major incident”. This suggests accountability may have a positive relationship with safety.

When considering employment classification, full time employees had higher reporting ratios than part time employees. Full time employees were more likely to be trained, were more likely to perceive their estimated time to complete their incident form as reasonable, and rated their incident form as easier to use. As these variables have demonstrated a relationship with incident reporting, these differences could account for the differences in incident reporting.

Part time staff run a risk of not working and/or not being available to work when training is conducted, are more likely to miss meetings, and can often miss information shared to full time staff. In regards to perceptions of importance, part time employees perceive written feedback as more important than full time employees. Written feedback could be communication of information they may not receive otherwise.

Anderson et al., (2013) found that the level of involvement in the reporting process may affect attitudes towards incident reporting. In one hospital, clinical staff where involved in the investigation phase of incident reporting and reviewed incidents. These staff demonstrated high levels of knowledge and ownership of the incident reporting system. In contrast, in another hospital fewer clinical staff were involved in the investigation and follow up stages of reporting. In this hospital there were higher rates of skepticism, and staff were less willing to report incidents. As supervisors and health and safety managers are expected to deeper involvement in incident reporting and investigations, it is surprising that in the present study no differences were found between the reporting ratios of employees, supervisors and health and safety managers or business owners.
Limitations

This survey relied on self-report data. Self-report data can be inaccurate due to lack of ability to recall information, in particular the recall of safety accidents (Probst & Estrada, 2010). Additionally, self-report data can be affected by impression management (Probst & Estrada, 2010). It is possible participants provided what they believed was the desired answer (Chiang et al., 2010).

Furthermore, the measure of incident rate and incident reporting is limited. These measures were limited by participants’ interpretation and definition of the words incident, accident, near miss or close call, and their memory of incidents. Due to the availability bias (Tversky & Kahneman, 1973), it is expected participants’ estimates will reflect the more significant or serious incidents than minor incidents. This conclusion is supported by research which suggests minor incidents were forgotten after extended recall periods (Landen & Hendriks, 1995; Probst & Estrada, 2010).

Furthermore, awareness of all incidents occurring is required to achieve an accurate answer. As lack of awareness of incidents acts as a barrier to reporting incidents (Wakefield et al., 1995; Wakefield et al., 1999), this is expected to have impacted results. Therefore, it is possible this statistic reflects an underestimate of the average number of incidents an employee experiences annually.

Additionally, the error rate surrounding incidents experienced and the error rate surrounding the number of incidents reported, may not be equal. To report an incident, awareness that the incident has occurred is required, consequently lack of awareness is highly unlikely to affect participants’ estimates. Additionally, under the availability bias participants were expected to remember the severe incidents over the minor incidents. It is expected that the value of incident reporting will be perceived as higher for severe incidents. Therefore, severe incidents were more likely to be remembered and reported. Thus, the availability bias may not affect this statistic to the same extent. This could explain the high reporting rate and low underreporting rate found in the present research. However, as the direction of the bias is against the hypotheses, the incident rates, reporting rates and relationships found with incident reporting were still significant, and provide insightful information for businesses.

As this is a New Zealand sample, the results may not be able to be generalised beyond a New Zealand context. Additionally, organisation and participant recruitment limits results. The majority of organisations that agreed to be involved in the study were recruited through safety networking groups, and the HR Manager or Advisor indicated interest by responding to a post or email. This
suggests the organisations recruited have health and safety personnel who are active in the industry. This could influence the type of safety policies in place, and the culture and established norms of the organisations involved, which could impact the results. Furthermore, the types of organisations that may have been interested in this study could represent two ends of a spectrum when it comes to incident reporting; those who have difficulties getting employees to report incidents and want to know why, and those with well-established reporting cultures who were wanting feedback on their current systems.

In regards to the selection of employees, organisations were told front line employees that are at risk of experiencing incidents are the ideal participants, this could have biased incident rates and perceptions of incident reporting. Additionally, the selection of employees to participate in the study was heavily influenced by the organisations involved, and the practicalities, time barriers, and job tasks and demands they work within. For some organisations distribution and collection of surveys was controlled by the organisations. This could have influenced the type of participants that were selected and involved in the study, and possibly influenced their answers.

Some participants were recruited by posting links to the survey on an organisation online communication board. This required participants to click the link and complete the survey. This could have caused a response bias, and the participants who chose to answer this survey may have an interest in health and safety or incident reporting, or may have had negative experiences with incident reporting that they wanted to share.

