ABSTRACT

HEGEL, PETER SHERIDAN. Workplace Bullying: a Structural Equation Model of Organizational Leverage Points and Outcomes. (Under the direction of Dr. S. Bartholomew Craig).

Workplace bullying is a significant problem for both employers and employees from both an individual harm and an organizational financial perspective. This research used structural equation modeling to examine organizational constructs in addition to negative outcomes associated with bullying in order to help answer the question “what can organizations do about workplace bullying?” Data were collected from 512 American workers using the Amazon Mechanical Turk websites. Relationships were estimated between bullying frequency and the outcomes of anxiety, depression, job satisfaction, and turnover intention. Duration, severity, workplace stress (workload, role clarity, change support), and worker control were tested as moderators of this frequency-outcome relationship. The relationship between leadership (laissez faire, transactional, and transformation), workplace stress, and bullying frequency was also estimated. Finally, this research also explored whether the models fit equivalently in different bullying scenarios (supervisor bully vs coworker, mobbing vs single bully, short duration vs long duration, and victim vs witness). Results suggest that bullying severity, change support, and role clarity all moderated the bullying-outcome link. In general, workplace stress facets (workload, role clarity, and change support) acted mostly through bullying (full or partial mediation), as did laissez faire leadership. Both laissez faire leadership and transformational leadership moderated the relationship between stress and bullying, suggesting that leadership acts in multiple ways within the model. Finally, model fit comparison suggests that there are significant differences in construct relationships between the different bullying scenarios considered here.
Workplace Bullying: A Structural Equation Model of Organizational Leverage Points and Outcomes

by

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DEDICATION

To my family, friends, and friends-who-are-family. Whether you are near or far, your support made this possible.
BIOGRAPHY

Peter Hegel completed his undergraduate studies at Washington University in St. Louis, Missouri, in 2002. He graduated with a Bachelor of Arts degree in Psychology and Anthropology, after which he started a career in non-profit management, program development, and experiential education. In 2012 he left that career path and started his graduate studies at North Carolina State University, where he earned his M.S. in Industrial/Organizational Psychology in 2015, and his Ph.D. in Industrial/Organizational Psychology in 2018.
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Introduction

Workplace bullying is a type of deviant workplace behavior that results in negative outcomes both on the individual level for workers and witnesses, and on the organization level for the workplace as a whole (Appelbaum, Semerjian, & Mohan, 2012). Workplace bullying is defined here as a worker’s perception of being mistreated and abused by at least one other member of the same organization, while in the workplace, over a sustained period of time, and in a way that is difficult to defend against (Einarsen, 1999). It is a common problem, with an estimated 37% of American workers reporting having been bullied at some point in their careers, 49% reported having witnessed bullying in their careers, and up to four cases of workplace bullying occurring per single case of sexual or racial harassment, on average (Workplace Bullying Institute, 2007).

For the victim of bullying, research suggests that bullying increases workplace stress (Einarsen & Nielsen, 2015; Glasø & Notelaers, 2012), reduces the effectiveness of coping mechanisms (Okechukwu, Souza, Davis, & de Castro, 2014), and causes debilitating mental health symptoms (Verkuil, Atasayi, & Molendijk, 2016). Unsurprisingly, victims’ job satisfaction is significantly reduced by bullying, their number of missed workdays increases, and their intention to leave the organization grows (Houshmand, O’Reilly, Robinson, & Wolff, 2012). Even if the victim stays, research suggests that work-related motivation is significantly reduced (O’Moorea, Seignea, McGuirea, & Smitha, 1998). Finally, research suggests that victims of bullying are significantly more likely to contemplate suicide than coworkers with no exposure to bullying (Nielsen, Nielsen, Notelaers, & Einarsen, 2015).

For witnesses of bullying, many of the consequences that affect the victim of bullying affect them as well, although less is known about the mechanisms. Witnesses of bullying report diminished productivity and increased stress at work (Know Bull! Australia, 2012). They also
report a greater perception of workplace justice violations as well as greater intent to leave the organization (Houshmand, et al., 2012). Witnesses are more likely than other employees to report high levels of anxiety and even physical symptoms of pain at work (Okechukwu et al., 2014). These authors also note that while the effects of bullying are significantly worse on the victims of bullying compared to the witnesses of bullying, the symptoms reported by witnesses are also significantly worse than those of the average workers who neither experienced nor witnessed bullying.

For organizations, the financial costs of employee productivity reduction, missed work, and turnover can be high. In 1990, estimates of cost to the employer ranged up to $100,000 per year for each case of bullying in the workplace (Leymann, 1990). In addition to the operational cost of bullying, the legal cost can be significant as well (Workplace Bullying Institute, 2007). While bullying is not explicitly outlawed in the United States, bullying can take the form of illegal workplace aggression like harassment or abuse (Einarsen, 1999), and bullying is explicitly outlawed in many other countries, leading to additional legal liability for organizations that operate internationally and allow bullying to flourish. Finally, bullying contributes just as much to negative outcomes for employee and organization as does obesity, sleep deficit, and traumatic life events, which are more common research topics (Verkuil et al., 2016).

In the following sections, I will cover the relevant literature on workplace bullying from an antecedent, process, and consequences framework. The discussion of the antecedents of bullying will include factors specific to the workplace, the leaders involved, and the victim. The exploration of the process of bullying will include factors specific to bullying source, type, motivation, duration, and severity. The discussion of the consequences of bullying will include a discussion of mental health outcomes, job satisfaction, and turnover intentions.
Antecedents of Bullying

Workplace factors as antecedents. When victims of bullying were asked about causes of bullying, workplace stress and organizational dysfunction were two of the most commonly mentioned causes (Zapf, 1999). Workload is one of most common workplace stressors identified by workers (Einarsen, Hoel, & Notelaers, 2009). In the worst cases, workers may identify the workload as unmanageable, a situation where workers believe that they cannot finish the required tasks in the time available. Einarsen et al. (2009) suggested that worker-reported stressful workload may be correlated with workplace bullying for several reasons, including time-pressure-related competition between victim and bully, bullying in the form of a supervisor assigning unmanageable work, and workers with overwhelming workloads having fewer resources with which to defend themselves from bullying. It is therefore unsurprising that perception of workplace stressfulness is significantly correlated with workplace bullying (Einarsen, 1999). Einarsen (1999) also suggested that many factors could lead to perception of workplace stress including workload and organization change.

Workload and organizational change or dysfunction lead to stress by increasing uncertainty in workers’ job security and decreasing their control of their work environments. Steensma (2009) discussed how worker stress was a cyclical response to a worker’s workplace environment, with more stress as the response to the difference between what the worker is doing and accomplishing with their time, and a target criterion like completion of assigned tasks or mastery of required skills. For Steensma (2009), the more overwhelming the workload, and the less control the workers had over outcomes, the more stress there was for the workers involved. D’Cruz, Noronha, and Beale (2014) suggested that organizational change increased the likelihood of bullying by increasing stress through uncertainty while also increasing competition...
for limited resources. This competition for limited resources could in turn increase conflict, a likely precursor of bullying (Einarsen, 1998). The relationship may not be a simple one of mediation, however, with stress leading to bullying, which in turn caused negative outcomes. Verkuil et al. (2016) argued that the relationship is one of moderation; when workplace stress is high, the relationships between bullying and mental health outcomes, work motivation, and turnover intentions are even stronger.

A final way in which workplace stressors might trigger workplace bullying would be in cases where the bully had difficulty coping with job related stress and used bullying behavior as a coping strategy. In Mathisen, Einarsen, and Mykletun’s (2011) study of Norwegian restaurant workers, supervisors’ perceived stress and personality were both investigated as possibly interacting predictors of bullying by supervisor. The authors found that personality was only correlated with bullying when supervisor’s self-reported work stress was low, and that supervisor stress was strongly correlated with bullying regardless of victim personality. But stressful workplaces and stressed workers are not the only workplace antecedents of bullying.

Practically speaking, bullying may only happen if workers have few, if any, means to defend themselves. Steensma (2009) found that bullying behavior was more likely when workers’ control over their own work was low and when power distance between leaders and followers was high. From a bullying prevention perspective, workplaces with strong internal anti-bullying policies had far fewer cases of reported bullying, suggesting that the presence of institutional protection does matter (Appelbaum, et al., 2012; Ritzman, 2016).

Workplace culture also matters; in a study of over 1000 cases of workplace bullying, Brodsky (1976) concluded that bullying could only exist if the workplace culture either tolerated bullying or rewarded it in some way. Einarsen (1999) suggested that a bully couldn’t bully unless
he or she had, at minimum, a feeling of implicit permission from relevant supervisors, and a
feeling that he or she would not likely be sanctioned for the bullying behavior. Specifically,
Einarsen writes, “the organizational tolerance of bullying is communicated by those sanctions, or
rather lack of sanctions, enacted towards people violating informal norms and values, and the
existence and enactment of organizational policies against bullying” (p. 6).

**Leadership as a facilitator or inhibitor for others’ bullying behavior.** Leaders help set
policy and shape organizational culture, which suggests that they could play a significant role in
workplace bullying. One way this might play out is through the leader’s leadership style.
Laschinger, Wong, and Grau (2012) conducted a structural equation model analysis on surveys
of 342 Canadian nurses, looking at bullying and authentic leadership. Authentic leadership is a
leadership style characterized by strong interpersonal relationships, an emphasis on integrity,
behavioral consistency, and honesty (Avolio, Walumbwa, & Weber, 2009). They found that
authentic leadership correlated negatively with workplace bullying. Dussault and Frenette (2015)
suggested that this relationship might exist because certain types of leaders created an
environment where all three of the types of bullying outlined by Einarsen et al. (2009; work- related bullying, person-related bullying, and physical intimidation bullying, see p. 10) were less
likely to occur. They surveyed workers from multiple organizations and found that both
transformational and transactional leadership were negatively correlated with bullying in the
workplace. Transactional leadership focuses on organization, management, and performance of
workers, and uses both punishments and rewards to motivate workers, while transformational
leadership focuses on creating a shared vision of a needed change and then motivating workers
to work toward that goal by inspiring worker commitment (Avolio, Bass, & Jung, 1999).
Transformational leadership negatively correlated with work-related bullying, person-related
bullying, and physical intimidation bullying. Transactional leadership negatively correlated with both work-related bullying and person-related bullying, but was not significantly correlated with physical intimidation bullying. Dessault and Frenette (2015) also found that laissez faire leadership, a tendency to be disengaged and inactive, was positively correlated with all three types of bullying. Additionally, the authors found significant negative regression coefficients for both transactional and transformational leadership in relationship to all three types of bullying, with significant positive β weights for the relationship between laissez faire leadership and all three types of bullying. Avolio et al. (1999) suggested that laissez faire leadership encouraged bullying behavior because it provided so little in terms of guiding behaviors and expectations for worker behavior. For Avolio et al. (1999) laissez faire leadership was truly the absence of leadership, and was characterized by leaders who refused to make decisions, actively avoided conflicts, and who were unavailable when needed. Perhaps related, a Finnish study of the perceived causes of bullying identified “a weak superior” as the second most common cause of bullying after envy (Vartia, 1996). Together, these findings suggest that an absence of clear leadership characterized by a laissez faire leadership style can be a significant contributor to workplace bullying.

However, a lack of clear leadership may not be the only leader-related antecedent of bullying. Hoel, Glaso, Cooper, and Einarsen (2010) explored specific leader behaviors correlated with bullying in the workplace, and found strong links between bullying and non-contingent punishment (punishment that was delivered arbitrarily and without cause) as well as autocratic (coercive) leadership where subordinates had no voice in decision-making. Because autocratic leaders under stress were more likely to demonstrate bullying behaviors themselves (as tyrannical or abusive supervisors; Hoel & Salin, 2003), they may model bullying behavior to
their subordinates and create an environment where that behavior is either explicitly or implicitly condoned.

Leadership style can also influence bullying behavior by acting on other variables, for example, by actively reducing the workplace stress of subordinates by reducing workload and making the workplace more pleasant (Stouten et al., 2010). This fits into a model of leadership where a part of a leader’s responsibility is the role of work facilitator (House, 1996). Additionally, leaders who actively modeled ethical behavior may help create an ethical work climate correlated with lower rates of bullying (Stouten et al., 2010; Zdaniuk & Bobocel, 2015).

Zdaniuk and Bobocel (2015) found this effect in a longitudinal study for transformational leaders, which fits with the idea that transformational leaders are a source of follower collective identity (Conger, Kanungo, & Menon, 2000); in this case, as ethical members of the workplace.

**Victim factors as antecedents.** Numerous research efforts point to workplace stress and anxiety as a significant predictor of bullying. A meta-analysis by Verkuil et al. (2016) found that anxiety and stress in victims significantly predicted later workplace bullying of all types. Other victim characteristics have been hypothesized to predict bullying, specifically victims’ mental health. Victims often have higher rates of depression, higher social anxiety, and lower self-esteem compared to their unbullied peers (Gondalfo, 1995); however, while Gondalfo (1995) suggested that these factors were antecedents to bullying, he admitted that they could have been consequences of bullying instead, and that it was impossible to determine from his data. However, there is some evidence that mental health can be an antecedent to bullying; anxiety and depression in men led to an increased probability of being bullied in a separate five-year longitudinal study completed by Einarsen and Nielsen (2014).
Process of Bullying

**Bullying source.** Bullying process may differ significantly by source in terms of both the number of individuals involved in bullying behavior and their relationship to the victim. Bullying by leaders may lead to worse consequences for victims when compared to bullying by coworkers (Einarsen & Rankes, 1997), but there is disagreement about how common bullying by leaders is. Einarsen and Rankes (1997) maintained that most bullying was done by supervisors, while Steensma (2009) suggests that only about a third of bullying behavior comes from supervisors. Bullying may also come from more than one individual at a time. Bullying by groups, also known as mobbing, led to the same severe negative outcomes for the victim as did bullying by a single individual (Zapf, 1999). However, it is not clear if, on average, mobbing is more or less severe than single source bullying.

**Types of bullying.** Einarsen et al. (2009) conducted a factor analysis on 5288 responses to a 22-item measure about the frequency of bullying behavior over the previous six months, and concluded that there were three types of workplace bullying (Einarsen et al., 2009); person-related bullying, work-related bullying, and physical intimidation bullying. Person-related bullying involved attacks on a person’s traits, abilities, or mental health. Work-related bullying involved criticizing a person’s ability to work or the quality of the work itself. Finally, physically intimidating bullying included the act of physical intimidation itself, threats of violence, or actual physically violent acts against the victim. In all cases, the defining factor was the victims’ perception of this abuse as mistreatment or unfairness, and the difficulty for the victim to defend against it. A study of new nurses suggested that work related bullying was the most frequent form, accounting for 68% of workplace bullying, followed by person related bullying (23%) and physical bullying (9%; Laschinger et al., 2012).
Motivations for bullying. Einarsen (1999) suggested that there were two primary motivations for bullying in the workplace: predatory bullying and dispute-related aggression. Predatory bullying was bullying where the victim had not personally provoked the bully through his or her actions or inactions; rather, something about that person provoked the bully. Predatory bullying occurred when a victim of bullying had been selected as a target by accidental circumstance, position, relative power, or because of the victim’s actual or perceived membership in some group (sex, age, race, religion, etc.). This framework explicitly groups racial and sexual harassment within an overarching category of workplace bullying, assuming other requirements (like duration) are met (Einarsen, 1999).

Dispute-related bullying is bullying where the bully targeted a victim based on an interpersonal conflict between the two parties (Einarsen, 1998). Dispute-related conflicts can turn into bullying for many reasons, but Einarsen (1998) suggested that it was more likely to occur in situations where the bully felt significant emotional involvement in the conflict, or where the bully felt that his or her self-image had been threatened by the actions of the victim. This type of bullying may be the result of an escalating conflict, and may itself be a response to perceived wrongdoing by the victim. Einarsen (1998) pointed out that it is not impossible for both parties to feel mistreated, and for both parties in a conflict to claim that they have been bullied by the other (Einarsen, Raknes, & Matthiesen, 1994). However, workplace bullying is often characterized by a power difference between the bully and the victim (Einarsen, 1999), making mutual bullying likely to be an uncommon occurrence.

The ultimate cause of conflicts that lead to dispute-related bullying may actually be workplace stress in some cases, due, for example, to forced competition for scarce resources based on organizational change (Einarsen et al., 2009). However, certain leadership styles may
prevent dispute-related conflict from turning into bullying by encouraging a higher level of forgiveness on both sides, breaking a potential cycle of conflict (Zdaniuk & Bobocel, 2015). These authors found that leaders who scored highly on idealized influence (charisma) scales had followers who were more likely to confront aggressors or retaliate rather than passively receiving bullying, suggesting again that leadership may moderate the relationship between workplace stress and bullying behavior.

**Bullying severity.** Zdaniuk and Bobocel (2015) argued that perceived bullying severity mattered, and that the more severe the offense, the harder it was for victims and witnesses to cope with the bullying and the worse the consequences. However, the severity of each offense is in the eye of the beholder (Zdaniuk & Bobocel, 2015), making severity difficult to estimate through external observation. Bullying is also by definition an escalating and long-term phenomenon (Einarsen, et al., 2009), which means that any individual observed behavior might be difficult to label as bullying in any momentary analysis. For this reason, severity must be rated by the parties experiencing the bullying.

**Bullying duration.** Einarsen et al. (2009) suggest that the longer bullying continues, the more it drains the coping resources of the victim and the worse the consequences for the victim. They suggested that any bullying measure should include questions about the duration of the behavior because it may contribute to overall outcome. They also note that if bullying was defined as a long-term behavior that must last at least a set amount of time, it may be difficult for most researchers to assess except retroactively.

**Consequences of Bullying**

**Mental health.** Giorgi, Perminienė, Montani, Fiz-Perez, Mucci, and Arcangeli (2016) conducted a structural equation model analysis on the relationship between bullying behavior,
coping strategies, and psychological distress in 326 workers. They found a strong relationship between psychological distress and bullying. Unsurprisingly, psychological distress is only the tip of the iceberg; bullying has also been associated with significant negative mental health outcomes for victims, including anxiety, depression, and suicidal ideation. Verkuil et al. (2016) conducted a meta-analysis of 63 studies and found that bullying was significantly correlated with subsequent depression, anxiety, and other stress-related psychological complaints. The same authors broke anxiety into two categories - general anxiety and posttraumatic stress disorder (PTSD) symptoms - and found that bullying was strongly correlated with the PTSD symptoms as well, which suggests that bullying may cause similar outcomes to better known PTSD triggers, like violence.

