

Running head: Enacted Aggression and Perpetrator Outcomes

Enacted Aggression and Perpetrator Outcomes: The Moderating Roles of Experienced  
Aggression and Perpetrator Gender

By

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**Abstract****Enacted Aggression and Perpetrator Outcomes: The Moderating Roles of Experienced Aggression and Perpetrator Gender****By Ashley N. Leopold**

This study examines the relationships between enacting aggression and perpetrators' health and interpersonal outcomes. As well it considers perpetrator's gender and previously experienced aggression as potential moderators of these relationships. Two wave survey data were used. Enacted aggression was negatively associated with physical health, psychological well-being, co-worker relationships and job satisfaction. Enacted aggression, experienced aggression, and perpetrator gender interacted to predict perpetrator physical health and co-worker relationships. Among women, the negative relationship between enacted aggression and both outcome variables was stronger under conditions of low (versus high) experienced aggression. The interactions were not significant for males. Enacted and experienced aggression interacted to affect positive affective well-being, with the negative relationship between enacted aggression and positive affective well-being being stronger for those higher in experienced aggression. This study brings awareness to the comprehensive negative effects of workplace aggression for perpetrators.

August 13th, 2012

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## Enacted Aggression and Perpetrator Outcomes: The Moderating Roles of Experienced Aggression and Perpetrator Gender

Cases of workplace aggression have been catching the attention of researchers, organizations and the general public in recent years (Barling, Dupré & Kelloway, 2009). When looking at instances of workplace aggression, one study using a national probability sample found that 41.4% of U.S. wage and salary workers, approximately 47 million individuals, reported they had experienced psychological aggression during a 12 months period while at work (Schat, Frone & Kelloway, 2006). “Shouted obscenities” or being “screamed at in anger” were the most commonly reported forms of experienced workplace aggression. The estimated cost of workplace aggression to U.S. organizations is roughly \$4.2 billion per year in lost-time, legal costs and benefit payments (e.g., Kaptein, 1999; see Barclay & Aquino, 2011).

In this study, workplace aggression is defined as any “behaviour by an individual or individuals within or outside the organization that is intended to physically or psychologically harm a worker or workers in a work-related context” (Schat & Kelloway, 2005, p.191). The literature review for this study encompassed a number of related constructs (e.g., bullying, workplace deviance, retaliation, revenge, provocation, workplace harassment and so forth) that are recognized to overlap with the construct of aggression (Glomb, 2002; Hershcovis, 2011; Kelloway, Barling, & Hurrell Jr., 2006).

Experiencing workplace aggression predicts a number of negative individual and organizational outcomes (Bowling & Beehr, 2006; Hershcovis & Barling, 2010). At the individual level employees who have been targets of aggression may experience reduced mental/emotional or physical well-being (LeBlanc & Kelloway, 2002), lowered job

satisfaction (Hershcovis & Barling, 2010), and may engage in revenge behaviours (Kelloway et al., 2006). At the organizational level employees who have been targets of workplace aggression may have lowered levels of organizational commitment (LeBlanc & Kelloway, 2002), fewer organizational citizenship behaviours (Budd, Arvey & Lawless, 1996; Hershcovis & Barling, 2010), poorer work performance (Hershcovis & Barling, 2010), reduced productivity (Gates, Fitzwater & Succop, 2003), and increased turnover (Duffy, 2009).

The outcomes of experienced workplace aggression are complex and multi-dimensional; they encompass a range of attitudinal (e.g., job stress, job satisfaction), behavioural (e.g., absenteeism, work withdrawal), health (e.g., sleeplessness), and personal outcomes (e.g., psychological distress, anxiety; Glomb & Cortina, 2006). For the most part, the negative outcomes of workplace aggression have been studied solely from the perspective of the victims (see Barclay & Aquino, 2011; Hershcovis & Barling, 2010). One phenomenon that has received little research attention to date is the personal, health and interpersonal outcomes experienced by the perpetrators of aggression in the workplace.

To understand workplace aggression fully, all aspects of the interaction must be considered, including how the perpetrators of workplace aggression decipher their actions following the aggressive event as well as any variables that may moderate the relationship between enacting aggression and various individual and organizational outcomes. Aggressive encounters involve more than one individual and can be detrimental to relationships. It is therefore, important to consider and understand both members involved in the exchange (Keashly & Harvey, 2006). The purpose of this study

is two-fold; (a) to examine the relationships between enacting aggression and various health and interpersonal outcomes; (b) to look at factors that may moderate these relationships, namely perpetrator's gender and perpetrator's previously experienced aggression. I accomplished these goals using two wave survey data, thus allowing me to explore the hypothesized relationships at Time 2 while controlling for the outcome variable at Time 1.

### **Enacted Aggression and Perpetrator Health**

The physical and psychological well-being of employees has long been a concern for aggression researchers. Although there are both empirical and theoretical links between experienced aggression and harassment and decreased well-being for victims (Bowling & Beehr, 2006; Einarsen & Mikkelsen, 2003; Hoel, Einarsen & Cooper, 2003), parallel investigations for perpetrators do not appear to exist. In the existing literature, perpetrator focused research places an emphasis on characteristics or motives that prompt the aggressive exchange (Aquino & Lamertz, 2004). Exposure to workplace aggression brings with it risk of depression, irritability, anxiety, and overall decreased mental and physical health (LeBlanc & Barling, 2004; Mayhew & McCarthy, 2005). Meta-analytic evidence shows consistent strong negative relationships between workplace aggression and a number of well-being indicators (i.e., strain, burnout, frustration, depression, physical illness, and job and life satisfaction; Bowling & Beehr, 2006).

Individuals often engage in aggressive behaviour to vent their negative emotions and ultimately improve their mood. The theory of catharsis posits that anger and negative emotions held within an individual will result in psychological damage if not expressed.

According to the catharsis hypothesis, engaging in aggressive fantasizing and aggressive behaviour should result in decreased probability of engaging in additional aggressive behaviour (Murray & Feshbach, 1978). Acknowledging constructive anger has been shown by some researchers to perform a beneficial role, helping to clarify relational issues, provide individuals with a sense of control, and stimulate necessary change (DeAngelis, 2003). However, the theory of catharsis has long been discredited in the psychology literature with most studies showing increased enacted aggression and anger following aggression with the goal of regulating affect (Bushman, Baumeister, & Stack, 1999). Aggression and retaliation however, continue to be advocated as good ways for individuals to rid themselves of anger and stabilize their affect (Bushman, Baumeister, & Phillips, 2001). Given the research suggesting the nonexistence of a cathartic effect as well as the cyclical nature of workplace aggression, with victims of workplace aggression often reporting being perpetrators of workplace aggression themselves ( $r=.52$ ; see Glomb & Liao, 2003), perpetrators of workplace aggression may experience similar outcomes to those for victims (Aquino & Lamertz, 2004).

### **Enacted Aggression and Co-worker Relationships**

Co-workers interact with one another regularly, be it face-to-face or in a virtual environment. In this time of change and fast-paced global competition, co-workers are increasingly being asked to collaborate and cooperate (Pearlman & Barney, 2000). These day-to-day interactions can result in both positive and/or negative co-worker relationships (Avolio, Kahai, Dumdum, & Sivasubramaniam, 2001). Negative co-worker relationships have been linked to a number of negative outcomes, both individually and

organizationally pertinent (Hodson, 1997), including lowered job satisfaction (Hurlbert, 1991), decreased productivity (Hodson, 1997; Reich & Hershcovis, 2011), and decreased morale (Forret & Love, 2008). However, despite the evident importance of co-worker relationships very little research has investigated their influence in the workplace (Hain, 2005; Raabe & Beehr, 2003).

Social support is often suggested as a potential predictor of the relationship between aggression and various outcomes in the workplace with high social support acting to mitigate the negative responses of workplace aggression (Viswesvaran, Sanchez, & Fisher, 1999). However, if workplace aggression reduces the potential for social support through decreased co-worker relationships, the effects could be detrimental to the cycle of workplace aggression within an organization. Past research has suggested that poor co-worker relationships act as a work-related stressor (Kelloway & Barling, 1994; Sauter, Murphy & Hurrell, 1990) and such stress associated with damaged co-worker relationships may supersede benefits attributable to positive relationships at work (Reich & Hershcovis, 2011). Individuals have a fundamental human need for belongingness and meaningful relationships (Baumeister & Leary, 1995), which also holds true in the workplace. Therefore, mistreatment and aggression, both enacted and experienced, can be particularly negative; threatening an individual's position and membership within a required social group (Bies, 1999; Reich & Hershcovis, 2011). When an individual engages in a negative act (e.g., aggression) it exhibits a lack of respect and dignity towards others and is likely that views of that individual will suffer and co-worker relationships will decrease.

Research has shown that employees who are abused or mistreated by their supervisors are likely to vent and complain to others within the organization, often their peers, about the mistreatment thereby increasing the negative attitude towards the individual (Forret & Love, 2008). This study only examined supervisor-initiated mistreatment however; it is likely the process and end result would be similar for other-initiated mistreatment. Furthermore, developmental researchers have found that the majority of children dislike classmates who are aggressive (Abecassis, Hartup, Haselager, Scholte, & Van Lieshout, 2002). Research has yet to examine in-depth the effects of enacted aggression on co-worker relationships, but drawing from other relational theories and areas of research (e.g., human aggression, interpersonal attachments) it is probable that a negative relationship exists between the two constructs such that enacted aggression is associated with poorer co-worker relationships.

### **Enacted Aggression and Job Satisfaction**

Research has demonstrated that employees who experience workplace aggression and/or bullying often have decreased job satisfaction (Merecz, Drabek & Moscicka, 2009). A number of studies looking at victims of workplace aggression have found that victims report decreased job satisfaction following the aggressive event (Snyder, Chen, Grubb, Roberts, Sauter, & Swanson, 2005; Duffy, Ganster & Pagon, 2002; Keashley, Trott & MacLean, 1994; Tepper, 2000; Quine, 2001). Research into leader-member exchange has shown the positive benefits associated with good relationships between a leader and their subordinate including, increased job satisfaction (Townsend, Phillips, & Elkins, 2000). Poor relationships are often characterized by negative reciprocity with

negative behaviours cumulating and spiralling. Individuals in poor leader member exchanges displayed more retaliatory behaviours than individuals in good leader-member exchanges resulting in decreased performance and citizenship behaviours (Townsend, Phillips, & Elkins, 2000).

However, not all studies have supported this result. Glomb (2002) reported that many victims recounted that their satisfaction levels did not change following an aggressive encounter. However, when a change did occur following the aggressive encounter the vast majority of individuals reported a decrease in job satisfaction. Given the job satisfaction and aggression literature as a whole, and with my study's methodology differing from Glomb's specific incidents approach, I suggest that perpetrators of workplace aggression will experience decreased job satisfaction following enacting aggression.

From the literature review outlined in the sections above I propose a negative relationship between enacted aggression and perpetrator health, interpersonal, and organizational outcomes with individuals with higher perpetrated aggression having decreased health, co-worker relationships, and job satisfaction compared to those with lower perpetrated aggression.

H1: Enacting aggression is negatively related to perpetrator health, co-worker relationships, and job satisfaction.

### **Gender and Enacted Aggression**

Research in the behavioural and social sciences has found evidence to suggest that the aggressive tendencies of males and females differ (Bettencourt & Miller, 1996; Eagly

& Steffan, 1986; Martinko, Douglas & Harvey, 2006). Studies have shown that females are more likely to engage in indirect aggression (i.e., negative gossiping, ostracism, criticism; Campbell, Sapochnik, & Muncer, 1997; Hess & Hagen, 2006; Oesterman, Bjoerkqvist, Lagerspetz, Kaukiainen, Landau, Frączek, Caprara, 1998), whereas males are more likely to engage in direct forms of aggression (i.e., hitting or yelling), with higher frequencies of obstructionism, hostility and overt aggression (Hess & Hagen, 2006; Oesterman et al., 1998; Rutter & Hine, 2005). Developmental research has suggested that a number of these disparities likely result from socialization differences for males and females (Anderson & Bushman, 2002; White, 2001). Cultural norms and gender roles are argued to be contributing factors to gender differences in aggression (Baron & Richardson, 1994). Society holds different normative expectations for males and females in respect to aggression (Eagly & Steffen, 1986).