Some questionnaires were partially completed. There may have been trends in the dropout rates for particular questions, with a particular selection of participants actively choosing not to answer. This meant comparisons and analysis was conducted for different sample sizes based on the amount of responses available. However, as a large sample size was collected this effect is expected to be reduced. These factors could have influenced the reliability and accuracy of the data and whether the sample is representative of the population.

This study explored participants’ perceptions. Based on the theory of reasoned action (Igbaria et al., 1997), it is presumed these attitudes and perceptions will be associated with behavioural intent, and actual actions. However, it is possible incident reporting is an exception. The majority of the factors employees ranked important to influencing their decision to report incidents, did not demonstrate relationships with incident reporting measures. This could be a result of limitations in measures, or the combination of variables affecting incident
reporting. However, it is also possible the assumption that perceptions will lead to behaviour is a false assumption. Therefore, this could limit the extent to which these findings can be applied to practice.

**Implications**

Every incident an employee experiences has the ability to have drastic effects for both the individual employee and the employer (Ministry of Business and Innovation, 2014). In larger organisations, an annual incident rate of 3.61 incidents per employee could equate to substantial number of incidents occurring. Therefore, reducing incident rates should remain a priority.

Based on the differences in organisation incident and reporting rates, the present research has supported the conclusion that incident reporting was associated with lower incident rates (Phimister et al., 2000; Reason, 1990, Storgard et al., 2012). This finding provides confirmation for practitioners that incident reporting does increase safety and organisations should promote and invest in incident reporting.

The key focus of the present research was to be able to provide an indication for organisations on how to increase incident reporting in the workplace. Organisations demonstrated differences in perceptions on every variable explored in this study. Each organisation has its own culture, shared values, beliefs, traditions and norms that exist within the organisation (Aamodt, 2010), which could account for these differences. This indicates an organisation specific approach is required when addressing incident reporting and health and safety in the workplace. Nevertheless, the present research has indicated some key factors that should be addressed to enhance incident reporting in the workplace.

Based on the findings of the present research, employees should be trained on what and how to report an incident. Training should aim to increase employee confidence in the understanding of the reporting process, which could be achieved by increasing employee knowledge of the reporting process. This study did not explore the content covered in training, the retention of training, or whether participants perceived training as valuable. This raises the question, is it the type of training that occurs or the fact training has occurred that influences incident reporting? In regards to the content of training, future research could explore what elements of training increase incident reporting. It is possible training could have covered the purpose of reporting, the positive outcomes that occur through incident reporting, or facilitated a reporting culture which could be influencing this relationship.
Additionally, organisations could review their incident form. The present research found that incident forms should ideally take under 10 minutes to complete, be easy to use, and designed in a manner that promotes incident reporting. Future research is required to explore the impact of various incident form design elements on incident reporting. Nevertheless, three elements of incident form design were explored and their implications discussed.

As incident reporting was higher when using paper based incident forms, incident form medium should be reviewed within the context of an organisation. Incident reporting systems are often upgraded to electronic systems to make things easier and more efficient. However, often those designing incident forms, policy makers, and those investigating incidents frequently work with computers, set up and understand the processes. The present findings suggests employees do not necessarily find these systems more efficient and easier to use. When deciding whether electronic incident forms are appropriate for an organisation, organisations should consider employee access to computers and their confidence and experience using computers. Where electronic systems are deemed the best solution, usability should be considered and reviewed from an employee perspective. This review should include the time and usability of finding the incident form. Furthermore, organisations should consider whether a combined paper and electronic system would be viable.

One participant mentioned as they were an independent contractor, they lacked access to an electronic incident form as a result of not having an employee login. This highlights the importance of ensuring access to incident forms, but also raises a separate issue of the target audience of incident forms. If organisations frequently have independent contractors’ onsite or other third parties, they may want to consider if and how this group of people should be reporting incidents.

