# ABSTRACT

GOAL SETTING AND UNETHICAL BEHAVIOR: IMPLICATIONS FOR OCCUPATIONAL SAFETY AND HEALTH AND THE SAFETY INCENTIVE PROGRAM

By

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May 2020

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Goal setting is a popular and often beneficial tool used to motivate workers worldwide. Recent research has revealed that negative side-effects including unethical behavior are associated with goal setting. In occupational safety and health (OSH), injury reduction goals are regularly used within safety incentive programs (SIP) or as standalone practice. Unethical behavior in the form of failing to report injury or illness is possible and its consequences severe: inaccurate data leads to incorrect allocation of resources for worker protection and in turn, more injury and illness. To investigate any link between OSH goal setting and injury reporting, anonymous surveys and interviews collecting worker experiences were compiled within various industries. An analysis of 31 responses using Fisher's Exact Test revealed statistically significant associations: participants whose organizations used injury-reduction goals reported that coworkers failed to report injuries more often than workers whose organizations did not use such goals. Instances of non-reporting due to incentives, coworker or supervisor disapproval as well as informal disciplinary action were associated more strongly with organizations that used goal setting than those that did not. More research into why these specific factors discourage injury reporting in the presence of goal setting is needed in order to potentially mitigate their effects.

# GOAL SETTING AND UNETHICAL BEHAVIOR: IMPLICATIONS FOR OCCUPATIONAL SAFETY AND HEALTH AND THE SAFETY INCENTIVE PROGRAM

A Thesis

Presented to the Faculty of the Department of Technology Systems

East Carolina University

In Partial Fulfillment of the Requirements for the Degree of

Master of Science in Occupational Safety

by

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May, 2020

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## ACKNOWLEDGMENT

I would like to thank Dr. Mike Behm, CSP, for initially inspiring and continually encouraging me throughout this project. From preliminary discussion to research review, survey development, data analysis and eventual conclusions, Dr. Behm's behind-the-scenes contributions have been the guiding force for completion of this thesis. Similarly, completion of the project's survey would not have been possible without the help of Dr. Gerry Ayers and Dr. Ciaran McAleenan, who provided both valued feedback during its development and critical access to workers required for data collection. I am also grateful for the help of Dr. Carolyn Dunn and Dr. Donna Hollar during project development as well as for agreeing to serve as committee members for this thesis. Lastly, I must thank the research participants who, by agreeing to allow me to capture their experiences related to a controversial topic, transformed this project from an idea to reality.

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# CHAPTER 1: INTRODUCTION

Goals are a ubiquitous part of our culture. Who among us has never set a goal, whether short or long-term, financial, educational, or even health-related? If we do not already create them in our personal lives, we are prompted by our employer to set and meet goals: "SMART," "stretch," and simple productivity benchmarks are all common assignments. With such a strong social tradition surrounding goal setting, it is no surprise that the topic has been researched and written about extensively. To date, the vast majority of academic articles published on goal setting promulgate its benefits. Only a select few explore any drawbacks associated with this well-used tool (Barsky, 2007) and fewer still focus on the potentially disastrous consequences of goal setting in fields like occupational safety and health (OSH).

Pioneering research over the last fifteen years has exposed a more complete list of effects that goal setting can have. Unwanted repercussions like increased risk-taking and unethical behavior are strongly associated with goal setting in certain circumstances (Ordóñez & Welsh, 2015). This has led to research focusing on what specific mechanisms are at play within goal setting (e.g. incentives, goal structure, goal frequency and difficulty) that might lead to unethical behavior and how to mitigate the risk of its occurrence. In the meantime, goal setting remains an integral part of performance motivation throughout many industries and individual workplaces (Locke & Latham, 2006).

OSH as a field has embraced goal setting. In practice, goals often present as key parts of an overall safety strategy, woven into the fabric of a workplace safety program: targets such as "Zero lost-time injuries" or "Reduce incident and injury rates by 50%" over specified periods of time are not uncommon (Pawlowska, 2015; Sherratt, 2014). While many workplaces have reported success with the implementation of similar goals within workplace safety incentive programs, the connection between goal setting and increased unethical behavior as well as

unnecessary risk-taking should give pause. In OSH, risk reduction often is the overarching goal and strict adherence to ethical and legal codes is a primary means to achieve it. Consequently, the widespread use of goal setting in the OSH field both within and outside of safety incentive programs is particularly alarming. The practice of goal setting and its associated downsides warrant additional research and careful scrutiny: the difference between life and death for workers may quite literally depend on it.

The aim of this paper is to review the existing literature on goal setting, focusing attention on its recently discovered downsides. This information will then be discussed as it relates to the occupational safety and health field, with particular emphasis on the use of goal setting in Safety Incentive Programs and the realized or potential consequences held therein. In an effort to add to the body of knowledge, a hypothesis and several research questions were postulated and a qualitative study using a simple questionnaire and optional interview was performed to help test them.

Hypothesis:

OSH goal setting increases unethical behavior in the form of failing to report injuries and illnesses.

Research Questions:

1) Overall, do workers who experience safety-related goal setting in the workplace, either within or outside a safety incentive program, experience increased instances of non-reporting of workplace injuries as compared to employees who do not have experience with safety-related goal setting in the workplace?

2) Do employees who have experience with safety-related goal setting as part of a safety incentive program experience increased instances of non-reporting of workplace injuries as compared to workers who have experience with safety-related goal setting outside of a safety incentive program?
3) How do factors other than exposure to work-related goal setting (either within or outside the structure of a safety incentive program) correlate to the underreporting of injuries in the workplace (e.g. coworker and supervisor perception of reporting injuries, formal or informal disciplinary action after reporting an injury, etc.)?
4) Are any demographics (such as industry, role, or union membership) associated with goal setting and potential non-reporting of injuries?

In the case of this study, "unethical behavior" is defined as the suppression of injury and illness reporting at any level of the organization.

## CHAPTER 2: LITERATURE REVIEW

As early as 1966, Edwin A. Locke was systematically studying the effects that goals have on human performance (Locke & Bryan, 1966). For the better part of a decade, Locke conducted extensive research on task accomplishment as it relates to different types, levels, and structures of goals, as well as the practical implications of that information (Locke & Bryan, 1967; Bryan & Locke, 1967; Locke, 1968; Locke et al., 1970). His efforts created an early framework for what has become broadly known in the Psychology field as "Goal Setting Theory" (Locke & Latham, 2015). The theory can be summarized as follows: task performance is strongly and positively associated with setting difficult and specific goals relating to the task at hand. Within Goal Setting Theory, these difficult and specific goals are sometimes referred to as "high goals," and they have been found to motivate performance better than general guidance like "do your best" (Latham & Baldes, 1981). The theory has evolved continuously over the last half-century with the help of hundreds of researchers performing countless studies: the positive implications of goal setting have been documented across a multitude of countries and within diverse populations, industries, and academic disciplines (Locke & Latham, 2006). More specifically, the benefits of goal setting include increased "effort, focus and persistence," in performing tasks as well as higher levels of "pleasure, satisfaction and happiness" upon completion of them (Latham & Locke, 2006). Given the abundant research available on the subject, it is no surprise that Goal Setting Theory has been heralded by some as "the most important theory in the organizational behavior literature" (Schweitzer et al., 2002).

More recently, emerging research has raised questions about potential hazards associated with the practice of goal setting (Grover & Hui, 2005; Schweitzer et al., 2002; Schweitzer et al., 2004). Of particular concern to OSH is a growing body of knowledge linking goal setting to

unethical behavior. Starting in the early 2000's, the correlation between goal setting and unethical behavior was hypothesized and tested by Schweitzer et al. (2002). The researchers suspected that because people who are given high goals are more motivated to achieve them than those who have less specific and difficult goals (Locke & Latham, 2006), they might engage in unethical behavior (defined in this study as overstating, or lying, about their performance) if they found themselves unable to meet their high goals. Similarly, people who are given reward-dependent goals will be more likely to misrepresent their achievement than those without rewards, and those who fall just shy of achieving any goal will be more likely to lie about goal fulfilment than those who fall well short of the assigned benchmark. In a later study, Schweitzer et al. tested these hypotheses by observing participants' behavior when asked to create anagrams from letters. Test subjects were told to honestly disclose their performance, though the researchers had the ability to observe the participants' actual achievement and compare it to their self-reported results.

The findings of the test confirmed two of the three hypotheses: participants in the study who were given high goals were more likely to overstate (i.e. lie about) their performance than those who were told to "do their best;" also, those subjects who missed their goal by a small margin were significantly more likely to lie about their performance than those who missed their goal by a larger margin (Schweitzer et al., 2004). This preliminary study draws a line between goals and the unethical tactics sometimes used to achieve them. Since 2004, several studies and surveys have been completed that further demonstrate the correlation between goal setting and unethical behavior; other studies seek to discover which mechanisms are at play within the actual practice of goal setting that might induce the amoral behavior.

Although Schweitzer et al. (2004) found that goal incentives were not a significant motivator of unethical behavior in their study, a second study replicating the anagram task and published several years later actually affirmed that some incentives are effective motivators of unethical behavior in goal-achievement (Cadsby et al., 2010). In this rendition, several different incentives were attached to measured goals: some participants were paid an allotted amount for each anagram they created (two different reward rates per word were trialed) while others were paid for reaching a predetermined number of anagrams. When the groups were compared, participants who were paid for reaching a target (i.e. goal) number of anagrams were far more likely to overstate their performance than those who were paid per word: of those who were paid to reach a specific goal, 54% were found to be misrepresenting their performance. Additionally, of the two groups who were paid per word, the group with the higher compensation rate ($0.40 vs $0.10 per word) were more likely to cheat than those with a lower compensation rate: 33% versus 22%, respectively (Cadsby et al., 2010). These results were consistent with a study by Grover and Hui (2005) where test subjects were asked to perform a task with and without incentives as well as with and without performance pressure. In all trials, participants who received cash incentives based on their performance lied more frequently about their achievements than did those who were not given cash incentives. The effect that incentives (which are often a key part of goal setting) seem to have on unethical behavior can be summed up by Hirsh et. al (2018) in their proposed theory for why people behave unethically: goal seekers perform a sort of internal calculus on the perceived benefit of everything they do, including goal fulfilment. Incentives “increase the value of a goal,” and so, if the goal is not achievable by honest means, unethical means are used instead.