Generally speaking, aggression is considered to be a more masculine trait (Basow, Cahill, Phenlan, Longshore, & McGillicuddy-DeLisi, 2007; Giles & Heyman, 2005; Golombok & Hines, 2002;). Cultural stereotypes depict males as more physically aggressive and females as more relationally aggressive (Stewart-Williams, 2002; Wiseman, 2003) Sex role stereotypes for females indicate they should be relationship builders, interacting passively with aggressive actions often resulting in females being disliked (English, 2003). Aggressive behaviours are incongruent with the sex role stereotypes for females. This perceived incongruity between aggression and being female is likely to operate much like role incongruity prejudices against women and leadership. Sex role stereotypes equate management and leadership with being male, perceiving females as less appropriate for leadership roles because they lack males' traits of

dominance and assertiveness (Eagly & Karau, 2002).

Females are generally depicted as having more of a relational orientation overall than males (Golombok & Hines, 2002; Underwood, 2002). In one review of interpersonal violence in romantic relationships, studies of mutually violent and aggressive couples consistently found more negative effects for women than men, with females reporting worse psychological and physical well-being and lower marital satisfaction than males (Frieze, 2005; Swan, Gambone, Caldwell, Sullivan, & Snow, 2008). Meta-analytic evidence suggests that women are more impacted by interpersonal conflict and dissonance at work than men are. With one study showing that women have a tendency to highlight particular relational job attributes (i.e., good co-worker relationships, good relationship with supervisor) as more important than men did (Konrad, Corrigan, Lieb, & Ritchie, 2000). From this, one might surmise that females will feel more negatively affected when enacting aggression. For females, violation of a relationship by enacting aggression may be interpreted by both themselves and fellow co-workers more negatively than it is for males (Basow, et. al., 2007). Previous research using vignettes portraying aggressive actions found that all aggressive behaviours were being rated as less acceptable when enacted by females compared to males (Basow, et. al., 2007). In addition, a study of children demonstrated that boys considered aggression to be more acceptable and appropriate than girls did (Huesmann, Guerra, Zelli, & Miller, 1992). These results are in line with a number of previous studies (e.g., Harris, 1994; 1995; Stewart-Williams, 2002). Meta-analytic evidence suggests that males are generally more prone than females to be both targets and perpetrators of direct aggression (Eagly & Steffen, 1986; Rutter & Hine, 2005). Research suggests that men, overall, are more likely

than women to engage in acts of aggression at work (Archer and Coyne, 2005; Basow, et. al., 2007).

Many factors appear to influence the complicated relationship between workplace aggression and gender (Baron, Newman, & Geddes, 1999). Not only have gender differences been found to exist in terms of likelihood of aggressing or being aggressed against, but also in how males and females 'think' about aggression and are impacted by experiencing and enacting aggression. Research shows that females tend to humanize enacted aggression more than males do perceiving that engaging in an aggressive act would cause harm for the target, and guilt and anxiety for the perpetrator, as well as place the perpetrator at increased danger (Eagly & Steffen, 1986) thereby strengthening the negative effects of enacted aggression on their co-worker relationships, health, and job satisfaction compared to males. Social interaction theory argues that perpetrators use aggressive actions to obtain something of value. The perpetrator makes a choice depending upon what they deem to be the expected rewards and costs of engaging in an aggressive behaviour (Tedeschi & Felson, 1994). Females and males are likely to have different cognitive expectancies surrounding perpetuating aggression, with males expecting fewer costs and more benefits associated with the aggressive act than females (Rutter & Hine, 2005). Studies of provocation have found that men and women assess the danger of retaliation differently. Females are more likely to fear aggressive retaliation, having heightened estimations of the danger they'd face from retaliation than males (Bettencourt & Miller, 1996). Aggression is likely to serve a more strategic, instrumental role for males than for females. Males are more likely to engage in aggression to obtain needed outcomes without weighing the costs associated with workplace aggression

compared to females (Rutter & Hine, 2005).

Aggression is often viewed through the stressor-strain model, acting as a source of workplace stress as well as a way of coping with stressors at work. Although, previous research as a whole has not found job satisfaction to be differentially impacted depending upon gender (Clayton, 2011; Cordas, 2009), previous research has suggested that males have a tendency to react to aggression less negatively than females do (Barling, Dekker, Loughlin, Kelloway, Fullagar, & Johnson, 1996). In addition, meta-analytic evidence has found nonsexual aggression to have a stronger negative relationship with females' job satisfaction compared to males' (Lapierre, Spector, & Leck, 2005). Based on the literature noted above, it appears that females are likely to experience heightened negative effects of enacted aggression on health, co-worker relationships, and job satisfaction compared to males.

### **Experienced Aggression and Enacted Aggression**

Of increased interest in the literature to date is the potential for an escalating nature of workplace incivility and aggression. Workplace aggression rarely occurs in isolation, but rather is often the culmination of negative social and relational interactions (Andersson & Pearson, 1999; Baron & Neuman, 1996). For individuals to interact and exist in the realities of the work setting including necessary interactions with co-workers, patients, clients, and so forth various behavioral norms are expected. Empirical evidence is accumulating to show that negative reactions, retaliation and revenge behaviours often occur as a result of one's perceptions of unfair treatment and norm violation (Aquino, Tripp, & Bies, 2001; 2006; Felson, 1982; Folger & Baron, 1996; Greenberg & Alge,

1998; Skarlicki & Folger, 1997). One study demonstrated that the frequency of reciprocated aggression was a direct and linear function of the frequency of experienced aggression (Helm, Bonoma, & Tedeschi, 1972). As a form of coping, people often respond to aggression with aggression (Andersson & Pearson, 1999; Hershcovis, et.al., 2007).

The norm of reciprocity is ubiquitous in many social arenas and is a universal phenomenon with strong effects on human behaviour (Cialdini, 2001; Axelrod, 1984). The norm of reciprocity occurs due to individuals' beliefs surrounding what they feel they owe another individual based on past interaction history with that individual (Gouldner, 1960). In instances of workplace aggression, the norm of negative reciprocity is likely to be evoked, with harmful or unjust behaviours by one individual leading to retaliation from the victim (Anderson & Pearson, 1999).

When individuals enact aggression in response to aggression that has been directed towards them the norm of reciprocity and the social interactionist perspective suggests they are doing so to deter others, reinstate perceived fairness, and/or defend their individual and group identity (Andersson & Pearson, 1999; Tedeschi & Felson, 1994). This framework treats workplace aggression as a process rather than a single incident and highlights the difficulty of separating victim from perpetrator (Aquino & Lamertz, 2004). In most situations no individual is purely a victim or purely a perpetrator of workplace aggression rather the situation must be understood in the context of the relationship between the individuals involved (Aquino & Lamertz, 2004; Glomb, 2002). In many cases individuals perpetrating aggression may also have been previously victims of workplace aggression, with these perpetrators therefore viewing their aggressive actions

as retributive and justified (Andersson & Pearson, 1999). This same reasoning holds true within the prison bullying literature. In this literature perpetration is viewed as a response to victimization. Perpetration acts to prevent future victimization, display behaviour aligned with prison culture and norms as well as protect individual identity and possessions (Holland, Ireland, & Muncer, 2009). The concept of reciprocal aggression is not novel. It has appeared widely within the partner-aggression literature for many years (e.g., Hendy, Weiner, Bakerofskie, Eggen, Gustitus, & McLeod, 2003)

The production of cognitive biases may allow perpetrators to deny responsibility for their aggressive behaviour. Cognitive distortions are “self-statements made by offenders that allow them to deny, minimize, rationalize and justify their behaviour” (Murphy, 1990, p.332). Therefore, previously experienced aggression may facilitate perpetrators’ rationalization for enacting aggression; thereby weakening the potential negative impact on health outcomes of the aggressive behaviour and actions they’ve engaged in. Past research has found that, compared to those who place blame externally, victims of workplace aggression who blame themselves for the aggressive actions directed at them have decreased well-being (Bowling & Beehr, 2006). If pointing blame at the perpetrator, a sense of justification will likely result with the victim’s actions towards the perpetrator providing a sense of justification for retributive actions (Bowling & Beehr, 2006; Cialdini, 2001).

Like victims of workplace aggression, if perpetrators of workplace aggression feel their actions were justified, their health will probably suffer less following the enacted aggression than a perpetrator whose aggression was not provoked. Perpetrators who feel they’ve been treated harshly or unfairly are likely to see the aggression as a form of

reciprocity. If a perpetrator cannot attribute their actions as justified, the negative effects on their health are likely to be amplified compared to a perpetrator who feels their actions were justified.

### **Gender, Experienced Aggression, and Enacted Aggression**

Most researchers recognize that both situational and individual predictors play a role in predicting workplace aggression (Hershcovis, et. al., 2007). How an individual interprets a situation can vary as a product of both stable individual differences (i.e., gender) and variable situational factors (i.e., experienced aggression; Skarlicki, Folger, & Tesluk, 1999). This study aims to examine how variables from each of these categories may interact to influence physical and psychological health, interpersonal, and job outcomes.

Given the literature to date it is probable that there are three-way interactions amongst enacted aggression, experienced aggression and gender predicting perpetrator health, co-worker relationships, and job satisfaction. The influence of gender in relation to aggression has been studied for years and it is probable that how perpetrators decipher their aggressive actions and experiences will depend somewhat upon their gender. Studies have shown that females are more likely to humanize their aggressive actions, seeing them as less acceptable and more harmful to the victims. Whereas for males, enacted aggression is likely “an attempt to adhere to and enforce traditional gender norms, to maintain appropriate social dynamics, and to exert power over others” (Kilianski, 2003, p.179). Males are socialized to value power therefore; enacting aggression is likely to serve as one method of demonstrating and maintaining their power

within an organization (Cohn & Zeichner, 2006). In addition, gender differences in aggression may be substantially attenuated by context and provocation (Bettencourt & Miller, 1996).

How an individual reasons and attributes their aggressive actions has been shown to influence outcomes associated with workplace aggression. Specifically, experienced aggression may weaken the negative effects of enacted aggression on outcomes such as physical and psychological health and strengthen the negative impacts of enacted aggression on other outcomes (e.g., co-worker relationships and job satisfaction). Interpersonal provocation has long been studied as one of the most important methods of eliciting aggression (Anderson & Bushman, 2002; Berkowitz, 1993; Bettencourt & Miller, 1996; Geen, 2001). Studies have found individuals' feelings of frustration or provocation at work to be positively related to both physical and psychological aggression (Menard, Brunet & Savoie, 2011). According to social learning models, prior exposure to aggression at work (i.e., being the victim of workplace aggression) influences an individual's likelihood of engaging in aggression at work. Being exposed to aggressive individuals may provoke aggressive thoughts insinuating that an acceptable response to provocation and frustration is aggression (Anderson, 1997).

