THE ROLE OF WORKPLACE INCIVILTY ON EMPLOYEE ENGAGEMENT IN THE PHARMACEUTICAL INDUSTRY

by

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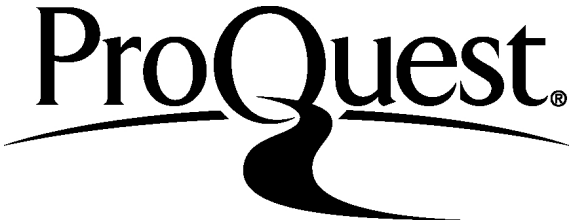
A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Management in Organizational Leadership

University of Phoenix



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ABSTRACT

Incivility represents a pervasive workplace phenomenon that can have deleterious effects on employees and organizational outcomes (Chen et al., 2012). There is limited research in the United States on the prevalence of incivility in different work industry sectors including the pharmaceutical industry. The intent of this study was to address a knowledge gap identified from the literature review and respond to Yeung and Griffin's (2008) call for more empirical research on the role of incivility on performance in a knowledge-intensive industry requiring teamwork and collaboration. This quantitative descriptive correlational study examined the prevalence of workplace incivility in United States-based pharmaceutical companies and the potential relationship between being a target of incivility and the level of employee engagement. The prevalence of workplace incivility was low; only 0.5% of the study population experienced incivility daily or weekly. In contrast, the prevalence of employees experiencing positive feelings about work on a daily or weekly basis was high (72.2%). There was a moderate negative correlation between being a target of incivility and employee engagement. Being a target of workplace incivility explained only 7% of the variation in employee engagement. Thus, future research should focus on other variables (e.g., meaningful work, growth opportunities, or trust of leadership) that may have a greater impact on employee engagement. Education and gender did not moderate the relationship between workplace incivility and employee engagement.

DEDICATION

This dissertation is dedicated to my husband Robert and my son Matthew who traveled with me on this long journey. Thank you for your understanding, encouragement, and support. I would also like to dedicate this research to my Mom and Dad. Thank you for instilling in me a love for learning and for teaching me that with determination and hard work, anything is possible. I miss you very much and wish you were here to share my joy and celebrate this achievement.

ACKNOWLEDGMENTS

I would like to acknowledge my dissertation committee, Kevin Banning, Ph.D., Stephen Mercer, Ph.D., and Greg Hayward, Ph.D. Thank you for believing in me and for your kind support throughout this journey. You have made a huge difference in my life and I will be forever grateful. I would also like to acknowledge my employer, Janssen Research & Development, LLC of Johnson & Johnson for providing financial support and the opportunity to realize a personal goal and to grow as a leader.

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Chapter 1

Introduction

Incivility represents a pervasive workplace phenomenon that can have a deleterious effect on employees and organizational outcomes (Chen et al., 2012). Workplace incivility is defined as a deviant behavior of low-intensity that violates workplace norms with uncertain intent to harm the target (Andersson & Pearson, 1999). Characterized by rude, insensitive, disrespectful, and thoughtless behavior, incivility is a unique form of interpersonal mistreatment that has the potential to injure individual employees (Pearson, Andersson, & Porath, 2000), groups of employees, and organizations (Lim, Cortina, & Magley, 2008; Reio & Ghosh, 2009). Workplace incivility has significant consequences for victims of incivility, as well as observers and entire organizations (Pearson & Porath, 2009).

Available empirical data support negative relationships between exposure to incivility and job fulfillment (Cortina, Magley, Williams, & Langhout, 2001) and mental and physical health (Lim et al., 2008). Results from other researchers suggest that workplace incivility has a positive relationship with workplace withdrawal (Pearson, Andersson, & Wegner, 2001), burnout (Kern & Grandey, 2009), and workplace deviance (Blau & Andersson, 2005). Some researchers claim that incivility is an antecedent to aggressive and violent behaviors (Cortina & Magley, 2009; Lim et al., 2008). These relationships can be understood in the context of an incivility spiral model where repeated uncivil acts spiral into increasing and intensifying forms of aggressive behavior when interacting individuals perceive unfairness and elect to reciprocate (Andersson & Pearson, 1999). In a spiral, a tit-for-tat exchange develops causing negative emotions and

behaviors that may adversely affect worker attitudes, including employee engagement (Reio & Sanders-Reio, 2011).

There is increasing focus on positive psychological aspects in the workplace and recognition that employees play a major role in innovation, organizational performance, competitiveness, and ultimately to business success (Froman, 2010). According to Kelley and Littman (2005) individuals and teams drive innovation; there are ten organizational roles people can play to foster new ideas and innovation. Thus, organizations are focusing on managing human capital and expecting their employees to: take initiative, be proactive, collaborate with colleagues, take charge of their professional development, and be committed to high-quality performance standards (Bakker & Schaufeli, 2008). Researchers in human resource (HR) and external consulting organizations have focused on the construct "employee engagement" or "work engagement" and the benefits of an engaged workplace (Macey & Schneider, 2008). Kahn (1990) defined employee engagement as the synchronized employment and manifestation of a person in task behaviors that encourage links to work and to others, personal presence (physical, cognitive, and emotional), and full role performances.

Employee engagement is a desirable state (Macey & Schneider, 2008) because engaged workers are more prolific, healthier, and less likely to change jobs (Bakker, 2011; Bakker, Demerouti, & Verbeke, 2004). Organizations succeed, and employees thrive even under conditions of increased workload when employees are engaged (Bakker & Demerouti, 2008). Maylett and Nielsen (2012) reviewed empirical data supporting a potential association between employee engagement and positive business factors, including increased productivity, quality, and profitability.

The researcher of this study expanded on the work of Yeung and Griffin (2008), Reio and Sanders-Reio (2011), and Chen et al. (2012) and investigated the prevalence of workplace incivility in the pharmaceutical industry and the relationship between being a target of workplace incivility and the level of employee engagement. Also, the extent to which educational level and gender moderate the relationship between being a target of incivility, and the level of employee engagement was examined in this study. This research specifically addressed Yeung and Griffin's (2008) call for more empirical research on the role of incivility on performance in knowledge-intensive industries requiring teamwork and collaboration.

The pharmaceutical industry was well suited for this investigation because research and development is knowledge-intensive, science-based work (Liu, 2014; Pisano, 2006) that requires employees to exchange and combine knowledge to create innovation (Alvesson, 2004). Competitive advantage is closely associated with a company's ability to create new knowledge leading to the production of patents and new medicines that are transformed into marketable products (Poh-Lin & Roth, 1999). Workers directly involved in research and development tend to be highly diverse in demographics, technical skills and education (Rios, 2006). Diversity is a critical factor in innovation. However, dissimilarities in demographics and personality can reduce cohesiveness, lower compliance with social norms, and increase conflicts in groups (O'Boyle, Forsyth, & O'Boyle, 2010).

In this chapter, the researcher addressed the background associated with the problem facing the pharmaceutical industry, nature, purpose, and the importance of the study, the research questions, and the theoretical framework.

Background of the Problem

Incivility represents a pervasive workplace phenomenon that can have a destructive effect on employee and organizational outcomes. Incivility usually does not merit organizational or legal sanctions and often goes unnoticed until an event transforms it into an act of workplace aggression (a deviant behavior with explicit intent to harm, Trudel & Reio, 2011). Workplace incivility is widespread. According to Porath and Pearson (2010), 99% of employees studied witnessed workplace incivility, and 96% experienced it (p. 64). Some researchers claim that incivility is an antecedent of aggressive and violent behaviors (Cortina & Magley, 2009; Lim et al., 2008). Because of its ambiguous and stealth nature, incivility is challenging to identify, manage, and prevent (Cortina, 2008). Furthermore, perceptions of incivility differ between observers, perpetrators, and targets (Pearson et al., 2000).

Individuals who experience incivility may spend considerable amounts of time worrying about the incident and evading the offender, intentionally decrease their work effort, reduce performance and commitment, a decline in work quality, and sometimes change employment (Porath & Pearson, 2013; Reio & Sanders-Reio, 2011). These costs have implications for employee engagement.

Employee engagement, defined as the voluntary enthusiasm and commitment to performing the very best work (Maylett & Nielsen, 2012), is expressed in physical, cognitive, and emotional manners (Kahn, 1990). Despite the mounting consensus on the importance of improving employee engagement, Gallup fourth quarter 2010 to the third quarter of 2011 survey revealed that 70% of American workers were "not engaged" or "disengaged" in their work (Gallup, 2013). Actively disengaged employees have a

deleterious effect on co-workers and erode the bottom line of the organization (Pater & Lewis, 2012). Employers incurred the expense of employee diversion and dissatisfaction, including job mishaps, substance abuse, absences due to illness, work conflicts, a decline in efficiency, and turnover (Cortina, 2008). Gallup estimated $300 billion in lost productivity due to disengaged workers (Pater & Lewis, 2012).

Pharmaceutical research and development is a science-based, complex, highly regulated, time-consuming, and risky process (Pisano, 2006). On average it takes ten to 15 years for a new medicine to be tested and approved for use in patients. Tens of thousands of drugs are evaluated, but very few receive approval (Pharmaceutical Research and Manufacturers of America, 2014). Historically the pharmaceutical industry has produced a variety of innovative treatment options for patients as well as a robust return for investors. Over the past decade, productivity has declined considerably, and fewer medicines were approved despite increased research and development spending. Companies re-assessed their current research model and exploring novel approaches to enhance research and development productivity and deliver innovative (incremental and radical) new medicines. Companies implemented employee engagement strategies (Catteeuw, Flynn, & Vonderhorst, 2007) to drive innovation and enhance research and development productivity.

Statement of the Problem

The general problem is that incivility is prevalent in American business (Porath & Pearson, 2013) and recognized across industries (Trudel & Reio, 2011). If not controlled, workplace incivility can lead to job dissatisfaction and stress, psychological stress,

cognitive diversion, lower creativity and commitment, and job burnout and turnover (Cortina, 2008).

Workplace stress caused by downsizing, pressure to reduce cycle time and improve productivity, and the drive for innovations are potential causes of incivility in the workplace (Reio & Sanders-Reio, 2011). Employees who work under stressful working conditions are more likely to exhibit uncivil behavior (Laschinger, Wong, Cummings, & Grau, 2014). These pressures are prevalent in the pharmaceutical industry where innovation and employee engagement are crucial strategic objectives. The pharmaceutical industry is unique because it tends to have a diverse and highly educated workforce. Diversity is a critical factor in innovation. However, dissimilarities in demographics and personality can reduce cohesiveness, lower compliance with social norms, and increase conflicts in groups (O'Boyle et al., 2010).

Published literature on the importance of workplace incivility and employee engagement is increasing, but to date, only three studies evaluated the relationship between these constructs. Results from all three studies suggest there is a linkage between incivility and employee engagement (Chen et al., 2012; Reio & Sanders-Reio, 2011; Yeung & Griffin, 2008). There is a scarcity of information from different types of industries, including the pharmaceutical industry.

The specific problem is that the prevalence of incivility in the pharmaceutical industry and the potential relationship between incivility and engagement are unknown. This knowledge gap is problematic for managers in the pharmaceutical industry. When managers lack information on factors associated with desirable outcomes like engagement, they may make less than optimal decisions. Productivity and

competitiveness could be at stake. This descriptive correlational study examined the prevalence of workplace incivility in United States-based pharmaceutical companies and the potential relationship between being a target of incivility and the level of employee engagement.

Importance of the Problem

Engaged workers are more productive than disengaged employees (Bakker, 2011; Bakker et al., 2004; Harter, Schmidt, & Hayes, 2002). They are happy and exhibit passion and creativity in their jobs (Bakker & Demerouti, 2008). Preliminary empirical data suggest that engagement can be hindered by incivility (Chen et al., 2012; Reio & Sanders-Reio, 2011; Yeung & Griffin, 2008).

According to Porath and Pearson (2013), incivility is widespread and on the rise. There are preliminary data suggesting a negative relationship between workplace incivility and employee engagement (Chen et al., 2012; Reio & Sanders-Reio, 2011; Yeung & Griffin, 2008). Employees who encountered regular uncivil behavior were less engaged than employees who did not or rarely encountered incivility.