If a management team wanted to design a goal setting strategy that moderates unethical behavior, incentives would not be the only feature to question; studies linking the goal type, difficulty level and frequency of goals to unethical behavior have also been conducted. In one study examining the so-called "dark side" of goal setting, researchers observed that the type of goal most often used in organizations, an "outcome goal," (or one that is tied to some specific, measurable achievement) is more positively associated with unethical behavior than a "learning goal," (or one that is more focused on the method of achievement than the achievement itself) (Welsh et. al., 2019). Similarly, goal structure can play a role in unethical behavior: goals that stay "high" (or difficult) over time, goals that stay "low" (or easy) over time, goals that get more difficult, goals that get less difficult, and situations where the stated goal is simply to "Do your best." Unsurprisingly, researchers found that participants who started with a high goal, in this case a higher number of puzzles to solve, and were told to maintain that goal through successive rounds of testing engaged in more unethical behavior than those who started and stayed with a lower goal (Welsh & Ordóñez, 2014).

Interestingly, test subjects who were given a difficult goal that got easier through successive rounds had levels of unethical behavior nearly as high as those participants who were told to maintain a difficult goal throughout the experiment, while those who started with a lower level of difficulty and were told to increase their performance over time misrepresented their performance less often. The researchers attributed this phenomenon to "depletion," or the subjects becoming worn down over time by successive difficult goals. Once the participants were worn out by the task, they lost the ability to self-regulate their own unethical behavior. This made them more likely to lie. If this depletion occurred in an early round due to being assigned difficult goals in the beginning of the test, they were more likely to cheat sooner and keep doing

it throughout successive rounds (see Figure 1) (Welsh & Ordóñez, 2014), which illustrates the effect for different goal structures: high (or consistently difficult), decreasing (or getting easier over time), increasing (or getting harder over time), DYB, or when participants are instructed to "Do your best," and low, or consistently easy.

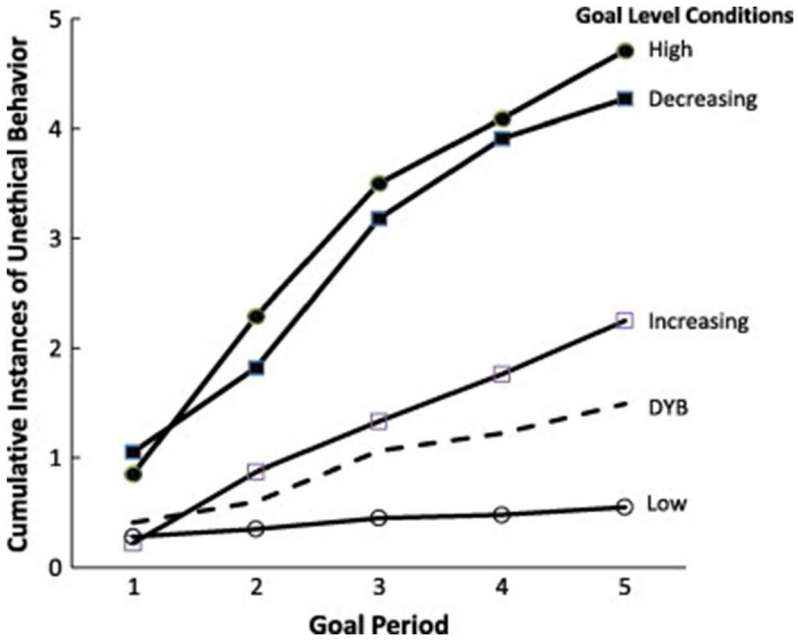


Figure 1: Cumulative Instances of Unethical Behavior by Goal Period. From "The dark side of consecutive high performance goals: Linking goal setting, depletion, and unethical behavior," by D.T. Welsh & L.D. Ordonez, 2014, *Organizational Behavior and Human Decision Processes, 150,* p. 85.

When translated to a real-world scenario in an organizational setting, the results of the authors' study are clear: "when organizations set aggressive performance targets for employees and appear to care more that the numbers were achieved than how the numbers were achieved, they may be creating an environment in which employees will both be highly depleted and highly tempted to cheat in order to reach the goal" (Welsh & Ordóñez, 2014).

Although Welsh and Ordóñez found that individuals were more likely to disregard morality when they were mentally exhausted, their study assumes that participants were aware of, and chose to ignore, the ethical issues at play in their respective situations. Barsky (2007) hypothesized that when individuals were faced with a difficult task or question, their efforts would become more focused and narrowed over time to the point that they would fail to even recognize that a moral question was at play. In this scenario, the participants are not choosing to behave immorally; they are simply so consumed with the task at hand that they cannot spare the mental capacity to even consider whether their tactics for goal achievement are moral. In his article, "Understanding the Ethical Cost of Organizational Goal setting: A Review and Theory Development," Barsky (2007) cites previous work that corroborates this idea: Tenbrunsel and Messick (1999), for example, found that when workers concentrate on a single, difficult goal in the workplace, their frame of mind changes from one based on ethical reasoning to one centered on business needs. In their study, the propensity of workers to adhere to environmental standards was measured and found to be lessened in those who were assigned a difficult business-related goal. As such, it appears there is evidence for two very different ways for unethical behavior to unfold when difficult and specific goals are assigned to individuals and they become exhausted in their attempts to achieve them: either the individual is aware of their own decision to act immorally (as in the scenarios described by Welsh & Ordóñez) or they are too concerned with goal completion to be aware of the morality (or immorality) of their actions (as described by Barsky and Tenbrunsel & Messick). Both scenarios point to the same conclusion: difficult and specific goals can and do lead to unethical behavior.

Barsky (2007) also considers situations like those studied by Welsh and Ordóñez, where individuals are aware of their decisions to behave unethically. He hypothesized how and why

individuals engage in unethical behavior while attempting to reach goals. One mechanism at play is "moral disengagement," which occurs when an individual chooses to disregard what he or she knows is socially or morally unacceptable in pursuit of an assigned goal. This happens for one of two reasons: either the individual believes that the goal is so important that amoral behavior is justified, or they feel that the amoral behavior needed to achieve the goal, while perhaps not inherently justified, is simply out of their control. In the first scenario, a goal-seeker might believe the goal's merit outweighs the unjust tactic used to achieve it: maybe the goal achieves a major boon for the organization and its members at the expense of only a minor ethical transgression. Barsky deemed this type of rationalization "moral justification." In the second scenario, the goal-seeker experiences a "displacement of responsibility:" perhaps they are told to achieve the goal using whatever means necessary by a supervisor, or the culture within their environment is such that if they do not behave unethically, they may lose their job and somebody else will do what is required anyway. In these cases, the individual feels that they have no choice but to behave unethically (Barsky, 2007). Barsky later tested his theory in a series of studies where he found that "moral disengagement through moral justification and displacement of responsibility [is] significantly related to individuals' propensity to make unethical decisions," (2011). Specifically, participants in his study were asked to rate their level of agreement with goal-related statements that were both unethical (as determined by the designer of the study) and which contained qualifiers designed to induce moral justification and displacement of responsibility in the participant. Overall, participants were more likely to agree with the unethical statements when statements of moral justification and displacement of responsibility were included, indicating that they have the ability to encourage unethical behavior.

An experiment by Bersoff (1999) also supports that displacement of responsibility is positively correlated with unethical behavior, and in 2017, a quasi-experimental study found support for the link between moral justification and unethical behavior when researchers observed that business workers overlooked the hypothetical wrongdoing of incentive and goal-driven workers when they knew that it was in the best interest of the company (Fleischman et al., 2017). Schwepker and Good (2007) support the idea, finding that supervisors often turn a blind eye to ethical transgressions in the face of difficult goals. Interestingly, this behavior was also negatively associated with commitment to the job field, suggesting that difficult goals not only encourage managers to ignore unethical behavior by their workers, but can also lead managers to pursue different careers entirely, perhaps in an effort to avoid the moral minefield inherent to their respective industries. Clearly, even when the intentions of both a goal and the individual attempting to reach it are good, there is significant evidence that things can and do go wrong; in these cases, unethical behavior often ensues.

While much research around the negative consequences of goal setting relies on individualized experiments, a series of studies by Hoyt. et al. (2010) examined the effects of goal setting in scenarios which more readily parallel professional organizations. Multiple members of real organizations from a college campus, including those organizations' leaders, were gathered together and asked to rate the importance of their goals as compared to other groups' goals. Not only were group members more likely to rate their own goals as more important than other groups' goals, but the leaders of the groups exhibited this bias to a more severe degree (see Figure 2). Hoyt et al. coined this phenomenon the "more-important-than-average" effect. Further research revealed that both group members and their respective leaders were more apt to rate their own hypothetical unethical behavior in pursuit of their goals as more justifiable than the

unethical behavior of other groups and leaders. This effect is referred to as the "justification-bias." Interestingly, the relationship between the more-important-than-average effect and the justification-bias were found to be positively correlated for group leaders: in other words, the more important the goal (as rated by the leader), the more justifiable the unethical behavior used to achieve it (Figure 3) (Hoyt et al., 2010).