In regards to the question style of incident forms, organisations may want to consider if open ended questions rather than multiple choice questions would provide the information they require. Multiple choice questions can be perceived as harder to use, and take to longer to complete. In an additional comment one participant mentioned the difficulty reporting incidents that do not quite fit within the available options. This becomes frustrating, and raises employee concerns that the incident will not be reviewed accordingly. The present findings suggests if multiple choices questions are deemed the most appropriate, designers should ensure employees perceive incident forms are easy to use, and they fit the incidents that occur in the workplace.
The present research found no added value in including information on the follow up stages of incident reporting. Therefore incident form designers may want to include where the incident form should be handed to, but may want to avoid complicating the incident form with excess information. Additionally, this finding suggests incident reporting and incident investigations may need to be separate. Most of the incident forms that included information about the reporting process, included it as another form an investigator could complete. There is added value in keeping this information together. However, including this information may deter incident reporting. Therefore organisations may want to consider other options for managing this information and keeping reporting and investigating information together.

In addition, the three lists of positive, negative and practical reasons were all rated important by a portion of participants. This indicates organisations can consider these reasons and how they fit within their business, to promote incident reporting. If limited funds or resources are available, knowing the relative importance of these reasons could assist in identifying the areas that should be addressed first. Additionally, when participants rated the overall importance of positive, negative and practical reasons, positive reasons were rated the most important followed by practical then negative reasons. Again this order of importance could assist in identifying the areas that should be addressed first. Furthermore, the present research has highlighted the importance of engaging part time employees in the incident reporting process and providing written feedback on the incidents they do report.

The need for accountability and individual responsibility appears to be a topical area, with some professionals promoting the need to focus on system issues (Phimister et al., 2000, Reason, 1990) and others promoting a need for individual responsibility (Regulatory Training Centre, 2015). Theoretically, the promotion of individual accountability in a business could have positive and negative effects. If employees were held accountable for accidents, and experience disciplinary actions as a result of causing an accident, this is likely to deter incident reporting. In contrast, if employees feel responsible for health and safety, and managers were held accountable for actions of their employees, this could promote safety in the workplace. Future research could explore the effect of accountability and individual responsibility on safety.
Conclusion

The participants in the present research reported that on average they experienced 3.61 incidents over a 12 month period, and reported 86.1% of incidents they experienced. As incident reporting was associated with lower incident rates, incident reporting enhances safety and should become or remain a priority for organisations.

The present research has expanded the knowledge and understanding of employee perceptions towards incident reporting. If an organisation would like to promote incident reporting in their workplace, an organisation specific approach is required. However, key actions include ensuring that all employees are trained in what and how to reporting an incident, and ensuring that their incident form is quick and easy to use. Additionally, incident form design and usability should be reviewed from an employee perspective. Furthermore, an organisation should review how the positive, negative and practical reasons discussed in this research could be motivating or deterring incident reporting in their workplace.

There are five key areas of interest that future research could address. These areas include the content of training and its impact on incident reporting, different elements of incident form design and their impact on incident reporting, how factors combine and interact to influence decisions to report incidents, whether the number of incidents experienced and reported differ across organisations, industries and countries, and the effect of accountability and individual responsibility on safety.
REFERENCE LIST


Waring, J. J. (2005). Beyond blame: Cultural barriers to medical incident reporting. Social Science and Medicine, 60(9), 1927-1935


APPENDICES

Appendix 1: Questionnaire

Incident Reporting Questionnaire

Thank you for participating in this study. This study is interested in what you as an employee think about incident reporting. The study hopes to be able to tell organisations which areas to focus on when reviewing their incident form and reporting processes. Your answers will remain anonymous and confidential, and individual answers will not be reported back to your organisation. Should you wish to withdraw from the study, you can do so at any time, without penalty. The questionnaire consists of 26 questions, and should take you approximately 10 minutes.

Please answer as honestly as possible.

1. Have you received training on what and how to report an incident in your workplace?
   ☐ Yes
   ☐ No

2. In the past 12 months, approximately how many safety accidents, close calls or near misses have you experienced?

3. In the past 12 months, approximately how many safety accidents, close calls or near misses have you reported?

4. If you have reported an incident, close call or near miss for the organisation you currently work for, please rate how easy you found the process.

<table>
<thead>
<tr>
<th>Very Difficult</th>
<th>Difficult</th>
<th>Somewhat Difficult</th>
<th>Somewhat Easy</th>
<th>Easy</th>
<th>Very Easy</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

5. If your organisation uses an incident form, how much time would you expect to take to complete your organisation's current incident form?
   ____________ minutes

6. Do you think this time is reasonable?
   ☐ Yes
   ☐ No

7. If your organisation does not use an incident form or you answered "No" to Question 6, what do you think is a reasonable amount of time to complete an incident form?
   ____________ minutes
Questions 8-16 consider three groups of reasons that affect or could affect your decision of whether to report an incident. These three groups are:

- **Positive reasons:**
  Positive outcomes that motivate you to report an incident. For example, something will be changed so the incident will not occur again.