Perhaps because of bullying’s effect on mental health, workplace bullying doubles the rate of suicide ideation in victims, according to a five-year longitudinal study using 1846 Norwegian workers (Nielsen et al., 2015). According to Namie and Namie (2003), this translates to almost 25% of workplace bullying victims contemplating suicide in response to the bullying behavior. The outcome can be fatal, according to a 2010 survey of 54 Australian workers; 6% of workers surveyed knew someone who had committed suicide due to workplace bullying (Know Bull! Australia, 2012).

**Job satisfaction.** Vickers (2014) and Steensma (2009) both argued, on the basis of literature reviews, that workplace bullying which was not addressed by supervisors led to decreased job satisfaction in victims. This is supported in the research; Verkuil et al.’s (2016) meta-analysis found significant correlations between bullying and burnout, a construct that includes diminished employee motivation and job satisfaction. Focusing on job satisfaction in a study of 356 sales professionals, Valentine, Fleischman, and Godkin (2015) found a significant
negative correlation between job satisfaction and workplace bullying. Finally, Einarsen et al. (2009) found strong and significant negative correlations between job satisfaction and all three of their bullying constructs (person-related bullying, work-related bullying, and physical intimidation). They also found significant and negative correlations between all three types of bullying and organizational commitment.

**Turnover intentions.** Unsurprisingly given the links between workplace bullying and organizational commitment, research suggests that increased turnover intentions are also correlated with bullying. Laschinger et al.’s (2012) path model of data from 342 nurses suggests that bullying in nursing settings led to increased turnover intentions through bullying’s effect on job satisfaction and emotional exhaustion. Another study on nurses, this time a longitudinal study with 357 participants, found that not only did being bullied lead to increased turnover for the victims, but witnessing unaddressed bullying led to statistically similar increases in turnover intentions for the witnesses (Houshmand et al., 2012).

**Statement of Need for the Current Research**

In summary, workplace bullying is a common and a significant risk for organizations. Bullying leads to workplace disengagement and psychosocial distress for worker victims (Einarsen & Nielsen, 2015; Glasø & Notelaers, 2012), higher intention to leave for worker witnesses and victims (Know Bull! Australia, 2012, Houshmand, et al., 2012), and loss of workers, worker productivity, and morale for organizations (Houshmand et al., 2012, O’Moorea et al., 1998). The costs of workplace bullying create a pressing need to understand the relationships between the variables associated with bullying and outcomes, as well as if these relationships change depending on the identity of the worker and the identity of the bully. While much work has already been done to explore the nature of workplace bullying, rarely has work
focused primarily on variables that most organizations can influence. Instead, many projects have investigated more immutable aspects of the situation, like supervisor, bully, or victim personality, worker demographics, industry type, or worker tenure.

In response to this situation, I conducted a structural equation model analysis on variables that a company might realistically have some ability to influence as well as outcomes related to workplace bullying. Specifically, I surveyed existing workers who had experienced or witnessed bullying, and I examined the relationships between bullying behavior, leadership style, perceived workplace stress, bullying severity and duration, worker control, mental health, job satisfaction, and turnover intentions. I chose not to model constructs that an employer would have no control over, like industry, market share, etc. Finally, I explored how the relationships modeled differ when comparing witnesses of bullying to victims of bullying, bullying by supervisors to bullying by coworkers, bullying by groups to bullying by individuals, and short duration bullying to longer duration bullying.

**Hypotheses and Research Questions**

**Hypotheses**

Based on the rationale above, the following hypotheses were tested within structural equation models of the constructs in the hypotheses (see Figure 1):

H1a. All three bullying behaviors (person-related bullying, work-related bullying, and physical intimidation bullying) will be negatively correlated with mental health symptoms. This is a replication of a relationship found by Giorgi et al. (2016) and Verkuil et al. (2016).

H1b. All three bullying behaviors will be negatively correlated with job satisfaction. This is a replication of a relationship tested by Valentine et al. (2015).
H1c. All three bullying behaviors will be positively correlated with turnover intention. This is a replication of a relationship found by Laschinger et al. (2012).

H2a. Perceived severity of bullying will moderate the relationship between all three bullying behaviors and mental health symptoms, such that as severity increases, the strength of the relationship between bullying behavior and negative mental health outcomes increases. This is a replication of a relationship found by Nolfe, Petrella, Zontini, Uttieri, and Nolfe (2010).

H2b. Perceived severity of bullying will moderate the relationship between all three bullying behaviors and job satisfaction, such that as severity increases, the strength of the relationship between bullying behavior and job satisfaction increases. Okechukwu et al. (2014) hypothesized this relationship for mental health outcomes; I am extending it to this bullying outcome as well.

H2c. Perceived severity of bullying will moderate the relationship between all three bullying behaviors and turnover intention, such that as severity increases, the strength of the relationship between bullying behavior and turnover intentions increases. Okechukwu et al. (2014) hypothesized this relationship for mental health outcome; I am extending it to this bullying outcome as well.

H3a. Duration of bullying will moderate the relationship between all three bullying behaviors and mental health symptoms, such that as duration increases, the strength of the relationship between bullying behavior and negative mental health outcomes increases. This is a test of a relationship hypothesized by Ritzman (2016).

H3b. Duration of bullying will moderate the relationship between all three bullying behaviors and job satisfaction, such that as duration increases, the strength of the relationship between bullying behavior and job satisfaction increases. Ritzman (2016) hypothesized this relationship for mental health outcomes. I am extending this to job satisfaction.
H3c. Duration of bullying will moderate the relationship between all three bullying behaviors and turnover intention, such that as duration increases, the strength of the relationship between bullying behavior and turnover intention increases. Ritzman (2016) hypothesized this relationship for mental health outcomes. I am extending this to turnover intentions.

H4a. Perception of workplace stress will moderate the relationship between all three bullying behaviors and mental health symptoms, such that as stress increases, the strength of the relationship between bullying behavior and mental health symptoms increases. This is a replication of a general relationship found in a meta-analysis by Verkuil et al. (2016), specifically that stress moderates the relationship between bullying and anxiety and depression.

H4b. Perception of workplace stress will moderate the relationship between all three bullying behaviors and job satisfaction, such that as stress increases, the strength of the relationship between bullying behavior and job satisfaction increases. Verkuil et al. (2016) found this relationship for specific mental health outcomes, I am extending it to this additional outcome, job satisfaction.

H4c. Perception of workplace stress will moderate the relationship between all three bullying behaviors and turnover intention, such that as stress increases, the strength of the relationship between bullying behavior and turnover intention increases. Verkuil et al. (2016) found this relationship for specific mental health outcomes; I am extending it to this additional outcome, turnover intention.
Figure 1. Simplified structural equation model of all tested constructs; LS = leadership style, WS = workplace stress, MH = mental health.
H4d. The relationship between perception of workplace stress and mental health symptoms will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between stress and bullying) is a test of a relationship hypothesized in Stouten et al. (2010); specifically, Stouten et al. (2010) tested whether workload was correlated with workplace bullying, and argued that workload was a reasonable stand-in for work stress. The second part (the relationship between bullying and mental health symptoms) is a replication of a relationship found in a meta-analysis by Verkuil et al. (2016).

H4e. The relationship between perception of workplace stress and job satisfaction will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between stress and bullying) is a replication of a relationship found by Stouten et al. (2010); specifically, Stouten et al. (2010) found that workload was correlated with workplace bullying, and argued that workload was a reasonable stand-in for work stress. The second part (the relationship between bullying and job satisfaction) is a replication of a relationship found by Valentine et al. (2015).

H4f. The relationship between perception of workplace stress and turnover intention will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between stress and bullying) is a replication of a relationship found by Stouten et al. (2010); specifically, Stouten et al. (2010) found that workload was correlated with workplace bullying, and argued that workload was a reasonable stand-in for work stress. The second part (the relationship between bullying and turnover intentions) is a replication of a relationship found by Houshmand et al. (2012).

H5a. Worker control will moderate the relationship between all three bullying behaviors and mental health symptoms, such that as control increases, the strength of the relationship between
bullying behavior and mental health symptoms decreases. This is a test of a relationship hypothesized in Steensma (2009); specifically, that worker control moderates the relationship between bullying and negative outcomes.

H5b. Worker control will moderate the relationship between all three bullying behaviors and job satisfaction, such that as control increases, the strength of the relationship between bullying behavior and job satisfaction decreases. This is a test of a relationship hypothesized in Steensma (2009); specifically, that worker control moderates the relationship between bullying and negative outcomes.

H5c. Worker control will moderate the relationship between all three bullying behaviors and turnover intentions, such that as control increases, the strength of the relationship between bullying behavior and turnover intention decreases. This is a test of a relationship hypothesized in Steensma (2009); specifically, that worker control moderates the relationship between bullying and negative outcomes.

H6a. Leadership style (specifically, transformational leadership, transactional leadership, and laissez faire leadership) will moderate the relationship between perception of workplace stress and all three bullying behaviors, such that as transformational and transactional leadership increases, the strength of the relationship between stress and all three bullying behaviors will decrease. Additionally, as laissez faire leadership increases, the strength of the relationship between stress and all three bullying behaviors will increase. This is a test of a relationship hypothesized in Steensma (2009); specifically, that (poor) leadership moderates the relationship between bullying and negative outcomes.

H6b. The relationship between leadership style (specifically levels of transformational leadership, transactional leadership, and laissez faire leadership) and mental health symptoms
will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between leadership style and bullying) is a replication of a relationship found by Stouten et al. (2010). The second part (the relationship between bullying and mental health symptoms) is a replication of a relationship found in a meta-analysis by Verkuil et al. (2016).

H6c. The relationship between leadership style (specifically levels of transformational leadership, transactional leadership, and laissez faire leadership) and job satisfaction will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between leadership and bullying) is a replication of a general result reported in Stouten et al. (2010). Stouten et al. (2010) tested this relationship for “ethical leadership” instead of transformational, transactional, or laissez faire leadership. The second part of the hypothesis (the relationship between bullying and job satisfaction) is a replication of a result reported in Valentine et al. (2015).

H6d. The relationship between leadership style (specifically levels of transformational leadership, transactional leadership, and laissez faire leadership) and turnover intention will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between leadership and bullying) is a replication of a general result found by Stouten et al. (2010). Stouten et al. (2010) tested this relationship for “ethical leadership” instead of transformational, transactional, or laissez faire leadership. The second part (the relationship between bullying and turnover intentions) is a replication of a result reported in Houshmand et al. (2012).

Research Questions

Previous research has indicated that the identity of the person experiencing the bullying (witness or victim), the formal relationship of that person with the bully (as coworker or as a
direct subordinate), and the number of bullies (mobbing vs. single bully) all play significant roles in workplace bullying. What is less clear is whether this difference would appear in all the models specified in the hypotheses. Therefore, I investigated the following research questions, none of which have been previously investigated.

RQ1. Does the model fit for each of the models specified in the hypotheses differ when the participant is a witness to bullying rather than a victim of bullying?

RQ2. Does the model fit for each of the models specified in the hypotheses differ when the bully is a supervisor rather than coworker?

RQ3. Does the model fit for each of the models specified in the hypotheses differ when there are multiple bullies (mobbing) rather than a single bully?

RQ4. Does the model fit for each of the models specified in the hypotheses differ when the bullying duration is less than six months compared to when the bullying duration is six months or longer?

**Method**

**Procedure**

The entire study was computer-mediated and presented through the Qualtrics website. Participants first read and filled out an informed consent agreement, then completed a brief demographic survey, and finally responded to between 101 and 111 items (depending on the branching nature of some of the items). Following completion of the survey, subjects read a written debrief. From beginning to end, average engagement time was 10 minutes.

**Participants**

Five hundred and twelve participants were recruited from Amazon’s Mechanical Turk (mTurk) website (see Appendix A for advertisement) based on work that suggested that a
complex model should have at least 460 participants (Wolf, Harrington, Clark, & Miller, 2013). Participation was limited to adults (age 18 and up), who self-reported United States citizenship, reported working at least 30 hours a week, and had either witnessed or experienced workplace bullying in the last two years. Participants were paid $.50 for their participation. Participant average age was 33.75, with an age range of 18 to 66. 47.3% identified as male, 52.1% identified as female, and 0.6% identified as “other.” 10.2% of the sample identified as being of Hispanic, Latino, or Spanish origin. 76.2% identified as white, 9.2% identified as black or African American, 1.6% identified as American Indian or Alaskan native, 2% identified as Asian Indian, 1.2% identified as Chinese, 2% identified as Korean, 1% identified as Filipino, 1.2% identified as Vietnamese, and 4.9% identified as “other.” All other racial and ethnic identities comprised less than 1% of the sample. See Appendix B for demographic items.

**Measures**

**Bullying Source.** Participants were asked to report whether they had experienced bullying and/or witnessed bullying in the last two years. I then assessed bullying source with a single branching question for single source bullying and another branching question for group source bullying. Participants who reported having both experienced and witnessed bullying were separately asked questions about both situations. If the bullying was from a single individual, I then asked if the bullying was coming from someone in a supervisory position, a coworker, or another source. If the bullying was by a group, I then asked if the group contained at least one person in a supervisory position compared to the bullying target, or if the group consisted of people who were coworkers relative to the bully target. I also provided the response option “the bullying group contained some other mix of coworkers not listed above, but did not contain a supervisor” (see Appendix C).
**Bullying Behavior.** Bullying behavior and frequency was measured with the Revised Negative Acts Questionnaire (NAQ-R; Einarsen et al., 2009). The NAQ-R is a 22-item behavioral frequency measure. It uses a five-response-option Likert-type scale format to measure frequency of bullying behavior. The scale has been reported to contain three subdimensions: bullying related to the work itself, bullying focusing on the victim’s social status and interactions, and physical bullying. Items were modified to allow the rated behaviors to include both witnessed and experienced bullying behaviors (see Appendix D).

I conducted an EFA of the bullying behavior items to examine their factor structure in the current data. In contrast to the scale authors’ intent, the EFA suggested a one-factor solution, as the ratio of the first factor to the second was 6.37 with a clear “knee” in the scree plot after the first factor (Morizot, Ainsworth, & Reise, 2007). Since bullying behavior was now a one-dimensional construct with 22 items, I parceled it into three parcels as suggested by Matsunaga (2008), in order to increase the chance of getting the complex SEM to run successfully. Parcels were constructed using the factorial algorithm (Rogers & Schmitt, 2004), which meant assigning items to parcels based on factor loading, such that the highest and lowest loading item were put into parcel 1, the next highest and next lowest were put into parcel 2, and so on, until all items had been assigned to parcels. The value of each parcel was generated by averaging the values of the indicator items in that parcel. The scale demonstrated an α of .94.

**Bullying Perceived Severity.** I used a perceived severity scale with two items that measured perceived severity and perceived injustice (Zdaniuk & Bobocel, 2015). The items were, “to what extent was the bullying unfair?” and “how severe would you rate the bullying?”
While the original Zdaniuk and Bobocel (2015) scale was a seven-response-option Likert scale, I changed it to five response options to match the format of the other Likert-type scales in the study (see Appendix E). The scale demonstrated an $\alpha$ of .53.

**Bullying Duration.** Bullying duration was measured for each bullying behavior using a single free response field and the unit “weeks.” Specifically, the question asked, “how long did this bullying behavior continue to occur regularly? If the behavior is still occurring regularly (i.e. it has not ended) then report how long it has occurred and then check the option for “bullying behavior is still going on.” For the SEM analysis, bullying duration was then converted from weeks to years by dividing by 52 to reduce range and help the analysis to run (L. Muthen, personal communication, August 9th, 2017).

**Job Satisfaction.** Job satisfaction was measured using a five-item job satisfaction scale modified by Judge, Bono, and Locke (2000) from a 17-item scale developed by Brayfield-Rothe (1951). While the Judge et al. (2000) scale used a seven-response-option Likert scale format, I used a five-response-option format to match the other Likert-type scales in the study (see Appendix F). Additionally, the Judge, Bono, and Locke (2000) job satisfaction scale is scored such that low scores indicate high satisfaction, while high scores indicate low satisfaction. Therefore for the rest of the document I will refer to job satisfaction as “job dissatisfaction” for clarity reasons, since higher scale scores indicate higher dissatisfaction with work. Finally, I conducted an EFA of the job dissatisfaction items, which suggested a single factor structure. This construct was not parcelled because of the low number of indicator items. The scale demonstrated an $\alpha$ of .90.

**Turnover Intention.** Turnover intention was measured using three items from Dwivedi’s (2015) six item, five response option, single-factor turnover intention scale. I used three of the
four highest loading items identified in Dwivedi’s (2015) analysis to reduce load on the participants (see Appendix G); I excluded one item from the top four highest loading items that had awkward and confusing wording. Additionally, the Dwivedi (2015) turnover intention scale is scored such that low scores indicate high intention to turnover, while high scores indicate low intention to turnover. Therefore for the rest of the document I will refer to turnover intention as “intent to stay” for clarity reasons, since higher scale scores indicate higher intention to remain with the employer. Finally, I conducted an EFA of the intention to stay scale, which suggested a single factor structure. This construct was not parcelled because of the low number of indicator items. The scale demonstrated an α of .90.

**Mental Health Symptoms.** Mental health was assessed as two different constructs, anxiety and depression, using the Hopkins Symptoms Checklist-25 (HSCL-25; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974), which is the same procedure used by Einarsen and Nielsen (2015). The HSCL-25 is a 17 item measure of symptom severity with six items assessing anxiety and 11 items assessing depression. Each item had four Likert-type scale responses. I converted the scale to five response options to match the format of the other Likert-type scales in the study (see Appendix H). I then conducted an EFA of the mental health items, which suggested a two-factor structure that fit with the one specified by the authors; therefore, I treated it as two constructs (depression and anxiety). I parcelled the indicator items in each construct into three parcels per construct as suggested by Matsunaga (2008). Parcels were constructed using the factorial algorithm (Rogers & Schmitt, 2004), which meant dividing items based on factor loading such that the highest and lowest loading item were put into parcel 1, the next highest and next lowest were put into parcel 2, and so on for each of the two constructs, until all items have been assigned to parcels. The value of each parcel was generated by averaging the values of the
indicator items in that parcel. The anxiety subscale demonstrated an $\alpha$ of .92, while the depression subscale demonstrated an $\alpha$ of .95.