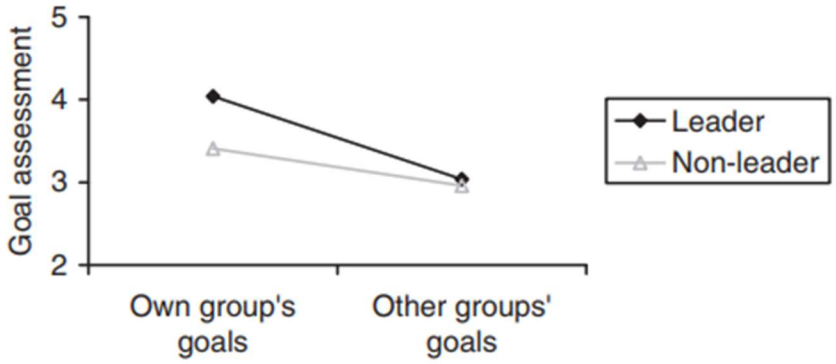


Figure 2: Leaders' and Non-Leaders' Rating of Goal Importance. From "Leadership and the more-important-than-average-effect: Overestimation of group goals and the justification of unethical behavior," by C.L. Hoyt, T.L. Price, & A.E. Emrick, 2010, *Jepson School of Leadership Studies articles, book chapters and other publications, 6,* p. 398.

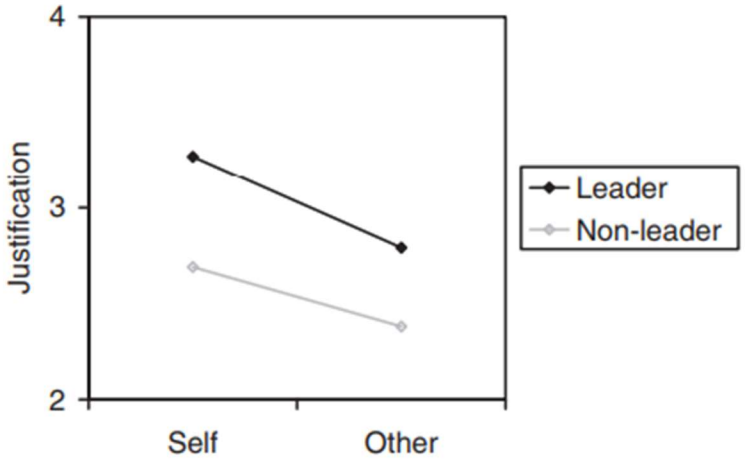


Figure 3: Leaders' and Non-leaders' Rating of Justification for Unethical Behavior. From "Leadership and the more-important-than-average-effect: Overestimation of group goals and the justification of unethical behavior," by C.L. Hoyt, T.L. Price, & A.E. Emrick, 2010, *Jepson School of Leadership Studies articles, book chapters and other publications, 6,* p. 399.

Evidence linking goals to unethical behavior is not limited to the laboratory. In an article written in 2006, Bevan and Hood examined the relationship between "targets," i.e. goals, and "gaming," or manipulating numbers to make it appear that goals are met. Their research focused on systematic targets set for hospitals in Great Britain and how hospitals rose, fell, or gamed in response to the challenge. In several instances, hospitals reported not meeting their goals; in these instances, they were met with budget cuts and increased inspections by governing agencies. In short, they were punished. Other hospitals reported meeting targets, but a deeper analysis of their metrics revealed systematic manipulation and misrepresentation in some cases. For example, where emergency rooms were required to see patients within 4 hours of arrival, hospitals would prevent ambulances from unloading patients until they were "confident that the patient could be seen within" the target window. This caused lines of ambulances waiting outside emergency rooms in some cases and, according to the study, may have even resulted in longer wait times for critically ill or injured individuals in the community. Similarly, where emergency rooms were required to have incoming patients in a hospital bed within 12 hours of arrival, hospital staff were found putting patients in gurneys, rolling them into E.R. hallways, and marking them "admitted," (Bevan & Hood., 2006).

Unethical practices were not confined to hospital staff; when ambulances were required to keep response times for calls to 8 minutes or less, over one third of ambulance companies were found to be doctoring their times to meet the benchmark. Figure 4 below demonstrates the ethical transgression: the top line shows a "noisy decline," of the number of ambulance responses in relation to the time each response takes, which is what an unchanged representation of the data is expected to show. The bottom line is what was actually reported by ambulance

companies: there appears to be a steady amount of calls for which response times were between 6 and 8 minutes, then an enormous spike of responses recorded at exactly 8 minutes. Then, very few calls that were reported with response times between 8 and 9 minutes (Bevan & Hood, 2006).

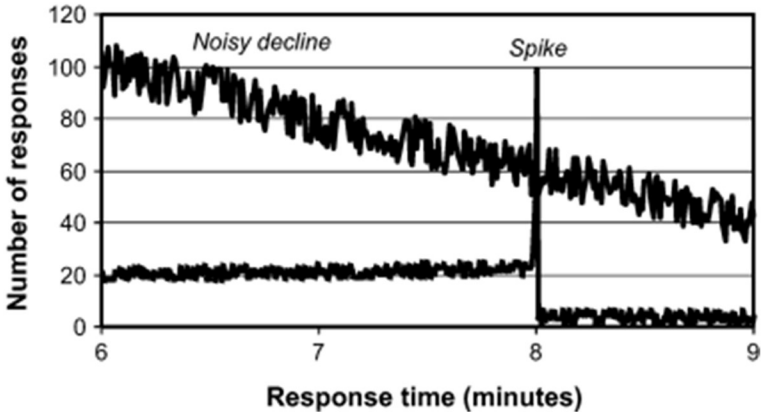


Figure 4: Frequency Distributions of Ambulance Response Times. From "Leadership and the more-important-than-average-effect: Overestimation of group goals and the justification of unethical behavior," by C.L. Hoyt, T.L. Price, & A.E. Emrick, 2010, *Jepson School of Leadership Studies articles, book chapters and other publications, 6,* p. 398.

The authors suggest that the method employed by the British government to systematically measure and reward all aspects of hospital performance was one of "target and terror." That is, when the hospitals could not meet the assigned goals, they were subsequently punished for their failure in ways that the organization could not withstand. Administrators at all levels were incentivized to lie about performance and "game the system" at the expense of patients, the community, and ultimately the organization itself (Bevan & Hood, 2006).

In 2017, a meta-analysis of over one hundred studies published in a wide array of peer-reviewed journals was performed; it concluded that challenging performance goals are significantly correlated with unethical behavior (Belle & Cantarelli). The reasons for the

unethical behavior are many and varied. In some cases, benefits like feelings of satisfaction experienced from meeting a goal (or claiming to have done so) is enough to motivate an individual to cheat or lie about goal achievement. In other cases, tangible incentives like bonuses or job promotion are what push workers to behave immorally. Sometimes, the benefits of achieving a goal, even if done unethically, outweigh the consequences of failing to achieve the goal. Still other scenarios induce moral abandonment by sheer exhaustion: workers concentrate on goal completion with such intensity that they fail to consider the moral implications of their own behavior, or they become so tired from successive and difficult goals that they feel they must misrepresent performance or risk failure. In all cases, the relationship between goal setting and unethical behavior is well-supported by research.

Despite the growing body of knowledge in this realm, research in the occupational safety and health field which seeks to establish a link between Safety-related goal setting and unethical behavior is conspicuously lacking. In OSH, one opportunity to study a potential link is in the form of a safety incentive program (SIP). These programs often incorporate safety-related goals and the dissemination of various incentives when they are met. Unfortunately, safety-related goals often focus on what are known as "lagging indicators," or measures of safety that show a lack of safe practice in the workplace: illness and injury rates and workers compensation costs are two commonly cited lagging indicators (Pawlowska, 2015). These types of lagging indicators are problematic in and of themselves, as they reward reactive rather than proactive strategies for solving safety problems in the workplace, but they are also often downright inaccurate (Behm et al., 2014). When incentives are given to keep these metrics low (on a small scale: year-end bonuses to the department with the lowest injury rate; and on a large scale: winning bids for jobs in the construction field is often tied to injury rates), the risk of underreporting of workplace

injuries (i.e. unethical behavior) by both employees and supervisors is apparent. The consequences of underreporting cannot be overstated: the U.S. House of Representatives Committee on Education and Labor (2008) put it best in their report addressing the well-established issue: inaccurate information means "employers and workers are unable to identify and address safety and health hazards [...], putting workers' limbs and lives at risk." Clearly, a better understanding of how and why injury underreporting occurs is necessary, and one such mechanism may be safety related goal setting.

Given the serious ramifications of unethical behavior in goal fulfilment within the OSH field, the absence of peer-reviewed research is glaring. If the link between safety goal programs and the underreporting of workplace injuries is substantiated, the implications for the field would be significant: one study by the Government Accountability Office (2012) found that 25% of U.S. manufacturers utilize safety incentive programs. If a large portion of these SIPs are goal-based, the content, frequency, and assignment of goals could lead to unethical behavior in the form of underreporting of workplace incident and injury with far-reaching effects.

The idea that SIPs incorporating injury-reduction goals may lead to lower reporting rates and even suppression of injury data by managers has been postulated and discussed anecdotally, but peer-reviewed research remains scant. Even the Occupational Safety and Health Administration (OSHA) suggests that incentive programs can dissuade workers from reporting their injuries, though the organization offers no scientific research, peer-reviewed or otherwise, to justify the claim (Fairfax, 2012). Experience shows that for each injury reported, more than two go unreported (Probst & Estrada, 2010). One qualitative study investigated this problem by surveying safety incentive programs and incident and injury reporting habits among union carpenters in Washington State (Lipscomb et al., 2012).