- **Negative reasons:**
  Negative outcomes that prevent you from reporting an incident. For example, concerned about being blamed for the incident.

- **Practical reasons:**
  Conditions that make reporting impractical and prevent you reporting an incident. For example, limited time to complete the incident report.

8. A list of positive reasons is presented below.

First, please tick the five factors you believe are the most important.

Secondly, please number these five ticked factors (1-5) in order of importance (1 being the most important).

<table>
<thead>
<tr>
<th>Most Important Factors</th>
<th>In Order of Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting will result in the problem being fixed</td>
<td></td>
</tr>
<tr>
<td>The organisation will learn from my incident form</td>
<td></td>
</tr>
<tr>
<td>Improvements or changes will occur as a result of my incident form</td>
<td></td>
</tr>
<tr>
<td>Knowing my supervisor will support my decision</td>
<td></td>
</tr>
<tr>
<td>Knowing my colleagues will support my decision</td>
<td></td>
</tr>
<tr>
<td>Knowing management will read my report and find it useful</td>
<td></td>
</tr>
<tr>
<td>Receiving written feedback on my incident form</td>
<td></td>
</tr>
<tr>
<td>Receiving verbal feedback on my incident form</td>
<td></td>
</tr>
</tbody>
</table>

9. In addition to the list above, are there any other positive reasons you would consider when deciding whether to report an incident?
10. A list of negative reasons is presented below.

First, please tick the five factors you believe are the most important.

Secondly, please number these five ticked factors (1-5) in order of importance (1 being the most important).

<table>
<thead>
<tr>
<th>Most Important Factors</th>
<th>In Order of Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concerned I might be blamed for the incident</td>
<td>☐</td>
</tr>
<tr>
<td>Concerned about negative performance appraisal</td>
<td>☐</td>
</tr>
<tr>
<td>Concerns of disciplinary actions or other punishments</td>
<td>☐</td>
</tr>
<tr>
<td>Worried about tarnishing company records</td>
<td>☐</td>
</tr>
<tr>
<td>Concerned I could be seen as incompetent</td>
<td>☐</td>
</tr>
<tr>
<td>Concerns about my reputation or professional credibility</td>
<td>☐</td>
</tr>
<tr>
<td>Concerns about legal liability or actions</td>
<td>☐</td>
</tr>
<tr>
<td>Not knowing how the incident form will be used</td>
<td>☐</td>
</tr>
<tr>
<td>Not knowing who is responsible for the incident</td>
<td>☐</td>
</tr>
<tr>
<td>Concerned I could be criticised or teased by my supervisor</td>
<td>☐</td>
</tr>
<tr>
<td>Concerned I could be criticised or teased by my colleagues</td>
<td>☐</td>
</tr>
</tbody>
</table>

11. In addition to the list above, are there any other negative reasons you would consider when deciding whether to report an incident?
12. A list of practical reasons is presented below.

First, please tick the five factors you believe are the most important.

Secondly, please number these five ticked factors (1-5) in order of importance (1 being the most important).

<table>
<thead>
<tr>
<th>Most Important Factors</th>
<th>In Order of Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please select the five factors you believe are the most important</td>
<td>Please number the five factors in order of importance (1= most important)</td>
</tr>
<tr>
<td>Lack of time due to high work demands or time pressures</td>
<td>☐</td>
</tr>
<tr>
<td>Lack of time due to difficult working conditions</td>
<td>☐</td>
</tr>
<tr>
<td>Not liking paperwork</td>
<td>☐</td>
</tr>
<tr>
<td>Paperwork is not part of my job</td>
<td>☐</td>
</tr>
<tr>
<td>Not having an adequate reporting system</td>
<td>☐</td>
</tr>
<tr>
<td>Not knowing what to report</td>
<td>☐</td>
</tr>
<tr>
<td>Not knowing where or how to report</td>
<td>☐</td>
</tr>
<tr>
<td>A difficult or impractical incident form</td>
<td>☐</td>
</tr>
</tbody>
</table>

13. In addition to the list above, are there any other practical reasons you would consider when deciding whether to report an incident??