**Perception of Workplace Stress.** Perception of workplace stress was measured using three components from Cousins et al.’s (2004) workplace stress measure. The three components were workload (which the authors refer to as “demands”), role clarity (which the authors refer to as “role”), and organizational change support (which the authors refer to as “change”). Each item had four Likert-type scale responses, which I converted to five response options to match the format of the other Likert-type scales of the study. I used the highest three loading items from the Cousins et al. (2004) analysis for each component to reduce load on the participants (see Appendix I). I then conducted an EFA of the workplace stress items, which suggested a three-factor structure that fit the one specified by the authors; therefore, workplace stress was treated as three constructs for the SEM analysis (workload, role clarity, and change support). None of these constructs were parceled because of the low number of indicator items for each construct. The scales demonstrated an $\alpha$ of .77 (workload), an $\alpha$ of .86 (role clarity), and an $\alpha$ of .82 (organizational change support).

**Worker Control.** Worker control was measured using one component of Cousins et al.’s (2004) workplace stress measure, specifically worker control (which the authors refer to as “control”). Each item had four Likert-type scale responses, which I converted to five response options to match the format of the other Likert-type scales of the study. I used the highest three loading items from the Cousins et al. (2004) analysis for worker control to reduce load on the participants (see Appendix J). I conducted an EFA of the worker control items, which suggested a single factor structure, and the construct was not parceled because of the low number of indicator items. The scale demonstrated an $\alpha$ of .81.
**Transactional, Transformational, and Laissez Faire Leadership Styles.** I measured participants’ perceptions of their direct supervisors’ leadership styles in terms of transactional, transformational, and laissez faire leadership styles. I used six items from a 12-item, two-factor scale of laissez faire leadership that used five response options for each item (Hinkin & Schriesheim, 2008). I used the highest three loading items for each factor as determined by the Hinkin and Schriesheim (2008) analysis to reduce load on the participants (see Appendix K). I conducted an EFA of the laissez faire leadership items, which suggested a single factor structure. The construct was not parceled because of the low number of indicator items. The scale demonstrated an $\alpha$ of .81.

Finally, I also used an eight-item, two-factor scale of transformational and transactional leadership developed by Oterkiil and Ertesvag (2014). This scale used six Likert-type scale response options for each item; I converted this to a five-response-option format to match the other Likert-type scales of the study. This scale had four items for each factor (see Appendix L). The results of an EFA suggested a one-factor solution, as the ratio of the first factor to the second was 8.39 with a clear “knee” in the scree plot after the first factor and a second factor with a loading of less than one (Morizot, Ainsworth, & Reise, 2007). Although this result did not support a two-factor interpretation, I still calculated separate scale scores in order to test my hypotheses, which required separate scales. Neither construct was parceled because of the low number of indicator items in each construct. The scales demonstrated an $\alpha$ of .89 (transactional leadership) and an $\alpha$ of .91 (transformational leadership).

**Analysis and Results**

Eighteen covariance structure models were run to address all hypotheses, as a single model proved too complex to run in the Mplus computer program without generating
unresolvable errors. Correlations, means, standard deviations, and reliabilities are shown in Table 1. Model fit statistics for the main effect model and all mediation models are shown in Table 2. Model fit results for the main effect and all mediation models demonstrate adequate model fit (RMSEA <.08) (Browne & Cudeck, 1993), CFI >.93 (Byrne, 1994). Model fit information for all moderation models are shown in Table 3. Model fit information is significantly reduced for models involving moderation compared to the main effect/mediation models, because Mplus does not estimate absolute model fit indices in cases of SEM latent variable moderation interaction. Instead, Mplus only estimates comparative model fit indices in these cases (L. Muthen, personal correspondence, October 19th, 2017). Standardized direct and indirect effects for the main effect model and all mediation models are shown in Table 4. Standardized direct and indirect effects for all moderation models are shown in Table 5.

**Hypotheses Tests**

Hypotheses 1a-c, which predicted that bullying behavior would be significantly related to all (negative) outcomes (anxiety, depression, job dissatisfaction, and intention to stay), were tested by examining the corresponding path coefficient estimates. Hypotheses 1a-c were tested using one SEM (SEM 1, see Figure 2). Path coefficients that were positive and significantly different from zero were interpreted as support for their corresponding hypotheses (Hoyle, 1995).

The direct effect (DE) estimate for the relationship between bullying behavior and mental health (anxiety) was significant (DE = -.37, \( p < .001 \)). The direct effect estimate for the relationship between bullying behavior and mental health (depression) was significant (DE = -.47, \( p < .001 \)). The direct effect estimate for the relationship between bullying behavior and job dissatisfaction was significant (DE = .52, \( p < .001 \)). The direct effect estimate for the relationship between
bullying behavior and intention to stay was significant (DE = -.25, \( p < .001 \)). All relationships were in the direction predicted; therefore, hypotheses 1a-c were supported.

Hypotheses 2a-c, which predicted that bullying severity would moderate the relationship between bullying behavior and all outcomes (anxiety, depression, job dissatisfaction, and intention to stay) were tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Hypothesis 2a-c were tested using one SEM (SEM 2, see Figure 3). If the magnitude of each interaction term was significantly different from zero, the results were interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001). The interaction term estimate for severity moderating the relationship between bullying behavior and mental health (anxiety) was not significant (bullying behavior X severity = .00, \( p = .93 \)). The interaction term estimate for severity moderating the relationship between bullying behavior and mental health (depression) was not significant (bullying behavior X severity = .07, \( p = .12 \)). The interaction term estimate for severity moderating the relationship between bullying behavior and job dissatisfaction was not significant (bullying behavior X severity = .02, \( p = .76 \)). The interaction term estimate for severity moderating the relationship between bullying behavior and intention to stay was significant (bullying behavior X severity = -.09, \( p = .05 \)), such that for high levels of bullying severity (one SD above the mean), the correlation between bullying behavior and intention to stay is less negative than when severity is moderate or low (see Figure 4). However, this was counter to the direction hypothesized. Therefore, hypotheses 2a-c were not supported.
<table>
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<td>-.26**</td>
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<td>-.07</td>
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<td>-.38**</td>
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<td>12. Laissez Faire Leadership</td>
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<td>-.62**</td>
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*Note. N = 512. Bullying behavior duration was a single item scale, so no reliability could be calculated. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).
Figure 2. SEM 1 testing hypothesis 1a-c (unstandardized estimates). bb_p1, bb_p2, & bb_p3 = bullying behavior parcels. bb_all = bullying behavior frequency, jscon = job dissatisfaction, ticon = intention to stay, mhanx = anxiety, mhdep = depression. js1, js2, js3_rc, js4, & js5_rc = job dissatisfaction indicator items. ti1, ti2, & ti3 = intention to stay indicator items. mh_ax_1, mh_ax_2, & mh_ax_3 = mental health (anxiety) parcels. Mh_dp_1, Mh_dp_2, & Mh_dp_3 = mental health (depression) parcels.
Figure 3. SEM 2, testing hypothesis 2a-c (unstandardized estimates). bb_p1, bb_p2, & bb_p3 = bullying behavior parcels. bb_all = bullying behavior frequency, pl_sev = bullying severity, sevxbb = the interaction effect of bullying behavior and bullying severity. jscon = job dissatisfaction, ticon = intention to stay, mhanx = anxiety, mhdep = depression. js1, js2, js3_rc, js4, & js5_rc = job dissatisfaction indicator items. ti1, ti2, & ti3 = turnover intention indicator items. mh_ax_1, mh_ax_2, & mh_ax_3 = mental health (anxiety) parcels. Mh_dp_1, Mh_dp_2, & Mh_dp_3 = mental health (depression) parcels.
Table 2
Model Fit for Main Effects Model and Mediation Models

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<th>Model</th>
<th>Name</th>
<th>Description</th>
<th>AIC</th>
<th>BIC</th>
<th>SSA-BIC</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>Chi-Squared</th>
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Notes: SV = bullying severity, BB = bullying behavior frequency, MH:A = mental health: anxiety, MH:D = mental health: depression, TI = turnover intentions, JS = job satisfaction, DU = bullying duration, WL = workplace stress (workload), RC = workplace stress (role clarity), CS = workplace stress (organizational change support), LFL = laissez faire leadership, TAL = transactional leadership, TFL = transformational leadership.
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Notes: SV = bullying severity, BB = bullying behavior frequency, MH:A = mental health: anxiety, MH:D = mental health: depression, TI = turnover intentions, JS = job satisfaction, DU = bullying duration, WL = workplace stress (workload), RC = workplace stress (role clarity), CS =
Figure 4. Severity moderating the relationship between bullying behavior and intention to stay. Red indicated a low level of the moderator, blue indicates the mean level of the moderator, and green indicated a high level of the moderator.

Hypotheses 3a-c, which predicted that bullying duration would moderate the relationship between bullying behavior and all outcomes (anxiety, depression, job dissatisfaction, and intention to stay) were tested by examining the strength of the interaction term estimated via SEM for each moderated relationship, as with H2. Hypotheses 3a-c were tested using one SEM (SEM 3, see Figure 5). The interaction term estimate for duration moderating the relationship between bullying behavior and mental health (anxiety) was not significant (bullying behavior $X$ duration = .08, $p = .40$). The interaction term estimate for duration moderating the relationship between bullying behavior and mental health (depression) was not significant (bullying behavior $X$ duration = .04, $p = .29$). The interaction term estimate for duration moderating the relationship between bullying behavior and job dissatisfaction was not significant (bullying behavior $X$ duration = .02, $p = .51$). The interaction term estimate for duration moderating the relationship
between bullying behavior and intention to stay was not significant (bullying behavior X duration = .03, \( p = .59 \)). Therefore, hypotheses 3a-c were not supported.

Hypotheses 4a-c, which predicted that all three aspects of perceived workplace stress (workload, role clarity, and change support) would moderate the relationships between bullying behavior and all outcomes (anxiety, depression, job dissatisfaction, and intention to stay), were tested by examining the strength of the interaction term estimated via SEM for each moderated relationship, as with H2 and H3. Hypotheses 4a-c were tested using three SEMs (SEM 4 - SEM 6, see Figure 6). The interaction term estimates for workload, role clarity, and change support moderating the relationship between bullying behavior and mental health (anxiety) were not significant (bullying behavior X workload = -.06, \( p = .15 \), bullying behavior X role clarity = .04, \( p = .47 \), bullying behavior X change support = -.01, \( p = .84 \), respectively). The interaction term estimates for workload, role clarity, and change support moderating the relationship between bullying behavior and mental health (depression) were not significant (bullying behavior X workload = .02, \( p = .15 \), bullying behavior X role clarity = .06, \( p = .23 \), bullying behavior X change support = .05, \( p = .22 \), respectively). The interaction term estimates for workload, role clarity, and change support moderating the relationship between bullying behavior and job dissatisfaction had mixed significance (bullying behavior X workload = .02, \( p = .56 \), bullying behavior X role clarity = .04, \( p = .47 \), bullying behavior X change support = -.11, \( p < .01 \), respectively). Specifically, the correlation between bullying behavior and job dissatisfaction became less positive as level of change support increased (which should reflect decreasing stress), as predicted (see Figure 2). The interaction term estimates for workload, role clarity, and change support moderating the relationship between bullying behavior and intention to stay also had mixed significance (bullying behavior X workload = -.01, \( p = .91 \), bullying behavior X role
clarity = .11, \( p = .02 \), bullying behavior X change support = -.01, \( p = .85 \), respectively).

Specifically, the correlation between bullying behavior and intention to stay became less negative as role clarity increased (which should reflect decreasing stress), as predicted (see Figure 7). Thus, hypothesis 4a was not supported, while hypotheses 4b and 4c were supported.

Hypotheses 4d-f, which predicted that bullying behavior would mediate the relationship between all three aspects of perceived workplace stress (workload, role clarity, and change support) and all outcomes (anxiety, depression, job dissatisfaction, and intention to stay), were tested by using SEM to model the indirect effect of workplace stress on negative outcomes as outlined by Cheung and Lau (2008). Indirect effects (IE) significantly different from zero were interpreted as support for the corresponding hypothesis. Hypotheses 4d-f were tested using one SEM (SEM 7, see Figure 11). As discussed earlier, these hypotheses reflect my proposition that similar levels of workplace stress are experienced by both bullies and their targets (i.e. because they share the same workplace), and that stress operates as an antecedent of bullying for the bully, but as a moderator of reactions to bullying for the target.

The indirect effects of workload, role clarity, and change support on mental health (anxiety) were all significant (IE = -.18, \( p < .01 \), IE = .05, \( p < .01 \), IE = .13, \( p < .01 \), respectively), however, not all the direct effects of workload, role clarity, and change support on anxiety were significant (DE = -.03, \( p = .75 \), DE = -.39, \( p < .001 \), DE = .20, \( p = .01 \), respectively). These results suggested that the effect of workload on anxiety was fully mediated by bullying behavior, while the relationships between role clarity and anxiety, as well as between change support and anxiety, were only partially mediated by bullying behavior.
Figure 5. SEM 3, testing hypothesis 3a-c (unstandardized estimates). bb_p1, bb_p2, & bb_p3 = bullying behavior parcels. bb_all = bullying behavior frequency, pl_dur = bullying severity, durxbb = the interaction effect of bullying behavior and bullying duration. jscon = job dissatisfaction, ticon = intention to stay, mhanx = anxiety, mhdep = depression. js1, js2, js3_rc, js4, & js5_rc = job dissatisfaction indicator items. ti1, ti2, & ti3 = intention to stay indicator items. mh_ax_1, mh_ax_2, & mh_ax_3 = mental health (anxiety) parcels. Mh_dp_1, Mh_dp_2, & Mh_dp_3 = mental health (depression) parcels.
Figure 6. SEM 4, testing hypothesis 4a (unstandardized estimates). bb_p1, bb_p2, & bb_p3 = bullying behavior parcels. bb_all = bullying behavior frequency, ws_1 = workplace stress (workload), ws1xbb = the interaction effect of bullying behavior and workload. jscon = job dissatisfaction, ticon = intention to stay, mhanx = anxiety, mhdep = depression. st1wl1, st2wl2, & st3wl3 = workload indicator items. js1, js2, js3_rc, js4, & js5_rc = job dissatisfaction indicator items. ti1, ti2, & ti3 = intention to stay indicator items. mh_ax_1, mh_ax_2, & mh_ax_3 = mental health (anxiety) parcels. mh_dp_1, mh_dp_2, & mh_dp_3 = mental health (depression) parcels.
Figure 7. SEM 5 testing hypothesis 4b (unstandardized estimates). bb_p1, bb_p2, & bb_p3 = bullying behavior parcels. bb_all = bullying behavior frequency, ws_2 = workplace stress (role clarity), ws2xbb = the interaction effect of bullying behavior and role clarity. jscon = job dissatisfaction, ticon = intention to stay, mhanx = anxiety, mhdep = depression. st4rc1, st5rc2, & st6rc3 = role clarity indicator items. js1, js2, js3_rc, js4, & js5_rc = job dissatisfaction indicator items. ti1, ti2, & ti3 = intention to stay indicator items. mh_ax_1, mh_ax_2, & mh_ax_3 = mental health (anxiety) parcels. mh_dp_1, mh_dp_2, & mh_dp_3 = mental health (depression) parcels.
Figure 8. SEM 6 testing hypothesis 4c (unstandardized estimates). \( bb_p1, bb_p2, \) & \( bb_p3 = \) bullying behavior parcels. \( bb_{all} = \) bullying behavior frequency, \( ws_{3} = \) workplace stress (change support), \( ws3xbb = \) the interaction effect of bullying behavior and change support. \( jscon = \) job dissatisfaction, \( ticon = \) intention to stay, \( mhanx = \) anxiety, \( mhdep = \) depression. \( st7oc1, st8oc2, \) & \( st9oc3 = \) change support indicator items. \( js1, js2, js3_rc, js4, \) & \( js5_rc = \) job dissatisfaction indicator items. \( ti1, ti2, \) & \( ti3 = \) intention to stay indicator items. \( mh_{ax}_1, mh_{ax}_2, \) & \( mh_{ax}_3 = \) mental health (anxiety) parcels. \( mh_{dp}_1, mh_{dp}_2, \) & \( mh_{dp}_3 = \) mental health (depression) parcels.
Figure 9. The correlation between bullying behavior and job dissatisfaction at different levels of the moderator, change support. Red indicated a low level of the moderator, blue indicates the mean level of the moderator, and green indicated a high level of the moderator.

Figure 10. Correlation between bullying behavior and intention to stay at different levels of the moderator, role clarity. Red indicated a low level of the moderator, blue indicates the mean level of the moderator, and green indicated a high level of the moderator.
The indirect effects of workload, role clarity, and change support on mental health (depression) were all also significant (IE = -0.30, p < 0.001, IE = 0.08, p < 0.01, IE = 0.21, p < 0.001, respectively), however, none of the direct effects of workload, role clarity, and change support on depression were significant (DE = -0.20, p = 0.11, DE = -0.14, p = 0.10, DE = 0.14, p = 0.14, respectively). This suggested that effects of workload, role clarity, and change support on depression were fully mediated by bullying behavior. Thus, hypothesis 4d was supported.

The indirect effects of workload, role clarity, and change support on job dissatisfaction were all significant (IE = 0.17, p < 0.01, IE = -0.05, p = 0.02, IE = -0.13, p = 0.01, respectively), however, not all the direct effects of workload, role clarity, and change support on job dissatisfaction were significant (DE = -0.13, p = 0.34, DE = 0.05, p = 0.56, DE = 0.35, p < 0.01, respectively). This suggested that the effects of workload and role clarity on job dissatisfaction were fully mediated by bullying behavior, but the effect of change support on job dissatisfaction was only partially mediated by bullying behavior. Thus, hypothesis 4e was fully supported.