While the authors of the study note little correlation between incentive programs overall and injury reporting, they did collect data indicating that certain types of incentive programs might affect injury reporting more negatively than others. Among survey respondents who had experienced workplace safety incentive programs, the reluctance to report injuries was stronger when incentives for low injury rates were given to supervisors versus to individuals: only 5.9% of respondents claimed to have reported injuries all or most of the time when incentives were given to supervisors, compared to 16.7% of respondents when rewards went to the individual (Lipscomb, 2012). Later studies replicated the association: for carpenters who participated in SIPs where rewards went to supervisors, the proportion of carpenters who said injuries were "often not reported" was once again higher than for other types of programs: 32.5% versus 29.3 and 26.4 percent (for group and individual incentives, respectively) (Lipscomb et al., 2015). When asked why injuries might not be reported, a group of apprentice carpenters cite safety incentive programs as one reason to avoid reporting workplace injuries: "The incentive programs for crews and foremen with low injuries often lead to accidents or injuries being hidden. Don't report it and we'll get a bonus at 100 days," (Lipscomb et al., 2012).

| Item | Endorsement rate |
|---|---|
| Reasons for under-reporting | |
| I took care of the problem myself | 73.8% |
| I did not want to go through the follow-up interviews and questions | 69.0% |
| I did not think anything would be done to fix the problem | 51.2% |
| I did not think it was that important | 47.5% |
| I thought it would make work unpleasant | 41.5% |
| I did not want to be the one to break the company's accident-free record | 37.5% |
| I thought it would affect my crew's safety scorecard | 37.2% |
| Consequences of reporting | |
| Your group lost scorecard points | 37.3% |
| You were blamed for the incident | 23.9% |
| You were blamed for ending the company's accident-free record | 21.7% |
| People gossiped about you in an unkind or negative way | 19.7% |
| You were unfairly disciplined | 18.6% |
| You were mistreated in some other way | 11.6% |
| You were given an unfair performance evaluation | 11.4% |
| You were given less favorable duties | 10% |

*Note*: Numbers could add to greater than 100% since multiple responses could be checked.

Figure 5: Reasons Cited by High-risk Industry Workers for not Reporting Injuries. From "Accident under-reporting among employees: Testing the moderating influence of psychological safety climate and supervisor enforcement of safety practices," by T.M. Probst & A.X. Estrada, 2010, *Accident Analysis & Prevention, 42(5),* p. 1442.

Similarly, when workers in a separate study were polled on the various reasons for underreporting, 37.5% of workers indicated that they did not report injuries for fear of "breaking the company's accident-free record." A further 37% claimed they did not want to negatively impact their team's "scorecard," referring to the points earned by each team for safe outcomes as part of a workplace SIP (see figure 5) (Probst & Estrada, 2010). Finally, workplace safety incentive programs were determined to have a significant and negative effect on the accurate reporting of workplace incidents and injuries (Pransky et al.,1999).

While not a designed study, Brown & Barab (2008) explain in their case review that safety incentives were also found to be the root cause of several egregious workplace crimes,

including underreporting of injuries, by the California Division of Occupational Safety and Health (Cal/OSHA) in their investigation of the long-term San Francisco Bay Bridge construction project. Generous monetary incentives as well as gifts, travel vouchers and even "merit cards" required for salary bumps or promotion within the company were given to individuals, teams, and supervisors with zero recordable injuries for predetermined time periods. This zero-injury goal and its corresponding incentives resulted in a suspiciously low injury rate given the dangerous nature of the work. When the site was investigated later by Cal/OSHA, the injury rate was revealed by to be wholly inaccurate due to several injuries being willfully disguised. According to Brown & Barab, Cal/OSHA's investigation into the project lambasted the company for failing to report no fewer than 13 recordable injuries, reportedly in an effort to preserve the company's low injury rate and collect the desirable incentives. One worker who was injured at the site and subsequently physically carried to a temporary office assignment every day by his coworkers provided his own candid explanation of the situation: "The whole reason they were carrying me out to the barge was to avoid putting my injury on the Log 300," referring to the company's recordable injury record (Brown & Barab, 2008).

The safety incentive program structure used by the San Francisco Bay Bridge construction project team incorporated difficult and specific goals set and maintained over several months, significant monetary incentives to supervisors, and leadership which deemed the achievement of their goal extremely important. In other words, the project was saturated with nearly every identified risk factor for unethical behavior in goal setting situations. First, the main goal was so difficult as to be unrealistic. "Achieve zero injuries for the month" is no small ask, especially considering the dangers inherent to any project in the construction industry, plagued as it is with occupational injury and illness (Bureau of Labor Statistics, 2019). Schwepker and Good

(2007) noted in their study that given the right circumstances, leadership can turn a blind eye to wrongdoing in the face of difficult goals, and it appears that the leaders at the San Francisco Bay Bridge project did just that.

Not only was the goal itself unreasonable from the outset, but workers were also expected to meet and maintain it over successive months throughout a long-term project. Just as Welsh and Ordóñez (2014) hypothesized that high goals sustained over longer periods of time would cause depletion among goal-seekers, the managers and foremen at the San Francisco Bay Bridge project likely found themselves unable to exhibit ethical conduct under the pressure to deliver results. Compounding the issue were the high stakes at play: significant bonuses and other incentives were given to the teams, supervisors, and managers who reported successfully meeting the goal.

Historical examples of incentives motivating unethical behavior abound (Elsbach, 2001; Eichenwald, 2002), and experimentation has demonstrated the effect of high incentives on ethical transgressions (Cadsby et al., 2010), so it is not surprising that in the face of tempting offers like bonus checks, vacation packages, and extra time off, workers refrained from filing reports of injury and illness. Furthermore, the fact that everybody from linemen to foremen and even members of management received the incentives means that goal achievement was easily ranked one of the highest priorities of the job. In situations like this, both moral disengagement and the "more-important-than-average" effect can take hold: in the former, workers ascertain that the tangible benefit of incentives for themselves, their supervisor, and their manager outweighs the immorality of hiding an injury, and in the latter, the supervisors are more apt to encourage or simply overlook the unethical behavior when they know it benefits the organization at all levels (Hoyt et al., 2010; Barsky, 2007).

When applying the newest research on the downsides of goal setting to the safety program at the San Francisco Bay Bridge construction site, the potential for goal setting to induce unethical behavior becomes clear and its consequences apparent. The most alarming fact within the case study has nothing to do with the study itself, however. What is most worrisome is how unlikely it is that the circumstances found at the worksite are unique. With the use of organizational management tools like goal setting on the rise (Ordóñez et al., 2002) and nearly 30 million employers in the U.S. alone (United States Small Business Administration, 2012), the potential for goal setting to incite similar types of unethical behavior with devastating results on workers is significant, especially when used in the occupational safety and health field. Consequently, further research on the effects of safety goal setting is warranted.

# CHAPTER 3: METHODOLOGY

To help determine if the link between goal setting and unethical behavior is relevant to the OSH field, a research study was designed. For the purposes of this study, "unethical behavior" in OSH is defined as the suppression of injury and illness reporting at any level of the organization. A hypothesis and several research questions were postulated.

Hypothesis:

OSH goal setting increases unethical behavior in the form of failing to report injuries and illnesses.

Research Questions:

5) Overall, do workers who experience safety-related goal setting in the workplace, either within or outside a safety incentive program, experience increased instances of non-reporting of workplace injuries as compared to employees who do not have experience with safety-related goal setting in the workplace?
6) Do employees who have experience with safety-related goal setting as part of a safety incentive program experience increased instances of non-reporting of workplace injuries as compared to workers who have experience with safety-related goal setting outside of a safety incentive program?
7) How do factors other than exposure to work-related goal setting (either within or outside the structure of a safety incentive program) correlate to the underreporting of injuries in the workplace (e.g. coworker and supervisor perception of reporting injuries, formal or informal disciplinary action after reporting an injury, etc.)?

8) Are any demographics (such as industry, role, or union membership) associated with goal setting and potential non-reporting of injuries?

A qualitative research project was developed to help test the hypothesis and answer research questions. Prior research was consulted and used as a guide to develop survey questions. For example, a survey developed by Lipscomb et al., (2012) provided a template for questions exploring why workers may choose not to report injuries, such as disciplinary action, coworker disapproval, or fear of losing incentives; other studies and case studies also helped shape questions for measuring how incentive type and structure (i.e. which group or groups receive incentives) may affect reporting habits of workers and whether goals within or outside an incentive program are more likely to affect reporting (Grover & Hui, 2005; Lipscomb et al., 2015).

Question types included simple multiple choice, fill-in-the blank and "yes or no" formats. Simple question formats were chosen both for ease of comprehension and time constraints. (It was assumed that participants might be given the survey to fill out while at work and a longer survey could be a barrier to data collection.) While simple questions aid in data collection, data analysis can be less informative overall than more complex (e.g. Likert-style) questions because of limitations in quantifying results. This downside was weighed against the difficulties of data collection and considered in the context of the scope of the project; it was determined that "yes or no" type questions would aid in data collection while also allowing association statistical analysis.

In addition to a survey, an optional interview with semi-structured questions was developed for those participants who elected to elaborate more on their own experiences around goal setting

and injury reporting in the workplace. The survey was available both digitally via Qualtrics as well as in paper form; interviews took place over the phone. Once survey data was collected, variables were quantified to allow for calculation of descriptive statistics; in particular, Fisher's Exact Test was used to determine if any statistically significant associations existed between variables.