14. Overall how important do you think positive reasons are when deciding whether to report an incident.

15. Overall how important do you think negative reasons are when deciding whether to report an incident.

16. Overall how important do you think practical reasons are when deciding whether to report an incident.
17. From your understanding, please write in your own words the process of reporting an incident. List as many steps as required for your organisation.

(e.g. Collect incident form from office, complete incident form, give incident form to Supervisor, Supervisor will read and lodge with management, hear about the follow up of the incident from Supervisor).

a) _______________________________________________________________________

b) _______________________________________________________________________

c) _______________________________________________________________________

d) _______________________________________________________________________

e) _______________________________________________________________________

f) _______________________________________________________________________

g) _______________________________________________________________________

h) _______________________________________________________________________

i) _______________________________________________________________________

j) _______________________________________________________________________  

For questions 18 and 19, please indicate whether you agree/disagree with the following statements:

18. I am confident in my understanding of the incident reporting processes

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
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<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</table>

19. I believe an individual should be held accountable after a major accident

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
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<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tbody>
</table>

20. Do you have any other comments you would like to make in regards your company’s incident form, or your thoughts on the reporting process?
21. Please indicate your employment type
☐ Full Time
☐ Part Time

22. Which best describes your current level of employment?
☐ Supervisor
☐ Employee
☐ Health and Safety Advisor or Manager
☐ Business Owner

23. How long have you been with your current organisation?
_________ Years ________ Months

24. Please indicate your gender
☐ Male
☐ Female

25. Please indicate your age
__________ Years

26. What Company/Organisation do you work for?

Answers from this questionnaire will be analysed and key findings will be provided to your organisation. If you would like to receive a copy of this report please add your email address.
Appendix 2: Mean ranks of positive, negative and practical reasons

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
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<tbody>
<tr>
<td><strong>Positive reasons</strong></td>
<td></td>
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<tr>
<td>Reporting will result in the problem being fixed</td>
<td>522</td>
<td>3.85</td>
<td>1.59</td>
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<tr>
<td>The organisation will learn from my incident report</td>
<td>520</td>
<td>2.92</td>
<td>1.53</td>
</tr>
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<td>Improvements or changes will occur as a result of my incident report</td>
<td>521</td>
<td>3.63</td>
<td>1.37</td>
</tr>
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<td>Knowing my supervisor will support my decision</td>
<td>517</td>
<td>1.02</td>
<td>1.39</td>
</tr>
<tr>
<td>Knowing my colleagues will support my decision</td>
<td>519</td>
<td>0.73</td>
<td>1.25</td>
</tr>
<tr>
<td>Knowing management will read my report and find it useful</td>
<td>519</td>
<td>1.44</td>
<td>1.33</td>
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<tr>
<td>Receiving written feedback on my incident report</td>
<td>520</td>
<td>0.86</td>
<td>1.24</td>
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<tr>
<td>Receiving verbal feedback on my incident report</td>
<td>517</td>
<td>0.62</td>
<td>1.07</td>
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<td><strong>Negative reasons</strong></td>
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<td></td>
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<td>Concerned I might be blamed for the incident</td>
<td>478</td>
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<td>2.06</td>
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<tr>
<td>Concerned about negative performance appraisal</td>
<td>477</td>
<td>1.19</td>
<td>1.72</td>
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<td>Concerns of disciplinary actions or other punishments</td>
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<td>1.63</td>
<td>1.77</td>
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<tr>
<td>Worried about tarnishing company records</td>
<td>478</td>
<td>0.58</td>
<td>1.33</td>
</tr>
<tr>
<td>Concerned I could be seen as incompetent</td>
<td>476</td>
<td>1.69</td>
<td>1.76</td>
</tr>
<tr>
<td>Concerns about my reputation or professional credibility</td>
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<td>1.62</td>
<td>1.79</td>
</tr>
<tr>
<td>Concerns about legal liability or actions</td>
<td>477</td>
<td>1.59</td>
<td>1.96</td>
</tr>
<tr>
<td>Not knowing how the incident report will be used</td>
<td>477</td>
<td>1.47</td>
<td>1.92</td>
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<tr>
<td>Not knowing who is responsible for the incident</td>
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<td>1.72</td>
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<td>Concerned I could be criticised or teased by my supervisor</td>
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<td><strong>Practical reasons</strong></td>
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<td>Lack of time due to high work demands or time pressures</td>
<td>482</td>
<td>3.87</td>
<td>1.67</td>
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<tr>
<td>Lack of time due to difficult working conditions</td>
<td>482</td>
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<td>1.84</td>
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<tr>
<td>Not liking paperwork</td>
<td>482</td>
<td>1.06</td>
<td>1.57</td>
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<tr>
<td>Paperwork is not part of my job</td>
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<td>0.93</td>
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<td>Not having an adequate reporting system</td>
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<td>Not knowing what to report</td>
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<td>1.72</td>
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<td>Not knowing where or how to report</td>
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<td>1.57</td>
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<tr>
<td>A difficult or impractical incident form</td>
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<td>1.84</td>
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Appendix 3: Wilcoxon signed rank tests – Z scores for positive, negative and practical reasons