The indirect effects of workload, role clarity, and change support on intention to stay had mixed significance (IE = -0.08, p = 0.20, IE = 0.02, p = 0.21, IE = 0.06, p = 0.02, respectively), but none of the direct effects of workload, role clarity, and change support on intention to stay were significant (DE = 0.18, p = 0.14, DE = -0.03, p = 0.70, DE = 0.27, p = 0.10, respectively). This suggested that while the effects of workload and role clarity on intention to stay were neither fully nor partially mediated by bullying behavior, the indirect effect of change support on intention to stay was fully mediated by bullying behavior. Thus, hypothesis 4f was partially supported.
Figure 11. SEM 7 testing hypothesis 4d-f (unstandardized estimates). bb_p1, bb_p2, & bb_p3 = bullying behavior parcels. bb_all = bullying behavior frequency, ws_1 = workplace stress (workload), ws_2 = workplace stress (role clarity), ws_3 = workplace stress (change support). jscon = job dissatisfaction, ticon = intention to stay, mhnx = anxiety, mhdep = depression. st1wl1, st2wl2, & st3wl3 = workload indicator items. st4rc1, st5rc2, & st6rc3 = role clarity indicator items. st7oc1, st8oc2, & st9oc3 = change support indicator items. js1, js2, js3_rc, js4, & js5_rc = job dissatisfaction indicator items. ti1, ti2, & ti3 = intention to stay indicator items. mh_ax_1, mh_ax_2, & mh_ax_3 = mental health (anxiety) parcels. mh_dp_1, mh_dp_2, & mh_dp_3 = mental health (depression) parcels.
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Notes: SV = bullying severity, BB = bullying behavior frequency, MH:A = mental health: anxiety, MH:D = mental health: depression, TI = turnover intentions, JS = job satisfaction, DU = bullying duration, WL = workplace stress (workload), RC = workplace stress (role clarity), CS = workplace stress (organizational change support), LFL = laissez faire leadership, TAL = transactional leadership, TFL = transformational
Table 5

Moderation effects for all models

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<tr>
<td>H4c</td>
<td>Model 4</td>
<td>BB -&gt; TI</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>WL moderating BB -&gt; TI</td>
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</tr>
<tr>
<td></td>
<td>Model 5</td>
<td>BB -&gt; TI</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>RC moderating BB -&gt; TI</td>
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<td>0.05</td>
<td>.02*</td>
</tr>
<tr>
<td></td>
<td>Model 6</td>
<td>BB -&gt; TI</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>CS moderating BB -&gt; TI</td>
<td>-0.01</td>
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<tr>
<td>H5a</td>
<td>Model 8</td>
<td>BB -&gt; MH:A</td>
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</tr>
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<tr>
<td></td>
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<td></td>
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</tr>
<tr>
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<tr>
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<td></td>
<td>TF moderating CS -&gt; BB</td>
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<td>0.05</td>
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**Notes:** SV = bullying severity, BB = bullying behavior frequency, MH:A = mental health: anxiety, MH:D = mental health: depression, TI = turnover intentions, JS = job satisfaction, DU = bullying duration, WL = workplace stress (workload), RC = workplace stress (role clarity), CS = workplace stress (organizational change support), WC = worker control, LFL = laissez faire leadership, TAL = transactional leadership, TFL = transformational leadership.
Hypotheses 5a-c, which predicted that worker control would moderate the relationships between bullying behavior and all outcomes (anxiety, depression, job dissatisfaction, and intention to stay) were tested by examining the strength of the interaction term estimated via SEM for each moderated relationship, as with H2, H3, and H4a-c. Hypotheses 5a-c were tested using one SEM model (SEM 8, see Figure 12). In all cases the interaction term was not significant (bullying behavior X worker control = .04, p = .50, bullying behavior X worker control = .04, p = .52, bullying behavior X worker control = -.08, p = .21, bullying behavior X worker control = -.10, p = .13, respectively). This suggested that worker control did not moderate the relationship between bullying behavior and either anxiety, depression, job dissatisfaction, or intention to stay. Thus, hypotheses 5a-c were not supported.

Hypothesis 6a, which predicted that leadership style (laissez faire leadership, transactional leadership, and transformational leadership) would moderate the relationships between all three aspects of perceived workplace stress (workload, role clarity, and change support) and bullying behavior, was tested by examining the strength of the interaction term estimated via SEM for each moderated relationship, as with H2, H3, H4a-c, and H5a-c. Hypothesis 6a was tested using nine models (SEM 9 - SEM 17; see Figure 13 – Figure 15 for models involving laissez faire leadership, Figure 16 – Figure 18 for models involving transactional leadership, and Figure 19 – Figure 21 for models involving transformational leadership).
Figure 12. SEM 8 testing hypothesis 5a-c (unstandardized estimates). bb_p1, bb_p2, & bb_p3 = bullying behavior parcels. bb_all = bullying behavior frequency, wccon = worker control, wcxbb = the interaction effect of bullying behavior and worker control. jscon = job dissatisfaction, ticon = intention to stay, mhanx = anxiety, mhdep = depression. wc1, wc2, & wc3 = worker control indicator items. js1, js2, js3_rc, js4, & js5_rc = job dissatisfaction indicator items. ti1, ti2, & ti3 = intention to stay indicator items. mh_ax_1, mh_ax_2, & mh_ax_3 = mental health (anxiety) parcels. mh_dp_1, mh_dp_2, & mh_dp_3 = mental health (depression) parcels.
The interaction term estimates for laissez faire leadership moderating the relationship between workplace stress (workload, role clarity, and change support) and bullying behavior had mixed significance (workload X laissez faire = -.16, \( p < .001 \), role clarity X laissez faire = -.16, \( p < .01 \), change support X laissez faire = -.05, \( p = .31 \), respectively). This suggested that level of laissez faire leadership only moderated the relationship between workload and bullying behavior and the relationship between role clarity and bullying behavior. Specifically, when levels of laissez faire leadership were low, the correlation between workload and bullying behavior was significantly more positive than when the levels of laissez faire leadership were high, counter to predictions (see Figure 22). Additionally, when levels of laissez faire leadership were low, the correlation between role clarity and bullying behavior was positive, counter to prediction, but when levels of laissez faire leadership were high, the correlation between role clarity and bullying behavior was negative, as predicted (see Figure 23).

The interaction term estimates for transactional leadership moderating the relationship between workplace stress (workload, role clarity, and change support) and bullying behavior were not significant (workload X transactional = -.04, \( p = .22 \), role clarity X transactional = -.06, \( p = .21 \), change support X transactional = -.03, \( p = .45 \), respectively). This suggested that transactional leadership did not moderate the relationship between workplace stress and bullying behavior.
Figure 13. SEM 9 testing hypothesis 6a (1)(unstandardized estimates). lfl1, lfl2, lfl3, lfl4, & lfl5 = laissez faire leadership indicator items. st1wl1, st2wl2, & st3wl3 = workplace stress (workload) indicator items. lfcon = laissez faire leadership, ws_1 = workplace stress (workload), & lfxws1 = the interaction effect of laissez-faire leadership and workload. bb_all = bullying behavior frequency. bb_p1, bb_p2, & bb_p3 = bullying behavior parcels.
Figure 14. SEM 10 testing hypothesis 6a (2) (unstandardized estimates). lf11, lf12, lf13, lf14, & lf15 = laissez faire leadership indicator items. st4rc1, st5rc2, & st6rc3 = workplace stress (role clarity) indicator items. lfcon = laissez faire leadership, ws_2 = workplace stress (role clarity), & lfxws2 = the interaction effect of laissez-faire leadership and role clarity. bb_all = bullying behavior frequency. bb_p1, bb_p2, & bb_p3 = bullying behavior parcels.
Figure 15. SEM 11 testing hypothesis 6a (3) (unstandardized estimates). lfl1, lfl2, lfl3, lfl4, & lfl5 = laissez faire leadership indicator items. st4rc1, st5rc2, & st6rc3 = workplace stress (change support) indicator items. lfcon = laissez faire leadership, ws_3 = workplace stress (change support), & lfxws3 = the interaction effect of laissez-faire leadership and change support. bb_all = bullying behavior frequency. bb_p1, bb_p2, & bb_p3 = bullying behavior parcels.
Figure 16. SEM 12 testing hypothesis 6a (4) (unstandardized estimates). ttl1ta1, ttl2ta2, ttl3ta3, & ttl4ta4 = transactional leadership indicator items. st1wl1, st2wl2, & st3wl3 = workplace stress (workload) indicator items. tacon = transactional leadership, ws_1 = workplace stress (workload), & taxws1 = the interaction effect of transactional leadership and workload. bb_all = bullying behavior frequency. bb_p1, bb_p2, & bb_p3 = bullying behavior parcels.
Figure 17. SEM 13 testing hypothesis 6a (5) (unstandardized estimates). ttl1ta1, ttl2ta2, ttl3ta3, & ttl4ta4 = transactional leadership indicator items. st4rc1, st5rc2, & st6rc3 = workplace stress (role clarity) indicator items. tacon = transactional leadership, ws_2 = workplace stress (role clarity), & taxws2 = the interaction effect of transactional leadership and role clarity. bb_all = bullying behavior frequency. bb_p1, bb_p2, & bb_p3 = bullying behavior parcels.
Figure 18. SEM 14 testing hypothesis 6a (6) (unstandardized estimates). ttl1ta1, ttl2ta2, ttl3ta3, & ttl4ta4 = transactional leadership indicator items. st4rc1, st5rc2, & st6rc3 = workplace stress (change support) indicator items. tacon = transactional leadership, ws_3 = workplace stress (change support), & taxws3 = the interaction effect of transactional leadership and change support. bb_all = bullying behavior frequency. bb_p1, bb_p2, & bb_p3 = bullying behavior parcels.
Figure 19. SEM 15 testing hypothesis 6a (7) (unstandardized estimates). ttl7tf1, ttl8tf2, ttl8tf3, & ttl9tf4 = transformational leadership indicator items. st1wl1, st2wl2, & st3wl3 = workplace stress (workload) indicator items. tfcon = transformational leadership, ws_1 = workplace stress (workload), & tfxws1 = the interaction effect of transformational leadership and workload. bb_all = bullying behavior frequency. bb_p1, bb_p2, & bb_p3 = bullying behavior parcels.
Figure 20. SEM 16 testing hypothesis 6a (8) (unstandardized estimates). ttl7tf1, ttl8tf2, ttl8tf3, & ttl9tf4 = transformational leadership indicator items. st4rc1, st5rc2, & st6rc3 = workplace stress (role clarity) indicator items. tfcon = transformational leadership, ws_2 = workplace stress (role clarity), & tfxws2 = the interaction effect of transformational leadership and role clarity. bb_all = bullying behavior frequency. bb_p1, bb_p2, & bb_p3 = bullying behavior parcels.
Figure 21. SEM 17 testing hypothesis 6a (9) (unstandardized estimates). ttl7tf1, ttl8tf2, ttl8tf3, & ttl9tf4 = transformational leadership indicator items. st4rc1, st5rc2, & st6rc3 = workplace stress (change support) indicator items. tfcon = transformational leadership, ws_3 = workplace stress (change support), & tfxws3 = the interaction effect of transformational leadership and change support. bb_all = bullying behavior frequency. bb_p1, bb_p2, & bb_p3 = bullying behavior parcels.
Figure 22. Correlation between workload and bullying behavior at different levels of laissez faire leadership. Red indicated a low level of the moderator, blue indicates the mean level of the moderator, and green indicated a high level of the moderator.

Figure 23. Correlation between role clarity and bullying behavior at different levels of laissez faire leadership. Red indicated a low level of the moderator, blue indicates the mean level of the moderator, and green indicated a high level of the moderator.
The interaction term estimates for transformational leadership moderating the relationship between workplace stress (workload, role clarity, and change support) and bullying behavior had mixed significance (workload X transformational = -.08, \( p < .01 \), role clarity X transformational = -.06, \( p = .21 \), change support X transformational = .04, \( p = .44 \), respectively). This suggested that transformational leadership only moderated the relationship between workload and bullying behavior, such that when levels of transformational leadership were low, the correlation between workload and bullying behavior was more positive than when levels of transformational leadership were high, as predicted (see Figure 24). When taken together, these results partially support hypothesis 6a.

Figure 24. Correlation between workload and bullying behavior at different levels of transformational leadership. Red indicated a low level of the moderator, blue indicates the mean level of the moderator, and green indicated a high level of the moderator. \( mh_{dp\_3} \) = mental health (depression) parcels.
Hypotheses 6b-d, which predicted bullying behavior would mediate the relationship between leadership style (laissez faire leadership, transactional leadership, and transformational leadership) and all outcomes (anxiety, depression, job dissatisfaction, and intention to stay) were tested by using SEM to model the indirect effect of leadership style on outcomes, as in H4d-f. Hypotheses 6b-d were tested using one model (SEM 18, see Figure 2).

The indirect effects of laissez faire leadership on anxiety and depression were both significant (IE = .06, \( p = .02 \), IE = .15, \( p < .001 \), respectively), however, not all the direct effects of laissez faire leadership on anxiety and depression were significant (DE = -.32, \( p < .01 \), DE = -.04, \( p = .68 \), respectively). These results suggested that the effect of laissez faire leadership on anxiety was partially mediated by bullying behavior, while the effect of laissez faire leadership on depression was fully mediated by bullying behavior. The indirect effects of transactional leadership on anxiety and depression both failed to reach significance (IE = .00, \( p = .93 \) for both interaction estimates). Additionally, neither of the direct effects of transactional leadership on anxiety and depression were significant (DE = -.12, \( p = .38 \), DE = -.03, \( p = .88 \), respectively), which suggested that the effects of transactional leadership on anxiety and depression were neither fully nor partially mediated by bullying behavior. The indirect effects of transformational leadership on anxiety and depression also failed to reach significance (IE = .02, \( p = .20 \), IE = .06, \( p = .17 \), respectively), and not all the direct effects of transformational leadership on anxiety and depression were significant (DE = .14, \( p = .18 \), DE = -.04, \( p = .74 \), respectively). These results suggested that the effects of transformational leadership on anxiety and depression were neither fully mediated nor partially moderated by bullying behavior. Taken all together, these results partially support hypothesis 6b.
The indirect effect of laissez faire leadership on job dissatisfaction was significant (IE = -.15, \( p < .001 \)), but the direct effect was not (DE = -.06, \( p = .57 \)), which suggested that the effect of laissez faire leadership on job dissatisfaction was fully mediated by bullying behavior. The indirect effect of transactional leadership on job dissatisfaction failed to reach significance (IE = .00, \( p = .93 \)), as did the direct effect (DE = -.17, \( p = .88 \)). These results suggested that the effect of transactional leadership job dissatisfaction was neither fully nor partially mediated by bullying behavior. The indirect effect of transformational leadership on job dissatisfaction failed to reach significance (IE = -.06, \( p = .16 \)), while the direct effect was significant (DE = .51, \( p < .001 \)). These results suggested that the effect of transformational leadership on job dissatisfaction was neither fully nor partially mediated by bullying behavior. Taken together, these results partially support hypothesis 6c.

The indirect effect of laissez faire leadership on intention to stay was significant (IE = .08, \( p < .01 \)), however, the direct effect was not (DE = -.08, \( p = .43 \)). These results suggested that the effect of laissez faire leadership on intention to stay was fully mediated by bullying behavior. The indirect effect of transactional leadership on intention to stay failed to reach significance (IE = .00, \( p = .90 \)), as did the direct effect (DE = .09, \( p = .58 \)). These results suggested that the effect of transactional leadership on intention to stay was neither fully nor partially mediated by bullying behavior. The indirect effect of transformational leadership on intention to stay failed to reach significance (IE = .03, \( p = .19 \)), but the direct effect was significant (DE = -.27, \( p = .04 \)). These results suggested that the effect of transformational leadership intention to stay was neither fully mediated nor partially moderated by bullying behavior. Taken together, these results partially support hypothesis 6d.
Figure 25. SEM 21 testing hypothesis 6b-d (unstandardized estimates). lfl1, lfl2, lfl3, lfl4, & lfl5 = laissez faire leadership indicator items. ttl1ta1, ttl2ta2, ttl3ta3, & ttl4ta4 = transactional leadership indicator items. ttl7tf1, ttl8tf2, ttl8tf3, & ttl9tf4 = transformational leadership indicator items. lflcon = laissez faire leadership, tacon = transactional leadership, & tfcon = transformational leadership. bb_p1, bb_p2, & bb_p3 = bullying behavior parcels. bb_all = bullying behavior frequency. jscon = job dissatisfaction, ticon = intention to stay, mhanx = anxiety, mhdep = depression. js1, js2, js3_rc, js4, & js5_rc = job dissatisfaction indicator items. ti1, ti2, & ti3 = intention to stay indicator items. mh_ax_1, mh_ax_2, & mh_ax_3 = mental health (anxiety) parcels. mh_dp_1, mh_dp_2, &
Research Questions

Investigating the research questions required comparing different non-nested structural equation models to determine if there were significant differences in the fit between the models. I compared the Bayesian information criterion (BIC) for each set of models to evaluate each research question. BIC is an appropriate measure to use to evaluate the comparative fit of pairs of non-nested models with the same structure (Raferty, 1995), and was available for all models, unlike the chi-square goodness of fit statistic. I used the criterion that an Mplus BIC difference of greater than 10 between the BIC values for two identically structured models indicated significantly better fit for the model with the lower BIC (Kass & Raferty, 1995). Investigating all four research questions required pairwise comparison of 144 different SEM models; each of the 18 hypothesis-test models was repeated twice for each research question (once for each relevant subset of the population), and four research questions were tested. The number of participants in each research question condition are displayed in Table 6, and the summary of the fit outcomes by hypothesis and research question is presented in Table 7.
Research question 1 asked whether the relationships specified in all hypotheses changed when the participant was a witness to the bullying rather than a victim of the bullying. One hundred and forty-one participants reported only witnessing bullying, and 371 reported only being the victim of bullying. None of the witness models had significantly better fit than their corresponding victim models, 11 of the victim models had significantly better fit than the witness models, and seven comparisons failed because one or both models in the comparison failed to terminate normally in Mplus. None of the successful BIC comparisons was ambiguous (i.e. a difference of less than 10). Taken together, these results suggest that the models tested fit significantly better when the person answering the survey was a victim rather than a witness.