Originally, the survey's target population was union construction workers across various English-speaking countries including the United States, Australia, and Northern Ireland. This target population was chosen for several reasons including perceived impact (construction work has some of the highest injury and illness rates in the U.S.), perceived accessibility for the researcher, as well as to avoid costly translation of survey and interview information during data collection. Survey distribution was accomplished through sharing the survey link via electronic mail as well as by providing a printed copy of the survey directly to workers via various union representatives; as such, the project employed convenience sampling methods. It should be noted that convenience sampling is not the strongest method of data collection, as it does not provide for a random sample from the target population; this means that the data is not truly representative. However, to obtain a random sample of all union construction workers in the target countries would require a level of access to workers that in all practical sense is impossible given the scope of this research project. In addition, convenience sampling can point to overarching trends and areas of future research which was deemed appropriate for the scope of the project. Accordingly, convenience sampling was utilized despite its drawbacks.

After 12 weeks of attempted data collection, participation from the target population was sparse and the study lacked a requisite number of responses for data analysis. Consequently, the target population was broadened to include both union and non-union workers from any industry.

After a second collection period of six weeks employing the same methods (paper and digital surveys distributed via convenience sampling), enough responses were collected to allow for analysis. Survey results were quantified by assigning values to categorical data. (A value of "0" corresponded to a "No" answer while a value of "1" corresponded to a "Yes" answer on the survey, for example). Once the data was quantified, it was analyzed using Fisher's Exact Test to determine if statistically significant associations existed between variables.

Fisher's Exact Test was best applied to the data due to the small sample size (n=31) and the categorical nature of the data. Two categorical variables can be compared using Fisher's Exact Test by calculating the proportions of each variable and determining whether they are associated (or dependent). In this case, a significance level of $p < .05$ was chosen and a null hypothesis that the two variables were not associated (or independent) is stated.

In order to capture individual experiences of workers, a survey question asked participants if they would be willing to conduct a short interview with the researcher to discuss their experiences related to goal setting, safety incentive programs and injury reporting. Within this fill-in-the-blank question, survey participants were given an opportunity to provide contact information for the express purpose of conducting this interview. Interviews took place via phone but were not recorded; instead, notes summarizing participants' experiences were taken for later review and anonymous inclusion in the research paper.

The methodology described above was approved by the East Carolina University Institutional Review Board in September of 2019 (see Appendix A). A copy of the survey and interview questions can be found in Appendices B & C, respectively; notes from survey responses are in Appendix D.

# CHAPTER 4: RESULTS

The survey garnered 31 responses from workers in a variety of fields with differing experiences. The workers were primarily from the United States (83.8%, or n=26) with the remaining participants from Australia, Canada, and Germany. Workers represented various fields, the most common being Retail/Service (29.0%, n=9) and Construction (25.8%, n=8). Most participants were non-union workers (74.2%, n=23) employed in non-supervisory roles (67.7%, n=21).

In order to determine how many workers had ever experienced a goal-based safety incentive program in the workplace, the responses to two survey questions were combined: "Have any of your past workplaces used a goal-based safety incentive program to reduce work-related injuries or illnesses," and "Does your current workplace use a goal-based safety incentive program to reduce work-related injuries or illnesses." Approximately 45% (n=14) of participants report having experienced goal-based safety incentive program. Only respondents who reported that their current workplace (n=6) used a SIP were asked about the nature of the incentives given. About 67% (n=4) stated that incentives were monetary in nature (extra pay, gift cards, etc.) and were generally given to individual workers over groups of workers or supervisors (67%, n=4). Similarly, two questions were combined to capture the proportion of participants who had experience with injury-related goal setting in the workplace. (In this case, the two questions were "Does your current workplace have a goal of fewer or no injuries and illnesses" and "Have any of your past workplaces had a goal of fewer or no injuries or illnesses.") A larger proportion of workers, 77.4% (n=24), report having experience with injury-related goal setting in the workplace.

Regarding injury reporting, about half (54.8%, n=17) of the participants said that their workplace responds with formal disciplinary action after reporting while only 29.0% (n=9)

report that informal disciplinary action occurs. Combined, 61.3% (n=19) of workplaces use at least one form of disciplinary action (formal or informal) after an injury is reported. In addition, the vast majority of participants state that their supervisors encourage them to report injuries (96.8%, n=30) while a smaller majority state that their coworkers also encourage them to report injuries (74.2%, n=24). Despite this, 61.3% (n=19) of participants stated that they were aware of a coworker failing to report an injury for one of several reasons listed in the survey. Survey data for each question can be further summarized by Table 1.

Fisher's Exact Test was performed to determine which variables were associated with underreporting of injury and illness. Variables tested included whether demographics such as country, industry, and union membership were associated with awareness of non-reporting overall as well as non-reporting for specific reasons identified in the survey (e.g., formal and informal disciplinary action, coworker and supervisor disapproval, etc.). Similarly, association tests were performed for exposure to goal setting, either within or outside a SIP, and awareness of non-reporting, both generally and for specific reasons such as formal or informal disciplinary action and incentives. A summary of p-values for all variable pairs that produced at least one significant association is available in Table 2. Of the variables tested, 9 pairs showed statistically significant associations. No associations were found between demographic markers and awareness of non-reporting; associations were instead found between exposure to goal setting or incentive programs and awareness of non-reporting of injury and illness.

Table 1: Summary of Survey Responses

| | Count (Percent) | |
|---|---|---|
| **Factor or Question** | **Yes** | **No** |
| Are you a union member? | 8 (26%) | 23 (74%) |
| Are you a Supervisor or Manager? | 10 (32%) | 21 (68%) |
| Have you ever worked in an organization which had a goal-based safety incentive program? | 14 (45%) | 17 (55%) |
| Have you ever worked in an organization which used a goal to reduce incidents and injuries? | 24 (77%) | 7 (23%) |
| Formal disciplinary action occurs following an incident or injury in my workplace. | 17 (55%) | 14 (45%) |
| Informal disciplinary action occurs following an incident or injury in my workplace. | 9 (29%) | 22 (71%) |
| Coworkers encourage others to report injuries in my workplace. | 23 (74%) | 8 (26%) |
| Supervisors / Managers encourage others to report injuries in my workplace. | 30 (97%) | 1 (3%) |
| I am aware of a situation (current or past) where a coworker failed to report an injury due to: | | |
| Formal disciplinary action | 14 (45%) | 17 (55%) |
| Informal disciplinary action | 12 (39%) | 19 (61%) |
| Incentives | 7 (23%) | 24 (77%) |
| Supervisor / manager disapproval | 11 (35%) | 20 (65%) |
| Coworker disapproval | 11 (35%) | 20 (65%) |
| Count of participants who indicated they are aware of a coworker failing to report for at least one listed reason | 19 (61%) | 12 (39%) |
| Participant industry | | |
| Retail / Service | 9 (29%) | |
| Construction | 8 (26%) | |
| Childcare | 3 (10%) | |
| EHS | 3 (10%) | |
| Healthcare | 2 (6%) | |
| Fire Service | 2 (6%) | |
| Facilities Maintenance | 2 (6%) | |
| Government | 1 (3%) | |
| Education | 1 (3%) | |

| | |
|---|---|
| For participants who indicated that they are aware of a coworker failing to report for any of the listed reasons: Which of the below factors most often prevents workers from reporting injuries? | |
| Formal disciplinary action | 5 (26%) |
| Informal disciplinary action | 5 (26%) |
| Incentives | 2 (11%) |
| Supervisor or manager disapproval | 6 (32%) |
| Coworker disapproval | 1 (5%) |
| For participants who indicated that they are not aware of a coworker failing to report for any of the identified reasons: Which of the below factors do you *believe* most often prevents workers from reporting injuries? | |
| Formal disciplinary action | 2 (17%) |
| Informal disciplinary action | 2 (17%) |
| Incentives | 0 (0%) |
| Supervisor or manager disapproval | 1 (8%) |
| Coworker disapproval | 2 (17%) |
| Other | 3 (25%) |
| Blank answer | 2 (17%) |
| For participants whose workplace currently employs a goal-based safety incentive program: What incentives are offered? | |
| Extra pay or bonus | 1 (10%) |
| Other monetary prize (gift card, voucher, etc.) | 3 (30%) |
| Time off | 1 (10%) |
| Recognition (formal praise, certificate, etc.) | 3 (30%) |
| Other | 2 (20%) |
| For participants whose workplace currently employs a goal-based safety incentive program: Who is/are incentives offered to? | |
| Individual workers (e.g. for not reporting an injury) | 4 (40%) |
| Groups of workers (crew, shift, etc.) | 3 (30%) |
| Supervisors / managers | 2 (20%) |
| Entire organization | 1 (10%) |

Table 2: Summary of Fisher's Exact Test Significant Associations

| Variable 1 | Variable 2 | Actual Count "Yes" to Both | Fisher's Exact Test Expected Count "Yes" to Both | Fisher's Exact Test (2-sided Statistic) |
|---|---|---|---|---|
| Exposure to safety-related goal setting (current or past workplaces) | Aware of non-report due to formal disciplinary action | 13 | 10.8 | 0.094 |
| | Aware of non-report due to informal disciplinary action | 12 | 9.3 | **0.026** |
| | Aware of non-report due to incentives | 7 | 5.4 | 0.161 |
| | Aware of non-report due to coworker disapproval | 11 | 8.5 | **0.033** |
| | Aware of non-report due to supervisor / manager disapproval | 11 | 8.5 | **0.033** |
| | Aware of non-report for ANY reason listed | 18 | 14.7 | **.007** |
| Exposure to workplace safety incentive program (current or past workplaces) | Aware of non-report due to formal disciplinary action | 8 | 6.3 | 0.289 |
| | Aware of non-report due to informal disciplinary action | 8 | 5.4 | 0.075 |
| | Aware of non-report due to incentives | 6 | 3.2 | **0.028** |
| | Aware of non-report due to coworker disapproval | 7 | 5.0 | 0.153 |
| | Aware of non-report due to supervisor / manager disapproval | 8 | 5.0 | **0.031** |
| | Aware of non-report for ANY reason listed | 11 | 8.6 | 0.138 |

Specifically, when testing whether exposure to a goal-based safety incentive program was associated with failure to report injury *overall*, the results failed to produce a statistically significant association. However, there were two specific reasons for non-reporting that, when tested, produced statistically significant associations with exposure to SIP: incentives and supervisor or manager disapproval. Of the 8 workers who reported having worked in an

organization that used a SIP, 6 reported being aware of a situation where a coworker did not report an injury due to incentives, which was almost twice the expected count value of 3.2. This association produced a p-value of .028, which is below the threshold of significance of .05. Similarly, when exposure to a goal-based safety incentive program was tested for association with awareness of a situation where a coworker did not report injury due to supervisor or manager disapproval, the expected count of workers who had exposure to a SIP and were also aware of the non-report situation was 8 with an expected count of only 5; a statistically significant p-value of .031 was returned. When analyzing exposure to safety goal setting (as a standalone practice) in the workplace, there were more statistically significant pairings.