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<th>Positive Reasons</th>
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<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
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</thead>
<tbody>
<tr>
<td>1. Reporting will result in the problem being fixed</td>
<td>2.72***</td>
<td>4.81***</td>
<td>17.6***</td>
<td>18.9***</td>
<td>16.7***</td>
<td>18.9***</td>
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<tr>
<td>2. The organisation will learn from my incident report</td>
<td>7.03***</td>
<td>14.1***</td>
<td>15.7***</td>
<td>13.8***</td>
<td>15.2***</td>
<td>17.4***</td>
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<tr>
<td>3. Improvements or changes will occur as a result of my incident report</td>
<td>4.81***</td>
<td>7.03***</td>
<td>18.0***</td>
<td>18.3***</td>
<td>14.6***</td>
<td>19.0***</td>
<td>19.7***</td>
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</tr>
<tr>
<td>4. Knowing my supervisor will support my decision</td>
<td>17.6***</td>
<td>14.1***</td>
<td>18.0***</td>
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<tr>
<td>5. Knowing my colleagues will support my decision</td>
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<td>6. Knowing management will read my report and find it useful</td>
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<td>2.86**</td>
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<td>2.73**</td>
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<tr>
<td>8. Receiving verbal feedback on my incident report</td>
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<td>.75</td>
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<td>2.73**</td>
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</table>

* = \( \rho < .05 \)  ** = \( \rho < .01 \)  *** = \( \rho < .001 \)

<table>
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<th>Negative Reasons</th>
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<th>11.</th>
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<td>4.52***</td>
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<tr>
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<td>3.75***</td>
<td>2.97**</td>
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<td>5.88***</td>
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</tr>
<tr>
<td>3. Concerns of disciplinary actions or other punishments</td>
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<td>4.06***</td>
<td>9.08**</td>
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<td>.11</td>
<td>.21</td>
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<td>8.98***</td>
<td>9.01***</td>
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<tr>
<td>4. Worried about tarnishing company records</td>
<td>11.8***</td>
<td>5.78***</td>
<td>9.08**</td>
<td>9.29***</td>
<td>8.87***</td>
<td>8.77***</td>
<td>7.35***</td>
<td>5.95***</td>
<td>.51</td>
<td>.13</td>
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<tr>
<td>5. Concerned I could be seen as incompetent</td>
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<td>4.26***</td>
<td>.53</td>
<td>9.29***</td>
<td>.50</td>
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<td>3.88***</td>
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<td>9.67***</td>
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<tr>
<td>6. Concerns about my reputation or professional credibility</td>
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<td>8. Not knowing how the incident report will be used</td>
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<tr>
<td>9. Not knowing who is responsible for the incident</td>
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<td>3.88***</td>
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<td>6.19***</td>
<td>6.40***</td>
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</tr>
<tr>
<td>10. Concerned I could be criticised or teased by my supervisor</td>
<td>12.3***</td>
<td>6.62***</td>
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<td>.51</td>
<td>9.63***</td>
<td>9.49***</td>
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<tr>
<td>11. Concerned I could be criticised or teased by my colleagues</td>
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* = \( \rho < .05 \)  ** = \( \rho < .01 \)  *** = \( \rho < .001 \)
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<th>Practical Reasons</th>
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</thead>
<tbody>
<tr>
<td>1. Lack of time due to high work demands or time pressures</td>
<td>15.0***</td>
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<td>2. Lack of time due to difficult working conditions</td>
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<td>5.66***</td>
<td>8.65***</td>
<td>2.12*</td>
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<tr>
<td>3. Not liking paperwork</td>
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<td>9.85***</td>
<td>10.2***</td>
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<td>4.80***</td>
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<td>12.7***</td>
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<td>4. Paperwork is not part of my job</td>
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<td>11.5***</td>
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<tr>
<td>8. A difficult or impractical incident form</td>
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* = $p < .05$, ** = $p < .01$, *** = $p < .001$
### Appendix 4: Differences between low and high risk organisations