<table>
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<th>Group</th>
<th>Participants</th>
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<tr>
<td>Victim of bullying</td>
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<tr>
<td>Both/other</td>
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<tr>
<td>Supervisor as bully</td>
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<tr>
<td>Coworker as bully</td>
<td>170</td>
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<tr>
<td>Both/other</td>
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<tr>
<td>Single bully</td>
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<tr>
<td>Group of bullies</td>
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<tr>
<td>Both/other</td>
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<tr>
<td>Long duration</td>
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<tr>
<td>Short duration</td>
<td>240</td>
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<tr>
<td>Both/other</td>
<td>164</td>
</tr>
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</table>

Note. "Both/other" conditions were when participants endorsed both answers (usually indicating multiple instances of bullying in the previous 2 years), or when they chose an "other" categorical response.
Research question 2 asked whether the relationships specified in all hypotheses changed when the bully was a supervisor rather than a coworker. One hundred and thirty-six participants reported bullying only from a supervisor, and 170 reported bullying only from coworkers. Two hundred and six reported bullying from either both supervisors and coworkers, or from some other source. These 206 cases were excluded from this comparative analysis. Only one of the supervisor models had significantly better fit than their corresponding coworker models, 12 of the coworker models had significantly better fit than the supervisor models, and five comparisons failed because one or both models in the comparison failed to terminate normally in Mplus. None of the successful BIC comparisons was ambiguous (i.e. a difference of less than 10). Taken together, these results suggest that the models tested fit significantly better when the person answering the survey was bullied by a coworker rather than a supervisor.

<table>
<thead>
<tr>
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<th>H4</th>
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<td>2</td>
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<td>5</td>
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<td>Models failed to terminate normally</td>
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<td>0</td>
<td>2</td>
<td>0</td>
<td>5</td>
</tr>
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<td>Supervisor model fit better</td>
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<td>Coworker model fit better</td>
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<td>5</td>
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<tr>
<td>Long duration model fit better</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Models failed to terminate normally</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
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</tr>
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Research question 3 asked whether the relationships specified in all hypotheses changed when there were multiple bullies (mobbing) rather than a single bully. Two hundred and twelve participants reported bullying only from a single person, and 65 reported bullying from a group. Two hundred and thirty-five reported bullying from both a single person and a group (at different times). These 235 cases were excluded from this comparative analysis. None of the group models had significantly better fit than their corresponding single bully models, 11 of the single bully models had significantly better fit than the group models, and seven comparisons failed because one or both models in the comparison failed to terminate normally in Mplus. None of the successful BIC comparisons was ambiguous (i.e. a difference of less than 10). Taken together, these results suggest that the models tested fit significantly better when the person answering the survey was bullied by a single bully rather than a group of bullies.

Research question 4 asked whether the relationships specified in the hypotheses changed when the bullying had been going on for less than six months, compared to six months or more. Four hundred and four participants reported a bullying duration of less than six months, and 108 reported a bullying duration of six months or more. 14 of the short duration models had significantly better fit than their corresponding long duration models, none of the long duration models had significantly better fit than the short duration models, and four comparisons failed because one or both models in the comparison failed to terminate normally in Mplus. None of the successful BIC comparisons were ambiguous (i.e. a difference of less than 10). Taken together, these results suggest that the models tested fit significantly better when the person answering the survey was bullied for less than six months compared to six months or more.
Discussion

Previous research provides significant evidence that workplace bullying is related to factors that organizations may have some control over (Einarsen, 1999). It is also a phenomenon that has serious negative consequences for employees (Verkuil et al., 2016), and one that creates a financial burden for employers (Valentine et al., 2015; Leymann, 1990). Much work has been done on the topic of workplace bullying, but often each study has examined only a small subset of factors that employers might care about. Additionally, not all hypothesized relationships have been extensively tested.

The present research contributes to the existing literature by using SEM to address both issues within a single sample of American workers. It demonstrates significant direct effects of bullying on negative outcomes, supporting past research. However, it provides only mixed evidence for the effect of tested constructs as moderators on the relationship between bullying and negative outcomes. Finally, it presents evidence that some of the tested leadership styles do not play a central role in either affecting bullying frequency or moderating the relationship between stress and bullying frequency, which is a result counter to past research and theory.

Implications for Research

The unambiguously significant estimates for the relationship between bullying behavior and negative outcomes suggested that bullying in the workplace was indeed associated with significant harm, even when multiple outcomes were considered simultaneously. This helps expand upon past research that has primarily looked at single outcomes, and adds additional supporting evidence to research that has looked at multiple outcomes simultaneously. However, some research has suggested that this relationship is actually bi-directional (Verkuil et al., 2016), an outcome not investigated by this research, and a pressing topic for future studies.
Unfortunately, SEM may not be the best tool for investigating large, complex models with bidirectional relationships, given the current difficulties in testing complex models even without bidirectionality.

The moderation analyses on the relationship between bullying and negative outcomes was only partially consistent with past research. Specifically, only bullying severity, role clarity, and change support (the latter two being facets of workplace stress) acted as significant moderators in the relationship between bullying behavior and negative outcomes. Bullying severity only moderated the relationship between bullying behavior and intention to stay, counter to past research on mental health outcomes by Nolfe et al. (2010); additionally, the direction of the effect was counter to predictions.

As mentioned previously, two of the three workplace stress facets did achieve significance as moderators in the relationship between workplace bullying and negative outcomes; however, results differed from expectations. First, workload failed to moderate any of the relationships between bullying behavior and negative outcomes, contrary to findings in Verkuil et al (2016). Change support did moderate the relationship between bullying behavior and job dissatisfaction in the direction suggested by Verkuil et al. (2016), but it failed to act as a moderator on the relationship between workplace stress and either mental health outcomes or intention to stay, counter to findings by Verkuil et al. (2016). Role clarity did have a moderation effect on the relationship between bullying behavior and intention to stay, in the direction predicted by Verkuil et al. (2016). But role clarity failed to moderate the relationship between bullying behavior and the remaining negative outcomes, contrary to expectations set by the same author. Research needs to investigate these unexpected findings and test whether boundary
conditions exist that change how each construct functions, or whether the current results could be due to sampling error.

Counter to past research, both duration and worker control failed to achieve significance as moderators in the relationship between bullying behavior and negative outcomes. Duration did not moderate any relationship between bullying behavior and negative outcomes, counter to predictions made by Einarsen et al. (2009, 2015) and Ritzman (2016). Worker control similarly failed to achieve significance as a moderator, counter to theorizing by Steensma (2009). Taken together, these results again suggested that there may be boundary conditions under which certain moderators do or do not moderate the examined relationships. Additionally, my research suggests that researchers must consider numerous facets of workplace stress individually, rather than simply treating workplace stress as a unified construct. Moving forward, work should be done to integrate more nuanced views of workplace stress with bullying research, and to investigate possible boundary conditions under which moderators with demonstrated significance in past research fail to play a role.

The stress mediation analysis results suggested that many of the stress facets acted on negative outcomes primarily through bullying frequency rather than directly on the outcome, indicating full mediation. Workload affected depression, anxiety, and job dissatisfaction only by acting through bullying, but had no indirect effect on intention to stay. Role clarity affected depression and job dissatisfaction only by acting through bullying, but only partly acted through workplace bullying when it came to anxiety (partial mediation), and had no indirect effect on intention to stay. Change support affected depression and intention to stay only by acting through bullying, but only partly acted through workplace bullying when it came to job dissatisfaction and anxiety (partial mediation). Taken together, these results generally supported predictions
derived from work by Stouten et al. (2010) and Verkuil et al. (2016). However, the findings of no indirect effect (for both workload and role clarity on intention to stay) contradict Stouten et al.’s (2010) findings.

Additionally, not all relationships examined in the stress mediation analyses were in the directions suggested by the literature. Higher levels of both role clarity and change support were associated with an increase in the frequency of bullying, counter to expectations. Also, change support operated solely through bullying when intention to stay was examined, but the relationship was such that higher change support was correlated with higher bullying, counter to expectation (Steensma, 2009), although the strength of the relationship was quite weak. Taken together, these results again strongly suggest that single-factor conceptualization of workplace stress (like in Stouten et al., 2010) may need reexamination, and that future research should not treat stress as a single-factor construct.

Leadership style in general played less of a role than expected in both moderation and mediation analyses. Examination of leadership styles as a moderators between stress and bullying behavior indicated that only laissez faire leadership and transformational leadership acted as moderators, while transactional leadership did not play a moderator role in any of the examined relationships. These results were generally inconsistent with Steensma’s (2009) finding that poor (laissez faire) leadership moderated the examined relationship, since the direction of the effect was often opposite what was predicted.

Contrary to expectations set by Stouten et al., 2010), as a moderator, higher levels of laissez faire leadership were associated with less frequent bullying when workload was high. However, the relationship between role clarity and bullying changed direction based on level of laissez faire leadership, suggesting a complex interaction between the three constructs. This
interaction was such that low levels of laissez faire leadership were associated with a relationship between role clarity and bullying where increased role clarity was tied to increased bullying, while high levels of laissez faire leadership were associated with a relationship where increased role clarity was tied to decreased bullying.

Transformational leadership behaved as expected in terms of moderating the relationship between workload and bullying behavior. High levels of transformational leadership were associated with a less positive relationship between workload and bullying behavior, although the effect was small. This backed up research showing that leadership can act as a moderator in such relationships (Stouten et al., 2010), but suggested that the effect is fairly minor, and only applied to one facet of workplace stress.

The mediation analysis of the relationship between leadership and negative outcomes (mediated by bullying behavior) suggested that only laissez faire leadership had significant indirect effects on negative outcomes. Specifically, laissez faire leadership affected depression, job dissatisfaction, and intention to stay solely through the mediator of bullying behavior, and in the direction expected by Stouten (2010). My results also suggested that laissez faire leadership did not have a direct effect on any of the negative outcomes measured except anxiety, meaning that laissez faire leadership seemed to primarily function by encouraging bullying, not by directly harming employees. Neither transactional nor transformational leadership had significant indirect effects on negative outcomes when operating through bullying behavior, counter to previous theory and research (Dussault & Frenette, 2015). Given past findings of a relationship, and the differences in model fit between bullying scenarios, future research should examine whether bullying scenario (as investigated in the research questions) affects the presence or absence of this previously demonstrated link.
Comparing model fit for research questions provided generally unambiguous results; in each case where a comparison could be made, model fit between the sample subsets differed significantly. Little information can be drawn from comparisons where models failed to run, leaving open the possibility that some of these failures might have revealed model fit equivalence had they run successfully. However, the fact that every successful comparison demonstrated significant model fit difference suggested that workplace bullying was complex, and that it was not safe to assume that conclusions drawn from a sample that has experienced one bullying scenario (for example, peer bullying) would apply to a population that has experienced another of the bullying scenarios tested (for example, bullying by a supervisor). Perhaps unfortunately, it also suggests that research like this, which rely on comingled bullying scenarios, may draw incorrect conclusions due to the differences in construct interactions implied by those significant model fit differences. The research implication is clear; more research is needed to investigate how each modeled path estimate changes for each bullying scenario. The current research was only an early exploratory step in that direction.

**Implications for Theory**

This study found additional evidence for the theoretical links between bullying behavior and negative outcomes. However, I did not addressed the potential bidirectional relationship between bullying and negative outcomes (Verkuil et al., 2016), leaving this potential theoretical contribution an obvious next step in future research.

The moderation analysis of the relationship between bullying behavior and negative outcomes suggest that duration and worker control don’t reliably act as moderators as theory implied (Einarsen et al., 2009, Steensma, 2009). It is possible that there are boundary conditions beyond which these potential moderators fail to act on the named relationship, and it is also
possible that duration and worker control were poorly defined or shared construct space with other constructs. In the case of bullying duration, it is logically possible that bullying frequency and severity both could have been confounded with duration or with each other; however, the relatively low intercorrelations suggest that this was not the case.

The facets of workplace stress also behaved differently than theory suggested, both as moderators of the relationship between bullying and negative outcomes, and in the relationship between stress and negative outcomes with bullying behavior as a mediator. The first stress facet, workload, was expected to function as a moderator for all outcomes (Verkuil et al., 2016), but failed to moderate any of the tested relationships. Instead, it primarily operated on negative outcomes through the mediator of bullying behavior, except in the case of intention to stay, where workload had neither a direct or indirect effect. This is somewhat surprising and counterintuitive, as it implies that workload’s negative outcomes may be operating in a significant way through bullying (and potentially other unexamined intermediaries) rather than directly leading to negative outcomes. The second stress facet, role clarity, only moderated the relationship between bullying and turnover intention, but the moderation effect was in the direction expected. It is possible based on this result in (conjunction with laissez faire leadership moderation effect on the role clarity-bullying relationship) that role clarity is a complex construct that may be poorly defined. These results could also be due to role clarity being confused with role conflict, a situation where role expectations conflict in unresolvable ways (Reknes, Einarsen, Knardahl, & Lau, 2014). If so, it may have resulted in participants endorsing clear role expectations when they were also experiencing conflicting (but still clear) role requirements. The third facet of workplace stress, change support, only moderated the relationship between bullying behavior and job dissatisfaction, counter to expectations for a broader moderation role. Like
workload, change support primarily seemed to operate on negative outcomes through the mediator of bullying behavior, which either fully or partially mediated all four tested relationships. Finally, change support was correlated with decreased bullying behavior which, while predicted, was also somewhat surprising since change support is likely to be higher in organizations actually going through a high-stress change compared to stable organizations (Oxenstierna, Elofsson, Gjerde, Magnusson Hanson, & Theorell, 2012).

Taken together, the theoretical implications for workplace stress in the relations among stress, bullying behavior, and negative outcomes are threefold. First, it is possible that in attempting to measure stress, I (and other researchers) may be measuring the wrong thing, thus overlooking real relationships. Specifically, Steensma (2009) suggested that in the case of workplace bullying, the absolute level of the stressor is not the problem, it is the mismatch between expectation and reality that contributes to stress, implying that some participants who rated stress as low to moderate could have experienced significantly more stress than indicated due to an unmeasured expectation/reality mismatch. However, if we take my results at face value, the second theoretical implication is that specific facets of workplace stress may act as moderators only in some relationships between bullying and negative outcomes. However, stress does not seem to be broadly functioning by strengthening the relationship between bullying and negative outcomes. Instead, stress facets are mostly acting on negative outcomes either fully or partially though bullying behavior. However, “mostly” hides the reality that some stress facets are indeed acting as moderators, which suggests a complex moderated and mediated relationship involving workplace stress facets, bullying behavior, and negative outcomes. Third, my results also suggest that workplace stress theory may need to consider incorporating bullying as one of the primary mediators between stress and negative outcomes.
Leadership, workplace stress, and bullying behavior all interacted significantly differently than theory predicted. Specifically, only the presence or absence of (harmful) laissez faire leadership or transformational leadership moderated the relationship between stress and bullying behavior. Transformational leadership had only a small moderation effect on a subset of relationships. Transactional leadership had no moderation effect in this relationship at all. Taken together, these results suggest that in the presence of existing workplace stress, effective leadership can do little to modify the relationship between stress and bullying, contrary to the idea of leader-as-facilitator (House, 1996, Stouten et al., 2010). Additionally, laissez faire leadership interacted in unexpected ways with the stress facet role clarity, which I expected to generally be associated with reduced bullying because stress itself was generally associated with increased bullying (Stouten et al., 2010). Instead, at low levels of laissez faire leadership, the relationship between role clarity and bullying was positive, while at high levels of laissez faire leadership, the relationship between role clarity and bullying was negative. One way to interpret this is that role clarity is only adaptive (in terms of reducing the link between stress and bullying) in the absence of clear and strong leadership. In this scenario, high role clarity may make workers easier to bully when there is active leadership allowing the bullying. But in the absence of active leadership, high role clarity may act to keep potentially bullies away from potential victims.

The mediation analysis of the relationship between leadership and negative outcomes (mediated by bullying behavior) suggested that laissez faire leadership seemed to primarily function by encouraging bullying, not by directly harming employees (with the sole exception of being associated with increased anxiety). Neither transactional nor transformational leadership had significant indirect effects on negative outcomes through bullying behavior, counter to
previous theory and research (Dussault & Frenette, 2015). These results call into question the universality of effective leadership to reduce bullying either directly (Laschinger et al., 2012) or as a moderator. It may, in fact, be the destructive presence of ineffective leadership that matters more in workplace bullying, rather than any specific kind or intensity of effective leadership.

The theoretical implications of my research question results are clear; there is enormous room to expand both theoretical and practical knowledge. The theoretical relationships hypothesized do not fit each scenario equally well. Unfortunately, my results do not allow precise conclusions regarding how each scenario changes the relationship between constructs; thus further research and theoretical work should explore how specified relationships change when a bully is a supervisor vs a coworker, the bully is a single person or a group, the reporter is a victim, or a witness, or the bullying duration is long or short.

**Implications for Practice**

Bullying in the workplace was indeed associated with significant harm in a way that might impact a company’s bottom line. From a practical perspective (and in conjunction with past research), this research provided more evidence that significant costs are likely associated with workplace bullying due negative outcomes for workers exposed to bullying. The moderation analyses on the relationship between bullying and negative outcomes suggested that attempts to increase worker control or reduce bullying severity or bullying duration would not diminish harm when bullying is already taking place.

Organizations looking to reduce worker stress in order to reduce either the negative impact of bullying or the bullying itself will mostly likely find the latter, if my results are taken at face value. The stress moderation analysis suggested that reducing workload would have no effect on the relationship between bullying behavior and negative outcomes, and that increasing
role clarity would only moderate the negative effects of bullying on a worker’s intention to stay. Results on the moderation effect of change support suggests that it could be helpful in reducing the strength of the relationship between bullying behavior and negative outcomes, but only for job satisfaction rather than for depression, anxiety, or intention to stay. In contrast, the stress mediation analysis provided more insight into where organizations could potentially act to reduce the bullying itself, specifically, by reducing workload and increasing role clarity (although only in conjunction with adequate leadership). This implies that any bullying harm reduction impact that could be had by organizations focusing on workload and role clarity would only act through altering the frequency of bullying itself rather than moderating the bullying to negative outcomes relationship.