Participants whose prior or current workplace used safety-related goal setting and who were also aware of a worker failing to report an injury for any of the reasons listed in the survey totaled 18 with an expected count of 14.7. Fisher's Exact Test produced a statistically significant p-value of .007. Digging deeper, the particular reasons listed for non-reporting were tested for association with exposure to goal setting and 3 of 5 reasons provided statistically significant results: informal disciplinary action (p=.026; actual vs. expected count: 12 vs. 9.3), supervisor or manager disapproval (p=.033; actual vs. expected count: 11 vs. 8.5) and coworker disapproval (p=.033; actual vs expected count: 11 vs. 8.5).

Tests for whether formal and informal disciplinary action following injury reporting in the workplace are associated with non-reporting were also performed. Formal disciplinary action failed to produce statistically significant associations with any listed reason for non-reporting, but a different story emerged when testing the relationship between informal disciplinary action and reasons for non-reporting. While non-reporting as a whole (i.e. when all individual reasons for non-reporting are combined) was not associated with workers experiencing informal

disciplinary action after reporting an injury, 3 of 5 specific reasons for non-reporting tested positively for association with exposure to informal disciplinary action. 6 of 9 workers who reported that informal disciplinary action was given in the workplace following injury reporting stated that they were also aware of a situation where a coworker failed to report due to coworker disapproval. This was higher than the expected count of 3.2 and garnered a statistically significant p-value of .038. Similarly, 5 of those 9 workers also reported being aware of a coworker failing to report due to incentives (such as receiving a bonus, time off, etc. for achieving a predetermined injury and illness rate). The expected count in this relationship was only 2, which meant that a statistically significant p-value of .012 resulted from the association test. Lastly, of the 9 workers who stated that their workplaces doled out informal disciplinary action after reporting an injury, 7 (expected count: 3.5) were aware of a coworker choosing not to report because of that informal disciplinary action, resulting in a p-value of .012.

No other variables (such as industry, union vs. non-union, whether supervisors or coworkers encourage injury reporting, etc.) produced statistically significant associations

# CHAPTER 5: DISCUSSION

The primary aim of this research was to explore the relationship(s) between safety-related goal setting in the workplace (both inside and outside the framework of a safety incentive program) and unethical behavior in the form of injury and illness reporting. After collecting and analyzing the data, there is some evidence to support the researcher's primary hypothesis (that overall, goal setting in the workplace may encourage unethical behavior in the form of injury hiding). Contrary to popular belief regarding incentive programs (SIPs) and their propensity to encourage under-reporting, there is less evidence to support the phenomenon from this study than there is to support that goal setting in and of itself encourages non-reports.

When applying Fisher's Exact Test to the data for SIPs and underreporting, workers who report exposure to SIPs are not more likely to have witnessed underreporting *overall* as compared to workers who do not report exposure to SIPs. Unsurprisingly however, in trying to determine which elements of a SIP may encourage the unethical behavior in question (underreporting), the study found association between exposure and the incentives themselves; of workers who have exposure to SIPs, a higher-than-expected proportion report that coworkers fail to report *because* of those incentives; indeed, the only other reason for not reporting that produced statistically significant results within the population of SIP-exposed workers was supervisor or manager disapproval.

Contrary to what one might expect, only 1 worker indicated that their SIP gave incentives to supervisors or managers. In addition, all goal-exposed workers (and not just those exposed to goal setting within SIPs) also report a statistically significant amount of non-reports due to supervisor or manager disapproval. Accordingly, the specific reasoning behind *why* workers are reluctant to report due to supervisor or manager disapproval, if not because they would deprive

their leaders of incentives, remains elusive. Interviews with workers who have experienced SIPs provide some insight into why workers may specifically avoid reporting due to leader disapproval: as one worker who suffered an injury on the job reports, their boss didn't explicitly discourage them from reporting, but he did "drop an 'f-bomb,'" and told the worker about the headache it would cause, including "letters, reports, and everything else." The same interviewee also noted that the smaller the company, the "more risky it is to report" an injury to your boss (Interviewee B, 2019). Another worker states that some supervisors will reassign you to a different department where you would eventually get terminated for "performance issues" after reporting an injury (Interviewee A, 2019). (It is interesting to note that these consequences given by interviewees could potentially be categorized as informal disciplinary action, which was another potential reason identified in the survey for failing to report. As such, there may have been unforeseen blurring between "Supervisor or manager disapproval" and "Informal disciplinary action," when respondents were filling out the survey.)

In considering why all goal-exposed workers may report more instances of coworkers failing to report due to supervisor or manager disapproval, the conclusions of Hoyt et al. regarding groups and goal setting may be relevant. Hoyt et al. suggested that groups, applied in this case to mean workplace organizations, often suffer from the "more-important-than-average" effect, where members of the groups believe that their goals (a reduced incident or injury rate, for example) are more important than other groups' goals and as such are more likely to engage in unethical behavior (underreporting of injuries) to achieve them. This effect is heightened amongst group leaders who believe that their own hypothetical unethical behavior is more justified than others'. As such, it may follow that workers under these goal-conscious supervisors are reluctant to report injuries simply because they know it is important to their supervisor and

associated group. In this case, repercussions for reporting could be farther-removed and more nuanced, but still consequential (e.g. poor supervisor perception, less access to key meetings or projects, lowered promotion potential, etc.). Considering this information, and particularly given the seemingly contradictory indication from nearly all participants (n=31) that their leaders encourage injury reporting, it is suggested that *how* supervisor or manager disapproval is manifested and the consequences for injury reporting should be researched further to gain more understanding on why both goal- and SIP-exposed workers cite high rates of failure to report for this reason.

Perhaps the strongest association noted in the study was between exposure to any safety-related goal setting and whether participants had witnessed underreporting for any of the listed reasons. Indeed, out of 24 workers who report exposure (currently or in the past) to safety-related goal setting (either within or outside a safety incentive program), 18 describe witnessing a coworker fail to report an injury for one of the listed reasons. Comparatively, of the 7 participants who report no exposure at all to safety-related goal setting, only 1 stated that they had witnessed a coworker fail to report an injury. Digging deeper, only some of the listed reasons for not reporting were found to be associated significantly with exposure to goal setting. The strongest association found was for the expectation of informal disciplinary action.

Within the survey, possible examples of informal disciplinary action provided were receiving less desirable duties or being unfairly targeted for minor infractions. Both of these examples were cited by participants in follow-up interviews with one interviewee saying that “if you cause problems, they cause problems for you,” and noting that the risk of being sent to a different department and then fired shortly thereafter for “performance issues” was common at multiple steel factories they had worked at (Interviewee A). There was little additional

elaboration from participants within the survey on what other types of informal disciplinary action were experienced.

Two other reasons for not reporting, coworker and supervisor or manager disapproval, shared statistically significant p-values of .033. (Note: the association between supervisor or manager disapproval and goal setting overall has already been discussed in this section.) Interestingly, though coworker disapproval was associated with increased observations of non-reporting in goal-exposed workers, SIP-exposed workers did not share this as a statistically significant reason for failing to report. This seems to contradict the belief (Fairfax, 2012) and several previously-cited studies (Lipscomb et al., 2012; Probst & Estrada, 2010) that suggest workers may withhold reporting so that they do not ruin incentives for a group, which in turn suggests that coworker disapproval in and of itself is a strong enough deterrent to report. Why coworkers might disapprove of reporting outside of the possibility of losing something tangible like incentives is unclear and outside the scope of this study, however another study which addressed the topic shared a similar finding in relation to why workers might use personal insurance rather than reporting an injury at work and filing for worker's compensation (WC) Their study suggested that of 150 workers who either knew of somebody else or had themselves used personal insurance for a work-related injury, 64% cited that this occurs because "workers who file WC are not viewed favorably," (Lipscomb et al., 2015). In a separate study, Probst & Estrada (2010) asked high-risk workers that had reported an injury what types of consequences occurred as a result. Almost 20% stated that "People gossiped about [them] in an unkind or negative way," which could be one contributing factor not measured in the present study.