Several studies of provocation and aggression have found provocation acts as a form of justification for enacting aggression (Bettencourt & Miller, 1996). This sense of justification may be of particular interest for females, helping to alleviate constraints placed upon them by their gender norms (Bettencourt & Miller, 1996). In one study of interpersonal violence and provocation in romantic relationships, females' intended response to provocation from their partner was more escalatory than males' intended

response to provocation from their partner. Whereas, consistent with social role theory, when the provocation came from a stranger, males' intended response was more escalatory and aimed at status enhancement whereas females' intended response was more subdued with a primary goal of risk reduction (Winstok & Straus, 2011). For females who have experienced aggression at work, that previous experience of being a victim may serve as provocation and justification for aggressive actions and mitigate the negative health outcomes of enacting aggression relative to those female perpetrators who have not been victims themselves. In addition, in terms of co-worker interactions and job satisfaction, enacted aggression may have a cumulative, tit for tat effect over and above experienced aggression for females, such that both experiencing and enacting aggression may have the most detrimental effects on co-worker relationships and job satisfaction (Andersson & Pearson, 1999; Bowling & Beehr, 2006). Males on the other hand, by nature of their more frequent and more instrumental use of aggression as well as pre-existing gender norms may not need further justification of their actions. On the basis of these reasons I don't expect experienced aggression and enacted aggression to interact to predict health, interpersonal, and job outcomes for males (Rutter & Hine, 2005).

I propose that the negative effects of enacted aggression on perpetrator health will be mitigated for females in conditions of high experienced aggression compared to low experienced aggression. Furthermore, I propose that high experienced aggression will strengthen the negative outcomes of enacted aggression on coworker relationships and job satisfaction for females. In particular, the negative effects of both enacted aggression and experienced aggression will act in an additive manner for females to the detriment of

co-worker relationships and job satisfaction.

H2a: Experienced aggression and gender will moderate the relationship between enacted aggression and perpetrator health such that for females the negative relationship between enacted aggression and physical health symptoms will be stronger under conditions of low experienced aggression compared to conditions of high experienced aggression.

H2b: Experienced aggression and gender will moderate the relationship between enacted aggression and coworker relationships such that for females the negative effects of enacted aggression on co-worker relationships will be strengthened in conditions of high experienced aggression compared to low experienced aggression.

H2c: Experienced aggression and gender will moderate the relationship between enacted aggression and job satisfaction such that for females the negative effects of enacted aggression on job satisfaction will be strengthened in conditions of high experienced aggression compared to low experienced aggression.

## **Methods**

### **Participants**

This study used survey data drawn as part of a larger study of workplace stress and health for which 2000 participants were recruited using random digit dialling. The sample was recruited to be representative of the Nova Scotia workforce on gender, age and county. The sample covered a wide range of occupations and industries in the province. For this study, Wave 1 and Wave 2 participant data will be of primary interest. Of those who

completed both Time 1 and Time 2 surveys, 51% were female with the average age being 43.27 years (SD=11.55 years). 71.1% of participants were employed on a full-time basis at the time of survey completion, working approximately 41.16 hours per week. Participants were provided with cash incentives of \$15 each time they completed a survey.

### **Procedure**

Data were collected at two time points separated by four months. Depending upon participant preference, responses to the work stress and occupational health survey were gathered on a paper and pencil based survey or a web-based survey. The survey included assessments of common workplace stressors and responses to stress, including, psychological and physical well-being, co-worker relationships, job satisfaction, experienced aggression and enacted aggression, as well as demographic information.

### **Measures**

**Enacted Aggression.** Enacted aggression was measured using the 7 aggression items from Rogers and Kelloway's (1997) measure assessing frequency of engagement in aggressive and violent acts in the workplace over the past four months ( $\alpha = .83$ ). Item responses are given on a 7-point likert scale ranging from never (1) to extremely often; more than 15 times (7). For this scale, higher scores indicated higher frequency of aggressive behaviours. For the complete scale see Appendix A.

**Experienced Aggression.** Experienced aggression was measured using the 26-item Experienced Aggression scale (Harvey, Dye, Francis, & Kelloway, 2004; see Appendix B). Item responses are given on a 7-point likert scale ranging from never (1) to

extremely often; More than 15 times (7). During data collection, experienced aggression responses were categorized by perpetrator (i.e., supervisor, co-workers, or clients/members of the public) however, to permit me to test experienced aggression as a single moderator responses were aggregated across perpetrator group. Like the enacted aggression scale, higher scores indicate higher frequency of experiencing aggressive behaviours directed at you. Internal consistency of  $\alpha = .94$  was found for the Experienced Aggression scale at Time 1.

**Perpetrator Health.** Perpetrator health was assessed using two scales: Physical Health Questionnaire (PHQ) and the Positive Affective Well-being Scale (PAWS). Using these two scales allowed me to tap into the physical and psychological health of the perpetrators. The PHQ is a widely accepted, validated measure of physical health symptoms while, the PAWS focuses on the positive, mental health of the perpetrators allowing both integral aspects of health to be explored.

***Physical health questionnaire.*** Physical health was assessed using a sub-set of the Physical Health Questionnaire. The Physical Health Questionnaire (PHQ) is a 14-item self-report scale of somatic symptoms (see Appendix C; (Schat, Kelloway & Desmarais, 2005). All items on the PHQ are responded to on a 7-point likert scale ranging from not at all (1) to all the time (7). Internal consistencies of  $\alpha = .85$  at Time 1 and  $\alpha = .84$  at Time 2 were found for the Physical Health Questionnaire.

***Positive affective well-being scale.*** The Positive Affective Well-being Scale (PAWS) is a 7-item self-report scale of positive mental health and well-being ranging from 1 (not at all) to 7 (all the time). An internal consistency of  $\alpha = .96$  was found for the

Positive Affective Well-being Scale at Time 1 and  $\alpha = .97$  at Time 2. Higher scores on the PAWS indicate better mental health (see Appendix D; Hess, Kelloway, & Francis., 2005).

**Co-worker Relationships.** Co-worker relationships were assessed using the Co-worker Relationship Scale (Hain, 2005; Hain & Francis, 2004). The Co-worker Relationships Scale is a 5-item scale that uses a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). The scale measures a range of co-worker interactions at work, aiming at understanding the day-to-day, recurrent peer relations at work (Hain, 2005; see Appendix E). Higher scores on the scale indicate positive co-worker relationships. Internal consistencies of  $\alpha = .93$  at Time 1 and  $\alpha = .94$  at Time 2 were found for the scale.

**Job Satisfaction.** Job Satisfaction was assessed using one item from the Brayfield and Rothe's (1951) Index of Job Satisfaction – "Overall, I am satisfied with my job". This item provides an overall evaluation of job satisfaction applicable to a vast range of occupations/jobs (Brayfield & Rothe, 1951). There is a long history of measuring job satisfaction with one item. One item measures of job satisfaction have been shown to correlate significantly with multiple item measures of the construct and the use of single-item measures of job satisfaction has therefore been accepted in the organizational literature (Nagy, 2002; Reichers & Hudy, 1997; Scarpello & Campbell, 1983).

**Controls.** Two key demographic variables were controlled for when running analyses: age and hours worked. As this study examines negative health symptoms, which are known to increase with age, as outcomes of enacted aggression it was pertinent

to control for age of participants when running each analysis. (Smith, Orleans, & Jenkins, 2004). The number of hours participants worked was controlled for in each analysis as well. Previous research has found that the outcomes associated with workplace aggression differ for part-time employees and full-time employees (Dupré, Inness, Connelly, Barling, & Hopton, 2006). In addition, because this study includes data from multiple time points, the dependent variables at Time 1 for each analyses was controlled for (i.e., CRS at Time 1, PHQ at Time 1, PAWS at Time 1, and Job Satisfaction at Time 1).

### **Analyses and Results**

Listwise deletion of missing data at the item level was used when computing variables. As a preliminary step the data were examined for violations of the assumptions of multivariate normality including: linearity, normality and homoscedasticity, as well as, multicollinearity using SPSS for windows version 17. All variables exhibited a slight degree of skew, however examination of the normal probability plots of residuals indicated no severe deviation of actual scores from expected scores in a normal distribution and transformations were not performed (Tabachnick & Fidell, 2007). Bivariate scatterplots were examined to assess linearity and homoscedasticity. As expected due to the nature of the independent variable, enacted aggression, scores piled at the low end of the distribution indicating heteroscedasticity, with no graphs indicating curvilinearity or partial curvilinearity. The data for this study are not grouped therefore, heteroscedasticity is not fatal to the analysis and no transformations were performed. All other assumptions were met.

Given the large sample size I used z-scores in excess of  $\pm 4$  standard deviations from the mean to identify univariate outliers (Tabachnick & Fidell, 2007). For three variables, univariate outliers were detected; enacted aggression, experienced aggression, and co-worker relationships at Time 2. Due to the size of the sample, a few z-scores above 4 are expected. Therefore, histograms and normal probability plots were also examined (Tabachnick & Fidell, 2007). For enacted aggression and experienced aggression the distribution of variables was in line with what would be expected in the normal population, negatively skewed, with most individuals experiencing low exposure to aggression at work (Baron & Neuman, 1998; Schat, Frone & Kelloway, 2006). The outliers detected in the sample were therefore not deleted from the dataset. No multivariate outliers were detected; no Cook's distance were greater than one.

Descriptive statistics, internal consistency values, and intercorrelations for all variables are outlined in Table 1. Two variable distributions, Enacted Aggression at Time 2 and Experienced Aggression at Time 1 had a limited range and a low mean. Enacted Aggression at Time 2 had a range of 3.62 and a mean of 1.32. Experienced Aggression at Time 1 had a range of 11.29 and a mean of 4.28. Due to the frequency of occurrence of aggression in the workplace these limited ranges are expected as most people go to work each day and do not experience or enact aggression. All other variables displayed a full range of scores. Enacted Aggression at Time 2 also had a low standard deviation at .41. Therefore, the study hypotheses may be constrained due to a low variance and a restricted range in the enacted aggression measure.

In addition, to test for mean differences on study variables between males and females a one-way MANOVA with one between subjects factor: gender (males and

females) was conducted on six dependent variables: centered Time 1 experienced aggression, centered Time 2 enacted aggression, Time 2 CRS, Time 2 PHQ, Time 2 PAWS, Time 2 job satisfaction, controlling for six covariates: hours worked, birth year, Time 1 CRS, Time 1 PHQ, Time 1 PAWS, Time 1 job satisfaction. Multivariate effects of gender were found indicating differences between males and females on the combination of dependent variables, Pillai Trace=.04,  $F(6, 610)=3.94$ ,  $p=.001$ ,  $\eta^2=.04$ . The main effects for the analysis were evaluated at a family-wise error rate of  $p=.15$ .

Univariate F-tests for each dependent variable were evaluated at an adjusted alpha level of  $\alpha=.025$  to uncover which univariate effects contributed to the multivariate significance. For the main effect of gender (males vs. females), Time 2 enacted aggression showed a significant univariate effect,  $F(1, 615)=13.28$ ,  $p<.01$ ,  $\eta^2=.02$ . An inspection of the means for males and females showed that females ( $M=-0.05$ ) had significantly lower Time 2 enacted aggression scores than males did ( $M=0.05$ ).

A series of four hierarchical moderated multiple regressions were run to investigate the relationship between Enacted Aggression at Time 2 and perpetrator outcomes of well-being, co-worker relationships and job satisfaction. Experienced aggression at Time 1 and perpetrator gender were included as moderators of the relationships among enacted aggression and the above outcomes. Suggested procedures for moderated regression were followed with the variable of interest entered into the equation first followed by anticipated moderators and then interactions. Control variables—birth year, hours work, and the respective criterion measure at Time 1—were entered into the model in Step 1; The predictor enacted aggression at Time 2 was entered in Step 2; the potential moderator, gender was entered in Step 3; and the potential

moderator, Experienced Aggression at Time 1 was entered in Step 4. I ran the regression as a full model, with all potential two-way and three-way interactions among enacted aggression, gender, and experienced aggression included in each analysis. Prior to analyses and computation of interaction terms, all continuous predictors that were also included in an interaction were centered to reduce the chances of multicollinearity affecting the analyses and facilitate interpretation of anticipated interactions (Aiken & West, 1991). Following the procedures outlined by Aiken and West (1991) all interaction terms were introduced to the model following inclusion of all main effects. The interactions between enacted aggression at Time 2 and gender; experienced aggression at Time 1 and enacted aggression at Time 2; experienced aggression at Time 1 and gender; and the three way interaction of enacted aggression at Time 2, experienced aggression at Time 1 and gender were entered into the models in Steps 5, 6, 7, and 8 respectively. The results of each moderated regression analyses are summarized in Tables 2, 3, 4, and 5.