Organizations hoping that leadership interventions will reduce bullying or make stress less likely to lead to bullying should focus on eliminating or retraining leaders who embrace a laissez faire leadership style. Unfortunately, if organizations are going to look for benefits of encouraging transformational leadership, they should not expect radical changes in the relationship between stress and bullying. Transactional leadership’s ability to reduce bullying, if it exists at all, only acts through transactional leaders being low in laissez faire leadership.

**Limitations and Future Directions**

Limitations came in several categories: measurement problems, study design, and sample. Starting with scale reliability problems, bullying severity had a relatively low reliability, suggesting that my failure to find evidence supporting my second hypothesis could be due to low scale reliability rather than lack of construct relevance (this hypothesis asked whether bullying severity moderated the relationship between bullying behavior and negative outcomes). Unfortunately, scale problems were not simply limited to a single construct with low reliability;
two scales had dimensionality problems. Both the bullying behavior scale and the transformational/transactional leadership scale had been found by their respective authors to be multidimensional scales, but my EFAs of both scales using the current sample strongly supported unidimensionality for each, suggesting either problems with the scale or unique issues with my sample. Whatever the cause, this scale unidimensionality either reduced what questions I was able to ask (with regard to types of bullying behavior), or made results more difficult to interpret (for example, different findings for transformational leadership compared to transactional leadership are less meaningful if the scale they come from suggests they are the same construct).

In the future, I plan to identify alternate measures of each problematic construct as I move forward in future research.

Next, the current study’s cross-sectional and correlational design precluded making causal inferences. Because my design was neither experimental nor longitudinal, I cannot offer unambiguous causal advice to practitioners; for example, while high levels of laissez faire leadership are associated with increased bullying frequency, it would be risky to assume causation in this case (although previous research does support such a relationship). Relatedly, all participants in the existing sample had already been exposed to bullying, so even if a longitudinal study had been conducted it would have been impossible to determine if relationships were being affected by past bullying, present bullying, or some other factor.

Additionally, the choice to investigate only model fit for the research questions meant that I was only able to ask whether a difference existed between bullying scenarios, rather than how the scenarios affected construct interaction within the model. The solutions to all three design problems are fairly simple; in the future I can collect data at multiple time points, identify
a representative sample that includes workers who have not been exposed to bullying as well as those who have, and compare not just model fit, but also path estimates between models.

The last study weakness was in sampling. The subsamples examined in each research question comparison were numerically unbalanced, which could have contributed to model fit differences in two ways. First, all the subsamples regardless of size were smaller than recommended for this complexity of SEM, and second, the fit index used depends partially on sample size (Kenny, 2017). Both sample size difference and sample size insufficiency could have led to differences in model fit that did not have to do with the constructs themselves. Solving these problems becomes even more important if I plan to compare path estimates between models. Moving forward, the solution is to obtain matching and adequate group size for each bullying scenario prior to investigating the path estimate differences between models.

**Conclusion**

From a practitioner perspective, my results suggest that organizations have few tools to mitigate the harm of existing bullying, but a larger number of options that are associated with less frequent bullying. Specifically, severity, change support, and role clarity all moderated the bullying-outcome link, although severity operated in the opposite direction expected. On the other hand, workplace stress facets (workload, role clarity, and change support) acted mostly through bullying, as did laissez faire leadership, which suggests that organizations which work to modify the level of these variables could directly reduce the frequency of bullying. Additionally, both laissez faire leadership and transformational leadership moderated the relationship between stress and bullying, suggesting that leadership acts in multiple ways within the model, and emphasizing that laissez faire leadership specifically encourages multiple negative outcomes related to bullying. Stress results reinforce the research that suggests a stress-bullying link, while
the leadership results suggest that only laissez faire leadership and transformational leadership have roles to play in either reducing bullying or moderating the bullying-outcome relationship. Organizations can use these results in combination with past research to choose where to apply resources to reduce the cost of bullying, while researchers can use the results to refine both theory and push future applicable research.
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Appendices
Appendix A

Mechanical Turk Advertisement

Description:
Survey for working adults who have experienced or witnessed bullying in the workplace.

Instructions:
In order to be eligible to complete the study, you must:

1. Are a United States citizen
2. Be at least 18 years old
3. Work at least 30 per week in at least one job
4. Have experienced or witnessed workplace bullying in the last 2 years. Workplace bullying is defined here as a being mistreated and abused by at least one other member of the same workplace, while in the workplace, over a sustained period of time, and in a way that is difficult to defend against.

If you agree to participate in this study, you will be asked to complete several surveys.

There will be a general demographic survey, surveys about bullying, and surveys about your workplace. You will never be asked to identify either yourself or your place of employment.

The study should take approximately 30 minutes.

You will receive $0.75 for participating in this study if you complete it.

To receive payment, you should enter your unique code into the space provided below.

You will not receive the code until the survey has been completed satisfactorily. Only one payment will be awarded for each uniquely generated code. Please do not attempt to participate multiple times.
Appendix B

Demographic Questionnaire

Items and response options:

1. What is your age?

2. What is your sex?
   a. Male
   b. Female
   c. Other

3. What is your race?
   a. White
   b. Black
   c. American Indian
   d. Asian Indian
   e. Japanese
   f. Native Hawaiian
   g. Chinese
   h. Korean
   i. Guamanian
   j. Filipino
   k. Vietnamese
   l. Samoan
   m. Other
4. Are you of Hispanic, Latino, or Spanish origin?
   a. Yes
   b. No
Prompt:
The following questions are about bullying in the workplace. For these questions, please use the following definition. Workplace bullying is defined here as a being mistreated and abused by at least one other member of the same workplace, while in the workplace, over at least a six month period, and in a way that is difficult to defend against.

Items and response options:

1. Have you personally experienced workplace bullying in the last two years?
   a. Yes
   b. No

2. Have you personally witnessed workplace bullying in the last two years?
   a. Yes
   b. No

3. For the [bullying you experienced/bullying you witnessed] was the bully someone in a supervisory position, a coworker, or someone else (compared to the person who was bullied)?
   a. Someone in a supervisory position
   b. A coworker
   c. Someone else who was neither a supervisor nor coworker

4. For the [bullying you experienced/bullying you witnessed] Who was in the group doing the bullying?
a. The bullying group contained at least one person who was a supervisor compared to the person being bullied.

b. The bullying group consisted entirely of coworkers who were not supervisors of the person being bullied.

c. The bullying group contained some other mix of coworkers not listed above, but did not contain a supervisor.

5. How long did this bullying behavior continue to occur regularly? If the behavior is still occurring regularly (i.e. it has not ended) then report how long it has occurred and then check the option for “bullying behavior is still going on.”
Appendix D

Bullying Behavior

Prompt:

How often do the following behaviors occur at your workplace?

Response options:

a) Never
b) Now and then
c) Monthly
d) Weekly
e) Daily

Items:

1. Someone withholding information which affects a worker’s performance
2. Someone being humiliated or ridiculed in connection with his or her work
3. Someone being ordered to do work below his or her level of competence
4. Someone having key areas of responsibility removed or replaced with more trivial or unpleasant tasks
5. Someone spreading of gossip and rumors about another worker
6. A worker being ignored or excluded
7. A worker having insulting or offensive remarks made about his or her person, attitudes or private life
8. Someone being shouted at or being the target of spontaneous anger
9. Intimidating behaviors such as finger-pointing, invasion of personal space, shoving, blocking a worker’s way
10. Hints or signals from others that a worker should quit his or her job
11. Repeated reminders of a worker’s errors or mistakes
12. A worker being ignored or facing a hostile reaction when he or she approach
13. Persistent criticism of a worker’s errors or mistakes
14. A worker having his or her opinions ignored
15. Practical jokes carried out by people who a worker does not get along with
16. A worker being given tasks with unreasonable deadlines
17. Having allegations made against you
18. Excessive monitoring of a worker’s work
19. Pressure not to claim something to which by right a worker is entitled (e.g. sick leave, holiday entitlement, travel expenses)
20. A worker being the subject of excessive teasing and sarcasm
21. A worker being exposed to an unmanageable workload
22. Threats of violence or physical abuse or actual abuse
Appendix E

Perceived Bullying Severity

Items and response options:

1. To what extent was the bullying unfair?
   a. Very unfair
   b. Unfair
   c. Moderately unfair
   d. A little unfair
   e. Fair

2. How severe would you rate the bullying?
   a. Very severe
   b. Severe
   c. Moderately Severe
   d. A little severe
   e. Not at all severe
Appendix F

Job Satisfaction

Response options:

a. Strongly agree
b. Somewhat agree
c. Neither agree nor disagree
d. Somewhat disagree
e. Strongly disagree

Items:

1. I feel fairly satisfied with my present job
2. Most days I am enthusiastic about my work
3. Each day at work seems like it will never end (reverse scored)
4. I find real enjoyment in my work
5. I consider my job to be rather unpleasant (reverse scored).
Appendix G

Turnover Intentions

Response options:

a. Strongly agree
b. Somewhat agree
c. Neither agree nor disagree
d. Somewhat disagree
e. Strongly disagree

Items:

1. I intend to ask people about new job opportunities
2. I intend to search for a position with another employer
3. I occasionally think about leaving this organization
Appendix H

Mental Health Symptoms

Prompt:

In the last seven days (one week) how often do you experience the following feelings?

Response options:

a. Extremely often
b. Quite a bit
c. Moderately often
d. A little
e. Not at all

Items:

1. Suddenly scared for no reason.
3. Faintness, dizziness, or weakness
4. Nervousness or shakiness inside
5. Heart pounding or racing.
6. Trembling
7. Feeling tense or keyed up
8. Headaches
9. Spell of terror or panic
10. Feeling restless or can’t sit still
11. Feeling low in energy, slowed down
12. Blaming yourself for things
13. Crying easily
14. Loss of sexual interest or pleasure
15. Poor appetite
16. Difficulty falling asleep, staying asleep
17. Feeling hopeless about the future
18. Feeling blue
19. Feeling lonely
20. Thought of ending your life
21. Feeling of being trapped or caught.
22. Worry too much about things
23. Feeling no interest in things.
24. Feeling everything is an effort
25. Feeling of worthlessness
Appendix I

Workplace Stress

Response options:

a. Never
b. Seldom
c. Sometimes
d. Often
e. Always

Workload (demands) items:

1. I have unrealistic time pressures
2. I have to work very fast
3. I am pressured to work long hours

Role clarity (role) items:

4. I know how to go about getting my job done
5. I am clear what my duties and responsibilities are
6. I am clear what is expected of me at work

Organizational change support (change) items:

7. Staff are consulted about change at work
8. I have sufficient opportunities to question managers about change
9. When changes are made, I am clear how they will work out in practice
Appendix J

Worker Control

Prompt:

How often do the following statements apply to you at work?

Response options:

a. Never
b. Seldom
c. Sometimes
d. Often
e. Always

Items:

1. I can decide when to take a break
2. I have a say in my own work speed
3. Do you have a choice in deciding what you do at work?
Appendix K

Laissez Faire Leadership

Prompt:

How often does your direct manager do the following things?

Response options:

a. Not at all
b. Rarely
c. Occasionally
d. Frequently
e. Very frequently, if not always

General laissez faire leadership items:

1. My manager does not return phone calls, emails, and messages.
2. My manager is not available when people need him or her.
3. My manager is generally not available at any time.

Reward and punishment omission items:

4. My manager often gives me no feedback when I perform well.
5. My manager often gives me no feedback when I perform poorly.
Appendix L

Transactional and Transformational Leadership

Prompt:

How much do you agree or disagree with the following statements about your direct supervisor?

Response options:

a. Completely disagree
b. Somewhat disagree
c. Neither agree or disagree
d. Somewhat agree
e. Completely agree

Transactional leadership items:

1. Makes sure that individual staff members are given clear instructions of what their responsibility is regarding a specific project/assignment.
2. Works out clearly written plans on how projects can be carried out.
3. Makes sure that our work is progressing.
4. Makes sure there are adequate resources to carry out planned tasks in a satisfactory way.

Transformational leadership items:

5. Gives me support through the appreciation of my contribution to the organization.
6. Encourages a supportive atmosphere among the organization’s staff.
7. Arranges so that challenges can be discussed constructively among colleagues.
8. Involves workers in debates concerning the organization’s goals and visions.
Appendix M
Proposal Document

Workplace Bullying: a Structural Equation Model of Organizational Leverage Points

by

Peter S. Hegel

A dissertation proposal submitted to the Graduate Faculty of
North Carolina State University
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy in Psychology

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Abstract
Introduction

Workplace bullying is a type of deviant workplace behavior that results in negative outcomes both on the individual level for workers and witnesses, and on the organization level for the workplace as a whole (Appelbaum, Semerjian, & Mohan, 2012). Workplace bullying is defined here as a worker’s perception of being mistreated and abused by at least one other member of the same organization, while in the workplace, over a sustained period of time, and in a way that is difficult to defend against (Einarsen, 1999). It is a common problem, with an estimated 37% of American workers reporting having been bullied at some point in their careers, 49% reported having witnessed bullying in their careers, and up to four cases of workplace bullying per single case of sexual or racial harassment, on average (Workplace Bullying Institute, 2007).

For the victim of bullying, research suggests that bullying increases workplace stress (Einarsen & Nielsen, 2015; Glasø & Notelaers, 2012), reduces the effectiveness of coping mechanisms (Okechukwu, Souza, Davis, & de Castro, 2014), and causes debilitating mental health symptoms (Verkuil, Atasayi, & Molendijk, 2016). Unsurprisingly, victims’ job satisfaction is significantly reduced by bullying, their number of missed workdays increases, and their intention to leave grows (Houshmand, O’Reilly, Robinson, & Wolff, 2012). Even if the victim stays, research suggests that work-related motivation is significantly reduced (O’Moorea, Seignea, McGuirea, & Smitha, 1998). Finally, research suggests that victims of bullying are significantly more likely to contemplate suicide than coworkers with no exposure to bullying (Nielsen, Nielsen, Notelaers, & Einarsen, 2015).

For witnesses of bullying, many of the consequences that affect the victim of bullying affect them as well, although less is known about the mechanisms. Witnesses of bullying report
diminished productivity and increased stress at work (Know Bull! Australia, 2012). They also report a greater perception of workplace justice violations as well as greater intent to leave the organization (Houshmand, et al., 2012). Witnesses are more likely than other employees to report high levels of anxiety and even physical symptoms of pain at work (Okechukwu et al., 2014). These authors also note that while the effects of bullying are significantly worse on the victims of bullying compared to the witnesses of bullying, the symptoms reported by witnesses are also significantly worse than those of the average workers who neither experienced nor witnessed bullying.

For organizations, the financial costs of employee productivity reduction, missed work, and turnover can be high. In 1990, estimates of cost to the employer ranged up to $100,000 per year for each case of bullying in the workplace (Leymann, 1990). In addition to the operational cost of bullying, the legal cost can be significant as well (Workplace Bullying Institute, 2007). While bullying is not explicitly outlawed in the United States, bullying may take the form of illegal workplace aggression like harassment or abuse (Einarsen, 1999), and bullying is explicitly outlawed in many other countries, leading to additional legal liability for organizations that operate internationally and allow bullying to flourish. Finally, bullying contributes just as much to negative outcomes for employee and organization as does obesity, sleep deficit, and traumatic life events, which are more common research topics (Verkuil et al., 2016).

In the following sections, I will cover the relevant literature on workplace bullying from an antecedent, process, and consequences framework. The discussion of the antecedents of bullying will include factors specific to the workplace, the leaders involved, and the victim. The exploration of the process of bullying will include factors specific to bullying source, type,
motivation, duration, and severity. The discussion of the consequences of bullying will include a discussion of mental health outcomes, job satisfaction, and turnover intentions.

**Antecedents of Bullying**

**Workplace factors as antecedents.** When victims of bullying were asked about causes of bullying, workplace stress and organizational dysfunction were two of the most commonly mentioned causes (Zapf, 1999). Workload is one of most common workplace stressors identified by workers (Einarsen, Hoel, & Notelaers, 2009). In the worst cases, workers may identify the workload as unmanageable, a situation where workers believe that they cannot finish the required tasks in the time available. Einarsen et al. (2009) suggested that worker-reported stressful workload may be correlated with workplace bullying for several reasons, including time-pressure-related competition between victim and bully, bullying in the form of a supervisor assigning unmanageable work, and workers with overwhelming workloads having less resources with which to defend themselves from bullying. It is therefore unsurprising that perception of workplace stressfulness is significantly correlated with workplace bullying (Einarsen, 1999). Einarsen (1999) also suggested that many factors could lead to perception of workplace stress including workload and organization change.

Workload and organizational change or dysfunction lead to stress by increasing uncertainty in workers’ job security and decreasing their control of their work environments. Steensma (2009) discussed how worker stress was a cyclical response to a worker’s workplace environment, with more stress as the response to the difference between what the worker is doing and accomplishing with their time, and a target criterion like completion of assigned tasks or mastery of required skills. For Steensma (2009), the more overwhelming the workload, and the less control the workers had over outcomes, the more stress there was for the workers involved.
D’Cruz, Noronha, and Beale (2014) suggested that organizational change increased the likelihood of bullying by increasing stress through uncertainty while also increasing competition for limited resources. This competition for limited resources could in turn increase conflict, a likely precursor of bullying (Einarsen, 1998). The relationship may not be a simple one of mediation, however, with stress leading to bullying, which in turn caused negative outcomes. Verkuil et al. (2016) argued that the relationship is one of moderation; when workplace stress is high, the relationships between bullying and mental health outcomes, work motivation, and turnover intentions are even stronger.

Because stress is experienced on an individual level, the bully’s stress should be considered as well. Workplace stressors might trigger workplace bullying in cases where the bully had difficulty coping with job related stress and used bullying behavior as a coping strategy. In Mathisen, Einarsen, and Mykletun’s (2011) study of Norwegian restaurant workers, perceived supervisor stress and supervisor personality were both investigated as possibly interacting predictors of bullying by supervisor. The authors found that personality was only correlated with bullying when perceptions of supervisor stress were low, and that supervisor stress was strongly correlated with bullying regardless of victim personality. But stressful workplaces and stressed workers are not the only workplace antecedents of bullying.