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<td>Knowing my colleagues will support my decision</td>
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<td>0.59 1.10</td>
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<td>Knowing management will read my report and find it useful</td>
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<td>1.41 1.33</td>
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<td>0.75 1.26</td>
<td>0.93 1.23</td>
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<td>Concerned I might be blamed for the incident</td>
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<td>1.46 1.82</td>
<td>1.03 1.64</td>
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<td>Concerns of disciplinary actions or other punishments</td>
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<td>15.3**</td>
<td>2.01 1.79</td>
<td>1.40 1.73</td>
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<tr>
<td>Worried about tarnishing company records</td>
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<td>43.6***</td>
<td>1.06 1.72</td>
<td>0.26 0.83</td>
<td></td>
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<td>Concerned I could be seen as incompetent</td>
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<td>1.77 1.71</td>
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<tr>
<td>Concerns about my reputation or professional credibility</td>
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<td>5.31</td>
<td>1.56 1.81</td>
<td>1.66 1.77</td>
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</tr>
<tr>
<td>Concerns about legal liability or actions</td>
<td>474</td>
<td>2.99</td>
<td>1.70 2.00</td>
<td>1.54 1.93</td>
<td></td>
</tr>
<tr>
<td>Not knowing how the incident report will be used</td>
<td>474</td>
<td>48.0***</td>
<td>0.71 1.36</td>
<td>1.95 2.05</td>
<td></td>
</tr>
<tr>
<td>Not knowing who is responsible for the incident</td>
<td>476</td>
<td>24.3***</td>
<td>0.86 1.39</td>
<td>1.42 1.87</td>
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</tr>
<tr>
<td>Concerned I could be criticised or teased by my supervisor</td>
<td>473</td>
<td>4.93</td>
<td>0.38 1.08</td>
<td>0.63 1.39</td>
<td></td>
</tr>
<tr>
<td>Concerned I could be criticised or teased by my colleagues</td>
<td>472</td>
<td>11.5*</td>
<td>0.56 1.21</td>
<td>0.59 1.26</td>
<td></td>
</tr>
<tr>
<td>Practical reasons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of time due to high work demands or time pressures</td>
<td>479</td>
<td>12.8*</td>
<td>3.79 1.83</td>
<td>3.93 1.57</td>
<td></td>
</tr>
<tr>
<td>Lack of time due to difficult working conditions</td>
<td>479</td>
<td>4.03</td>
<td>2.34 1.86</td>
<td>2.35 1.84</td>
<td></td>
</tr>
<tr>
<td>Not liking paperwork</td>
<td>479</td>
<td>28.7***</td>
<td>1.54 1.84</td>
<td>0.81 1.33</td>
<td></td>
</tr>
<tr>
<td>Paperwork is not part of my job</td>
<td>479</td>
<td>48.7***</td>
<td>0.69 1.29</td>
<td>0.11 0.56</td>
<td></td>
</tr>
<tr>
<td>Not having an adequate reporting system</td>
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<td>11.6*</td>
<td>0.99 1.50</td>
<td>1.31 1.75</td>
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</tr>
<tr>
<td>Not knowing what to report</td>
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<td>15.4**</td>
<td>1.79 1.73</td>
<td>1.47 1.65</td>
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</tr>
<tr>
<td>Not knowing where or how to report</td>
<td>480</td>
<td>2.11</td>
<td>1.17 1.53</td>
<td>1.16 1.57</td>
<td></td>
</tr>
<tr>
<td>A difficult or impractical incident form</td>
<td>479</td>
<td>18.6***</td>
<td>2.29 1.09</td>
<td>2.80 1.30</td>
<td></td>
</tr>
</tbody>
</table>

\( \text{df} = 5, \chi^2 = \text{Chi-Square statistic}, * = p < .05, ** = p < .01, *** = p < .001 \)