### **Physical Health Symptoms**

Table 2 summarizes the regression results for physical health symptoms at Time 2 regressed on the control variables (age, hours worked, physical health at Time 1), enacted aggression, physical health symptoms, perpetrator gender, and experienced aggression and their interactions. Listwise deletion of missing values resulted in a sample size of 636 participants. The  $\Delta R^2$  was significantly greater than zero at steps 1, 2 and 8. With all variables in the equation,  $R^2=.617$ ,  $F(10, 625)=100.74$ ,  $p<.001$ . The complete model is therefore accounting for 61.7% of the variance in physical health at Time 2. In Step 1, the three control variables (age, hours worked, and PHQ at Time 1) were accounting for

61.1% of the variance in physical health symptoms,  $R^2 = .611$ ,  $F(3,632) = 304.03$ ,  $p < .001$ . Following Step 2,  $\Delta R^2 = .02$ ,  $F_{change}(1, 631) = 32.49$ ,  $p < .001$ . Examination of the  $\beta$  weights after the second step indicates that enacted aggression was a significant predictor of change in physical health symptoms,  $\beta = .463$ ,  $t(631) = 5.70$ ,  $p < .001$ . Thus, those who enacted aggression at Time 2 reported increased physical health symptoms at Time 2, even controlling for health at Time 1. The addition of Steps 3, 4, 5, and 6 did not add incremental variance in physical health over and above enacted aggression and the controls. Thus, gender and experienced aggression at Time 1 do not appear to predict change in physical health symptoms. In addition, the interactions between gender and enacted aggression and experienced aggression and enacted aggression do not appear to predict incremental variance in physical health symptoms. The addition of Step 8, the three-way interaction between enacted aggression, experienced aggression, and gender, was statistically significant with  $R^2 = .617$ ,  $F(10, 625) = 100.74$ ,  $p < .001$ . The three-way interaction explained a significant amount of incremental variance in physical health symptoms,  $\Delta R^2 = .002$ ,  $F_{change}(1, 625) = 3.94$ ,  $p = .048$ . The interaction of enacted aggression, experienced aggression, and gender was a significant predictor of change in physical health symptoms,  $\beta = 0.082$ ,  $t(656) = 2.006$ ,  $p = .045$ .

Following initial analyses, the significant three-way interaction was further explored by regressing physical health symptoms at Time 2 on the control variables, enacted aggression, experienced aggression, and the interaction of enacted and experienced aggression separately for men and women. These post-hoc regressions showed that the interaction of enacted aggression and experienced aggression was a significant predictor of change in physical health symptoms for females ( $\Delta R^2 = .01$ ,  $\beta = -$

0.083,  $t(366)=-2.102$ ,  $p=.036$ ). As illustrated in Figure 1, among women, the negative relationship between enacted aggression and physical health symptoms appears to be stronger under conditions of low experienced aggression than under conditions of high experienced aggression. For males, the comparable interaction was not significant ( $\Delta R^2=.001$ ,  $\beta=0.035$ ,  $t(319)=.76$ , *ns*).

To compare the influence of experienced aggression on the relationship between enacted aggression and physical health symptoms for males and females, the slopes for the relationship between enacted aggression and physical health symptoms under conditions of low experienced aggression for males and for females were statistically compared using a difference test for independent slopes. The same comparison was made for high experienced aggression. Slopes were calculated for the regression lines shown in the simple effects and significance tests on the equivalent slopes were conducted. No significant findings were uncovered.

### **Positive Affective Well-being**

Table 3 summarizes the regression results for the control variables (age, hours worked, positive affective well-being at Time 1), enacted aggression, positive affective well-being, perpetrator gender, and experienced aggression predicting the Positive Affective Well-being Questionnaire at Time 2. Listwise deletion of missing values resulted in a sample size of 638 participants. The  $\Delta R^2$  was significantly greater than zero at steps 1, 2, 6 and 7. With all variables in the equation, adjusted  $R^2=.518$ ,  $F(10, 627)=69.33$ ,  $p<.001$ . The complete model therefore accounted for 51.8% of the variance in positive affective well-being at Time 2. Following Step 1,  $R^2=.478$ ,  $F(3,634)=193.41$ ,

$p < .001$ . Therefore, the three control variables (age, hours worked and PAWS at Time 1) are accounting for 47.8% of the variance in co-worker relationships. Following Step 2,  $\Delta R^2 = .035$ ,  $F_{change}(1, 633) = 45.22$ ,  $p < .001$ . Examination of the  $\beta$  weights after the second step indicates that enacted aggression was a significant predictor of positive affective well-being,  $\beta = -.199$ ,  $t(633) = -6.72$ ,  $p < .001$ . Thus, those who enacted aggression at Time 2 reported decreased positive affective well-being at Time 2, even when controlling for positive affective well-being at Time 1. The addition of Steps 3, 4, and 5, did not add incremental variance in positive affective well-being over and above enacted aggression and the control variables. Thus, gender and experienced aggression at Time 1 do not appear to predict change in positive affective well-being scores. In addition, the two-way interaction between gender and enacted aggression did not appear to predict incremental variance in positive affective well-being. The addition of Step 6, the two-way interaction between enacted aggression and experienced aggression, was statistically significant with  $R^2 = .520$ ,  $F(8, 629) = 85.03$ ,  $p < .001$ , explaining a significant amount of incremental variance,  $\Delta R^2 = .006$ ,  $F_{change}(1, 629) = 8.12$ ,  $p = .005$ ;  $\beta = 0.097$ ,  $t(629) = 2.85$ ,  $p = .005$ . The addition of step 7, the two-way interaction between experienced aggression and gender, was statistically significant with  $R^2 = .523$ ,  $F(9, 628) = 76.42$ ,  $p < .001$ . The interaction explained a significant amount of incremental variance in positive affective well-being,  $\Delta R^2 = .003$ ,  $F_{change}(1, 628) = 4.16$ ,  $p = .042$ ;  $\beta = 0.086$ ,  $t(628) = 2.04$ ,  $p = .042$ . Addition of the proposed three-way interaction between enacted aggression, experienced aggression, and gender on Step 8 did not predict incremental variance in positive affective well-being.

The significant two-way interaction of experienced aggression and gender was further examined by regressing positive affective well-being at Time 2 on the control

variables, enacted aggression, and experienced aggression at Time 1 (Aiken & West, 1991) separately for males and females. However, no significant relationship between experienced aggression and positive affective well-being for males ( $\Delta R^2=.003$ ,  $\beta=-0.06$ ,  $t(297)=-1.32$ , *ns*), or females ( $\Delta R^2=.002$ ,  $\beta=0.05$ ,  $t(339)=1.06$ , *ns*) emerged when examining the simple model.

The second significant two-way interaction uncovered was further examined by regressing positive affective well-being at Time 2 on the control variables, gender, and enacted aggression (Aiken & West, 1991) separately for individuals .50 standard deviations or more above and .50 standard deviations or more below the mean on experienced aggression to reflect groups both high and low in experienced aggression. As illustrated in Figure 2, the plotted interaction between enacted aggression and experienced aggression reveals that for individuals lower in experienced aggression, there is a negative relationship between enacted aggression and positive affective well-being ( $\Delta R^2=.04$ ,  $\beta=-0.198$ ,  $t(233)=-3.94$ ,  $p<.001$ ). Similarly, for those higher in experienced aggression, a significant negative relationship between enacted aggression and positive affective well-being also existed ( $\Delta R^2=.05$ ,  $\beta=-0.236$ ,  $t(109)=-2.86$ ,  $p=.005$ ). However, for individuals in conditions of high experienced aggression, the effects of enacted aggression on positive affective well-being were stronger compared to the effects of enacting aggression for individuals in conditions of low experienced aggression.

### **Co-worker Relationships**

Table 4 summarizes the regression results for the control variables (age, hours worked, co-worker relationships at Time 1), enacted aggression, co-worker relationships, perpetrator gender, and experienced aggression and their interactions predicting co-

worker relationships at Time 2. After listwise deletion of missing values a sample size of 667 participants was used in the analysis. The  $\Delta R^2$  was significantly greater than zero at steps 1, 2, 6, 7, and 8. With all variables in the equation,  $R^2=.432$ ,  $F(10, 656)=49.93$ ,  $p<.001$ . The complete model is therefore accounting for 43.2% of the variance in co-worker relationships at Time 2. After Step 1,  $R^2= .404$ ,  $F(3,663)=149.74$ ,  $p<.001$ . Therefore, the three control variables (age, hours worked and CRS at Time 1) accounted for 40.4% of the variance in co-worker relationships. Following Step 2 with the introduction of enacted aggression,  $\Delta R^2=.005$ ,  $F_{change}(1, 662)=5.91$ ,  $p=.015$ . Examination of the  $\beta$  weights after the second step indicates that enacted aggression was a significant predictor of co-worker relationships,  $\beta=-0.076$ ,  $t(662)=-2.43$ ,  $p=.015$ . Thus, those who enacted aggression at Time 2 reported poorer co-worker relationships at Time 2. As noted in Table 2, the addition of Steps 3, 4, and 5 did not add incremental variance in co-worker relationships over and above enacted aggression and the controls. Thus, gender and experienced aggression at Time 1 do not appear to predict change in co-worker relationship scores. In addition, gender and enacted aggression do not appear to interact to predict incremental variance in co-worker relationships. Step 6, with the addition of the two-way interaction between experienced aggression and enacted aggression, was statistically significant with  $R^2=.420$ ,  $F(8, 658)=59.45$ ,  $p<.001$ , with the interaction explaining a significant amount of incremental variance in co-worker relationships,  $\Delta R^2=.008$ ,  $F_{change}(1,658)=9.12$ ,  $p=.003$ ;  $\beta=0.110$ ,  $t(658)=3.02$ ,  $p=.003$ . The addition of Step 7, the two-way interaction between experienced aggression and gender, was also statistically significant with  $R^2=.429$ ,  $F(9, 657)=54.77$ ,  $p<.001$ . The interaction explained

a significant amount of incremental variance in co-worker relationships,  $\Delta R^2=.009$ ,  $F_{\text{change}}(1,657)=10.51$ ,  $p=.001$ ;  $\beta=0.150$ ,  $t(657)=3.241$ ,  $p=.001$ . Lastly, the addition of Step 8, the three-way interaction between enacted aggression, experienced aggression, and gender, was statistically significant with  $R^2=.432$ ,  $F(10, 656)=49.93$ ,  $p<.001$ . The addition of the three way interaction explained a significant amount of incremental variance in co-worker relationships,  $\Delta R^2=.003$ ,  $F_{\text{change}}(1,656)=4.02$ ,  $p=.045$ ;  $\beta=0.082$ ,  $t(656)=2.006$ ,  $p=.045$ .

Due to the presence of a significant three-way interaction, the nature of the significant two-way interactions were not further teased apart. Post-hoc regressions were run with the file split by gender to further decompose the three-way interaction uncovered. Post-hoc regressions showed that the interaction of enacted aggression and experienced aggression was a significant predictor of change in co-worker relationships for females ( $\Delta R^2=.022$ ,  $\beta=0.162$ ,  $t(366)=-2.84$ ,  $p=.005$ ). As illustrated in Figure 3, a disordinal negative relationship between enacted aggression and co-worker relationships was uncovered for females. Among women, the negative relationship between enacted aggression and co-worker relationships appears to be stronger under conditions of low experienced aggression than under conditions of high experienced aggression. For males, the same interaction was not significant ( $\Delta R^2<.001$ ,  $\beta=0.023$ ,  $t(319)=.33$ , *ns*).