Practically speaking, bullying may only happen if workers have few, if any, means to defend themselves. Steensma (2009) found that bullying behavior was more likely when workers’ control over their own work was low and when power distance between leaders and followers was high. From a bullying prevention perspective, workplaces with strong internal anti-bullying policies had far fewer cases of reported bullying, suggesting that the presence of institutional protection does matter (Appelbaum, et al., 2012; Ritzman, 2016).
Workplace culture also matters; in a study of over 1000 cases of workplace bullying, Brodsky (1976) concluded that bullying could only exist if the workplace culture either tolerated bullying or rewarded it in some way. Einarsen (1999) suggested that a bully couldn’t bully unless he or she had, at minimum, a feeling of implicit permission from the relevant supervisors, and a feeling that he or she would not likely be sanctioned for the bullying behavior. Specifically, Einarsen writes, “the organizational tolerance of bullying is communicated by those sanctions, or rather lack of sanctions, enacted towards people violating informal norms and values, and the existence and enactment of organizational policies against bullying” (p. 6).

**Leadership as a facilitator or inhibitor for others’ bullying behavior.** Leaders help set policy and shape organizational culture, which suggests that they could play a significant role in workplace bullying. One way this might play out is through the leader’s leadership style. Laschinger, Wong, and Grau (2012) conducted a structural equation model analysis on surveys of 342 Canadian nurses, looking at bullying and authentic leadership. Authentic leadership is a leadership style characterized by strong interpersonal relationships, an emphasis on integrity, behavioral consistency, and honesty. They found that authentic leadership correlated negatively with workplace bullying. Dussault and Frenette (2015) suggested that this relationship might exist because certain types of leaders created an environment where all three of the types of bullying outlined by Einarsen et al. (2009; work-related bullying, person-related bullying, and physical intimidation bullying, see p. 10) were less likely to occur. They surveyed workers from multiple organizations and found that both transformational and transactional leadership were negatively correlated with bullying in the workplace. Transactional leadership focuses on organization, management, and performance of workers, and uses both punishments and rewards to motivate workers, while transformational leadership focuses on creating a shared vision of a
needed change and then motivating workers to work toward that goal by inspiring worker commitment (Avolio, Bass, & Jung, 1999). Transformational leadership negatively correlated with work-related bullying, person-related bullying, and physical intimidation bullying. Transactional leadership negatively correlated with both work-related bullying and person-related bullying, but was not significantly correlated with physical intimidation bullying. Dessault and Frenette (2015) also found that laissez faire leadership, a tendency to be disengaged and inactive, was positively correlated with all three types of bullying. Additionally, the authors conducted a structural equation model analysis, and found significant negative regression coefficients for both transactional and transformational leadership in relationship to all three types of bullying, with significant positive β weights for the relationship between laissez faire leadership and all three types of bullying. Avolio et al. (1999) suggested that laissez faire leadership actually encouraged bullying behavior because it provided so little in terms of guiding behaviors and expectations for worker behavior. For Avolio et al. (1999) laissez faire leadership was truly the absence of leadership, and was characterized by leaders who refused to make decisions, actively avoided conflicts, and who were unavailable when needed. Perhaps related, a Finnish study of the perceived causes of bullying identified “a weak superior” as the second most common cause of bullying after envy (Vartia, 1996). Together, these findings suggest that an absence of clear leadership characterized by a laissez faire leadership style can be a significant contributor to workplace bullying.

However, a lack of clear leadership may not be the only leader-related antecedent of bullying. Hoel, Glaso, Cooper, and Einarsen (2010) explored specific leader behaviors correlated with bullying in the workplace, and found strong links between bullying and non-contingent punishment (punishment that was delivered arbitrarily and without cause) as well as autocratic
(coercive) leadership where subordinates had no say in decision-making. Because autocratic leaders under stress were more likely to demonstrate bullying behaviors themselves (as tyrannical or abusive supervisors; Hoel & Salin, 2003), they may model bullying behavior to their subordinates and create an environment where that behavior is either explicitly or implicitly condoned.

Leadership style can also influence bullying behavior by acting on other variables, for example, by actively reducing the workplace stress of subordinates by reducing workload and making the workplace more pleasant (Stouten et al., 2010). This fits into a model of leadership where a part of a leader’s responsibility is the role of work facilitator (House, 1996). Additionally, leaders who actively modeled ethical behavior may help create an ethical work climate correlated with lower rates of bullying (Stouten et al., 2010; Zdaniuk & Bobocel, 2015). Zdaniuk and Bobocel (2015) found this effect in a longitudinal study for transformational leaders, which fits with the idea that transformational leaders are a source of follower collective identity (Conger, Kanungo, & Menon, 2000); in this case, as ethical members of the workplace.

**Victim factors as antecedents.** Numerous research efforts point to workplace stress and anxiety as a significant predictor of bullying. A meta-analysis by Verkuil et al. (2016) found that anxiety and stress in victims significantly predicted later workplace bullying of all types. Other victim characteristics have been hypothesized to predict bullying, specifically victims’ mental health. Victims often have higher rates of depression, higher social anxiety, and lower self-esteem compared to their unbullied peers (Gondalfo, 1995); however, while Gondalfo (1995) suggested that these factors were antecedents to bullying, he admitted that they could have been consequences of bullying instead, and that it was impossible to tell from his data. However, there is some evidence that mental health can be an antecedent to bullying; anxiety and depression in
men led to an increased probability of being bullied in a separate five-year longitudinal study completed by Einarsen and Nielsen (2014).

**Process of Bullying**

**Bullying source.** Bullying process may differ significantly by source in terms of both the number of individuals involved in bullying behavior and their relationship to the victim. Bullying by leaders may lead to worse consequences for victims when compared to bullying by coworkers (Einarsen & Rankes, 1997), but there is disagreement about how common bullying by leaders is. Einarsen and Rankes (1997) maintained that most bullying was done by supervisors, while Steensma (2009) suggests that only about a third of bullying behavior comes from supervisors. Bullying may also come from more than one individual at a time. Bullying by groups, also known as mobbing, led to the same severe negative outcomes for the victim as did bullying by a single individual (Zapf, 1999). However, it is not clear if, on average, mobbing is more or less severe than single source bullying.

**Types of bullying.** Einarsen et al. (2009) conducted a factor analysis on 5288 responses to a 22-item measure about the frequency of bullying behavior over the previous six months, and concluded that there were three types of workplace bullying (Einarsen et al., 2009); person-related bullying, work-related bullying, and physical intimidation bullying. Person-related bullying involved attacks on a person’s traits, abilities, or mental health. Work-related bullying involved criticizing a person’s ability to work or the quality of the work itself. Finally, physically intimidating bullying included the act of physical intimidation itself, threats of violence, or actual physically violent acts against the victim. In all cases, the defining factor was the victims’ perception of this abuse as mistreatment or unfairness, and the difficulty for the victim to defend against it. A study of new nurses suggested that work related bullying was the most frequent
form, accounting for 68% of workplace bullying, followed by person related bullying (23%) and physical bullying (9%; Laschinger et al., 2012).

Motivations for bullying. Einarsen (1999) suggested that there were two primary motivations for bullying in the workplace: predatory bullying and dispute-related aggression. Predatory bullying was bullying where the victim had not personally provoked the bully through his or her actions or inactions; rather, something about that person provoked the bully. Predatory bullying occurred when a victim of bullying had been selected as a target by accidental circumstance, position, relative power, or because of the victim’s actual or perceived membership in some group (sex, age, race, religion, etc.). This framework explicitly groups racial and sexual harassment within an overarching category of workplace bullying, assuming other requirements (like duration) are met (Einarsen, 1999).

Dispute-related bullying is bullying where the bully targeted a victim based on an interpersonal conflict between the two parties (Einarsen, 1998). Dispute-related conflicts can turn into bullying for many reasons, but Einarsen (1998) suggested that it was more likely to occur in situations where the bully felt significant emotional involvement in the conflict, or where the bully felt that his or her self-image had been threatened by the actions of the victim. This type of bullying may be the result of an escalating conflict, and may itself be a response to perceived wrongdoing by the victim. Einarsen (1998) pointed out that it is not impossible for both parties to feel mistreated, and for both parties in a conflict to claim that they have been bullied by the other (Einarsen, Raknes, & Matthiesen, 1994). However, workplace bullying is often characterized by a power difference between the bully and the victim (Einarsen, 1999), making mutual bullying likely to be an uncommon occurrence.
The ultimate cause of conflicts that lead to dispute-related bullying may actually be workplace stress in some cases, due, for example, to forced competition for scarce resources based on organizational change (Einarsen et al., 2009). However, certain leadership styles may prevent dispute-related conflict from turning into bullying by encouraging a higher level of forgiveness on both sides, breaking a potential cycle of conflict (Zdaniuk & Bobocel, 2015). These authors found that leaders who scored highly on idealized influence (charisma) scales had followers who were more likely to confront aggressors or retaliate rather than passively receiving bullying, suggesting again that leadership may moderate the relationship between workplace stress and bullying behavior.

**Bullying severity.** Zdaniuk and Bobocel (2015) argued that perceived bullying severity mattered, and that the more severe the offense, the harder it was for victims and witnesses to cope with the bullying and the worse the consequences. However, the severity of each offense is in the eye of the beholder (Zdaniuk & Bobocel, 2015), making severity difficult to estimate through external observation. Bullying is also by definition an escalating and long-term phenomenon (Einarsen, et al., 2009), which means that any individual observed behavior might be difficult to label as bullying in any momentary analysis. For this reason, severity must be rated by the parties experiencing the bullying.

**Bullying duration.** Einarsen et al. (2009) suggest that the longer bullying continues, the more it drains the coping resources of the victim and the worse the consequences for the victim. They suggested that any bullying measure should include questions about the duration of the behavior because it may contribute to overall outcome. They also note that if bullying was defined as a long-term behavior that must last at least a set amount of time, it may be difficult for most researchers to assess except retroactively.
**Consequences of Bullying**

**Mental health.** Giorgi, Perminienė, Montani, Fiz-Perez, Mucci, and Arcangeli (2016) conducted a structural equation model analysis on the relationship between bullying behavior, coping strategies, and psychological distress in 326 workers. They found a strong relationship between psychological distress and bullying. Unsurprisingly, psychological distress is only the tip of the iceberg; bullying has also been associated with significant negative mental health outcomes for victims, including anxiety, depression, and suicide ideation. Verkuil et al. (2016) conducted a meta-analysis of 63 studies and found that bullying was significantly correlated with subsequent depression, anxiety, and other stress-related psychological complaints. The same authors broke anxiety into two categories - general anxiety and posttraumatic stress disorder (PTSD) symptoms - and found that bullying was strongly correlated with PTSD symptoms.

Perhaps because of bullying’s effect on mental health, workplace bullying doubles the rate of suicide ideation in victims, according to a five-year longitudinal study using 1846 Norwegian workers (Nielsen et al., 2015). According to Namie and Namie (2003), this translates to almost 25% of workplace bullying victims contemplating suicide in response to the bullying behavior. The outcome can be fatal, according to a 2010 survey of 54 Australian workers; 6% of workers surveyed knew someone who had committed suicide due to workplace bullying (Know Bull! Australia, 2012).

**Job satisfaction.** Vickers (2014) and Steensma (2009) both argued, on the basis of literature reviews, that workplace bullying which was not addressed by supervisors led to decreased job satisfaction in victims. This is supported in the research; Verkuil et al.’s (2016) meta-analysis found significant correlations between bullying and burnout, a construct that includes diminished employee motivation and job satisfaction. Focusing on job satisfaction in a
study of 356 sales professionals, Valentine, Fleischman, and Godkin (2015) found a significant negative correlation between job satisfaction and workplace bullying. Finally, Einarsen et al. (2009) found strong and significant negative correlations between job satisfaction and all three of their bullying constructs (person-related bullying, work-related bullying, and physical intimidation). They also found significant and negative correlations between all three types of bullying and organizational commitment.

**Turnover intentions.** Unsurprisingly given the links between workplace bullying and organizational commitment, research suggests that increased turnover intentions are also correlated with bullying. Laschinger et al.’s (2012) path model of data from 342 nurses suggests that bullying in nursing settings led to increased turnover intentions through bullying’s effect on job satisfaction and emotional exhaustion. Another study on nurses, this time a longitudinal study with 357 participants, found that not only did being bullied lead to increased turnover for the victims, but witnessing unaddressed bullying led to statistically similar increases in turnover intentions for the witnesses (Houshmand et al., 2012).

**Statement of Need**

In summary, workplace bullying is a common and a significant risk for organizations. Bullying leads to workplace disengagement and psychosocial distress for worker victims, higher intention to leave for worker witnesses and victims, and loss of workers, worker productivity, and morale for organizations. The costs of workplace bullying create a pressing need to understand the relationships between the variables associated with bullying and outcomes, as well as how these relationships change depending on the identity of the worker and the identity of the bully. While much work has already been done to explore the nature of workplace bullying, rarely has work focused primarily on variables that most organizations can influence.
Instead, many projects have investigated more immutable aspects of the situation, like supervisor, bully, or victim personality, worker demographics, industry type, or worker tenure. I propose to conduct a structural equation model analysis on variables that a company might realistically have some ability to influence. Specifically, I will survey existing workers who have experienced or witnessed bullying, and I will examine the relationships between bullying behavior, leadership style, perceived workplace stress, bullying severity and duration, worker control, mental health, job satisfaction, and turnover intentions. Additionally, I will explore how these relationships change when I compare bullying by supervisors to bullying by coworkers, and also bullying by groups compared to bullying by individuals.

**Hypotheses and Research Questions**

**Hypotheses**

Based on the rational above, the following hypotheses will be tested:

H1a. All three bullying behaviors (person-related bullying, work-related bullying, and physical intimidation bullying) will be correlated with mental health symptoms. This is a replication of a relationship tested in Giorgi et al. (2016) and Verkuil et al. (2016).

H1b. All three bullying behaviors will be correlated with job satisfaction. This is a replication of a relationship specified in Verkuil et al. (2016).

H1c. All three bullying behaviors will be correlated with turnover intention. This is a replication of a relationship tested in Laschinger et al. (2012).

H2a. Perceived severity of bullying will moderate the relationship between all three bullying behaviors and mental health symptoms. This is a replication of a relationship tested in Nolfe, Petrella, Zontini, Uttieri, and Nolfe (2010).
H2b. Perceived severity of bullying will moderate the relationship between all three bullying behaviors and job satisfaction. Okechukwu et al. (2014) specified this relationship for mental health outcomes; I am extending it to this bullying outcome as well.

H2c. Perceived severity of bullying will moderate the relationship between all three bullying behaviors and turnover intention. Okechukwu et al. (2014) specified this relationship for mental health outcome; I am extending it to this bullying outcome as well.

H3a. Duration of bullying will moderate the relationship between all three bullying behaviors and mental health symptoms. This is a test of a relationship specified in Ritzman (2016).

H3b. Duration of bullying will moderate the relationship between all three bullying behaviors and job satisfaction. Ritzman (2016) specified this relationship for mental health outcomes. I am extending this to job satisfaction.

H3c. Duration of bullying will moderate the relationship between all three bullying behaviors and turnover intention. Ritzman (2016) specified this relationship for mental health outcomes. I am extending this to turnover intentions.

H4a. Perception of workplace stress will moderate the relationship between all three bullying behaviors and mental health symptoms. This is a replication of a general relationship tested in a meta-analysis by Verkuil et al. (2016), specifically that stress moderates the relationship between bullying and anxiety and depression.

H4b. Perception of workplace stress will moderate the relationship between all three bullying behaviors and job satisfaction. Verkuil et al. (2016) tested this relationship for specific mental health outcomes, I am extending it to this additional outcome, job satisfaction.
H4c. Perception of workplace stress will moderate the relationship between all three bullying behaviors and turnover intention. Verkuil et al. (2016) tested this relationship for specific mental health outcomes, I am extending it to this additional outcome, turnover intention.

H4d. The relationship between perception of workplace stress and mental health symptoms will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between stress and bullying) is a replication of a relationship specified in Stouten et al. (2010); specifically, Stouten et al. (2010) tested whether workload was correlated with workplace bullying, and argued that workload was a reasonable stand-in for work stress. The second part (the relationship between bullying and mental health symptoms) is a replication of a relationship tested in a meta-analysis by Verkuil et al. (2016).

H4e. The relationship between perception of workplace stress and job satisfaction will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between stress and bullying) is a replication of a relationship specified in Stouten et al. (2010); specifically, Stouten et al. (2010) tested whether workload was correlated with workplace bullying, and argued that workload was a reasonable stand-in for work stress. The second part (the relationship between bullying and job satisfaction) is a replication of a relationship tested by Valentine et al. (2015).

H4f. The relationship between perception of workplace stress and turnover intention will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between stress and bullying) is a replication of a relationship specified in Stouten et al. (2010); specifically, Stouten et al. (2010) tested whether workload was correlated with workplace bullying, and argued that workload was a reasonable stand-in for work stress. The second part
(the relationship between bullying and turnover intentions) is a replication of a relationship tested by Houshmand et al. (2012).

H5a. Worker control will moderate the relationship between all three bullying behaviors and mental health symptoms. This is a test of a relationship hypothesized but not tested in Steensma (2009); specifically that worker control moderates the relationship between bullying and negative outcomes.

H5b. Worker control will moderate the relationship between all three bullying behaviors and job satisfaction. This is a test of a relationship hypothesized but not tested in Steensma (2009); specifically that worker control moderates the relationship between bullying and negative outcomes.

H5c. Worker control will moderate the relationship between all three bullying behaviors and turnover intentions. This is a test of a relationship hypothesized but not tested in Steensma (2009); specifically that worker control moderates the relationship between bullying and negative outcomes.

H6a. Leadership style (specifically levels of transformational leadership, transactional leadership, and laissez faire leadership) will moderate the relationship between perception of workplace stress and all three bullying behaviors. This is a test of a relationship hypothesized but not tested in Steensma (2009); specifically that (poor) leadership moderates the relationship between bullying and negative outcomes.