Managers in pharmaceutical companies want to raise the level of employee engagement because it is good for the business (Maylett & Nielsen, 2012). The Towers Perrin (2003) website indicates 16% of respondents from pharmaceutical industry employees were highly engaged, 67% moderately engaged, and 17 % were disengaged. The level of engagement was similar to other industries.

Purpose of the Study

The purpose of this descriptive correlational study was to examine: (a) the prevalence of workplace incivility; (b) the relationship between being a target of

workplace incivility and the level of employee engagement; and (c) the extent to which educational and gender moderate the relationship between being a target of incivility and the level of employee engagement in the context of the pharmaceutical industry.

The Workplace Incivility Scale (WIS) was used to measure the frequency that participants experienced uncivil behaviors from either their supervisors or from co-workers in the past year (Cortina et al., 2001; Cortina & Magley, 2009). The recall period was reduced from five years to one year to decrease the possibility of recall bias. The shortened version of the Utrecht Work Engagement Scale (UWES-9, also known as Work and Well-Being Survey) was used to measure several aspects of work engagement, including dedication, vigor, and absorption (Schaufeli, Salanova, González-romá, & Bakker, 2002).

A survey research tool provides a quantitative depiction of tendencies, approaches, or views of the population by studying a sample of that population (Babbie, 1990). The intent of the design was to generalize the results from this study to the broader population of employees in the pharmaceutical industry. This design was appropriate because empirical incivility and employee engagement data were collected from pharmaceutical industry employees via questionnaires.

Significance of the Study

Employee engagement is a highly desired state and a leading source of competitive edge (Schwartz, 2011). Investigating workplace incivility and the potential relationship with employee engagement is particularly relevant for the pharmaceutical industry because of linkages to innovation, the bedrock of the pharmaceutical business. Pressure to innovate and to produce more with less are prevalent in the pharmaceutical

industry. Despite substantial investments, productivity is low, research and development costs are rising, and new product development pipelines are dwindling (Khanna, 2012). Some companies are implementing engagement programs to boost productivity and drive innovation (Catteeuw et al., 2007; Corace, 2007). Johnson & Johnson implemented processes to align employee's goals with business unit goals thus incorporating engagement into the workplace culture (Shuck & Wollard, 2010).

This study provided empirical evidence on the relationship between incivility and engagement in the workers performing research and development for United States-based pharmaceutical companies. The study enriched knowledge by providing empirical data in a population not previously studied and add to the data reported by Reio and Sanders-Reio (2011), Yeung and Griffin (2008), and Chen et al. (2012). Also, the study raised awareness of the importance of incivility in the pharmaceutical industry setting and permitted prediction of employee engagement scores based on incivility scores.

Significance of the Study to Leadership

Information collected in this study provided empirical descriptive data on the prevalence of workplace incivility in the pharmaceutical industry setting taking into account demographic variables (educational level, position, gender, and race). Currently, the incidence of incivility in the pharmaceutical industry and the potential relationship between incivility and engagement are unknown. This knowledge gap is problematic for managers in the pharmaceutical industry. When managers lack information on factors associated with desirable outcomes like engagement, they may make less than optimal decisions. Assuming that data collected from this study support the theoretical basis for the research and a correlation between the two constructs (incivility and engagement) is

established, the level of engagement can be predicted from scores of incivility (Black, 1999; Steinberg, 2011). The availability of this information may facilitate the development of strategies and programs to address workplace incivility and employee non-engagement in the pharmaceutical population and lead to enhanced employee productivity and greater organizational competitiveness.

Nature of the Study

Reflections on the research problem and data that was collected to address the problem are essential in defining an appropriate research method and design. A quantitative method with a descriptive correlational design was selected because it was expected to address the problem, questions, and purpose of the study. This design was appropriate because it expanded on existing knowledge, proposed relationships between variables of study (tests hypotheses) and measured the variables of interest under natural conditions (Cook & Campbell, 2002; Shadish, Cozby, & Bates, 2012; Sousa, Driessnack, & Mendes, 2007). The descriptive correlational nature of the study permitted examination of the relationship between two variables, and determination of the size and direction of the correlation, rather than to establishing causation (Steinberg, 2011; Vogt, 2007).

In contrast to experimental design (where individuals are randomly assigned to different conditions or groups, e.g., true experiment) and quasi-experimental (individuals cannot be randomly assigned as they are already in a condition or group) designs, descriptive correlational study design does not include random assignment, control groups, or permit manipulation of variables (Sousa et al., 2007). The survey containing two validated questionnaires, the WIS, and the UWES-9, was administered at a single

point in time, and thus, the study was cross-sectional, rather than longitudinal (Babbie, 1990). The WIS measured the frequency that participants experienced uncivil behaviors from either their supervisors or from co-workers in the past year (Cortina et al., 2001; Cortina & Magley, 2009). The UWES-9 measured three aspects of work engagement, including vigor, dedication, and absorption (Schaufeli et al., 2002). Both questionnaires were used in previous studies. The overall sum of the WIS scores from the instrument questions and mean scores of the UWES instrument questions were used as the input values for the correlation analysis.

Data collected in this study enabled the researcher to describe the occurrence of incivility in United States-based pharmaceutical companies conducting research and development, examine the association between being a target of workplace incivility and employee engagement, and determine whether education and gender moderate the relationship between these two constructs. The researcher also evaluated whether incivility scores can be used to predict employee engagement.

Research Questions

Research Question 1: What is the prevalence of workplace incivility in the pharmaceutical industry? Research Question 2: What is the nature of the relationship between being a target of workplace incivility and employee engagement? Research Question 3: To what extent do higher education level and gender moderate the relationship between being a target of workplace incivility and employee engagement?

Hypotheses

$H1_a$: There is a negative relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H1_0$: There is no negative relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H2_a$: Education level moderates the relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H2_0$: Education level does not moderate the relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H3_a$: Gender moderates the relationship between workplace incivility and employee engagement.

$H3_0$: Gender does not moderate the relationship between workplace incivility and employee engagement.

Theoretical Framework

Andersson and Pearson's (1999) incivility spiral theory and Kahn's (1990) engagement model facilitate understanding of the incivility and engagement constructs, respectively. According to Reio and Sanders-Reio (2011), experiencing incivility can negatively affect feelings of safety, erode the support employees' need to perform jobs, and decrease the meaningfulness employees derive from their work. Feelings of safety emerge under non-threatening and predictable work circumstances. Whereas meaningfulness develops when individuals feel they are useful, appreciated and treated with respect (Kahn, 1990).

There is considerable research on positive motivators for engagement. Social exchange theory (Blau, 1964) indicates that the worth of a relationship is equal to the rewards minus the costs. Relationships deemed beneficial with a positive value are likely to continue. Supervisor or coworker incivility is liable to affect employee engagement

negatively, thus challenging the social exchange theory (Reio & Sanders-Reio, 2011). Expectancy theory (Vroom, 1964) proposes the mental process for making a choice and the linkage to motivation.

Engaged employees working in a climate conducive to creativity produce higher levels of innovation resulting in increased business outcomes (Harter et al., 2002; Vincent, Bharadwaj, & Challagalla, 2004). Empirical data and theory suggest that employees who experience positive interactions, low levels of stress, and who are appreciated are more inclined to engage in creative behaviors and produce creative solutions (Fredrickson, 2001; Cohen-Meitar, Carmeli & Waldman, 2009).

Definition of Terms

Civility. Civility is behavior that is essential for developing trust, understanding, and favorable interpersonal relationships in the workplace that leads to reciprocal respect (Pearson et al., 2000).

Employee engagement. Employee engagement is harnessing employees work role expressed in physical, cognitive, and emotional manner (Kahn, 1990). Engagement, measured by the Utrecht Workplace Engage Scale, is defined as feelings of energy, strength, and vigor; enthusiasm; inspiration; wanting to go to work; feeling happy when working intensely; feeling proud of own work; immersed in work; get carried away in own work.

Employee disengagement. Employee disengagement is the simultaneous physical, cognitive, and emotional withdrawal from a work role and a preference for lack of connection (Kahn, 1990).

Active disengagement. Active disengagement is the psychological state where employees deliberately and actively choose to uncouple themselves from their work role leading to destructive behaviors acted out against the organization (Kahn, 1990).

Workplace deviance. Workplace deviance is voluntary behavior that violates major organizational norms and consequently is perceived as threatening the well-being of the organization or its members (Ferris, Spence, Brown, & Heller, 2012; Robinson & Bennett, 1995).

Workplace incivility. Workplace incivility is deviant behavior of low intensity that violates the workplace norms for mutual respect devoid of resolve to harm the target (Andersson & Pearson, 1999). Incivility, as measured by the Workplace Incivility Scale, includes condescending behavior, showing little interest in personal opinions, making demeaning, rude or derogatory remarks, addressing in unprofessional terms, ignoring or excluding, doubting judgment, and making unwanted attempts to draw into a discussion about personal matters.

Workplace abuse. Workplace abuse is hostile verbal or nonverbal behavior (excluding physical contact) focused on one or more individuals with the intent to undermine another individual (Keashly, Trott, & MacLean, 1994).

Workplace bullying. Workplace bullying is recurrent, health-injuring maltreatment that is verbal or nonverbal including behavior that is aggressive, embarrassing or menacing, or by work interference occurring once per week for at least six months (Lieber, 2010).

Conflict. Conflict is a process that one party perceives that its interests are being opposed or negatively affected by another party (Wall, 1995).

Organizational levels. Organizational level consists of six categories: senior executive, director or manager, supervisor or foreman, specialist or professional, non-management salaried, and non-management hourly (Towers Perrin, 2003).

The following variables were measured in this study: years worked for the company, position in the company, the area of R&D worked in, gender, race, the highest level of education completed and age group. The instrument used to record years worked for the company was an open-ended survey question. The response was numerical. The instrument used to record position in the company was a survey question with an ordinal scale consisting of five choices. The instrument used to record area of R&D worked was a survey question with a nominal scale consisting of six choices. The instrument used to record gender was a survey question with a nominal scale consisting of two choices. The instrument used to record race was a survey question with a nominal scale consisting of six choices. The instrument used to record the highest level of education completed was a survey question with an ordinal scale consisting of five choices. The instrument used to record age group was a survey question with an ordinal scale consisting of four choices.

Assumptions

The assumptions were that participants would provide personal demographic information and respond honestly and accurately to the study questions contained in the two assessment tools (WIS and the UWES-9). Furthermore, the assumptions were that the assessment tools had acceptable construct validity and reliability. Finally, the statistical methods used in the study were appropriate and led to analyses that addressed the study questions.

Scope and Limitations

The scope of this research was limited to a subset of employees in the pharmaceutical industry performing research and development and working for United States-based companies. The study measured two distinct variables: workplace incivility and employee engagement in an attempt to quantify the relationship that exists between these variables. Results from the study facilitated predictions about the influence of other variables in the same or similar situations and provided a mechanism for ensuring internal validity.

The study had at least three known limitations. First, because this was a correlation design, data from the study cannot inform causality (Rumrill, 2004). Second, the study relied on self-report and lacked triangulation data (Leedy & Ormrod, 2010). Third, a single administration of the questionnaires only represented feelings and perspectives on that day and cannot be extrapolated. Surveys have well-known advantages in that they allow collection of data from multiple individuals in a convenient fashion using tools that have shown to be useful empirically (Creswell, 2009). Low response rates, reluctance to share sensitive information, and the inability to develop an intimate understanding of individual and local cultures are disadvantages of survey research (Leedy & Ormrod, 2010).

Delimitations

The study was limited to employees performing research and development for United States-based pharmaceutical companies who had a LinkedIn account and were members of networking groups dedicated to pharmaceutical industry workers (e.g., Professionals in the Pharmaceutical and Biotech Industry, Rx&D - Biopharmaceutical,

Pharmaceutical and Biotechnology Research and Development and Clinical Research and Clinical Drug Development).

Summary

Incivility represents a pervasive workplace phenomenon that can have a destructive effect on employee and organizational outcomes (Chen et al., 2012). Empirical data support a negative relationship with exposure to incivility and job contentment (Cortina et al., 2001) and mental and physical health (Lim et al., 2008). Furthermore, there are reports that workplace incivility has a positive relationship with workplace withdrawal (Pearson et al., 2001), burnout (Kern & Grandey, 2009) and workplace deviance (Blau & Andersson, 2005).