Once again, to compare the influence of experienced aggression on the relationship between enacted aggression and co-worker relationships for males and females, the slopes for the relationship between enacted aggression and co-worker relationships under conditions of low experienced aggression for males and for females were statistically compared using a difference test for independent slopes. The same

comparison was made for high experienced aggression. Slopes were calculated for the regression lines shown in the simple effects and significance tests on the equivalent slopes were conducted and once again, no significant findings were uncovered.

### **Job Satisfaction**

Table 5 summarizes the regression results for job satisfaction regressed on control variables (age, hours worked, job satisfaction at Time 1), enacted aggression, job satisfaction, perpetrator gender, experienced aggression, and their interactions. After listwise deletion of missing values a sample size of 668 participants was used in the analysis. The  $\Delta R^2$  was significantly greater than zero at steps 1, 2, and 3. With all proposed variables in the equation,  $R^2=.244$ ,  $F(10, 657)=21.15$ , ns. The complete model thus accounted for 24.4% of the variance in job satisfaction. In Step 1,  $R^2= .215$ ,  $F(3,664)=60.57$ ,  $p<.001$ . Therefore, the three control variables (age, hours worked and job satisfaction at Time 1) are accounting for 21.5% of the variance in job satisfaction. Following Step 2,  $\Delta R^2=.017$ ,  $F_{change}(1, 663)=14.78$ ,  $p<.001$ . Examination of the  $\beta$  weights after the second step indicates that enacted aggression was a significant predictor of change in job satisfaction,  $\beta=-0.137$ ,  $t(663)=-3.84$ ,  $p<.001$ . Thus, those who enacted aggression at Time 2 reported poorer job satisfaction at Time 2 compared to Time 1. Unlike the rest of the regression models presented thus far, gender also had a significant main effect on job satisfaction,  $R^2=.238$ ,  $F(4, 663)=50.05$ ,  $p<.001$ . Gender explained a significant amount of incremental variance in job satisfaction over and above the control variables and enacted aggression,  $\Delta R^2=.006$ ,  $F_{change}(1,662)=5.21$ ,  $p=.023$ . Examination of the  $\beta$  weights after the third step indicates that gender was a significant predictor of

change in job satisfaction with females having lower job satisfaction compared to males,  $\beta=-0.082$ ,  $t(663)=-2.28$ ,  $p=.023$ . The addition of Steps 4, 5, 6, 7, or 8 did not add incremental variance in job satisfaction over and above enacted aggression, gender and the controls. Thus, experienced aggression at Time 1 does not appear to predict change in job satisfaction scores. In addition, the various interactions among the predictors do not appear to predict incremental variance in job satisfaction.

### Discussion

This study contributes to a growing workplace aggression literature by investigating an element of workplace aggression that has gone largely unexamined to date – the outcomes experienced by perpetrators of workplace aggression. This study was conducted to investigate the relationships among enacted aggression, experienced aggression, perpetrator gender and a number of health, interpersonal, and organizational outcomes. In line with Hypothesis 1, a major finding of this research suggests that enacting aggression is negatively related to physical health, positive affective well-being, co-worker relationships and job satisfaction. Previous studies have consistently shown the negative outcomes felt by victims of workplace aggression (Aquino & Thau, 2009; Schat & Kelloway, 2000; Tepper, 2000) and as predicted, this study provides support for similar negative consequences being felt by perpetrators of workplace aggression. Higher enacted aggression was associated with increased physical health symptoms and decreased positive affective well-being. In addition, perpetrating aggression appears to occur to the detriment of co-worker relationships and job satisfaction, with decreases in both associated with increases in enacted aggression. Knowing the negative effects of

enacted aggression felt by the perpetrators themselves further highlights the importance of understanding and addressing workplace aggression with prevention as the objective.

Although interesting, the main effects uncovered through this study must however be interpreted with care as significant two-way and three-way interactions were also uncovered indicating that an individuals experienced outcomes may be altered by the presence of moderating variables. Another question in the current study involved the potential interaction between enacted aggression, experienced aggression and perpetrator gender in the prediction of health and co-worker relationships. Enacted aggression, experienced aggression, and perpetrator gender significantly interacted to influence some of the outcome variables considered in this study.

Considering physical health, a three way interaction of enacted aggression, experienced aggression, and gender explained variance in this outcome variable. For females lower in experienced aggression, the negative effects of enacting aggression on physical health are stronger compared to females higher in experienced aggression. This finding provides support for my hypothesis that the negative effects of enacting workplace aggression on perpetrator health can be mitigated for women. For women with more previously experienced aggression a sense of reciprocity and justification for their actions is probable and may result in fewer feelings of guilt and anxiety related to their own aggressive behaviours (Andersson & Pearson, 1999; Eagly & Steffen, 1986; Hershcovis, et.al., 2007). Women who have experienced high levels of experienced aggression may feel that the relational norm of the workplace have been violated and view their actions as simply a response to the initial norm violation thereby placing more

blame externally and mitigating the negative effects on their health. For males a comparable significant interaction was not found.

As with physical health outcomes, enacted aggression, experienced aggression and gender interacted to influence co-worker relationships. For females, the negative effects of enacted aggression on co-worker relationships appear to be stronger under conditions of low experienced aggression compared to conditions of high experienced aggression. Enacting aggression and experiencing aggression do not appear to be acting in an additive fashion for females as was originally hypothesized. Instead, for females, those individuals high in enacted aggression and low in experienced aggression appeared to have the lowest co-worker relationships scores. As with physical health outcomes, it appears that for females previous aggressive experiences may weaken the negative outcomes associated with perpetrating workplace aggression (Andersson & Pearson, 1999). When an individual engages in a negative act, such as aggression, a lack of respect and dignity towards others is exhibited and others' view of that individual will likely be impacted. This will be particularly true in situations where previous experienced aggression cannot act as justification for their actions. When enacting aggression in conditions of low experienced aggression females opinions of themselves and their coworkers opinions of them are likely to decrease more strongly than in conditions where they've also been the victim of workplace aggression (Basow, et. al., 2007). In conditions of high experienced aggression the individual may create cognitive distortions to rationalize their aggressive actions and their co-workers may more readily provide excuses, and/or explanations for the females actions resulting in less of a negative impact on co-worker relationships compared to conditions of low experienced aggression. No

significant interaction was uncovered for males. In future research one potential variable to acknowledge and consider is the individual's level within the organization.

Organizational level may be correlated with previously experienced aggression at work and may therefore impact the outcomes experienced by individuals. If an individual experiences aggression from their supervisor, their likelihood of then enacting aggression against the supervisor as well as the impacts on their health, coworker relationships and so forth are likely to differ compared to situations in which they've experienced aggression from a co-worker. Power differentials between a supervisor and an employee will likely result in supervisors being exposed to less aggression at work as employees suppress their aggressive urges directed at supervisors. Organizational level, like discussed earlier, may be correlated with experienced aggression and act as one additional moderator between perpetrating workplace aggression and outcomes experienced.

The anticipated three-way interaction between enacted aggression, experienced aggression and gender on positive affective well-being was not uncovered however, two significant two-way interactions were found between experienced aggression and gender and experienced aggression and enacted aggression. Surprisingly although the two-way interaction between experienced aggression and gender was significant, there were no significant effects for either males or females when examining the simple models. However, the negative effects of enacted aggression on positive affective well-being appear to be stronger in conditions of high experienced aggression compared to conditions of low experienced aggression. It appears that being high in both experienced aggression and enacted aggression is acting in an additive fashion to negatively impact

individual's psychological health. Even in situations that allow an individual to attribute their actions to previous mistreatment or aggression from others there doesn't appear to be any buffering effects for psychological health outcomes.

As can be seen from above, job satisfaction was only predicted by two of the anticipated variables—gender and enacted aggression with no significant interactions uncovered. Job satisfaction was measured using one item tapping into overall satisfaction with the job. Job satisfaction is viewed as one of the leading indicators of individuals attitudes and quality of overall work experience (Barling, Rogers, & Kelloway, 2001). Job satisfaction is multidimensional, and it is likely that the different facets of job satisfaction are differentially impacted by workplace aggression with some facets not impacted at all. The relationship between workplace aggression and the separate facets of job satisfaction requires further investigation. For example, the social, interpersonal facets of job satisfaction (i.e., satisfaction with co-workers) are more likely to be impacted by workplace aggression than satisfaction with job design facets (Bowling & Beehr, 2006; Cortina et. al., 2001).

### **Limitations**

As with any study, there are a number of potential limitations within my study. First, very low effect sizes were found for the significant interactions uncovered. Although statistically significant, the interactions uncovered explain only a small portion of the variance in the outcomes at hand and therefore their practical significance should be interpreted with care. One factor that may have contributed to these low effect sizes and should be further explored through future research is the limited range for the aggression variables. Second, self-report data was collected for this study. With self-

report data the honesty of participant responses is always a concern. However, anonymity of participants was strongly stressed and at no point did the participant and researcher meet face-to-face, potentially alleviating the likelihood of participants replying to survey items in a socially desirable manner. Research has shown that individuals are surprisingly willing to report having engaged in counter-productive and deviant behaviour (Bennett & Robinson, 2000). Differences may however, have existed between the individuals willing to report having experienced or perpetrated workplace aggression compared to those who did not report it and should be further examined in future studies. Third, same-source data was used when measuring both the independent and dependent variables. Although the nature of single-source data makes it susceptible to common method bias, the study did find significant interactions, which provides support that the relationships observed were a not a function of a methodological artifact, but rather the constructs that were studied. Interaction effects cannot be the product of common method variance, in fact common method variance deflates interaction terms making interactions more difficult to detect (Siemsen, Roth, & Oliveira, 2010).

Fourth, although better than a purely cross-sectional study, my study is not truly longitudinal in nature. Data were examined using only two time-points. Two-wave data are essentially two glimpses of the continuous growth process providing limited evidence of individual change over time. With two-wave data, precise information regarding intraindividual change over time is not provided. At its most complex level, a straight line can be fitted to the two data points. There is however, no way to assess the validity of the straight line as, tests of nonlinearity cannot be performed (i.e., comparison of fit to quadratic or cubic growth curves; Kelloway & Francis, in press; Rogelberg, 2002).

Future studies using more time points will be needed to be certain that changes in the various health, interpersonal, and job outcomes are actually occurring as a result of changes in enacted aggression and changes in experienced aggression. Multi-wave studies would allow for assessment of the validity of the straight line as well as a more detailed understanding of the process of change over time (Singer & Willett, 2003). The use of a static starting point (Time 1) to predict change (Time 2) residualized for Time 1 would suggest that the proposed independent variable (i.e., enacted aggression) is predicting change in perpetrator health, co-worker relationships, and job satisfaction. In addition, the use of one time lag places a notable limitation on my study as no previous information or theory exists regarding the timing of the effects being studied therefore; it is possible that the specific results I found are unique to a four-month time interval.

Lastly, as previously mentioned in the methods section, a few of the variables utilized within my study demonstrated range restriction. Although this is in line with what would be anticipated in the general population (i.e., low prevalence of workplace aggression), this may hinder the likelihood of finding significant results. I have however uncovered significant two-way and three-way interactions between enacted aggression, perpetrator gender, and experienced aggression, which only highlights the likelihood that these variables are truly interacting to influence perpetrator health and co-worker relationships.

### **Future Research**

My study opens the aggression literature to a myriad of potential interesting research avenues. The role that individual characteristics play in how a perpetrators health, interpersonal, and job outcomes are affected by workplace aggression requires

further investigation. For example, does negative affect impact how experienced aggression and enacted aggression influence a perpetrator's health outcomes and interpersonal outcomes? These individuals may inflate the negative content of daily interactions thereby strengthening the negative impacts that experienced aggression and enacted aggression have on various outcomes (Skarlicki et. al., 1999).