There were no other statistically significant associations uncovered, however there were other trends of interest. Firstly, 54.8% of participants report that formal disciplinary action (such

as drug testing or incident investigation) occurs in response to injury reporting; in addition, 26% (5/19) of participants who witnessed a coworker fail to report an injury cite "formal disciplinary action" as the factor that "most often" prevents workers from reporting, second only to "supervisor or manager disapproval." Despite this, failing to report due to formal disciplinary action was not significantly associated with goal setting among any group. This suggests that despite what workers perceive, formal disciplinary action may not actually discourage workers from reporting their injuries very often. One hypothesis for why this might be is that incident investigation (one type of formal disciplinary action) may actually produce preventative rather than punitive results. Performing incident investigation in order to identify root causes and mitigate any risks found can be an effective tool to prevent future injury or incident, and it is possible that the participants view this process positively. Of course, it is also possible that participants simply misremember how often workers fail to report for various reasons or that the limited sample size in the study failed to capture accurate results.

Similarly, workers who had never reported witnessing a coworker fail to report an injury were asked which factor *they believed* was most likely to prevent reporting. No clear majority was established, and 3 participants cited "other" reasons altogether. Of the 3, only 1 provided an alternative via optional fill-in-the-blank section: "complications involved with reporting the incident (paperwork) and the work involved in contacting insurance companies." This answer was echoed by another participant in a follow-up interview, where the worker's compensation process was deemed unclear (Interviewee A, 2019). In addition, in a previous study by Lipscomb et al. (2012) workers stated it was easier to deal with injuries on their own using private insurance than to go through the hassle of reporting and navigating the worker's compensation process.

# CHAPTER 6: CONCLUSION

Before any conclusions can be drawn from the results of this study, the limitations of the research must be recognized. First, some key elements of the study's design were not ideal. For example, the study employed convenience sampling rather than random sampling. Inability to access workers in a randomized fashion necessitated this sampling strategy. In addition, due to the sensitive nature of the survey and the real possibility that workers could be penalized either for divulging their own reporting habits or reporting negative aspects of their supervisors' or workplaces' strategies around injury reporting and possible suppression, questions were designed to collect information in a more indirect way (such as by asking participants to indicate if they were aware of coworkers failing to report, rather than asking about their own personal habits, etc.). Even still, workers may not have felt entirely comfortable answering the questions and could have withheld or misrepresented some of their experiences. There was also a desire to balance the collection of useful information with a consideration of the limits that workers might have, such as in time or question comprehension. To that end, questions were largely categorical with simple "yes" or "no" style answers versus requiring workers to answer in a more time-consuming and complex Likert-style scale. This in turn meant that categorical variables required numerical translation and limited the type of statistical analysis that could be performed to an association-style analysis (specifically, the Fisher's Exact Test, in this case). It was also discovered after data collection that combining certain questions rather than leaving them separate could have been more beneficial to the researchers and, given the eventual limited sample size, the relevance and validity of some questions and associated answers (specifically demographic information) was uncertain.

Considering these limitations, researchers should proceed with caution while still acknowledging that several statistically significant associations between variables were found. When comparing the counts of workers who have and do not have exposure to goal setting (both within and outside the confines of the SIP) to the actual versus expected counts of workers who report instances of non-reporting of injuries among their coworkers for various reasons, workers who have experience with goal setting report a higher-than-expected count of coworkers failing to report injuries overall ($p=.007$). When investigating specific reasons for not reporting, workers who have exposure to goal setting report higher-than-expected counts of coworkers failing to report due to supervisor or manager disapproval ($p=.033$), coworker disapproval ($p=.033$), and informal disciplinary action ($p=.026$). Similarly, among workers who report exposure to SIPs, a higher-than-expected count of participants report that their coworkers fail to report due to supervisor or manager disapproval ($p=.031$) as well due to incentives offered ($p=.028$).
Of course, association is not necessarily an indication of causation, but the statistically significant associations found in this study indicate that further research is warranted.

If the results of the research can be replicated, perhaps via a more ideally designed study (discussed above), then a preliminary link between a well-documented downside of Goal Setting Theory (namely, unethical behavior) can be drawn and applied to the OSH field: specifically, that workers who are exposed to safety-related goal setting are more likely to engage in unethical behavior in the form of failing to report injuries than workers who are not exposed to safety-related goal setting. It is also suggested that further research is most urgently needed regarding why supervisor or manager disapproval is so universally worrisome to workers when reporting injuries. Preliminary hypotheses that can be postulated (and hopefully tested) could stem from prior research as well as the present study's interviews.

Regarding the former, Hoyt et al. (2010) suggests that the mere setting of a goal can induce unethical behavior via the more-important-than-average effect: group members and leaders (or workers and supervisors) believe their goal is important and thus will do what is required to meet it, up to and including engaging in unethical behavior. Since this preliminary study found that goals in and of themselves may induce unethical behavior even in the absence of incentives, one possible "unseen" influencer as to why that is could be that the respondents were all members of a group organization with a shared goal who worked together to meet it. The more-important-than-average effect was measured to be stronger among supervisors than group members in the study by Hoyt et al., and since this study's participants were largely non-supervisory workers, it may be worthwhile to attempt a study which targeted supervisory workers and compare their experiences around failing to report injuries to those found in the current study. It could provide insight into whether the more-important-than-average effect is in play when OSH goals are set in the workplace. This could then lead researchers and workplaces to attempt interventions to mitigate the effect and thus positively impact worker experiences around reporting injuries and illnesses.

A second direction for future research also stems from findings on supervisors. Study participants suggest that supervisors can retaliate against an injured worker via informal disciplinary action, such as transferring a worker to a new department with the intent of terminating them shortly thereafter for "performance issues," or otherwise "making problems" for them (Interviewee A, 2019). If this type of response to injury reporting is even remotely typical in industry, an attempt to better understand the motivations behind it and subsequent efforts to curb the response is desirable, both to protect the injured worker but also to protect the business from potential legal action. An anonymous study interviewing supervisors and

managers about their experiences with retaliatory activity may provide further insight, specifically focusing on what factors motivate the behavior. If shared organization factors are found (such as workplace culture around reporting, financial consequences for injuries, etc.), these factors could be researched to try and measure their effect on retaliation to injured workers. Once the effects are known, mitigations could be tested and implemented across industries.

Delving further into these and other possible hypotheses is a practical "next step" for the application of Goal Setting Theory to safety-related goal setting and may help shed light on the all-important question for safety professionals: how can workplaces move towards 100 percent accuracy in illness and injury reporting so that ideal allocation of resources can be deployed to eventually prevent injuries from occurring in the first place?

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# APPENDICES

## Appendix A: IRB Approval Letter

### Notification of Exempt Certification

From: Social/Behavioral IRB
To: Korin Judge
CC: Michael Behm
Date: 2/18/2019
Re: UMCIRB 18-001344
Goal-Setting in Occupational Safety & Health and its Effects on Incident & Injury Reporting

I am pleased to inform you that your research submission has been certified as exempt on 2/18/2019. This study is eligible for Exempt Certification under category 2, subcategory A. See note below.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

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

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

**Appendix B: Survey**

1. In what country do you currently work?

2. Are you a union member?

   YES NO

3. Are you in a supervisory or managerial role?

   YES NO

4. Does your current workplace use a goal-based safety incentive program to reduce work-related injuries or illnesses? Example: Individuals or groups receive a bonus, increased time off, a prize or other incentive for achieving lower injury and illness rates?

   YES NO

5. If you circled "YES" for Question 4 above, please indicate which incentive(s) is/are given in your workplace's goal-based safety incentive program. (You may circle more than one, if applicable.)

   A. Extra pay or salary bonus

   B. Other monetary prizes (gift card, vouchers, etc.)

   C. Time off

   D. Recognition (formal praise, certificate, etc.)

   E. Other:

   _____

6. If you circled "YES" for Question 4 above, please indicate who the incentives are given to in your workplace's goal-based safety incentive program. (You may circle more than one, if applicable.)

   A. Individual workers

   B. Groups of workers (entire shift, crew, etc.)

   C. Supervisors or managers

   D. Everybody in the organization

   E. Other:

   _____

7. Have any of your past workplaces used a goal-based safety incentive program to reduce work-related injuries or illnesses? Example: Individuals or groups receive a bonus, increased time off, a prize or other incentive for achieving lower injury and illness rates?

YES NO

8. Does your current workplace have a goal of fewer or no injuries and illnesses? Example: "We want to reduce injuries and illnesses by 50 percent over the next year," or "Our goal is zero injuries and illnesses for the month."

YES NO

9. Have any of your past workplaces had a goal of fewer or no injuries or illnesses? Example: "We want to reduce injuries and illnesses by 50 percent over the next year," or "Our goal is zero injuries and illnesses for the month."

YES NO

10. If any of the following occur or have occurred at your workplace, please check "YES." If they have not occurred at your workplace, please check "NO."

| SITUATION | YES | NO |
|---|---|---|
| Formal disciplinary action is given after reporting a work-related injury or illness. (Example: a formal investigation is performed to see what rules were violated or a post-accident drug test is given to those who report) | | |
| Informal disciplinary action is given after reporting a work-related injury or illness. (Example: injured workers are given less desirable duties or are unfairly targeted for minor infractions after reporting an injury) | | |
| Leaders in my organization (Example: supervisors, managers, etc.) encourage others to report work-related injuries and illnesses. | | |
| Coworkers encourage others to report work-related injuries and illnesses. | | |

11. Are you aware of a situation where a worker was prevented from reporting a work-related injury or illness because of any of the below factors?

| FACTORS | YES | NO |
|---|---|---|
| Formal disciplinary action after reporting (such as drug testing, incident investigation, etc.) | | |
| Informal disciplinary action after reporting (such as less desirable duties, unfair targeting for infractions, etc.) | | |
| Incentives for not reporting (such as bonus, time off, prize, etc.) | | |
| Supervisor or manager disapproval of reporting | | |
| Coworker disapproval of reporting | | |

12. If you checked "YES" for ANY of the factors in Question 11, please indicate which ONE of the below factors *most often* prevents workers from reporting work-related injuries or illnesses.