One study performed in the United States in computer corporations (Reio & Sanders-Reio, 2011) and two studies conducted in Asia (Chen et al., 2012; Yeung & Griffin, 2008) provided empirical data supporting a linkage and a negative correlation between workplace incivility and employee engagement. The researcher of this study examined the relationship between being a target of workplace incivility and the level of engagement in employees performing research and development for United States-based pharmaceutical companies. The researcher specifically addressed Yeung and Griffin's (2008) call for more empirical research on the role of incivility on performance in an industry where the work is knowledge-intensive and requires teamwork and collaboration. The pharmaceutical industry employee population is unique and appropriate for this investigation because of its high diversity (demographics, technical skills, and education).

Chapter 2

Review of the Literature

In this chapter, the researcher provided an overview of workplace incivility and employee engagement, the theoretical relationship between these two constructs and their relevance to the pharmaceutical industry, and an overview of the pharmaceutical industry. Electronic searches were conducted and supplemented with readings from select books and journals to provide information for this research. The primary sources of electronic data were obtained by searching peer-reviewed journals using EBSCOhost, ProQuest, ProQuest Dissertations, Emerald, and Sage databases from the University of Phoenix online library. Supplemental searches of Google and Google Scholar were performed. The searches focused on the following keywords and combination of keywords: incivility, workplace incivility, employee engagement, work engagement, pharmaceutical, research and development, biopharmaceutical, innovation, diversity, and deviance.

Workplace Incivility

Andersson and Pearson's (1999) seminal work defined the construct of incivility as having three core features: low level of intensity, ambiguous intent to harm, and defilement of norms for mutual respect. These features distinguish incivility from other types of deviant behavior. Incivility is a subjective phenomenon (Pearson & Porath, 2009) involving the exchange of seemingly insignificant words and actions that violate workplace norms (Porath & Pearson, 2010). Workplace uncivil behavior can be verbal or nonverbal, covert, indirect, and passive in nature (Martin & Hine, 2005) and could come from different sources, including supervisors, co-workers, workgroups, or customers.

Typical examples of workplace incivility include: (a) accepting recognition for others' efforts, (b) diverting blame for own mistakes (c) not listening, (d) spreading rumors about colleagues, (e) not saying "please" or "thank you," (f) belittling others' efforts, (g) multitasking during meetings (checking e-mail or texting) (h) forwarding email to make colleagues look bad, and (i) suppressing information (Pearson & Porath, 2009).

Deviant behaviors range from mild low intensity with an ambiguous intention to harm (incivility) to workplace violence (verbal and physical) characterized by explicit intent to harm the target (Hutton, 2006). Petty tyranny is similar in intensity to incivility. However, in petty tyranny, negative behaviors stem from the leader's abuse of positional power (Andersson & Pearson, 1999). Because an intention to harm is subjective and often unknown even by the instigator, it is often difficult to distinguish between incivility and aggression. Workplace incivility overlaps with other constructs, including employee abuse (Keashly, Hunter, & Harvey, 1997) mobbing/bullying (Leymann, 1990), social undermining (Duffy, Ganster, & Pagon, 2002), and interpersonal conflict (Penney & Spector, 2005). These behaviors differ from incivility because they recur over time and generally have a clear hostile intent.

Prevalence. Empirical studies indicated that workplace incivility in the United States and Canada is prevalent, but the results vary. Cortina et al. (2001) reported that 71% of 1,180-public-sector employees experienced incivility in the previous five years (p. 64). Pearson and Porath's (2005) survey of 800 American workers revealed that ten percent of the respondents observed workplace incivility daily, and 20% of the respondents experienced workplace incivility at least once per week (p. 7). Their second study in 126 Canadian white-collar workers revealed that 25% of respondents observed

incivility daily, and 50% reported being targets of incivility at least once per week (Pearson & Porath, 2005, p. 7).

Findings from Reio and Sanders-Reio's (2011) study in a computer corporation in the United States indicated that 78% and 81% of the participants (N= 272) encountered manager or coworker incivility, respectively, during the past year (p. 470). According to Weber Shandwick, Powell Tate, and KRC Research (2013), the online survey of 1000 adults revealed that the rate of Americans personally experiencing workplace incivility in 2013 was 37% compared to 34% and 43% in 2012, and 2011 (p. 11), respectively. The differences in results can be explained by differences in how incivility is defined, how the information was collected, and the instruments used to collect the information.

Incivility is also prevalent in Singapore. Data for a study in 180 full-time employees from over 20 different organizations in Singapore revealed that nine out of ten employees reported incivility, including disrespect, condescension, and social exclusion in the workplace (Lim & Lee, 2011, p. 103).

Diversity and incivility. Despite the changes in antidiscrimination laws rising workforce diversity and the growing acceptance that workplace diversity is a competitive strength rather than a compliance goal, deep-rooted prejudice cannot be eliminated. Thus, subtle forms of discrimination referred to as incivility, persist (Githens, 2011) and may embody clandestine expressions of gender and racial prejudice when the targets are women and people of color (Cortina, Kabat-Farr, Leskinen, Huerta, & Magley, 2013). The authors suggested the existence of a "glass ceiling" that serves as a barrier to career advancement for women and racial minorities. Consequently, women and minorities

have reported receiving lower pay, having higher unemployment and working in lower positions than their white males.

Power and incivility. According to Callahan (2011), workplace incivility involves three types of power: (a) the overarching power "of" corporations to label behavior as uncivil, (b) the power "over" the less powerful passed by those in higher status positions, and (c) the power "to", endorsed by lower status employees in response to seemingly repressive and biased practices. Corporations exert power in coercing employees (the less powerful) to serve the interests of more powerful workers. Thus, high power employees can enact power "over" workers with low power status. This type of power can manifest itself in deviant actions that are perceived by lower status employees as rude and unfair. In response to these actions, lower status employees exert the power "to" against workers of higher status (supervisors). Callahan (2011) purports that incivility may be a valid expression of emotion and a form of resistance that can cultivate personal and organizational change. The author argues that incivility needs to be eradicated to attain optimal organizational health, and that it may serve as an indicator of power and inequity problems at the organizational level.

Roscigno, Hodson, and Lopez (2009) posit that organizational context and organizational chaos is the cause of some forms of incivility. Organizational chaos (defined as poor management of labor processes) results in loss of managerial control over the labor process. Efforts to regain control in the workplace may result in personalized and abusive behaviors, e.g., supervisory bullying, co-worker infighting, and worker-customer conflict (incivility).

Antecedents. According to Bartlett, Bartlett, and Reio (2008), antecedents, variables that encourage workplace incivility are classified as enablers (actions and roles), motivators (beliefs and personality) or triggers (precipitating process or changes in status quo). Fear, rage, and anger are actions that can drive incivility. Role enablers of incivility may include status, overwhelming workload (Pearson et al., 2000; Pearson & Porath, 2005), and pressure for productivity (Pearson & Porath, 2005). Motivator beliefs including expected benefits, perceived job uncertainty, discontent, and low perceived consequences for inappropriate (Salin, 2003) may also contribute to incivility. Low agreeableness, high neuroticism (Milam, Spitzmueller, & Penney, 2009), lack of assertiveness (Alexander-Snow, 2004), Type A personality, hostility, and internal competition (Bartlett et al., 2008) have been reported to be motivators of uncivil behavior. Triggers of uncivil behavior may include response to stress, fear, anger, and absence of communication, knowledge, or competence (Bartlett et al., 2008).

A study performed by Reio and Ghosh (2009) revealed that select demographics (age, gender), workplace adaptation, and affect are antecedents of personal and organizational incivility. Young men were more inclined than women in participating in interpersonal and organizational incivility. Employees with low workplace adaptation and high negative affect were more likely to engage in uncivil acts. Negative emotions (anxiety and fear) can inhibit learning while on the contrary positive emotions (joy and happiness) can motivate employee learning, and this can influence professional development (Reio & Ghosh, 2009). These authors defined workplace adaptation as a process where new employees learn appropriate responses to a variety of conditions by

formal and informal learning approaches. Conflict management style is another antecedent to workplace incivility (Trudel & Reio, 2011).

According to Trudel and Reio (2011), conflict management style is also an antidote for workplace incivility. This is because the dominating style of conflict forecasts a higher occurrence of incivility whereas an integrating style lessens its possibility (Trudel & Reio, 2011). Blau and Andersson (2005) investigated instigated workplace incivility in 162 medical technologists over a 4-year period and found that distributive justice, job contentment, and work tiredness were antecedents of workplace incivility.

Consequences. Workplace incivility has implications for personal and organizational outcomes (Williams, Campbell, & Denton, 2013). At an individual level, targets of incivility experienced feelings of injustice, frustration (Pearson & Porath, 2005) and increased levels of stress worrying about potential future encounters (Laschinger, Leiter, Day, & Gilin, 2009). Data from 1,180 public-sector employees revealed that job contentment decreased and that psychological distress (characterized by depression and anxiety) increased as workplace incivility increased (Cortina et al., 2001). Coworker incivility has been associated with burnout (Laschinger et al., 2009), withdrawal behavior and diminished psychological health (Lim & Cortina, 2005). There is increasing empirical evidence supporting workers' endorsement of retaliation (Bunk, Karabin, & Lear, 2011) and reciprocation to uncivil acts (Bunk & Magley, 2013). Targets of incivility deliberately decreased their productivity and engaged in counterproductive behavior, including stealing, withholding information, or damaging property (Pearson & Porath, 2005; Penney & Spector, 2005). Consequences at the organizational level

included reduced organizational commitment, productivity, and attention to quality (Laschinger et al., 2009) and increased organizational turnover (Johnson & Indvik, 2001). Employers must bear the expenditures associated with employee diversion (e.g., conflicts, sick leave and turnover) and dissatisfaction (Cortina, 2008).

Work Engagement

Kahn (1990) delineated employee engagement as "the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performance" (p. 694). Kahn's (1990) seminal work defined the construct of engagement incorporating three psychological states: meaningfulness (where people obtain meaning from their work), safety (the ability of workers to freely express themselves without fear of reprisal), and availability (ample psychological, emotional, and physical resources to apply to work). Engagement appears to resemble organizational commitment and citizenship; however, it is distinct from these constructs (Robinson, Perryman, & Hayday, 2004).

Other researchers view engagement differently. According to Schaufeli and Bakker (2004), work engagement is a state characterized by vigor, dedication, and absorption. Shuck and Wollard (2010) defined engagement as a cognitive, emotional, and behavioral state focused on achieving organizational outcomes. Frank, Finnegan, and Taylor (2004) consider engagement as the quantity of discretionary effort employees expand at work. Finally, Maslach and Leiter (1997) described employee engagement as the opposite of burnout (defined a reaction to chronic emotional and interpersonal workplace stress). Gallup (2013) defines engaged employees as passionate workers profoundly connected to their company.

The social exchange theory suggests that numerous interactions between an employee and the organization can lead to the formation of obligations and the state of reciprocal interdependence. For example, employees receiving physical and emotional resources will be obligated to repaying the organization with greater engagement (Cropanzano & Mitchell, 2005). In contrast, when an organization withholds cognitive, emotional, or physical resources, employees will likely withdraw from their roles and disengage.

Prevalence. According to Gallup (2013), only 13% of workers were engaged at work, 63%, were not engaged (lacking motivation and less likely to invest in organization goals or outcomes), and 24% were actively disengaged (unhappy, unproductive, and likely to spread negativity) worldwide. Women (33%) were slightly more engaged than men (28%). Employee engagement varied by country or region; the highest level of engagement was reported in the U.S. and Canada (29% of workers engaged at work, 54% not engaged), followed by Australia and New Zealand (24% of workers engaged, 60% not engaged). East Asia, comprised of primarily Chinese workers was among the least engaged (6% engaged, 68% not engaged) in the world.

According to Blessing White (2013), engagement levels are increasing in regions across the world. As tenure, experience, age, and organizational level (p. 4) increase, so does engagement. There are gender gaps in engagement level outside of the US (e.g., India and South America); men and women are equally engaged in western countries.

A survey of 1000 employees working in the life sciences industry revealed that approximately two-thirds of employees are positively engaged at work (66% in Pharmaceuticals, 69% in Biotechnology, 71% in Medical Devices, and 62% in Clinical

Research Organizations, (ProClinical, 2016). Engagement in the United States (69%) was higher compared to that of Europe (66%) and Asia Pacific (64%).