Delving into the moderating role that attributions may play in the relationships between enacted aggression and health, interpersonal, and job outcomes would also be beneficial. Research is beginning to demonstrate the importance of attributions in how an individual responds to and deciphers events and understanding the role they play may help researchers to further understand and combat the cyclical nature of workplace aggression (Aquino, Tripp & Bies, 2001).

My research has examined the perpetrator outcomes related to workplace aggression without separating out source of the aggression (i.e., supervisor, peer, customer/client). It would be interesting to further examine the relationships uncovered through this study for each source. Depending upon the type of dyadic relationship, experienced aggression and enacted aggression may be more or less likely to occur (Aquino & Lamertz, 2004). The outcomes felt by individuals who have experienced workplace aggression directed at them from their supervisor are likely to differ from experienced aggression directed at them by a peer due to power differentials, anticipated consequences and so forth. In addition, it's likely that their responses to aggression from a supervisor and the associated consequences will be different than their responses to aggression from a client or peer and the associated consequences (e.g., retaliation or no retaliation; Aquino & Lamertz, 2004; Aquino, Tripp & Bies, 2001).

Lastly, this study collected purely frequency-based data around all variables involved. Supplementing this frequency-based data with a specific incidents approach would allow researchers to get a more complete understanding of the interactions occurring and dig deeper into the context specific factors that may be influencing the relationships (Glomb, 2002). Studies using the specific incidents approach are beginning to appear in the workplace aggression literature. Preliminary results of context specific studies are providing insight into the process of workplace aggression and its antecedents and outcomes as well as how they may be operating differently from one context to another (Glomb, 2002). For example, what role is the individual's previous relationship with the victim or perpetrator playing in the workplace aggression process? Is the workplace aggression chronic or limited to a few incidents? What is the quality of relationship between the victim and perpetrator prior to the aggressive events? Replicating the current study supplemented with the specific incidents approach would give us a more comprehensive understanding of this studies finding.

### **Practical Implications**

This study offers some practical implications for those individuals who seek to understand, educate around and minimize workplace aggression.

The impact of workplace aggression, both experienced and enacted on co-worker relationships emphasizes the need for organizations to ensure organizational norms that foster respect and collaboration are in place. This study shows workplace aggression to be negatively related to co-worker relationships in a world where team-work is increasingly becoming an integral aspect of organizations. Dysfunctional teams can result in numerous negative impacts for the organization (Keyton, 1999; Shaw, Zhu, Duffy,

Scott, Shih, & Susanto, 2011) and this research suggests that the presence of workplace aggression within organizations is likely to decrease co-worker relationships. If your relationships with your co-workers are decreasing it is probable that team effectiveness will suffer. Organizations that hope to curb the negative impacts of workplace aggression need to address occurrences of aggression at work immediately and fairly, understanding the interchangeability of victim and perpetrator.

As awareness of the prevalence of workplace aggression and the outcomes associated with the construct for both perpetrators and victims increases primary intervention efforts and training programs aimed at decreasing the likelihood of occurrence must be implemented. Training employees around the outcomes of workplace aggression, the cyclical nature workplace aggression, and methods for coping with or defusing aggressive situations are likely to offer many benefits to individuals and organizations alike (Schat & Kelloway, 2000).

This study begins to provide preliminary support for gender differences in workplace aggression. How an individual interprets their own aggressive actions and the aggressive actions of others depends upon their gender. Practically speaking, how an organization approaches and addresses instances of workplace aggression and the process of workplace aggression itself may differ for males and females. The effects of experienced aggression and enacted aggression appear to have different outcomes for females compared to males. The presence of interactions among enacted aggression, experienced aggression and perpetrator gender on outcomes of health and co-worker relationships means that a one size fits all training program or post episode debriefing will not be suitable. How an individual responds to workplace aggression will differ

depending upon their previous aggression experiences and their gender and organizations need to begin to take these differences into account when designing and implementing training initiatives.

### **Conclusion**

According to Braverman (1999), “workplace aggression is the result of an interaction between three factors: the individual, the situation and the setting” (p.21). The impact of workplace aggression is far-reaching; it can and does extend beyond the primary targets involved (Kelloway et al., 2006). Therefore, understanding the entire process of workplace aggression, including the predictors/antecedents and outcomes for victims as well as perpetrators is of importance to preventing its continued occurrence and potential escalation.

Workplace aggression is related to numerous counterproductive workplace behaviours and therefore substantially contributes to organizational costs (Budd, Arvey & Lawless, 1996; Duffy, 2009; Gates, Fitzwater & Succop, 2003; Hershcovis & Barling, 2010; LeBlanc & Kelloway, 2002). There is currently a void in the literature surrounding the outcomes experienced by the perpetrators of aggression in the workplace and the subsequent impacts on organizational outcomes. By incorporating individuals’ victim and perpetrator experiences and how they may interact to influence health, co-worker relationships and job satisfaction, this study examines a dimension of workplace aggression that has not seen much focus in the past and makes a unique contribution to the literature.

An increased understanding of workplace aggression can help individual employees and organizations function more safely and efficiently. Individuals’ awareness

of workplace aggression and the outcomes associated with enacting aggression will be increased while helping researchers, HR practitioners, and organizations gain a greater understanding of one more of the many facets interacting to result in workplace aggression.

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### Appendix A

*Items used to assess enacted aggression (Rogers & Kelloway, 1997).*

We would like to ask you about your aggressive behaviour over the past 4 months.

Use the scale provided to indicate how often you have engaged in each of the following behaviours.

Never	Infrequently (1 or 2 times)	Sometimes (3 or 4 times)	Somewhat Frequently (5 to 7 times)	Often (8 to 10 times)	Very often (10 to 15 times)	Extremely often (More than 15 times)
1	2	3	4	5	6	7

When interacting with people at work over the past 4 months how often have you...

1. ...raised your voice?
2. ...refused to accept a decision?
3. ...refused to accept advice?
4. ...gotten in someone's face?
5. ...slammed a door?
6. ...slammed your fist?
7. ...engaged in name calling?

**Appendix B**

*Items used to assess experienced aggression (Harvey, Dye, Francis & Kelloway, 2004).*

While you were working during the past 4 months, how many times did you experience the following behaviours from your supervisor, co-workers, or members of the public? If a category does not apply to you, please move on to the next category.

Never	Infrequently (1 or 2 times)	Sometimes (3 or 4 times)	Somewhat Frequently (5 to 7 times)	Often (8 to 10 times)	Very often (10 to 15 times)	Extremely often (More than 15 times)
1	2	3	4	5	6	7

1. Glared at or given dirty looks.
2. Given the silent treatment.
3. Target of a false accusation.
4. Target of negative or obscene gestures.
5. Refused needed resources or equipment.
6. Made fun of or publicly embarrassed.
7. Had your sense of judgement questioned.
8. Assigned meaningless or insulting tasks.
9. Had your opinions dismissed.
10. Had bad things said about you to others.
11. Told you're incompetent.
12. Teased
13. Treated with disrespect.
14. Had them take credit for your ideas.

**Appendix C**

*Items used to assess perpetrator physical health (Schat, Kelloway, & Desmarais, 2005).*

We would like to ask some questions about your health and well-being over the past 4 months.

Please read the following statements and use the scale to circle the response that best applies to you.

Not at All	Rarely	Once in a while	Some of the Time	Fairly	Often	All of the Time
1	2	3	4	5	6	7

How often in the past 4 months have you...

1. ...had difficulty getting to sleep at night?
2. ...woken up during the night?
3. ...experienced headaches?
4. ...gotten a headache when there was a lot of pressure on you to get things done?
5. ...had to watch that you ate carefully to avoid stomach upsets?
6. ...suffered from an upset stomach (indigestion)?
7. ...had minor colds (that made you feel uncomfortable but didn't keep you sick in bed or make you miss work)?
8. ...had respiratory infections more severe than minor colds that "laid you low" (such as bronchitis, sinusitis, etc.)?

**Appendix D**

*Items used to assess perpetrator positive affective well-being (Hess, Kelloway, & Francis, 2005).*

We would like to ask some questions about your health and well-being over the past 4 months.

Please read the following statements and use the scale to circle the response that best applies to you.

Not at All	Rarely	Once in a while	Some of the Time	Fairly	Often	All of the Time
1	2	3	4	5	6	7

How often in the past 4 months have you...

1. ...felt motivated?
2. ...felt cheerful?
3. ...felt enthusiastic?
4. ...felt lively?
5. ...felt joyful?
6. ...felt energetic?
7. ...felt in good spirits?

**Appendix E**

*Items used to assess co-worker relationships (Hain & Francis, 2004).*

When responding to the next 5 items, please think about coworkers you interact with on a day to day basis.

Strongly Disagree	Disagree	Slightly Disagree	Neither Disagree/ Agree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. My coworkers and I cooperate well with each other.
2. Coworkers positively affect my job experience
3. My coworkers and I interact positively on the job.
4. I enjoy the time I spend on the job with my coworkers.
5. I feel lucky to be working with the people that I do.

Table 1.

*Descriptive statistics, internal consistency values, and inter-correlations for study variables.*

	<i>M</i>	<i>SD</i>	$\alpha^a$	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Hours Worked	40.56	13.30	--	--												
2. Birth Year	1963	11.56	--	-.04	--											
3. Enacted Aggression Time 2	1.32	0.41	.83	.22*	.16*	--										
4. Experienced Aggression Time 1	4.28	1.61	.94	.14*	.14*	.39*	--									
5. CRS Time 1	5.45	1.17	.93	-.14*	.04	-.14*	-.39*	--								
6. PHQ Time 1	3.09	1.22	.85	.06	.08	.25*	.43*	-.24*	--							
7. PAWS Time 1	4.85	1.25	.96	-.42	-.07	-.23*	-.42*	-.33*	-.52*	--						
8. Job Satisfaction Time 1	5.16	1.58	--	-.10 <sup>δ</sup>	-.09 <sup>δ</sup>	-.16*	-.35*	.46*	-.30*	.49*	--					
9. CRS Time 2	5.37	1.22	.94	-.08 <sup>δ</sup>	-.01	-.17*	-.33*	.61*	-.22*	.27*	.33*	--				
10. PHQ Time 2	3.04	1.16	.84	.07	.12*	.34*	.37*	-.19*	.77*	-.47*	-.25*	-.20*	--			
11. PAWS Time 2	4.82	1.27	.97	-.04	-.07	-.35*	-.36*	.25*	-.43*	.69*	.42*	.32*	-.49*	--		
12. Job Satisfaction Time 2	4.56	1.36	--	-.05	-.08 <sup>δ</sup>	-.21*	-.25*	.32*	-.22*	.31*	.49*	.39*	-.27*	.42*	--	
13. Gender	.51	.50	--	-.25*	.16*	-.13*	-.06	.08	.16*	-.01	<sup>δ</sup> .09	.07	.14*	.01	.02	--

Note: Gender was coded 0=males, 1=females; <sup>a</sup>Cronbach's index of internal consistency

Listwise N for Correlations = 608

Table 2

*Moderated Hierarchical Regression for enacted aggression, experienced aggression, and perpetrator gender on Physical Health Symptoms.*

	Variable	<i>B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1	Birth Year	.006 <sup>δ</sup>	.06 <sup>δ</sup>	.77*	.59*	.59*
	Hours Worked	.002	.02			
	T1 PHQ	.72*	.76*			
Step 2	Birth Year	.004	.04	.78*	.61*	.02*
	Hours Worked	-.001	-.01			
	T1 PHQ	.69*	.73*			
	T2 Enacted Aggression	.46*	.15*			
Step 3	Birth Year	.003	.03	.78	.61	.001
	Hours Worked	.000	-.003			
	T1 PHQ	.68*	.72*			
	T2 Enacted Aggression	.48*	.16*			
	Gender	.09	.04			
Step 4	Birth Year	.003	.03	.78	.61	.000
	Hours Worked	.000	-.003			
	T1 PHQ	.68*	.72*			
	T2 Enacted Aggression	.48*	.16*			
	Gender	.09	.04			
	T1 Experienced Aggression	.004	.005			
Step 5	Birth Year	.003	.03	.78	.61	.000
	Hours Worked	.000	-.005			
	T1 PHQ	.68*	.72*			
	T2 Enacted Aggression	.42*	.14*			
	Gender	.09	.04			
	T1 Experienced Aggression	.006	.008			
	Gender x T2 Enacted Aggression	.12	.03			
Step 6	Birth Year	.003	.03	.78	.61	.000
	Hours Worked	-.001	-.006			