A. Formal disciplinary action after reporting (such as a drug test, incident investigation, etc.)

B. Informal disciplinary action after reporting (such as less desirable duties, unfair targeting for infractions, etc.)

C. Incentives for not reporting (such as bonus, time off, prize, etc.)

D. Supervisor or manager disapproval

E. Coworker disapproval

13. If you checked "NO" for ALL factors in Question 11, indicate which ONE of the below factors *you believe* most often prevents workers from reporting work-related injuries or illnesses.

A. Formal disciplinary action after reporting (such as a drug test, incident investigation, etc.)

B. Informal disciplinary action after reporting (such as less desirable duties, unfair targeting for infractions, etc.)

C. Incentives for not reporting (such as bonus, time off, prize, etc.)

D. Supervisor or manager disapproval

E. Coworker disapproval

F. Other:

14. Please tell us anything you think we should be aware of regarding work-related injury and illness reporting within your current and/or past organizations.

15. If you are willing to have a short discussion with the student who designed this survey to aid in their research, please provide at least one way to contact you (e.g. email address or phone number). Alternately, please reach out to the student directly at: judgek16@students.ecu.edu

**Appendix C: Interview Questions**

Background statement: In the Safety and Health community, we are aware that workers can sometimes feel hesitant to report work-related injuries for various reasons. We would like to hear about any experiences you have had after sustaining a work-related injury.

Questions:

Have you ever been injured on the job?

What was your experience like when reporting your injury?

Do you believe your experience is typical to the industry and to your coworkers?

Do you believe most workers can report injuries without fear of reprisal? If not, what sort of reprisal is expected?

What can the industry do to ensure injured workers receive fair treatment when reporting?

Have you ever been employed at a workplace that used safety-related goal setting and was it standalone or part of a safety incentive program?

What was the goal?

What was the format of the safety incentive program? What type of incentives were given and who did they go to?

Do you believe safety incentive programs or safety related goals can help make the workplace safer? If so, how?

Did you notice any effect on injury reporting when working with a safety-related goal or safety incentive program?

Do you believe supervisors might be tempted to not report injury data up when they are given a goal of fewer or no injuries?

If yes, have you ever actually seen this happen?

What change or changes would have the most positive impact on injury reporting in your workplace?

**Appendix D: Interview Notes**

**Anonymous Interviewee A Notes**

**October 7th, 2019**

Background statement: In the Safety and Health community, we are aware that workers can sometimes feel hesitant to report work-related injuries for various reasons. We would like to hear about any experiences you have had after sustaining a work-related injury.

**Have you ever been injured on the job?**

Has had multiple injuries. Last year on July 24th, lost vision in eye at a grocery store. Had another injury before where they cut hand

**What was your experience like when reporting your injury?**

For the eye injury: Reported a few days later. At first they didn't realize it was an actual injury. "It wasn't entirely clear how to report; I just assumed I should tell supervisor on duty." Was told might get in trouble for not reporting it initially but nothing came of that. Organization was very supportive, took them to and from appointments when they could not get transportation, helped with filing paperwork, etc.

For hand injury: Was told the organization would not cover it because "I wasn't following the rules; if I reported it I would get in trouble." "If you cause problems for them, they cause problems for you." Other people would get injured and would go through with the process and would end up getting terminated eventually. They would get reassigned to a new department,

then let go for performance issues; the department would be overstaffed and the person would be let go. This was typical experience for the worker in most organizations, excluding grocery store. Most other work was in factory settings. At one place, another guy got his hand cut off in a machine and they told us to spray down the machine and get back to work. Worker has no idea what happened to that injured person. “People died in that factory; Ii got injured a few times there, cut with shards of metal and things.” Workers were provided with safety helmet and other PPE but pieces of hot cut steel would bounce up off the ground and hit them causing cuts and burns.

**Do you believe your experience is typical to the industry and to your coworkers?**

Yes to both instances. For example, at the steel factory, it would get so hot and people would pass out. Supervisors and coworkers would put the worker in a chair and when they woke up, sent them back to work. Workers didn’t report this type of thing, it was part of the culture.

**Do you believe most workers can report injuries without fear of reprisal? If not, what sort of reprisal is expected?**

Depends on the place; what type of culture do they have?

**What can the industry do to ensure injured workers receive fair treatment when reporting?**

Needs to be some kind of oversight because a lot of them are using loopholes and social pressure to keep people from reporting: “Oh, don’t report that or bad things will happen.” In their experience, safety inspections will occur but stuff will be put in line beforehand. For example, written protocol for a task might be to wear goggles but there are none available. The inspector doesn’t check to actually see the goggles, just that the paperwork is in order. Another example:if

you get something in your eye you are trained to go to eyewash station but there isn't one. "It's in the books but not in reality." Nobody comes and checks, they just look at the program during their guided tour. The company has a safety inspector who is part of the team and is not incentivized to find citations.

**Have you ever been employed at a workplace that used safety-related goal-setting and was it standalone or part of a safety incentive program?**

Yes, at the steel factory.

**What was the goal?**

Go so many days without injury or reduce injury by x amount over x days

**What was the format of the safety incentive program? What type of incentives were given and who did they go to?**

Some kind of reward like a certificate or a pat on the back to the department head; rarely was it given to manual laborers.

**Do you believe safety incentive programs or safety related goals can help make the workplace safer? If so, how?**

Not sure if the goal had an impact on people reporting or not, but probably. Rewards can make people work safer too. "It's a double edged sword."

**Did you notice any effect on injury reporting when working with a safety-related goal or safety incentive program?**

Not at that workplace; workers already did not report injuries all the time. Not sure if the goal made a difference to that.

**Do you believe supervisors might be tempted to not report injury data up when they are given a goal of fewer or no injuries?**

It depends on the organization; not sure if the goal itself causes it or just the culture of the organization. Again, if you cause problems, they cause problems for you, that goes for supervisors causing problems to their managers and on and on.

**If yes, have you ever actually seen this happen?**

Not applicable.

**What change or changes would have the most positive impact on injury reporting in your workplace?**

If people really understood their rights and how to report and felt like it wasn't going to screw over their employment by reporting. Another worry is that you can get medical care but if the company decides you are at fault you might have to pay; that can be a scary thing for workers so they might not report at all or use private insurance. Another big thing is that reporting injuries slows down productivity and you're expected to produce to a certain level, so there's a worry there too. It needs to be made clear somehow that these things aren't going to get in the way of your job, or the system needs to change to remove these factors.

**Anonymous Interviewee B Notes**

**October 21st, 2019**

Background statement: In the Safety and Health community, we are aware that workers can sometimes feel hesitant to report work-related injuries for various reasons. We would like to hear about any experiences you have had after sustaining a work-related injury.

**Have you ever been injured on the job?**

Yes

**What was your experience like when reporting your injury?**

It seems to depend on the size of the organization. In smaller organizations, injuries are more likely to be viewed as a hassle and it's not explicitly forbidden to report them, but it can be discouraged. The smaller the company, the "more risky it is to report." Bosses vented frustration noting all the forms required, "different letters reports and everything else." Ultimately injury was reported, but not before boss "dropped an 'f-bomb'" and let the worker know what a pain it was going to be. Some people might not want to upset their bosses like that and choose not to report. In a larger organization the interviewee had a different experience. The company already has channels set up for injury situations, including a clinic to go to and light duty jobs already made. It was not a hassle at all.

**Do you believe your experience is typical to the industry and to your coworkers?**

Yes; it often depends on the size of the industry

**Do you believe most workers can report injuries without fear of reprisal? If not, what sort of reprisal is expected?**

There will be some leaders that discourage it, but in general yes.

**What can the industry do to ensure injured workers receive fair treatment when reporting?**

At the worker's current workplace, it's not a problem. The most effective thing they have seen is getting training from people who've experienced serious injury on the job. Example: they recently watched a video about a man who did not use fall protection and fell from a height, breaking his back. The video obviously talked about safety, but let the injured worker tell his story to show why it's important to take care of yourself on the job. The video showed the man being cared for by his wife, including changing, going to the bathroom, even "wiping his ass for him." It was awful and made the risks more real to the worker so that they might stop and think before skipping a safety precaution.

**Have you ever been employed at a workplace that used safety-related goal-setting and was it standalone or part of a safety incentive program?**

Yes; there are lots of different examples but usually it is a goal as part of a program

**What was the goal?**

Goals were usually centered around lowering or having no injuries for the month or quarter

**What was the format of the safety incentive program? What type of incentives were given and who did they go to?**

Examples: $100 for tools every month the workers don't have an injury, catered party for everybody if no injuries occur, etc.

**Do you believe safety incentive programs or safety related goals can help make the workplace safer? If so, how?**

They can convince guys not to report their injuries because they want everybody to get the prizes, but they also can encourage people to simply take the time to work safer. It goes both ways.

**Did you notice any effect on injury reporting when working with a safety-related goal or safety incentive program?**

Yes; there were fewer injuries reported. Part of it was that there were less injuries overall because people were working safer, but some people also just do not report minor injuries.

**Do you believe supervisors might be tempted to not report injury data up when they are given a goal of fewer or no injuries?**

In some cases, but mostly not. In some small companies you could get away with it. People might say "Take the rest of the day off and come back Monday; don't tell anybody about it." At larger companies, there's less incentive to hide injuries.

**If yes, have you ever actually seen this happen?**

Not directly, but other people have reported it happening.

**What change or changes would have the most positive impact on injury reporting in your workplace?**

No suggestions