The Towers Perrin (2003) website indicated that 16% of respondents from pharmaceutical industry employees were highly engaged, 67% moderately engaged, and 17 % were disengaged. The level of engagement was similar to other industries.

Despite the high number of published articles about employee engagement, the overall trend is consistent over the years indicating that large numbers of United States workers are not engaged. Low employee engagement costs businesses in the United States $300 billion per year due to lost productivity (Bates, 2004; Johnson, 2004; & Kowalski, 2003).

Antecedents. Wollard and Shuck (2011) structured literature review identified two levels of antecedents: individual and organizational essential to developing employee engagement. Same age, diverse race, being female, and being an extrovert (personality) were positive predictors of engagement (Jeung, 2011). From the organizational level, meaningfulness, safety, and availability were proximal antecedents of engagement (May, Gilson, & Harter, 2004). In addition, job-related supportiveness (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007), perceived level of justice (Saks, 2006), compensation and acknowledgement (Koyuncu, Burke, & Fiksenbaum, 2006), coworker relations (May et al., 2004), correspondence between personal and organizational values, and different types of leadership styles (e.g., charismatic, transformational, and authentic, Avolio, Gardner, Walumbwa, Luthans, & May, 2004) were determinants of engagement.

Consequences. Employee engagement confers benefits to employees and also to organizations. Engaged employees were more prolific, healthier, and unlikely to change

jobs (Bakker, 2011; Bakker et al., 2004). Customer satisfaction, profitability, and increased productivity were additional outcomes of engagement (Harter et al., 2002). Organizations succeeded, and employees thrived even under conditions of increased workload when employees were engaged (Bakker & Demerouti, 2008). There are empirical data supporting a potential association between employee engagement and business factors, including increased productivity, quality, and profitability (Maylett & Nielsen, 2012).

Linkage between Workplace Incivility and Work Engagement

Published studies. Yeung and Griffin (2008) reported an inverse relationship between incivility and employee engagement from their survey study conducted in Asia. The study included 116,000 participants from 412 companies in six countries (India, Japan, Singapore, Korea, Hong Kong, and China). Employees who experienced regular uncivil behaviors (once a month or once a week) reported lower levels of engagement and employees who did not experience uncivil behaviors reported highest levels of engagement. Workplace incivility was most prevalent among co-workers, and the extent of incivility differed from country to country (e.g., manager, as well as coworker incivility, and incivility was highest in South Korea and lowest in China). Males along with senior managers experienced the most incivility.

Reio and Sanders-Reio (2011) investigated the frequency of supervisor and coworker incivility in 272 employees in the United States working for a computer corporation. Data from the study indicated that most employees (78% and 81%, respectively) encountered incivility from managers and co-workers, and the research provided support for a link between incivility and employee engagement. Females

reported higher coworker incivility while on the contrary, and males reported more manager incivility.

Chen et al. (2012) examined whether narcissism moderated the effect of incivility on engagement in a two separate studies. The first study was conducted in 235 technician subordinates and corresponding supervisors working in teams (four to five members per supervisor) for a large manufacturing company in China. The second study was performed in 204 department store sales clerks and corresponding supervisors working in teams (four to five members per supervisor) in China. In both studies subjects completed four questionnaires that assessed workplace incivility (WIS, Cortina et al., 2001), narcissism (Narcissistic Personality Inventory scale (NPI, Ames, Rose & Anderson, 2006), work engagement (UWES-9, Schaufeli, Bakker, & Salanova, 2006), and task performance (Hui, Law, & Chen, 1999; Williams & Anderson, 1991). The researchers' results from both studies revealed that: (1) workplace incivility was negatively correlated with work engagement and task performance, (2) work engagement was positively correlated with task performance and (3) work engagement mediated the relationship between incivility and task performance especially for highly narcissistic employees.

Cortina et al., (2001) investigated the frequency, targets, initiators, and potential effects of incivility in 1,180 public-sector employees in the United States. Results from the study indicated that 71% of employees encountered incivility in the previous five years (p. 64). The most influential individuals within the corporation were responsible for instigating the uncivil acts. Women reported greater frequency of uncivil acts, but both genders encountered unfavorable effects on job contentment, withdrawal, and career advancement.

Research methods. All three studies that evaluated workplace incivility and employee engagement (Chen et al., 2012; Reio & Sanders-Reio, 2011; Yeung & Griffin, 2008) utilized similar quantitative research designs, where data were collected by use of surveys containing standardized questionnaires. In these studies, responses to the questionnaires were coded and analyzed to reach descriptive and explanatory conclusions. Quantitative correlational statistical analyzes were used to examine relationships between variables in the study. According to Babbie (1990), survey research exhibits the essential attributes of social science and science in general in that it is logical, deterministic, general, parsimonious, specific and verifiable.

Measuring workplace incivility. The Workplace Incivility Scale (WIS; Cortina et al., 2001) was the most commonly used academic measure of workplace incivility. The scale had internal consistency and displayed good concurrent, convergent and divergent validity (Martin & Hine, 2005). Cortina and Magley (2009) supplemented the WIS with three additional questions. The WIS consisted of ten questions that measure the frequency with which individuals have experienced each statement in the preceding year (originally five years). The WIS was used in studies that assessed both incivility and engagement constructs (Chen et al., 2012; Reio & Sanders-Reio, 2011). Yeung & Griffin (2008) used the Best Employer Survey. Due to the commercial confidentiality reasons, the authors only provided examples of the items of the incivility and engagement questions; indicated the items were similar to other tools used in empirical research.

The Uncivil Workplace Behavior Questionnaire (UWBQ) is another measure to evaluate workplace incivility victimization on four dimensions (aggression, invasion of privacy, exclusionary behavior, and gossiping, Martin & Hine, 2005). Like the WIS, the

UWBQ had internal consistency and demonstrated good convergent, divergent, and concurrent validity. The UWBQ was longer and more comprehensive than the WIS.

Measuring work engagement. The Utrecht Work Engagement Scale (UWES, Schaufeli & Bakker, 2003) was the most established and commonly used global academic measure of engagement. The UWES, a self-report survey, evaluated three dimensions: vigor, dedication, and absorption. The tool initially consisted of 24 questions and was subsequently reduced to 17 items (six for vigor and absorption and five questions for dedication). A shorter version, consisting of nine questions (UWES-9), was later developed. The UWES-9 was shown to have construct validity and provides the advantage of reduced likelihood of attrition. The UWES is available in numerous languages and has been administered to a variety of groups (e.g., police officers, hospital staff, teachers, etc.; Seppälä et al., 2009).

Another survey tool used to assess employee engagement is the intellectual-social-affective engagement scale (ISA; Soane et al., 2012). This instrument was shown to have inter-item reliability and construct validity. The job engagement scale evaluated three dimensions: physical, cognitive, and emotional engagement captured by six items. Example items included: "I work with intensity on my job" (physical), "I am enthusiastic about my job" (emotional), and "At work, my mind focuses on my job" (cognitive). Responders used a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

Theoretical Foundation

Incivility. Andersson and Pearson's (1999) spiral model provided a theoretical basis for explaining harmful effects of incivility on targets, instigators, and onlookers within an organization. Incivility has a social component and thus, acts of incivility

generate additional acts of incivility through a chain of gradually escalating levels of tit-for-tat interactions. Incivility begins with awareness of an incivility and may lead to (a) no reciprocation, (b) reciprocation without escalation, and (c) reciprocation with escalation potentially progressing to aggression. The author's posit that the disposition of the organization may enable the formation and intensification of spirals resulting in secondary spirals throughout the organization where eyewitnesses circuitously involved with the principles duplicate the uncivil behavior with other secondary parties. These spiraling cycles of incivility may reach a level at which the organization becomes uncivil. Neuman and Baron (1998) reported that most workplace violence is elusive and does not involve direct and physical assault.

Engagement. Kahn (1990) posited that engagement encompasses three psychological states: (a) meaningfulness (return on investments to expanding work effort; (b) safety (the ability of workers to freely express themselves without fear of reprisal); and (c) availability (having the necessary resources to perform the job role). The works of Andersson and Pearson's (1999) and Kahn (1990) clarify the association between incivility and engagement.

The process of work engagement can also be elucidated by the Job Demands-Resources Model (JD-R; Bakker & Demerouti, 2008). This model assumes that work engagement achievement requires a critical balance between job and job demands. According to the Bakker and Demerouti (2008), job resources are the primary initiator of engagement via processes that are motivational. The JD-R model posits that job demands contribute to job strain, and job resources have motivational properties (Freeney & Fellenz, 2013).

There is considerable research on positive motivators for engagement. Expectancy theory (Vroom, 1964) proposes the mental process for making a choice and the linkage to motivation. Social exchange theory (Blau, 1964) posits the worth of a relationship is equal to the rewards minus the costs. Relationships deemed beneficial with a positive value are likely to continue. When party one derives benefit from party two, there is an implied obligation to reciprocate. The tenants of social exchange theory, as applied to an employee-employer relationship, are complicated by other employee-employee relationships.

Incivility and engagement. Andersson and Pearson's (1999) incivility spiral theory and Kahn's (1990) theory indicate that experiencing incivility can negatively affect feelings of safety, erode the support employees' need to perform jobs, and decrease the meaningfulness employees derive from their work (Reio & Sanders-Reio, 2011). Feelings of safety emerge under non-threatening and predictable work circumstances. And meaningfulness can develop when individuals feel they are useful, appreciated and treated with respect (Kahn, 1990). The self-enhancement model of workplace incivility indicates that incivility impedes self-enhancement in the workplace, and this leads to employees dissociating themselves from their work; sustaining a high level of task performance stops being a source of self-enhancement (Chen et al., 2012). According to Chen et al. (2012), work engagement mediates the relationship between incivility and task performance.

There is considerable research on positive motivators for engagement. Social exchange theory (Blau, 1964) purports the worth of a relationship is equal to the rewards minus the costs. Relationships deemed beneficial with a positive value are likely to

continue. Supervisor or coworker incivility is likely to affect employee engagement negatively, thus challenging the social exchange theory (Reio & Sanders-Reio, 2011). Expectancy theory (Vroom, 1964) proposes the mental process for making a choice and the linkage to motivation.

Engaged employees working in a climate conducive to creativity produced higher levels of innovation resulting in increased business outcomes (Harter et al., 2002; Vincent et al., 2004). Empirical evidence and theory suggest that employees who experienced positive interactions, low levels of stress, and who were appreciated were more inclined to engage in creative behaviors and produce creative solutions (Cohen-Meitar et al., 2009; Fredrickson, 2001).

Incivility involves rude and demeaning workplace interactions that diminish individuals' sense of belonging and competence; engagement is nurtured by workplace experiences that provide employees a sense that they are valued, worthwhile, and useful, (Ferris, Brown, Berry, & Lian, 2008). Chen et al. (2012) posited that individuals' exposed to uncivil negative interpersonal treatments have little motivation to become engaged in work and instead detach or become disengaged presumably because incivility is discordant with the maintenance of a positive sense of self.

Pharmaceutical Industry

The pharmaceutical industry is a knowledge-intensive industry (Liu, 2014). The pharmaceutical business is a science-based industry where limited resources (people, intellectual, financial, etc.) are allocated to projects with indeterminate returns (Pisano, 2006). Competitive advantage in the pharmaceutical industry is closely associated with a company's ability to create new knowledge leading to the production of patents and new

medicines that are transformed into marketable products (Poh-Lin & Roth, 1999). Research and development is the crucial source of the commercial value that the pharmaceutical industry creates. Drug development is a risky and long process. Only ten percent of drugs that enter preclinical testing are approved for use in patients. Furthermore, it can take between 10 to 15 years for a drug to progress from the laboratory to the patient at a cost of 800 million to one billion United States dollars (Biopharmaceutical Research Industry, 2014).

Since 1950, the pharmaceutical industry has produced over 1,220 new pharmaceutical (small molecules generated by a series of chemical synthesis) and biopharmaceutical (biologics manufactured in living organisms e.g., bacteria or mammalian cells) medicines that extended the life expectancy (average 2 months each year) of patients and improved public health (Munos, 2009). During this time, the industry has produced life-saving medicines offering new treatment options for numerous diseases: cardiovascular, metabolic, arthritis, pain, depression, anxiety, oncology, gastrointestinal disorders, women health, and infectious diseases. Many of these illnesses are now treatable or can be managed effectively.