	T1 PHQ	.68*	.71*			
	T2 Enacted Aggression	.44*	.14*			
	Gender	.09	.04			
	T1 Experienced Aggression	.008	.01			
	Gender x Enacted Aggression	.11	.03			
	T1 Experienced Aggression x T2 Enacted Aggression	-.01	-.01			
Step 7	Birth Year	.004	.04	.78	.62	.002
	Hours Worked	.000	-.005			
	T1 PHQ	.68*	.72*			
	T2 Enacted Aggression	.38*	.12*			
	Gender	.09	.04			
	T1 Experienced Aggression	.05	.07			
	Gender x Enacted Aggression	.22	.05			
	T1 Experienced Aggression x T2 Enacted Aggression	-.03	-.02			
	T1 Experienced Aggression x Gender	-.08	-.07			
Step 8	Birth Year	.004	.03	.79 <sup>δ</sup>	.62 <sup>δ</sup>	.002 <sup>δ</sup>
	Hours Worked	.000	-.002			
	T1 PHQ	.67*	.71*			
	T2 Enacted Aggression	.31 <sup>δ</sup>	.10 <sup>δ</sup>			
	Gender	.12	.05			
	T1 Experienced Aggression	.04	.05			
	Gender x Enacted Aggression	.35	.08			
	T1 Experienced Aggression x T2 Enacted Aggression	.03	.02			
	T1 Experienced Aggression x Gender	-.06	-.05			
	T1 Experienced Aggression x T2 Enacted Aggression x Gender	-.14 <sup>δ</sup>	-.07 <sup>δ</sup>			

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Note: Gender was coded 0=males, 1=females

\*p<.01, <sup>δ</sup>p<.05

Listwise N = 635

Table 3

*Moderated Hierarchical Regression for enacted aggression, experienced aggression, and perpetrator gender on Positive Affective Well-being.*

	Variable	<i>B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1	Birth Year	-.003	-.03	.69*	.48*	.48*
	Hours Worked	-.002	-.02			
	T1 PAWS	.70*	.69*			
Step 2	Birth Year	.000	.001	.72*	.51*	.04*
	Hours Worked	.002	.02			
	T1 PAWS	.66	.64*			
	T2 Enacted Aggression	-.67	-.20*			
Step 3	Birth Year	.000	.001	.72	.51	.000
	Hours Worked	.002	.02			
	T1 PAWS	.66	.64*			
	T2 Enacted Aggression	-.67	-.20*			
	Gender	.002	.001			
Step 4	Birth Year	.000	.002	.72	.51	.000
	Hours Worked	.002	.02			
	T1 PAWS	.65*	.64*			
	T2 Enacted Aggression	-.65*	-.19*			
	Gender	.001	.000			
	T1 Experienced Aggression	-.01	-.02			
Step 5	Birth Year	.000	.002	.72	.51	.001
	Hours Worked	.002	.02			
	T1 PAWS	.65*	.64*			
	T2 Enacted Aggression	-.72*	-.22*			
	Gender	.001	.000			
	T1 Experienced Aggression	-.01	-.01			
	Gender x T2 Enacted Aggression	.16	.03			
Step 6	Birth Year	.000	.003	.72*	.52*	.006*
	Hours Worked	.002	.02			

	T1 PAWS	.65*	.63*			
	T2 Enacted Aggression	-.90*	-.27*			
	Gender	.005	.002			
	T1 Experienced Aggression	-.03	-.04			
	Gender x Enacted Aggression	.26	.05			
	T1 Experienced Aggression x T2 Enacted Aggression	.11*	.10*			
Step 7	Birth Year	.000	-.003	.72 <sup>δ</sup>	.52 <sup>δ</sup>	.003 <sup>δ</sup>
	Hours Worked	.002	.02			
	T1 PAWS	.65*	.64*			
	T2 Enacted Aggression	-.83*	-.25*			
	Gender	.01	.004			
	T1 Experienced Aggression	-.09*	-.11*			
	Gender x Enacted Aggression	.11	.02			
	T1 Experienced Aggression x T2 Enacted Aggression	.13*	.11*			
	T1 Experienced Aggression x Gender	.11*	.09*			
Step 8	Birth Year	.000	-.002	.73	.53	.002
	Hours Worked	.002	.02			
	T1 PAWS	.65*	.64*			
	T2 Enacted Aggression	-.76*	-.23*			
	Gender	-.02	-.01			
	T1 Experienced Aggression	-.07	-.09			
	Gender x Enacted Aggression	-.03	-.01			
	T1 Experienced Aggression x T2 Enacted Aggression	.08	.07			
	T1 Experienced Aggression x Gender	.08	.07			
	T1 Experienced Aggression x T2 Enacted Aggression x Gender	.15	.07			

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Note: Gender was coded 0=males, 1=females

\*p<.01, <sup>δ</sup>p<.05

Listwise N = 637

Table 4

*Moderated Hierarchical Regression for enacted aggression, experienced aggression, and perpetrator gender on Co-worker Relationships.*

	Variable	<i>B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1	Birth Year	-.004	-.04	.64*	.40*	.40*
	Hours Worked	.000	.000			
	T1 CRS	.65*	.63*			
Step 2	Birth Year	-.003	-.03	.64 <sup>δ</sup>	.41 <sup>δ</sup>	.005 <sup>δ</sup>
	Hours Worked	.001	.02			
	T1 CRS	.64*	.63*			
	T2 Enacted Aggression	-.24 <sup>δ</sup>	-.08 <sup>δ</sup>			
Step 3	Birth Year	-.003	-.03	.64	.41	.001
	Hours Worked	.002	.02			
	T1 CRS	.64*	.62*			
	T2 Enacted Aggression	-.29 <sup>δ</sup>	-.07 <sup>δ</sup>			
	Gender	.06	.02			
Step 4	Birth Year	-.003	-.03	.64	.41	.002
	Hours Worked	.002	.02			
	T1 CRS	.63*	.61*			
	T2 Enacted Aggression	-.18	-.05			
	Gender	.06	.03			
	T1 Experienced Aggression	-.04	-.05			
Step 5	Birth Year	-.003	-.03	.64	.41	.000
	Hours Worked	.002	.02			
	T1 CRS	.63*	.61*			
	T2 Enacted Aggression	-.18	-.06			
	Gender	.06	.03			
	T1 Experienced Aggression	-.04	-.05			
	Gender x T2 Enacted Aggression	.006	.19			
Step 6	Birth Year	-.003	-.03	.65*	.42*	.008*
	Hours Worked	.003	.03			

	T1 CRS	.63*	.61*			
	T2 Enacted Aggression	-.36 <sup>δ</sup>	.15 <sup>δ</sup>			
	Gender	.07	.03			
	T1 Experienced Aggression	-.06 <sup>δ</sup>	-.08 <sup>δ</sup>			
	Gender x Enacted Aggression	.11	.02			
	T1 Experienced Aggression x T2 Enacted Aggression	.12*	.11*			
Step 7	Birth Year	-.004	-.04	.66*	.43*	.009*
	Hours Worked	.003	.03			
	T1 CRS	.63*	.61*			
	T2 Enacted Aggression	-.23	-.08			
	Gender	.08	.03			
	T1 Experienced Aggression	-.15*	-.20*			
	Gender x Enacted Aggression	-.13	-.03			
	T1 Experienced Aggression x T2 Enacted Aggression	.15*	.14*			
	T1 Experienced Aggression x Gender	.16*	.15*			
Step 8	Birth Year	-.003	-.03	.66*	.43*	.003*
	Hours Worked	.002	.02			
	T1 CRS	.63*	.61*			
	T2 Enacted Aggression	-.16	-.05			
	Gender	.04	.02			
	T1 Experienced Aggression	-.13 <sup>δ</sup>	-.17 <sup>δ</sup>			
	Gender x Enacted Aggression	-.29	-.06			
	T1 Experienced Aggression x T2 Enacted Aggression	.09	.08			
	T1 Experienced Aggression x Gender	.14*	.13*			
	T1 Experienced Aggression x T2 Enacted Aggression x Gender	.17 <sup>δ</sup>	.08 <sup>δ</sup>			

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Note: Gender was coded 0=males, 1=females

\*p<.01, <sup>δ</sup>p<.05

Listwise N = 667

Table 5

*Moderated Hierarchical Regression for enacted aggression, experienced aggression, and perpetrator gender on Job Satisfaction.*

	Variable	B	$\beta$	R	R <sup>2</sup>	$\Delta R^2$
Step 1	Birth Year	-.01	-.04	.46*	.22*	.22*
	Hours Worked	.001	.005			
	T1 Job Satisfaction	.41*	.50*			
Step 2	Birth Year	-.002	-.02	.48*	.23*	.02*
	Hours Worked	.003	.03			
	T1 Job Satisfaction	.39*	.44*			
	T2 Enacted Aggression	-.49*	-.14*			
Step 3	Birth Year	.000	-.004	.49 <sup>δ</sup>	.24 <sup>δ</sup>	.01 <sup>δ</sup>
	Hours Worked	.001	-.01			
	T1 Job Satisfaction	.40*	.45*			
	T2 Enacted Aggression	-.52*	-.14*			
	Gender	-.22 <sup>δ</sup>	-.08 <sup>δ</sup>			
Step 4	Birth Year	.000	.000	.49	.24	.002
	Hours Worked	.002	.02			
	T1 Job Satisfaction	.38*	.43*			
	T2 Enacted Aggression	-.46*	-.13*			
	Gender	-.22 <sup>δ</sup>	-.08 <sup>δ</sup>			
	T1 Experienced Aggression	-.05	-.05			
Step 5	Birth Year	.000	.000	.49	.24	.000
	Hours Worked	.002	.02			
	T1 Job Satisfaction	.38*	.43*			
	T2 Enacted Aggression	-.39 <sup>δ</sup>	-.11 <sup>δ</sup>			
	Gender	-.22 <sup>δ</sup>	-.08 <sup>δ</sup>			
	T1 Experienced Aggression	-.05	-.06			
Step 6	Gender x T2 Enacted Aggression	-.15	-.03			
	Birth Year	.000	.001	.49	.24	.001
	Hours Worked	.002	.02			

	T1 Job Satisfaction	.38*	.43*			
	T2 Enacted Aggression	-.47 <sup>δ</sup>	-.13 <sup>δ</sup>			
	Gender	-.22 <sup>δ</sup>	-.08 <sup>δ</sup>			
	T1 Experienced Aggression	-.06	-.07			
	Gender x Enacted Aggression	-.10	-.02			
	T1 Experienced Aggression x T2 Enacted Aggression	.06	.05			
Step 7	Birth Year	.000	-.002	.49	.24	.001
	Hours Worked	.002	.02			
	T1 Job Satisfaction	.38*	.43*			
	T2 Enacted Aggression	-.43 <sup>δ</sup>	-.12 <sup>δ</sup>			
	Gender	-.21 <sup>δ</sup>	-.08 <sup>δ</sup>			
	T1 Experienced Aggression	-.09	-.11			
	Gender x Enacted Aggression	-.18	-.04			
	T1 Experienced Aggression x T2 Enacted Aggression	.07	.05			
	T1 Experienced Aggression x Gender	.06	.05			
Step 8	Birth Year	.000	-.001	.49	.24	.001
	Hours Worked	.002	.02			
	T1 Job Satisfaction	.38	.43*			
	T2 Enacted Aggression	-.39	-.11			
	Gender	-.23	-.09 <sup>δ</sup>			
	T1 Experienced Aggression	-.08	-.09			
	Gender x Enacted Aggression	-.27	-.05			
	T1 Experienced Aggression x T2 Enacted Aggression	.04	.03			
	T1 Experienced Aggression x Gender	.04	.04			
	T1 Experienced Aggression x T2 Enacted Aggression x Gender	.09	.04			