H6b. The relationship between leadership style (specifically levels of transformational leadership, transactional leadership, and laissez faire leadership) and mental health symptoms will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between leadership style and bullying) is a replication of a relationship tested in Stouten et al.
(2010). The second part (the relationship between bullying and mental health symptoms) is a replication of a relationship tested in a meta-analysis by Verkuil et al. (2016).

H6c. The relationship between leadership style (specifically levels of transformational leadership, transactional leadership, and laissez faire leadership) and job satisfaction will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between leadership and bullying) is a replication of a general result reported in Stouten et al. (2010). Stouten et al. (2010) tested this relationship for “ethical leadership” instead of transformational, transactional, or laissez faire leadership. The second part of the hypothesis (the relationship between bullying and job satisfaction) is a replication of a result reported in Valentine et al. (2015).

H6d. The relationship between leadership style (specifically levels of transformational leadership, transactional leadership, and laissez faire leadership) and turnover intention will be mediated by all three bullying behaviors. The first part of this hypothesis (the relationship between leadership and bullying) is a replication of a general result reported in Stouten et al. (2010). Stouten et al. (2010) tested this relationship for “ethical leadership” instead of transformational, transactional, or laissez faire leadership. The second part (the relationship between bullying and turnover intentions) is a replication of a result reported in Houshmand et al. (2012).

**Research Questions**

Previous research has indicated that the identity of the person experiencing the bullying (witness or victim), the formal relationship of that person with the bully (bully as coworker or bully as supervisor), and the number of bullies (mobbing vs. single bully) all play significant roles in workplace bullying. What is less clear is how these factors change the relationships
between variables within a model of bullying. Therefore, I will investigate the following research questions.

RQ1. How do the relationships specified in the hypotheses differ when the participant is a witness to bullying rather than a victim of bullying? Note, this question is a new contribution to the existing research on workplace bullying.

RQ2. How do the relationships specified in the hypotheses differ when the bully is a supervisor rather than coworker? Note, this question is a new contribution to the existing research on workplace bullying.

RQ3. How do the relationships specified in the hypotheses differ when there are multiple bullies (mobbing) rather than a single bully? This question is a new contribution to the existing research on workplace bullying.

RQ4. How do the relationships specified in the hypotheses differ when the bullying duration is less than 6 months compared to when the bullying duration is 6 months or longer? This question is a new contribution to the existing research on workplace bullying.

Method

Sample

Participants will be recruited from Amazon’s Mechanical Turk (mTurk) website (see Appendix A for advertisement). Participation will be limited to adults (age 18 and up), who self report United States citizenship, currently working at least 30 hours a week, and having either witnessed or experienced workplace bullying in the last two years. Participants will be paid for their participation in this study. While a rule of thumb suggests that I need at least ten participants per construct to test a structural equation model on my data (I have 23 constructs), a recent simulation suggests that large complex models may need a sample size as high as 460 in
worst-case scenarios (Wolf, Harrington, Clark, & Miller, 2013), therefore my target sample size is 460 participants.

**Measures**

**Demographics.** Demographic information will be gathered using modified versions of the race and sex questions of the 2010 US census. Options for race will include “white,” “black,” “American Indian,” “Asian Indian,” “Japanese,” “Native Hawaiian,” “Chinese,” “Korean,” “Guamanian,” “Filipino,” “Vietnamese,” “Samoan,” and “other.” Options for sex will include “male,” “female,” and “other.” Current age will be measured by free response (see Appendix B).

**Bullying Source.** I will first define workplace bullying for the participants, and ask participants to report whether they have experienced bullying and/or witnessed bullying in the last two years. I will then assess bullying source with a single branching question for single source bullying and another branching question for group source bullying. Participants who report having both experienced and witnessed bullying will be separately asked questions about both situations. If the bullying is from a single individual, I will ask if the bullying is coming from someone in a supervisory position, a coworker, or another source. If the bullying is by a group, I will then ask if the group contains at least one person in a supervisory position compared to the bullying target, or if the group consists of people who are coworkers relative to the bully target. I will also provide the response option “the bullying group contains some other mix of coworkers not listed above, but does not contain a supervisor” (see Appendix C).

**Bullying Behavior.** Bullying behavior and frequency will be measured with the Revised Negative Acts Questionnaire (NAQ-R; Einarsen et al., 2009). The NAQ-R is a 22-item behavioral frequency measure, reported by its authors to demonstrate an $\alpha$ of .90. It uses a five-response-option Likert-scale format to measure frequency of both direct and indirect bullying
behavior. The scale also breaks workplace bullying down into three categories; bullying related to the work itself, bullying focusing on the victim’s social status and interactions, and physical bullying. Items will be modified to allow the rated behaviors to include both witnessed and experienced bullying behaviors (see Appendix D).

**Bullying Perceived Severity.** I will use a perceived severity scale with two items (r = .75) that measures perceived severity and perceived injustice (Zdaniuk & Bobocel, 2015). While the original Zdaniuk and Bobocel (2015) scale was a seven-response-option Likert-style scale, I will change it to five response options to match the format of the other Likert-style scales in the study (see Appendix E).

**Bullying Duration.** Bullying duration will be measured for each bullying behavior using a single free response box and the unit “weeks.” Specifically, the question will ask, “how long did this bullying behavior continue to occur regularly? If the behavior is still occurring regularly (i.e. it has not ended) then report how long it has occurred and then check the option for “bullying behavior is still going on.”

**Job Satisfaction.** Job satisfaction will be measured using a 5-item job satisfaction scale modified by Judge, Bono, and Locke (2000) from a 17-item scale developed by Brayfield-Rothe (1951). Judge et al. (2000) reported an α of .80 for their 5-item version of the scale. While the Judge et al. (2000) scale used a 7-response-option Likert–style format, I will use a 5-response-option format to match the other Likert-style scales in the study (see Appendix F).

**Turnover Intentions.** Turnover intentions will be measured using three items from Dwivedi’s (2015) six item, five response option, single-factor turnover intention scale. The author reported that the scale demonstrated an α of .84 (Dwivedi, 2015). I will use three of the
four highest loading items identified in Dwivedi’s (2015) analysis in order to reduce load on the participants (see Appendix G); I will exclude one item that has awkward and confusing wording.

**Mental Health Symptoms.** Mental health will be assessed as two different constructs, anxiety and depression, using the Hopkins Symptoms Checklist-25 (HSCL-25; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974), which is the same procedure used by Einarsen and Nielsen (2015). The HSCL-25 is a seventeen-item measure of symptom severity with six items assessing anxiety and eleven items assessing depression. Each item has four Likert-style responses. The authors reported an $\alpha$ of .79 for the anxiety subscale and an $\alpha$ of .87 for the depression subscale (Einarsen & Nielsen, 2015). I will convert the scale to five response options to match the format of the other Likert-style scales in the study. I will use the highest three loading items identified in the Einarsen and Nielsen (2015) analysis for each subscale to reduce load on the participants (see Appendix H).

**Perception of Workplace Stress.** Perception of workplace stress will be measured using three components from Cousins et al.’s (2004) workplace stress measure; specifically, workload (which the authors refer to as “demands”), role clarity (which the authors refer to as “role”), and organizational change support (which the authors refer to as “change”). The authors reported that the workload items had an $\alpha$ of .89, the role clarity items had an $\alpha$ of .83, and the organizational change support items had an $\alpha$ of .83. Each item has four Likert-style responses, which I will convert to five response options to match the format of the other Likert-style scales of the study. I will use the highest three loading items from the Cousins et al. (2004) analysis for each component to reduce load on the participants (see Appendix I).

**Worker Control.** Worker control will be measured using one component of Cousins et al.’s (2004) workplace stress measures, specifically worker control (which the authors refer to as
The authors reported that worker control had an \( \alpha \) of .78 and a single-factor structure. Each item has four Likert-style responses, which I will convert to five response options to match the format of the other Likert-style scales of the study. I will use the highest three loading items from the Cousins et al. (2004) analysis for worker control to reduce load on the participants (see Appendix J).

**Transactional, Transformational, and Laissez Faire Leadership Styles.** I will measure participants’ perceptions of their direct supervisors’ leadership styles in terms of transactional, transformational, and laissez faire leadership styles. I will use six items from a 12-item, two-factor scale of laissez faire leadership that uses five response options for each item (Hinkin & Schriesheim, 2008). The authors reported that the scale had six items per factor and an \( \alpha \) of .80. I will use the highest three loading items for each factor as determined by the Hinkin and Schriesheim (2008) analysis to reduce load on the participants (see Appendix K).

I will also use an eight-item, two-factor scale of transformational and transactional leadership developed by Oterkiil and Ertesvag (2014). This scale uses six Likert scale response options for each item; I will convert this to a five-response-option format to match the other Likert-style scales of the study. This scale has four items for each factor and the authors reported that it demonstrated an \( \alpha \) of .87 for transactional leadership and .88 for transformational leadership (Oterkiil & Ertesvag, 2014; see Appendix L).

**Analyses**

**Hypothesis Tests.** Testing hypotheses requires quantifying direct, mediated, and moderated relationships between constructs. Hypotheses will be tested using structural equation modeling (SEM) in order to examine the entire model of construct relationships at one time, as well as to test the individual relationships specified in each hypothesis. I will use a panel model
design (Wong & Law, 1999) to accommodate the recursive nature of the model; specifically, to accommodate the inclusion of a possible bidirectional relationship between mental illness and workplace bullying (Verkuil et al., 2016). I will use IBM’s SPSS AMOS software to analyze the data.

Hypothesis 1a, which predicted that all three aspects of bullying type (physical, work related, and mental) would be positively related to both aspects of negative mental health (anxiety, depression), will be tested by examining the six corresponding path coefficients estimated via SEM. Specifically, path coefficients that are positive and significantly different from zero will be interpreted as support for their corresponding hypothesis (Hoyle, 1995).

Hypothesis 1b, which predicted that all three aspects of bullying type (physical, work related, and mental) would be positively related to job satisfaction, will be tested by examining the three corresponding path coefficients estimated via SEM. Specifically, path coefficients that are positive and significantly different from zero will be interpreted as support for their corresponding hypothesis (Hoyle, 1995).

Hypothesis 1c, which predicted that all three aspects of bullying type (physical, work related, and mental) would be positively related to turnover intentions, will be tested by examining the three corresponding path coefficients estimated via SEM. Specifically, path coefficients that are positive and significantly different from zero will be interpreted as support for their corresponding hypothesis (Hoyle, 1995).

Hypothesis 2a, which predicted that bullying severity would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and both aspects of negative mental health (anxiety, depression), will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength
of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 2b, which predicted that bullying severity would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and job satisfaction, will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 2c, which predicted that bullying severity would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and turnover intentions, will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 3a, which predicted that bullying duration would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and both aspects of negative mental health (anxiety, depression), will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 3b, which predicted that bullying duration would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and job satisfaction, will be tested by examining the strength of the interaction term estimated via SEM
for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 3c, which predicted that bullying duration would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and turnover intentions, will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 4a, which predicted that all three aspects of perceived workplace stress (demands, role, and change) would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and both aspects of negative mental health (anxiety, depression), will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 4b, which predicted that all three aspects of perceived workplace stress (demands, role, and change) would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and job satisfaction, will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).
Hypothesis 4c, which predicted that all three aspects of perceived workplace stress (demands, role, and change) would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and turnover intentions, will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 4d, which predicted that all three aspects of bullying type (physical, work related, and mental) would mediate the relationship between all three aspects of perceived workplace stress (demands, role, and change) and both aspects of negative mental health (anxiety, depression), will be tested by using SEM to model the indirect effect of workplace stress on negative mental health as outlined by Cheung and Lau (2008). Specifically, indirect effects that are significantly different from zero will be interpreted as support for the corresponding hypothesis.

Hypothesis 4e, which predicted that all three aspects of bullying type (physical, work related, and mental) would mediate the relationship between all three aspects of perceived workplace stress (demands, role, and change) and job satisfaction, will be tested by using SEM to model the indirect effect of perceived workplace stress on job satisfaction as outlined by Cheung and Lau (2008). Specifically, indirect effects that are significantly different from zero will be interpreted as support for the corresponding hypothesis.

Hypothesis 4f, which predicted that all three aspects of bullying type (physical, work related, and mental) would mediate the relationship between all three aspects of perceived workplace stress (demands, role, and change) and turnover intentions, will be tested by using
SEM to model the indirect effect of workplace stress on turnover intentions as outlined by Cheung and Lau (2008). Specifically, indirect effects that are significantly different from zero will be interpreted as support for the corresponding hypothesis.

Hypothesis 5a, which predicted that worker control would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and both aspects of negative mental health (anxiety, depression), will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 5b, which predicted that worker control would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and job satisfaction, will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 5c, which predicted that worker control would moderate the relationships between all three aspects of bullying type (physical, work related, and mental) and turnover intentions, will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 6a, which predicted that leadership style (transformational leadership, transactional leadership, and laissez faire leadership) would moderate the relationships between
all three aspects of perceived workplace stress (demands, role, and change) and all three aspects of bullying type (physical, work related, and mental), will be tested by examining the strength of the interaction term estimated via SEM for each moderated relationship. Specifically, if the strength of each interaction term is significantly different from zero, the results will be interpreted as support for the corresponding hypothesis (Cortina, Chen, and Dunlap, 2001).

Hypothesis 6b, which predicted that all three aspects of bullying type (physical, work related, and mental) would mediate the relationship between leadership style (transformational leadership, transactional leadership, and laissez faire leadership) and both aspects of negative mental health (anxiety, depression), will be tested by using SEM to model the indirect effect of leadership style on negative mental health as outlined by Cheung and Lau (2008). Specifically, indirect effects that are significantly different from zero will be interpreted as support for the corresponding hypothesis.

Hypothesis 6c, which predicted that all three aspects of bullying type (physical, work related, and mental) would mediate the relationship between leadership style (transformational leadership, transactional leadership, and laissez faire leadership) and job satisfaction, will be tested by using SEM to model the indirect effect of leadership style on job satisfaction as outlined by Cheung and Lau (2008). Specifically, indirect effects that are significantly different from zero will be interpreted as support for the corresponding hypothesis.

Hypothesis 6d, which predicted that all three aspects of bullying type (physical, work related, and mental) would mediate the relationship between leadership style (transformational leadership, transactional leadership, and laissez faire leadership) and turnover intention, will be tested by using SEM to model the indirect effect of leadership style on turnover intentions as
outlined by Cheung and Lau (2008). Specifically, indirect effects that are significantly different from zero will be interpreted as support for the corresponding hypothesis.

**Research Questions.** Testing research questions requires comparing different nested structural equation models to determine if there is significant difference in the fit or regression weights between models. In all cases I will use IBM’s SPSS AMOS software to analyze the data.

Research question 1 examines how the relationships specified in the hypotheses change when the participant is a witness to the bullying rather than a victim of the bullying. I will compare model fit between the models using a Chi-square difference test, and will judge that the model with the lowest Chi-square is the best fitting model when the difference is significant, i.e. when the $p$ value associated with the difference is less than or equal to .05 (Stieger, Shapiro, & Brown, 1985). Additionally, I will use Chi-squared, RMSEA and CFI to determine whether each model fits well, and will consider Chi-squared $p$ values of above .05, RMSEA values of .05 and below, and CFI values of .95 and above to be indications of good fit (Hu & Bentler, 1999). Finally, I will conduct a stepwise multi-group analysis to determine if individual path coefficients vary between groups outlined in Vandenberg and Lance (2000); specifically I will determine whether the null hypothesis of model invariance is supported as I sequentially test whether regression weights, intercepts, covariates, and residuals are equal (in that order).

Research question 2 examines how the relationships specified in the hypotheses change when the bully is a supervisor rather than a coworker. I will compare model fit between the two models using a Chi-square difference test, and will judge that the model with the lowest Chi-square is the best fitting model when the difference is significant, i.e. when the $p$ value associated with the difference is less than or equal to .05 (Stieger, Shapiro, & Brown, 1985). Additionally, I will use Chi-squared, RMSEA and CFI to determine whether each model fits
well, and will consider Chi-squared $p$ values of above .05, RMSEA values of .05 and below, and CFI values of .95 and above to be indications of good fit (Hu & Bentler, 1999). Finally, I will conduct a stepwise multi-group analysis to determine if individual path coefficients vary between groups outlined in Vandenberg and Lance (2000); specifically I will determine whether the null hypothesis of model invariance is supported as I sequentially test whether regression weights, intercepts, covariates, and residuals are equal (in that order).

Research question 3 examines how the relationships specified in the hypotheses change when there are multiple bullies (mobbing) rather than a single bully. I will compare model fit between the two models using a Chi-square difference test, and will judge that the model with the lowest Chi-square is the best fitting model when the difference is significant, i.e. when the $p$ value associated with the difference is less than or equal to .05 (Stieger, Shapiro, & Brown, 1985). Additionally, I will use Chi-squared, RMSEA and CFI to determine whether each model fits well, and will consider Chi-squared $p$ values of above .05, RMSEA values of .05 and below, and CFI values of .95 and above to be indications of good fit (Hu & Bentler, 1999). Finally, I will conduct a stepwise multi-group analysis to determine if individual path coefficients vary between groups outlined in Vandenberg and Lance (2000); specifically I will determine whether the null hypothesis of model invariance is supported as I sequentially test whether regression weights, intercepts, covariates, and residuals are equal (in that order).

Research question 4 examines how the relationships specified in the hypotheses change when the bullying has been going on less than 6 months compared to 6 months or more. I will compare model fit between the two models using a Chi-square difference test, and will judge that the model with the lowest Chi-square is the best fitting model when the difference is significant, i.e. when the $p$ value associated with the difference is less than or equal to .05 (Stieger, Shapiro,
& Brown, 1985). Additionally, I will use Chi-squared, RMSEA and CFI to determine whether each model fits well, and will consider Chi-squared $p$ values of above .05, RMSEA values of .05 and below, and CFI values of .95 and above to be indications of good fit (Hu & Bentler, 1999). Finally, I will conduct a stepwise multi-group analysis to determine if individual path coefficients vary between groups outlined in Vandenberg and Lance (2000); specifically I will determine whether the null hypothesis of model invariance is supported as I sequentially test whether regression weights, intercepts, covariates, and residuals are equal (in that order).
References