However, in the past decade, the rate at which the industry generated new products declined. In 2002, only 17 new molecular entities (NMEs) were approved by the United States Food and Drug Administration, compared to 56 NMEs approved in 1996 (Cockburn, 2004). Despite large investments in research and development, productivity is low, research and development costs are rising, and new product development pipelines are dwindling (Khanna, 2012). Thus, companies are re-assessing

the current research model and exploring novel approaches to enhance research and development productivity and deliver incremental and radical innovations.

Demographics. The pharmaceutical research and development work is categorized as knowledge-intensive because it involves the use of intellectual and analytical tasks that require high levels of education, experience, creativity, and ability to adapt to certain circumstances (Alvesson, 2004). Researchers must exchange and combine knowledge to create new ideas, capabilities, and innovations.

Pharmaceutical industry employees tend to be diverse in demographics, technical skills, and education. The Pharmaceutical Technology's 2006 Employment Survey of nearly 1,100 pharmaceutical industry employees in the United States revealed that 96% of respondents had a bachelor's degree or higher (40% bachelors, 32% masters, and 24% doctorate, Rios, 2006). Analytical chemistry and biology-related fields were reported to be the most common areas of study with degrees earned pharmaceutics, pharmacy, and engineering, however, 11% of responders held degrees in a field unrelated to the pharmaceutical industry. Seventy-one percent (71%) of survey participants were male, and 29% were female (Rios, 2006). Similarly, the 2013 salary survey of 8,242 American Association of Pharmaceutical Scientists (AAPS) members (including workers from both industry and academia) revealed that 100% of the 1,338 respondents (16% usable returned survey responses) held a bachelor's degree or higher (14% bachelor's, 19% master's, 5% Pharm.D., and 62% doctorate, (American Association of Pharmaceutical Scientists, 2013). Sixty-six percent (66%) of respondents were male.

Drug development process. Pharmaceutical research and development is a complex, time-consuming, highly regulated and risky process. The complexity and

uncertainty stem from the fact that drug the focus of developers is on positively affecting the health of human beings, and this is dependent on the nature of human biology. Despite the numerous advances in biology over the past decades, many aspects of human biology remain a mystery (Pisano, 2006).

Research and development is performed by cross-functional project teams (Zeller, 2002) possessing specific knowledge in several scientific fields to create innovations and achieve competitive advantages (Pisano, 2006; Poh-Lin & Roth, 1999). Teamwork and knowledge sharing are essential to performing research and development (Campbell, 2000; Lilleoere, & Hansen, 2011). Employee engagement has been reported to be a success factor in enhancing research and development productivity in the pharmaceutical industry (Shuck & Wollard, 2010; Tollman et al., 2011).

Development of a new medicine from initial discovery to the patient generally takes 10 to 15 years (Biopharmaceutical Research Industry, 2014) and includes several distinct stages in the process: drug discovery, preclinical development, human clinical trials, regulatory review and approval, and post-approval research and monitoring (Pisano, 2006). The drug development process initiates with drug discovery. The first step begins with target identification and validation where specific biochemical and receptor binding studies are performed to identify suitable targets for disease process intervention. This step yields some potential drug protein targets. Not all targets are amenable to drug intervention, and thus, researchers must select only those targets that a potential drug molecule could bind. The next steps are identification and optimization of potential drugs that may inhibit or enhance the specific protein. In a drug discovery

stage, researchers test thousands of compounds, but only a few hundred promising candidates advance to the next stage.

Lead potential drug candidates advance to the preclinical stage for testing in a series of preclinical animal studies. Researchers use the safety and potential efficacy data from these studies to determine whether the drug is suitable for testing in humans. Development of compounds that do not produce an effect in animals or that produce toxicity concerns is discontinued; backup compounds are evaluated. Drug candidates with a favorable safety and efficacy profiles in animals progress to testing in human clinical trials. At this point, the company compiles and submits an Investigational New Drug (IND) application in the United States or Clinical Trial Authorization (CTA) Applications in Europe.

The clinical trials phase of development consists of three phases. In phase one, the safety of promising drug candidates is evaluated in a small number (e.g., 10 to 100) of healthy volunteers to determine whether it is safe to proceed into phase two. The purpose of phase two clinical trials is to assess the effectiveness and safety of different doses of the drug candidate in the target patient population. These studies often include a control group such as a placebo in non-life threatening conditions. The purpose of phase three studies is to confirm the efficacy of the drug in a larger patient group. The size of the phase three study population varies according to the target population and can range from hundreds to tens of thousands of patients (Pisano, 2006).

Upon completion of phase three studies and positive results, companies submit a New Drug Application (NDA) or a Biologics License Application (BLA) to the Food and Drug Administration (FDA) or a Marketing Authorization Application (MAA) to the

European Medicines Agency (EMA). The FDA and EMA may ask for additional data before the drug can be approved; the FDA may seek advice from an advisory panel before rendering a decision on whether the drug can be approved. The company may commercialize the new medicine only after all regulatory requirements are met, and regulatory approval is granted.

Research of a newly approved medicine continues after commercialization. Companies are required to monitor the safety of the new medicine in the approved patient population and update the label to reflect and new adverse events that arise with the broader use of the product. Also, companies are required to assess the long-term safety of the product in the approved patient population and the efficacy and safety of the product in specific patient subgroups (e.g., pediatrics) as part of a phase four commitment. Depending on the circumstances, risk evaluation and mitigation strategies may be required to ensure the appropriate use of the new medicine and to ensure that the medication's benefits continue to outweigh the risks (Biopharmaceutical Research Industry 2014 Report).

High-risk business. The pharmaceutical industry is dependent on the progression of promising drug candidates through the long drug development process (10 to 15 years) where there is a high risk for stopping development due to a lack of efficacy or unacceptable safety. According to Gassmann, Reepmeyer, and Von Zedtwitz (2008), drug development attrition rates are highest in the preclinical phase (60.2%), but also substantial in the clinical (24.8%, Phase one; 52.1%, Phase two; 28.8%, Phase three) and in regulatory review (10.2%) phases. Companies incur greater losses for projects that are discontinued in later stages of development. For example, a pharmaceutical company

will have invested on average 600 to 700 United States million dollars for a drug candidate that is stopped in the phase two stage of development. Translating attrition rates into success rates, a drug in the preclinical phase of development has only a ten percent likelihood of reaching the market and probability increases substantially in later stages clinical trials (Gassmann et al., 2008).

Industry challenges and opportunities. Historically, the pharmaceutical industry has produced a variety of innovative treatment options for patients as well as robust growth and return for investors. However, over the past decade productivity has declined considerably despite increased research and development spending. The amount of new medicines approved per billion US dollars expended on research and development has decreased by half approximately every nine years since 1950 (Scannell, Blanckley, Boldon & Warrington, 2012, p. 191). Cockburn (2004) speculated that the increase in research and development spending is because the "low-hanging fruit" has been picked, and the current unmet medical needs involve complex diseases that are not well understood. Cockburn (2004) also attributes increased research and development expenditures for retooling investments into new technologies, and an increased number of drug targets (from 500 to 5000) produced by advances in basic science that must be studied. Tollman, Morieux, Murphy, and Schulze (2011) attributed the decline in research and development productivity to complex science, greater challenges to address unmet needs, tougher competition, higher regulatory hurdles and pricing and reimbursement pressures.

According to Smits and Boon (2008), the pharmaceutical industry is changing due to increased competition, novel scientific and technological advances, and increased

expenditures, better-informed users who demand higher added-value products and increased niche market products. They posit that the current linear drug development research model is no longer effective. Companies have focused on incremental innovation by maximizing the potential of existing products, reducing time to market and extending the patent term to stay competitive (Tranter, 2000). Some pharmaceutical companies have established strategic goals to develop novel products and services (radical innovation). Other firms have started experimenting with new organizational and funding models and entered into collaborative alliances with academic institutions, government agencies, foundations and charities and venture capital firms. Limited scientific knowledge is a considerable barrier to drug development; thus, companies are becoming more receptive to data sharing and scrutinizing which data they need to control for proprietary reasons (Reeve, 2012).

Tollman et al. (2011) assessed the research and development productivity of the top 25 pharmaceutical companies from 1998 to 2010 and found that performance varied considerably across the industry. These researchers found that several companies, referred to as "outliers," were more successful than their peers in creating value for their organizations. For example, Bristol-Myers Squibb generated five new molecular entities (NMEs) and introduced four NMEs between 1998 and 2004 at a cost of $15 billion. Tollman et al. (2011) observed that the successful "outlier" companies had (a) effective leadership, (b) valued cooperation equally to expertise and emphasized shared accountability in the research and development functions and (c) deep employee engagement. Tollman et al. (2011) suggested that the combination of three characteristics could help companies to improve the effectiveness of their research and

development substantially. According to Catteeuw et al. (2007), Johnson & Johnson implemented an employee engagement strategy and used a house metaphor for visualization. The foundation (2 roles that managers and supervisors must perform to facilitate employee engagement) and three pillars (job satisfaction, valuing people, and collaboration and trust) provided the structure for the house metaphor. Roles of managers and supervisors include: (a) connecting employees with the organization by communicating the company's direction and how the employees work contributes to the achievement of organizational goals, and (b) providing employees fair and accurate feedback on their work and performance. Johnson & Johnson subsequently implemented processes to align employee's goals with business unit goals thus incorporating engagement into the workplace culture (Shuck & Wollard, 2010).

Sundgren, Dimenäs, Gustafsson, and Selart (2005) performed a study to assess the drivers of creativity in a pharmaceutical research and development setting. The study population included managers and researchers employed by AstraZeneca located at six different research and development locations (one in the United States, two in the United Kingdom, and three in Sweden). The researchers collected 453 completed questionnaires (64% response rate). The distribution of women to men was equal (49:51%), and the educational level was high (90% had an academic education, and 63% of respondents had a Ph.D.). The researchers found that information sharing, intrinsic motivation, and learning climate were important in pharmaceutical research and development as they are drivers of organizational creativity. The researchers defined intrinsic motivation as: "the motivation to work on something because it is interesting, involving, exciting, satisfying, or personally challenging" (p. 362).

DeSimone (2014) posits that convergence, the fusion of life sciences, physical sciences, and engineering, and diversity are keys to innovation in science. He further states diversity maximizes learning and catalyzes innovation because it allows for collaboration with a group of talented individuals with varied sets of experiences and perspectives to produce innovative solutions. According to Díaz-García, González-Moreno, and Sáez-Martínez (2013), gender diversity in research and development teams give rise to a certain dynamic that nurtures original solutions in uncertain circumstances and potentially leads to radical innovation. Dissimilarities in demographics and personality can reduce cohesiveness, lower compliance with social norms, and increase conflicts in groups (O'Boyle et al., 2010).

According to Kuratko, Goldsby, and Hornsby (2012), fellow employees are the greatest obstacles to corporate innovations because they can threaten individuals inside the company. Innovative ideas may lead to changes in products, processes, and relocation of budgets and for these reasons new ideas are often blocked prematurely. Sharing information, creating opportunities for employees to demonstrate their skills and competencies, and building and using influence networks can help corporate managers to build social capital (an inventory of trust, gratitude, and obligations) and overcome this obstacle.

Conclusions

Incivility in the workplace is rude, insensitive, disrespectful, and thoughtless behavior (incongruent with workplace norms of mutual respect) of low intensity that has an ambiguous intent to harm an individual (Andersson & Pearson, 2001; Pearson et al., 2000). Workplace incivility is prevalent in the United States (Lim, Cortina, & Magley,

2008) and in Asia (Lim & Lee, 2011); it has destructive effects on employee and organizational outcomes (Chen et al., 2012). Despite increasing evidence showing negative implications of incivility on employee morale and performance, current performance appraisal measurements do not measure uncivil behavior (Kunkel & Davidson, 2014). Managers often dismiss rude and inappropriate behavior among supervisors and workers because they appear benign, and they are not illegal (Porath & Pearson, 2010).

There are reports of a linkage between incivility and employee engagement (Chen et al., 2012; Reio & Sanders-Reio, 2011; Yeung & Griffin, 2008). Employee engagement is a desired state where employees embrace their work role completely and express it in physical, cognitive, and emotional manners (Kahn, 1990). Engaged employees are more prolific, healthier, and less likely to change jobs (Bakker, 2011; Bakker et al., 2004). There are empirical data supporting a potential association between employee engagement and business factors, including increased productivity, quality, and profitability (Maylett & Nielsen, 2012). Workplace incivility was negatively correlated with employee engagement and task performance (Chen et al., 2012).