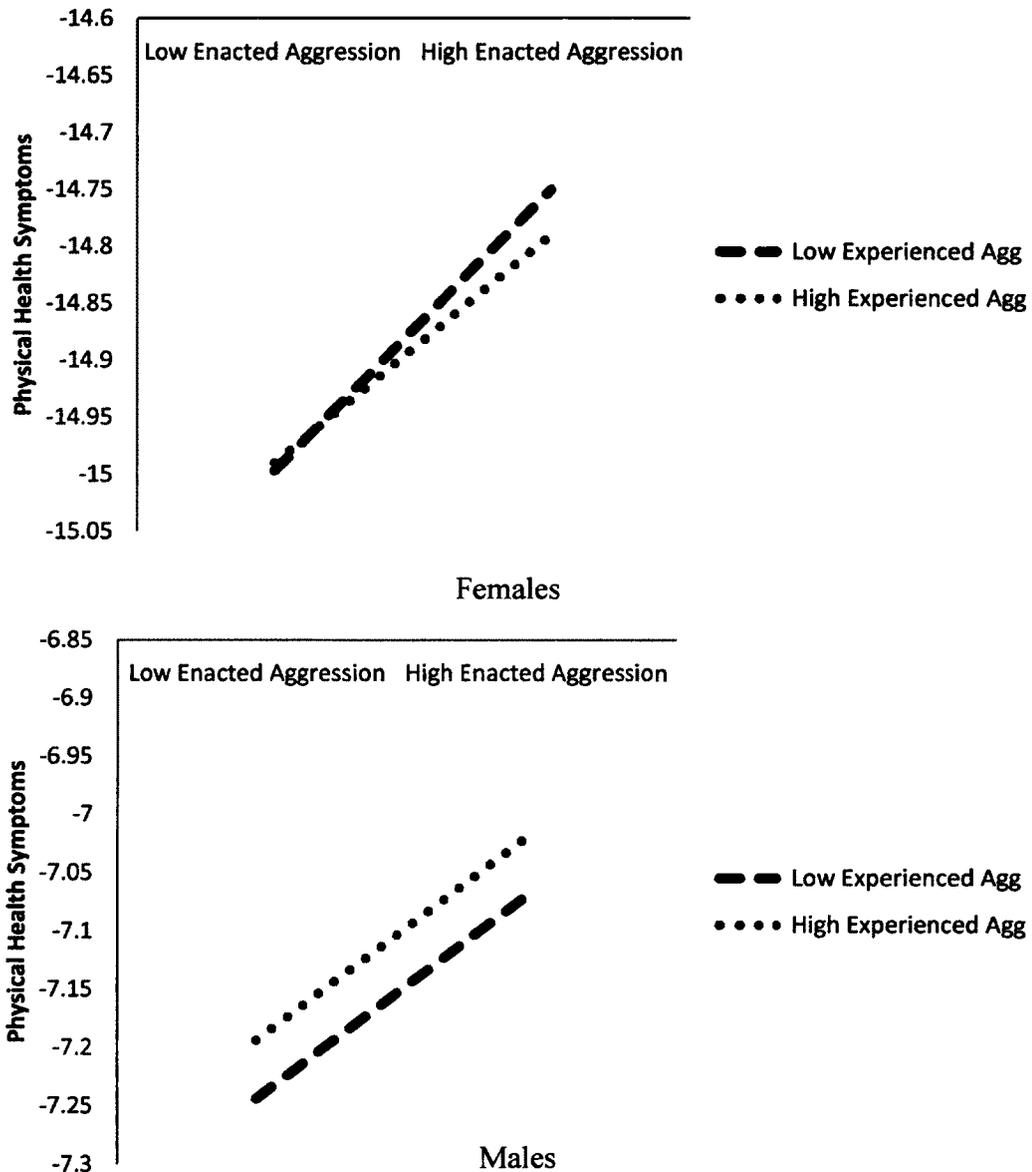
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Note: Gender was coded 0=males, 1=females

\*p<.01, <sup>δ</sup>p<.05

Listwise N = 668

*Figure 1.* Interaction of Enacted Aggression, Experienced Aggression separated by Perpetrator Gender in the prediction of Physical Health Symptoms. For illustrative purposes, high and low categories of both enacted aggression and experienced aggression were created using respondents scores who scored a half standard deviation above and below the mean on enacted aggression and experienced aggression.<sup>1</sup>



<sup>1</sup> For the above interactions unusual negative intercepts were found however, the control variables were not centered and enacted and experienced aggression had limited ranges. Both of these factors could be influencing the intercept, but should not otherwise affect the nature of the interaction

*Figure 2.* Interaction of Enacted Aggression and Experienced Aggression in the prediction of Positive Affective Well-being. For illustrative purposes, high and low categories of both enacted aggression and experienced aggression were created using respondents scores who scored a half standard deviation above and below the mean on enacted aggression and experienced aggression.

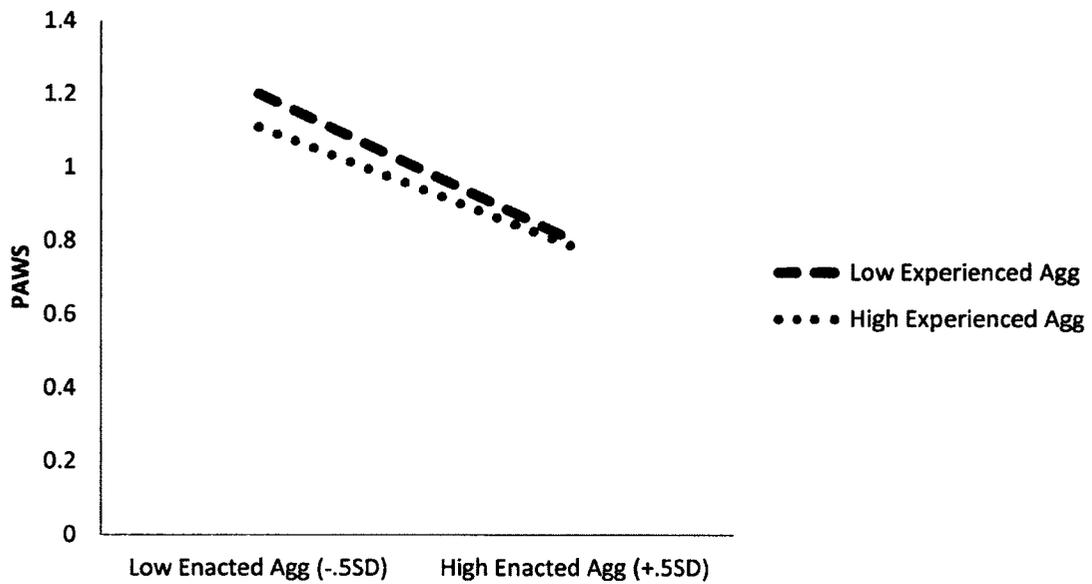
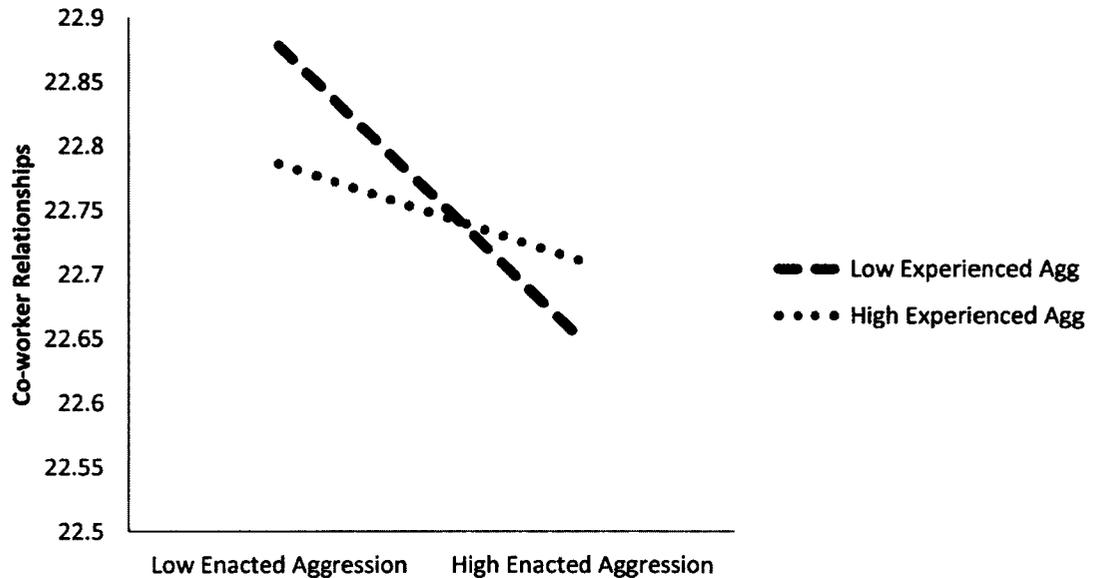
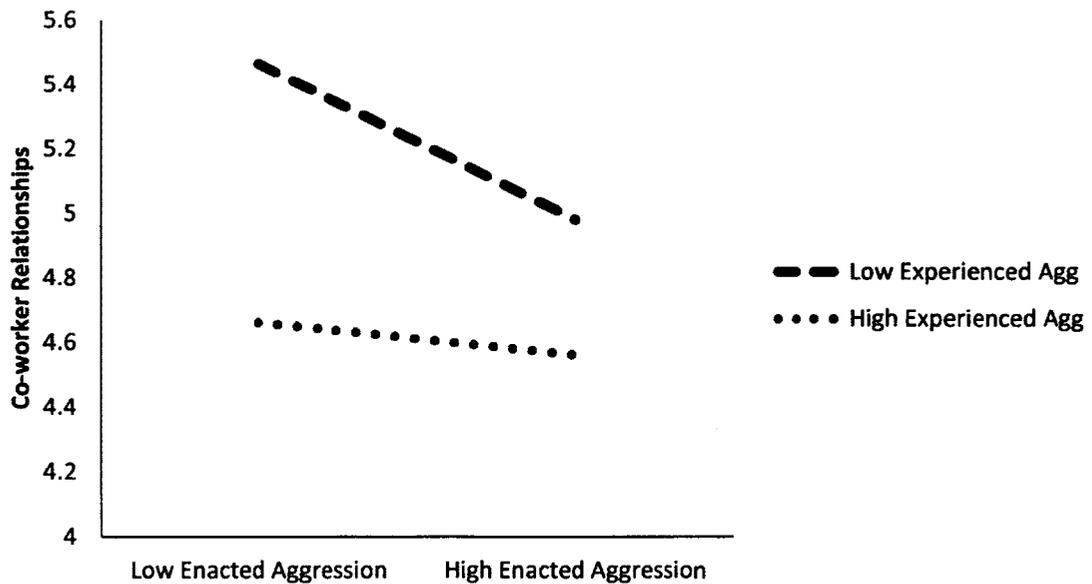


Figure 3. Interaction of Enacted Aggression, Experienced Aggression separated by Perpetrator Gender in the prediction of Co-worker Relationships. For illustrative purposes, high and low categories of both enacted aggression and experienced aggression were created using respondents scores who scored a half standard deviation above and below the mean on enacted aggression and experienced aggression.



Females



Males