There is increasing focus on positive psychological aspects in the workplace and recognition that employees play a major role in innovation, organizational performance, and competitiveness (Froman, 2010). Thus, organizations are focusing on building human capital and expecting their employees to: take initiative, be proactive, collaborate with colleagues, take charge of their professional development, and be committed to high-quality performance standards (Bakker & Schaufeli, 2008; Kelley & Littman, 2005; Kuratko et al., 2012).

Employee engagement has been reported to be a success factor in enhancing research and development productivity in the pharmaceutical industry (Shuck & Wollard, 2010; Tollman et al., 2011). The pharmaceutical business is a science-based and risky business where competitive advantages are associated with a company's ability to create new knowledge leading to the production of patents and new medicines that are transformed into marketable products (Pisano, 2006; Poh-Lin & Roth, 1999). The researcher is not aware of any published studies where workplace incivility and employee engagement were evaluated in employees working in the pharmaceutical industry.

Summary

This chapter provided an overview of published literature on workplace incivility and employee engagement, the theoretical relationship between these two constructs and their relevance to the pharmaceutical industry. Research and development work produced by the pharmaceutical industry is science-based, risky, and dependent on innovations to achieve competitive advantages (Pisano, 2006; Poh-Lin & Roth, 1999). Employee engagement has been reported to be a success factor in enhancing research and development productivity in the pharmaceutical industry (Shuck & Wollard, 2010; Tollman et al., 2011). Research on workplace incivility and employee engagement is increasing, but there are no data in the pharmaceutical industry setting.

This study addressed the knowledge gap identified in the literature review and specifically addressed Yeung and Griffin's (2008) call for more empirical research on the role of incivility on performance in a knowledge intensive industry requiring teamwork and collaboration. This descriptive correlational study examined the prevalence of incivility in United States-based pharmaceutical companies and the relationship between

being the subject of incivility and employee engagement. The extent to which educational level and gender moderate the relationship between being a target of incivility and the level of employee engagement were also evaluated in the study. In Chapter 2, the researcher provided a detailed description and rationale for the quantitative study with a descriptive correlational design.

Chapter 3

Method

The purpose of this quantitative descriptive correlational study was to examine: (a) the prevalence of workplace incivility; (b) the relationship between being a target of workplace incivility and the level of employee engagement; and (c) the extent to which educational level and gender moderate the relationship between being a target of incivility and the level of employee engagement in the context of the pharmaceutical industry. In this chapter, the researcher provided a description of the research design of the study, information regarding the methodology used and its appropriateness, definitions of variables, data collection process, and the rationale for instrument selection.

Research Method and Design Appropriateness

Reflections on the research problem and data needed to address the problem, questions, and purpose of the study were essential in defining an appropriate research method and design. A quantitative descriptive correlational design was selected for this study because it was expected to address the problem, questions, and purpose of the study. This design was appropriate because it added onto existing knowledge, proposed relationships between variables of study (tests hypotheses) and measured the variables of interest under natural conditions (Cozby & Bates, 2012; Shadish, Cook, & Campbell, 2002; Sousa et al., 2007). The descriptive, correlational nature of the study permitted examination of the correlation between two variables, and determination of the size and direction of the correlation, rather than to establishing causation (Steinberg, 2011; Vogt, 2007).

The purpose of this descriptive correlational study was to examine the relationship between being a target of workplace incivility and level of employee engagement in the pharmaceutical industry. Correlational research determines if and to what extent a relationship exists between two or more variables (Gay, 1996). Descriptive correlational studies are valuable in situations where the researcher cannot manipulate the independent variables, the variables that are believed to influence the outcome variable (Lappe, 2000). When a relationship or correlation is confirmed, it is possible to make a prediction based on the correlation (Steinberg, 2011). The correlational approach is effective in predicting one variable from knowledge of the other variable (Christensen et al., 2011; Vogt, 2007). Thus, an evaluation of whether incivility scores can be used to predict employee engagement was part of this research.

In contrast to quantitative experimental design (where individuals are randomly assigned to different conditions or groups, e.g., true experiment) and quasi-experimental (individuals cannot be randomly assigned as they are already in a condition or group) designs, descriptive correlational study design does not include random assignment, control groups, or permit manipulation of variables (Cook & Cook, 2008; Sousa et al., 2007).

Quantitative research method, aligned with the positivist paradigm, is appropriate when the research problem is objective (Trusty, 2011), the research questions are narrow, and the data collected from participants are numerical (Farrelly, 2013). Conversely, qualitative method, aligned with a naturalistic paradigm, is appropriate when the problem is subjective (Trusty, 2011); the researcher asks broad questions and collects word data from study participants (Farrelly, 2013). Another difference between

quantitative and qualitative research is the approach used to solve the research problem. A deductive approach to problem solving is used in quantitative studies whereas an inductive approach is applied in qualitative research.

Descriptive research design attempts to provide an account of the characteristics and conditions of situations, individuals, or groups at a specific place(s) and time (Babbie, 1990). The purpose of descriptive research design is to examine phenomena that are occurring, and describe, measure, and categorize the frequency of the occurrences (Walker, 2005). The descriptive correlational research uses numerical data to explore relationships between two or more variables and assesses the nature, degree, and direction of relationships between these variables enabling the researcher to make predictions about the variables (Black, 1999; Steinberg, 2011).

The intent of this study was to address a knowledge gap identified from the literature review and respond to Yeung and Griffin's (2008) call for more empirical research on the role of incivility on performance in a knowledge intensive industry requiring teamwork and collaboration. The goal of this descriptive correlational study was to assess the relationship between being the target of workplace incivility (the independent variable) and experiencing employee engagement (dependent variable) in the context of the pharmaceutical industry in the United States.

Data were collected by a survey that contained two current validated questionnaires, the WIS, and the UWES-9, used in previous studies. The WIS measured the frequency that participants experienced uncivil behaviors from either their supervisors or from co-workers in the past year (Cortina et al., 2001; Cortina & Magley, 2009). The UWES-9 measured three aspects of work engagement, including vigor, dedication, and

absorption (Schaufeli et al., 2002). The overall sum of the scores from the WIS instrument questions and the mean scores from the UWES instrument were used as input values for the correlation analysis.

Research Questions

The following research questions guided the study:

Research Question 1: What is the prevalence of workplace incivility in the pharmaceutical industry? Research Question 2: What is the nature of the relationship between being a target of workplace incivility and employee engagement? Research Question 3: To what extent do higher education level and gender moderate the relationship between being a target of workplace incivility and employee engagement?

Hypotheses

$H1_a$: There is a negative relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H1_0$: There is no negative relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H2_a$: Education level moderates the relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H2_0$: Education level does not moderate the relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H3_a$: Gender moderates the relationship between workplace incivility and employee engagement.

$H3_0$: Gender does not moderate the relationship between workplace incivility and employee engagement.

Population

The target population for this study consisted of employees performing research and development in United States-based pharmaceutical companies. In 2012, more than 810,000 people in the United States were employed by the biopharmaceutical industry. The industry also contributed to approximately 3.4 million jobs across the U.S. economy including jobs directly in biopharmaceutical companies and vendor companies in the broad biopharmaceutical supply chain, and jobs created by the economic activity of the biopharmaceutical industry workforce (Select USA).

The population consisted of members of LinkedIn networking groups dedicated to pharmaceutical industry workers (e.g., Professionals in the Pharmaceutical and Biotech Industry, Rx&D - Biopharmaceutical, Pharmaceutical and Biotechnology Research and Development, and Clinical Research and Clinical Drug Development). The participants performed a broad range of research activities (Discovery, Drug Safety/Toxicology, Chemistry, Manufacturing, and Controls, Clinical Development/Clinical Safety, Regulatory, Other) and held diverse positions (including senior executive, director or manager, supervisor or foreman, specialist or professional, and non-management salaried, and non-management hourly employees) in a pharmaceutical company. An invitation to participate in the research and to complete the survey was posted on the aforementioned LinkedIn networking group sites.

Sampling Frame

The study used a purposive (non-probability) sampling approach to obtain participants who met pre-defined criteria (Cozby & Bates, 2012). Purposive sampling, also referred to as judgmental sampling, involves selection of the sample based on

research goals and knowledge of the population (Babbie, 1990). Study participants consisted of members of LinkedIn networking groups dedicated to the pharmaceutical industry workers.

The study used a purposive sampling approach because it was not practicable to implement a randomized sampling strategy. An accurate list of employees engaging in research and development work in United States-based pharmaceutical companies is not available. Even if a partial list were obtained, it could not be used due to SurveyMonkey's terms and conditions. SurveyMonkey prohibits the use of third-party, purchased or rented mailing lists unless the researcher can provide proof that individuals on the list have opted-in to receiving emails.

The sample size was based on the pre-specified power for the investigation. Study power is the ability to reject the null hypothesis correctly when it is false (Steinberg, 2011). A power of 80% is generally accepted as sufficient for research studies. Sample size has a direct influence on the power calculation, because, as sample size increases, the variability decreases. For the purpose of the power calculation, the alpha (one-tailed) value was set at 0.05. The expected correlation coefficient was set at /0.26/ based on the reported correlation between workplace incivility and work engagement in a prior study of technicians working at a manufacturing company in China (Chen et al., 2012). The resulting calculation determined that a sample size of 90 subjects would achieve the desired power of 80%. The actual power of the study was calculated and reported in the results based on the number of subjects that participated and the observed correlation coefficient using G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007).

Informed Consent and Confidentiality

Researchers are responsible for protecting confidentiality and privacy of individuals participating studies and for considering current ethical guidelines and regulations when designing the studies (Creswell, 2008; Cozby & Bates, 2012). In compliance with the University of Phoenix policy, the researcher acknowledged these responsibilities and signed a confidentiality agreement.

An invitation to participate in the research and to complete the self-administered on-line survey was posted on LinkedIn.com. Members of LinkedIn networking groups dedicated to pharmaceutical industry workers (e.g., Professionals in the Pharmaceutical and Biotech Industry, Rx&D - Biopharmaceutical, Pharmaceutical and Biotechnology Research and Development and Clinical Research and Clinical Drug Development) were eligible to participate. Anyone who expressed interest in participating in the research was required to read an introductory communication, which included the purpose of the study, that participation was voluntary, and that personal information provided would be kept strictly confidential. Participants learned that the online survey program would not collect identifiable information (e.g., name, address, email address, etc.) about them. The feature that collected participant's Internet Protocol (IP) addresses in SurveyMonkey was disabled. Individuals who agreed to participate in the study were asked to acknowledge reading the informed consent and agreeing to participate in the research by responding to a question in the survey.

Data Collection

Data were collected by an electronic self-administered on-line survey. Surveys are valuable research tools that enable the collection of information regarding the

prevalence, distribution and interrelationship of variables within targeted populations. The inclusion of established questionnaires such as the WIS and the UWES as part of a survey made data collection quantitative because the questions were predetermined, standardized, and structured (Farrelly, 2013). A self-administered survey was the preferred type of data collection for this type of study because it provided advantages over interviews, structured record reviews, and structured observations. Self-reports were appropriate due to the sensitivity associated with the incivility variable. Furthermore, surveys allow coverage of a large population over a wide geography and have the potential for a rapid turnaround. Also, surveys can be administered over the internet simplifying and expediting data collection (Creswell, 2009). This self-administered survey was cross-sectional with data collected over a 12-week period.

The survey research technique exhibits the essential attributes of social science and science in general in that it is logical, deterministic, general, parsimonious, specific and verifiable (Babbie, 1990). There are several advantages to using surveys. First, surveys enable researchers to obtain responses from a large sample of participants at a low cost (Creswell, 2009). Second, the sample pool of participants can represent the general population or a specific subset of the general population. Third, the ability to use existing survey tools that have been developed and validated for a particular area of research. Finally, the advent of the internet and on-line survey providers like SurveyMonkey make it easy to implement survey tools (Babbie, 1990). Some disadvantages of survey research methodology include low response rates (as participation is voluntary), reluctance to share sensitive information and the inability to

develop an intimate understanding of individual and local cultures (Leedy & Ormrod, 2010).

Study participants were requested to provide demographic information including confirmation that they work in research and development for a United States-based pharmaceutical company, the number of years worked at the company, the highest level of education, position in the company, gender, and race (see Appendix A). The anonymized survey responses collected from the study were treated as confidential data and stored for three years following completion of the study.

This research survey included questions from two survey questionnaire instruments: the WIS and the UWES-9. The WIS measured the frequency that participants experienced disrespectful, rude or condescending behaviors from workers or superiors within the last year (Cortina et al., 2001; Cortina & Magley, 2009). The UWES-9 quantified three aspects of work engagement, including vigor, dedication, and absorption (Schaufeli et al., 2002). Responses from a minimum of 90 pharmaceutical industry employees who work in research and development for a United States-based company were required.

An understanding of the observed relationship between these two variables could increase knowledge about incivility and engagement in a highly educated and diverse workforce that is exemplified by the pharmaceutical industry. The researcher of this study expanded upon the work of Yeung and Griffin (2008) and Reio and Sanders-Reio (2011) and provided empirical data on the role of incivility on performance in an industry that requires teamwork and collaboration and where the work is knowledge intensive. The pharmaceutical industry population is unique and well suited for this investigation

because it tends to have high diversity (demographics and technical skills/education). Diversity is a critical factor in innovation. However, dissimilarities in demographics and personality can reduce cohesiveness, lower compliance with social norms, and increase conflicts in groups (O'Boyle et al., 2010).

Instrumentation

The Workplace Incivility Scale (WIS; Cortina et al., 2001) was administered to determine the level of incivility. The WIS consists of seven questions that measure the frequency that individuals have experienced each situation. Participants recorded how often they experienced uncivil behaviors from a supervisor or co-worker while at work using a five-point scale (0 = never, 1 = rarely, once a month or less, 2 = sometimes, a few times a month, 3 = often, once a week, and 4 = most of the time, a few times a week) during the past year. The Cronbach's alpha for the single incivility study of the WIS was reported to be above 0.80. The WIS was shown to possess internal consistency and convergent validity as demonstrated by a significant negative correlation ($r = -0.056$; $p < 0.001$) with the Perceptions of Fair Interpersonal Treatment Scale (Cortina et al., 2001). Martin and Hine (2005) reconfirmed the validity of the WIS tool during the validation of the Uncivil Workplace Behavior Questionnaire.

The Utrecht Work Engagement Scale (UWES) was administered to evaluate the level of workplace engagement. The UWES is a self-report questionnaire consisting of 9 items (UWES-9) to measure three dimensions of work engagement: vigor, dedication, and absorption (Schaufeli et al., 2002). Participants indicated how often they experienced the three dimensions of work engagement on a seven-point scale (0 = never, 1 = almost never, a few times a year or less, 2 = rarely, once a month or less, 3 =

sometimes, a few times a month, 4 = often, once a week, 6 = always, every day) in the past year.

The validity of the UWES-9 tool was confirmed by Schaufeli et al. (2006). The authors used data collected from 10 countries to confirm that the 9 question tool gave similar results as the original 17 question tool (Schaufeli et al., 2002). Factorial validity was confirmed for vigor, dedication, and absorption and a positive correlation between burnout and engagement were observed. The internal consistency (Cronbach's alpha) ranged between 0.85 and 0.92. Stability over a one-year interval was also demonstrated. Finally, the correlation between the original 17 question tool and the nine question tool was greater than 0.90. The construct validity was further confirmed in five independent samples of over nine-thousand white-collar participants from Finland (Seppälä et al., 2009).

Dr. Lilia Cortina provided permission of use of the Workplace Incivility Scale. In addition, Professor Dr. Bakker gave permission for use of the Utrecht Work Engagement Scale. The unmodified versions of the aforementioned surveys were well suited for this research study.

Internal and External Validity

Assessment of validity of a study and legitimizations of the study are important for both quantitative and qualitative research (Benge, Onwuegbuzie, & Robbins, 2012). Validity describes the accuracy, meaningfulness and credibility of the overall research (Leedy & Ormrod, 2010). Researchers can have confidence that the design of their study will answer the research questions and produce robust data allowing meaningful conclusions, provided that: (a) appropriate control measures were included in the study to

ensure that conclusions are justified (internal validity) and (b) the observed findings from the research could be generalized to a broader population (external validity; Vogt, 2007).

Internal validity is when the hypothesized independent variable affects the dependent variable and threatens the researcher's ability to determine the true causal factor producing change in the dependent variable (Neuman, 2006). There are a variety of threats to internal validity which may include history effect, maturation, and compensatory behavior (Neuman, 2006). These were not relevant for this study because the research was cross-sectional, and the survey instrument was administered only one time; there was no compensation provided for participation. The descriptive correlational nature of the study was designed to examine a correlation between two variables rather than to establish causation. According to Benge et al. (2012), data coded by a single researcher at the data analysis phase, was a potential threat to internal validity because it could lead to observational bias. The researcher established an audit plan for cross checking a sample of data coding and entry to mitigate this potential threat. Also, the data were coded electronically by use of Microsoft Excel formulas.

External validity is the ability to generalize specific study results from the sample participants to a larger general population (Cozby & Bates, 2012; Neuman, 2006). There were two potential threats to external validity: demand characteristics and population validity. Demand characteristics are forms of reactivity where subjects pick up clues about the goals of the study and change their behavior in accordance to what is expected (Neuman, 2006). Population validity is the ability to generalize the research findings to the broader population from which the sample was obtained. Because the data were collected by an online survey, there was no control of the makeup of the respondents.

Thus, it is possible that the study population who completed the survey may not accurately reflect the demographics of the broader pharmaceutical research and development population (Benge et al., 2012).

The use of a non-probability (purposive sampling approach) may limit external validity as the sample population may not represent the population of employees engaged in research and development work in the United States based pharmaceutical companies. According to Shadish, Cook, and Campbell (2002), researchers can take deliberate steps to make a non-probability sample "representative in a purposive sense" (p. 355). This can be achieved by the use of miniature of the population where the researcher knows the key characteristics of the population and then ensures that some members with each level of each characteristic are included in the sample set. The key characteristics of the pharmaceutical industry include gender, ethnicity, and educational level.

Data Analysis

The variables of the population and the data type included company/employer name (nominal scale), years of service (interval scale), position in company (nominal scale), area of work (nominal scale), gender (nominal scale), race (nominal scale), education level (ordinal scale) and age group (ordinal scale). As part of this research study, participants were asked to complete a list of survey questions that included the WIS and the UWES. Both survey responses were treated as interval scales. The WIS tool consisted of seven questions using a five-point Likert scale with scores ranging from zero to four. The overall sums of the scores from the seven questions (possible range of 0 to 28) of the WIS were used as the input values for the correlation analysis. The UWES tool consisted of nine questions using a seven-point Likert scale with scores ranging from

zero to six. The UWES tool contains three questions each for the following sub-scales: vigor, dedication, and absorption. The mean score of the UWES was computed by adding the scores for the nine items (possible range of 0 to 54) and dividing the sum by the number of items. The mean UWES scores were used as the input values for the correlation analysis.

For the purpose of this study, the operational definition of for prevalent incivility was experiencing acts of incivility daily or weekly which meant having a total incivility score of 21 or above. The operational definition of engagement was experiencing positive feelings about work on a daily or weekly basis, and this translated into an engagement mean score four or above.

The level of measurement for the demographic variables included: assignment to a group by company name; a numerical value for years of service; assignment to a group by area of work (six groups); assignment to a group by gender (two groups); assignment to a group by race (six groups) and assignment to a group by highest level of education completed (5 groups).

The data collection followed a structured process using standardized instruments (Leedy & Ormrod, 2010). Data were analyzed with IBM SPSS (Version 21.0). Hierarchical multiple regression analysis (HMRA) was used for the data set and hypothesis testing. This analysis technique provided several advantages for survey-based studies. First, hierarchical linear models are appropriate for use in studies where participants are organized at more than one level. Second, HMRA can be used without the requirement to adjust for covariates of a dependent variable. Third, no assumption of homogeneity of regression slopes were required (Tabachnick & Fidell, 2013). Several

assumptions of the data set allowed for the use of HMRA including linearity, normality, homoscedasticity and independence of the observation.

Hierarchical multiple regression analysis was used by several researchers in correlation studies. Bolton, Bellini, and Brookings (2000) investigated employment outcomes as a function of subject past, functional limitations, and rehabilitation services. The HMRA analysis determined that the three aforementioned independent variables accounted for approximately one-third of the variability of employment status. Researchers at Oklahoma State University, the University of Oklahoma Health Sciences Center, and Brown University (Mullins et al., 2001) used HMRA to study illness intrusiveness, uncertainty, and distress in individuals with multiple sclerosis. This survey-based study included seventy-eight individuals with multiple sclerosis. The results of HRMA analysis identified a correlation between adjustment problem and illness intrusiveness/uncertainty. However, HMRA analysis of mediators–moderators did not identify any correlation with the intrusiveness-adjustment data.

The distribution of the data was assessed for normality by graphical and numerical means. The graphical procedure consisted of the examination of normal Q-Q and histogram plots generated by SPSS. The numerical procedure consisted of the examination of Kurtosis and Skewness values generated by SPSS. For the statistical procedure, the Shapiro-Wilk test was used to test for normality in SPSS. The Shapiro-Wilk test was shown to be superior to the Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests by Razali and Weh (2011).

The specific bivariate correlation coefficient used in the investigation was the Pearson *r* generated by SPSS. The significance of the correlation coefficients was tested

with a t-test. The overall regression significance was tested with an F-test. This test procedure allowed for predictor variables to be examined as blocks. The first block consisted of incivility tool score as the predictor variables and the engagement mean scores as the criterion variable; the second block consisted of education level, and the third block consisted of gender. As part of the regression analysis routine in SPSS, one-way ANOVA was also included in the output.

The descriptive statistics utilized to describe the sample characteristics included frequency tables (counts, percentages, cumulative percentages) for nominal, ordinal and interval scales; median, mode, range and standard deviation for interval scales. The descriptive statistics utilized to describe the scores from the WIS and UWES tools included mean, median, mode, range, and standard deviation.

The use of parametric statistics assumes a normal distribution of data such that the population can be described by a mean and a standard deviation and that the data reflect an interval or ratio scale. The benefit of parametric analysis is that it provides more accurate and precise statistical estimates if the assumptions are correct. In contrast, non-parametric statistics are more robust because they do not rely on assumptions of data normality (Leedy & Ormrod, 2010).

If the assumptions of data normality were not met, several non-parametric tests could be used to analyze the data. As an alternative to correlation and regression analysis, Kendall's Tau and Kendall's W could be used to establish the statistical dependence between incivility and engagement variables.

The second non-parametric test (Mann-Whitney U test) could be used to test for differences in dependent variable distribution between two categorical groups. The

conditions for the use of the Mann-Whitney U test include that the dependent variable must be ordinal or continuous; the independent variable should consist of two categorical groups (e.g. male/female); the observations are independent and the distributions for both groups should have a similar shape. These non-parametric tests were available in the SPSS program.

Summary

Empirical data supporting a linkage and negative correlation between workplace incivility and employee engagement were available. Andersson and Pearson's (1999) incivility spiral theory, Kahn's (1990) engagement model, Blau's (1964) social exchange theory, and Vroom's (1964) expectancy theory provided a rich theoretical framework for the research. This research specifically addressed Yeung and Griffin's (2008) call for more empirical research on the role of incivility on performance in a knowledge intensive industry requiring teamwork and collaboration.

The purpose of this descriptive correlational study was to examine: (a) the prevalence of workplace incivility; (b) the relationship between being a target of workplace incivility and the level of employee engagement; and (c) the extent to which educational level and gender moderate the relationship between being a target of incivility and the level of employee engagement in the context of the pharmaceutical industry. This chapter provided a description of the research design for the study, information regarding the methodology used and its appropriateness, definitions of variables, data collection process, and the rationale for instrument selection.

Chapter 4

Results

The intent of this study was to address a knowledge gap identified from the literature review regarding the role of incivility on performance in a knowledge-intensive industry requiring teamwork and collaboration. The purpose of this quantitative descriptive correlational study was to examine: (a) the prevalence of workplace incivility; (b) the relationship between being a target of workplace incivility and the level of employee engagement; and (c) the extent to which educational level and gender moderate the relationship between being a target of incivility and the level of employee engagement in the context of the pharmaceutical industry. The study was designed to address three research questions: Research Question 1: What is the prevalence of workplace incivility in the pharmaceutical industry? Research Question 2: What is the nature of the relationship between being a target of workplace incivility and employee engagement? Research Question 3: To what extent do higher education level and gender moderate the relationship between being a target of workplace incivility and employee engagement?

Preliminary empirical data are supportive of a negative association of incivility with employee engagement (Chen et al., 2012; Reio & Sanders-Reio, 2011; Yeung & Griffin, 2008). The general problem is that incivility is prevalent in American business (Porath & Pearson, 2013) and recognized across industries (Trudel & Reio, 2011). The specific problem is that the prevalence of incivility in the pharmaceutical industry and the potential relationship between incivility and engagement are unknown. This knowledge gap is problematic for leaders and managers in the pharmaceutical industry. When

managers lack information on factors associated with desirable outcomes like engagement, they may make less than optimal decisions about motivating, retaining, and attracting talented employees (Bhuvanaiah & Raya, 2015). Productivity and competitiveness could be at stake.

The researcher presents in Chapter 4 results from this descriptive correlational study to investigate the prevalence of incivility, the relationship between being a target of workplace incivility and the level of employee engagement; and the extent to which educational and gender moderate the relationship between incivility and employee engagement in the context of the pharmaceutical industry. Also, a restatement of the design and methodology, data collection, a description of study population, reliability of the scales, results and statistical analysis corresponding to each research question are provided.

Research Design and Methodology

The study was designed to address three research questions. Data collected by a self-administered survey contained two validated questionnaires, the WIS, and the UWES-9. The WIS measured the frequency that participants experienced uncivil behaviors from either their supervisors or from co-workers in the past year (Cortina et al., 2001; Cortina & Magley, 2009). The UWES-9 measured three aspects of work engagement, including vigor, dedication, and absorption (Schaufeli et al., 2002).

The descriptive correlational nature of the study permitted examination of the relationship between two variables (workplace incivility measured by the WIS and employee engagement measured by the UWES), and determination of the size of the correlation (Steinberg, 2011; Vogt, 2007). Also, the researcher explored potential

moderating effects of gender and education on this relationship between workplace incivility and employee engagement. The study was powered at 80% and required a minimum of 90 participants to allow rejection of the null hypothesis. A purposive sampling approach (selection of the sample based on research goals and knowledge of the population, Babbie, 1990) was used to select the study population of Pharmaceutical Industry workers. Data were collected at a single point in time using a cross-sectional survey to examine relationships between study variables (Babbie, 1990). The anonymized survey responses are confidential data requiring storage for three years following study completion.

Data Collection

Data were collected by an electronic self-administered on-line survey. The University of Phoenix provided complimentary access to the SurveyMonkey tool following Quality Review of Methods and Institutional Review Board (IRB approval. An invitation to participate in the research was initially posted on one LinkedIn networking group dedicated to pharmaceutical industry workers called Professionals in the Pharmaceutical and Biotech Industry, Rx&D - Biopharmaceutical, Pharmaceutical and Biotechnology Research and Development. This group is reported to have 60,252 members. An invitation was subsequently posted on a second networking group, Clinical Research and Clinical Drug Development (with 3,059 members), to enhance recruitment into the study. Both networking group sites are owned by Marcus and Associates. Permission was received to post on both networking groups. Subjects interested in participating in the research were presented an overview of the study including the

objectives, voluntary nature of participation, projected time commitment to complete the survey, researcher's contact information, and informed consent information.

Subjects belonging to two LinkedIn networking groups dedicated to pharmaceutical industry workers who responded affirmatively to consenting to participate in the study, being currently employed by a pharmaceutical company and working in the United States were permitted to complete the survey. Subjects who responded "no" to any of these three questions were advanced to the end of the survey and disqualified. Data were collected by a self-administered on-line survey through SurveyMonkey. Skipping of questions was not permitted. The feature that collects participant's Internet Protocol (IP) addresses in SurveyMonkey was disabled. Thus, the responses were anonymous.

The first question of the survey requested subjects to confirm that they read the informed consent information and consented to participate in the study. Subjects who responded affirmatively to providing consent and being currently employed by a pharmaceutical company (Question two), could provide general demographic information (company name, years of service, position, the area of work, gender, race, education, and age group, Questions three through 12). The last two questions of the survey contained the UWES (Question 13) and the WIS (Question 14). Data were collected from November 3, 2015, to February 2, 2016.

Data Treatment

Survey responses from SurveyMonkey were exported into Microsoft Excel. The verbal responses from the WIS and the UWES were scored using a Likert scale. The WIS tool consisted of seven questions using a five-point Likert scale with scores ranging from

zero to four. The overall sums of the scores from the seven questions (possible range of 0 to 28) of the WIS were used as the input values for the correlation analysis. The UWES tool consisted of nine questions using a seven-point Likert scale with scores ranging from zero to six. The UWES tool included three questions each for the following sub-scales: vigor, dedication, and absorption. The mean score of the UWES was computed by adding the scores for the nine items (possible range of 0 to 54) and dividing the sum by nine. Also, the mean of each of the three subscales was calculated. The mean UWES scores were used as the input values for the correlation analysis.

The data were then imported into IBM SPSS (Version 21.0) for analysis. Within SPSS, string data for gender, education, role, and race were coded to transform the string data into numeric data. Educational data were dummy coded for Doctorate and assigned a value of one; all other degrees were assigned a value of zero. All subsequent transformations of numeric data (e.g., Lg10 transformation) were performed within SPSS for further statistical analyzes.

Hierarchical multiple regression analysis (HMRA) was used for the data set and hypothesis testing of the study research questions. Hierarchical multiple linear regression analyzes were performed to test for relationships between variables (UWES, WIS, education, and gender). A moderation analysis based on the Baron and Kenny (1986) methodology was also performed to examine the influence of education and gender on the relationship between workplace incivility and employee engagement.

Demographic Characteristics

Two hundred twenty-three (223) subjects responded to the survey as shown in Table 1. Eighteen (18) subjects were disqualified for either not providing consent to

participate in the study, not being employed by a pharmaceutical company, not residing in the United States, or for not responding to all the questions in the survey. Two hundred five (205) valid responses were included in the analysis.

Table 1
Summary of Survey Responders

Characteristics	N
All responders	223
Disqualified	
Did not consent	2
Not currently employed by a Pharmaceutical company	5
Did not reside in the United States	4
Did not complete the entire survey	7
Valid responders included in analysis	205

Current employment by a pharmaceutical company was a key eligibility criterion for the study. Participants included in the analysis worked for 21 pharmaceutical companies listed in Table 2. Three participants chose not to disclose their employer.

Table 2
Pharmaceutical Company

Pharmaceutical Company	N	Percent	Cumulative Percent
Baxalta	1	0.5	0.5
Biogen	1	0.5	1.0
Bristol-Myers Squibb	86	42.0	42.9
Celgene	1	0.5	43.4
Eisai	1	0.5	43.9
Gilead	2	1.0	44.9
Glaxo-SmithKline	2	1.0	45.9
Grunenthal	1	0.5	46.3
Janssen	54	26.3	72.7
Johnson & Johnson	36	17.6	90.2
Merck	4	2.0	92.2
Mitsubishi	1	0.5	92.7
Novartis	1	0.5	93.2
Nucleo Life Sciences	1	0.5	93.7
Otsuka	1	0.5	94.1
Pfizer	3	1.5	95.6
Roche	1	0.5	96.1
Seattle Genetics	1	0.5	96.6
Teva	2	1.0	97.6
The Medicines Company	1	0.5	98.0
Vertex	1	0.5	98.5
Not reported	3	1.5	100

Table 3 provides information on company tenure. Participants were employed by their respective companies a mean of 14 years. The mode was 15 years. The minimum and maximum duration of employment were one year and 45 years, respectively.

Table 3

Organizational Tenure

Statistic	Result
Valid responses	204
Missing response	1
Mean (years)	14.4
Standard Error of Mean	0.6
Median (years)	14
Mode (years)	15
Standard Deviation	9.1
Variance	82.6
Minimum (years)	1
Maximum (years)	45

Participants in the study performed a broad range of research activities described in Table 4. Chemistry, Manufacturing, and Controls (29.3%), Clinical Development/Clinical Safety (23.9%), and Regulatory (23.9%) were most prevalent areas of research.

Table 4

Functional Department by Grouping

Department	N	Percent	Cumulative Percent
Discovery	3	1.5	1.5
Drug Safety/Toxicology	5	2.4	3.9
CM&C*	60	29.3	33.2
Clinical/Safety	49	23.9	57.1
Regulatory	49	23.9	81.0
Other	39	19.0	100.0

*Chemistry, Manufacturing and Control

As shown in Table 5, the majority of study participants attended college. Seventy-five percent of participants completed graduate studies and earned a master or a doctorate. More than half (52.7%) of the population held a doctorate.

Table 5
Highest Education Level by Degree Grouping

Highest Level of Educatior	N	Percent	Cumulative Percent
High School	5	2.4	2.4
Associate Degree	3	1.5	3.9
Bachelor of Science/Art	43	21.0	24.9
Master of Science/MBA	46	22.4	47.3
Ph.D., MD, Pharm.D., DVM	108	52.7	100.0

As revealed in Table 6, study participants held diverse positions (including senior executive, director or manager, supervisor or foreman, specialist or professional, and non-management salaried, and non-management hourly employees). Director or manager was the most prevalent role (51.7%). Men and women were equally represented in the study as shown in Table 7.

Table 6
Position in Organization by Grouping

Position	N	Percent	Cumulative Percent
Senior Executive (President, Vice-president, Senior Director)	32	15.6	15.6
Director or Manager	106	51.7	67.3
Supervisor or Foreman	4	2.0	69.3
Specialist or Professional (individual contributor)	50	24.2	93.7
Non-management salaried	13	6.3	100.0

Table 7
Gender

Gender	Percent	Cumulative Percent
Male	49.3	49.3
Female	50.7	100.0

The majority of participants were Caucasian (64.9%), followed by Asian (12.2%) and Indian (12.2%). The Hispanic/Latino group had the lowest representation.

Table 8
Race by Grouping

Race	N	Percent	Cumulative Percent
Caucasian	133	64.9	64.9
African American	8	3.9	68.8
Hispanic/Latino	5	2.4	72.2
Asian	25	12.2	83.4
Indian (India)	25	12.2	95.6
Other	9	4.4	100.0

The most prevalent age group was 35 to 54 years (62%). The majority of study participants were 35 years or older.

Table 9
Age by Grouping

Age Ranges	N	Percent	Cumulative Percent
18 to 25 years	1	0.5	0.5
26 to 34 years	13	6.3	6.8
35 to 54 years	127	62.0	68.8
55 years and older	64	31.2	100.0

Reliability of Scales

This study used two previously validated scales, the WIS, and the UWES. The WIS (Cortina et al., 2001) is the most frequently used academic measure of workplace incivility. The WIS consists of seven items (questions) that measure the frequency with which individuals have experienced each statement in the preceding year. Participants recorded how often they experienced uncivil behaviors from a supervisor or co-worker during the past year using a five-point scale (0 = never, 1 = rarely, once a month or less, 2 = sometimes, a few times a month, 3 = often, once a week, and 4 = most of the time, a few times a week).

The UWES, (Schaufeli & Bakker, 2003) is the most commonly used global academic measure of engagement that evaluates three dimensions: vigor, dedication, and absorption (Schaufeli et al., 2002). A short version of the UWES-9, consisting of nine items (questions) was used in this study. Participants indicated how often they experienced the three dimensions of work engagement on a six-point scale (0 = never, 1 = almost never, a few times a year or less, 2 = rarely, once a month or less, 3 = sometimes, a few times a month, 4 = often, once a week, 6 = always, every day) in the past year.

According to Vogt (2007), Cronbach's alpha is a correlational indicator of internal reliability and consistency of items in a scale. Cronbach's alpha ranges from 0 to 1.0. The minimal cutoff point for reliability is .70. The alpha coefficient for the WIS in this study was .87, and this compares favorably with .89 reported by Cortina et al. (2001). The alpha coefficient for the UWES was .918 which is consistent with findings from Schaufeli et al. (2002). These alpha values indicate good internal consistency and reliability of both the WIS and the UWES.

Table 10
Cronbach's Alpha for UWES and WIS

Scale	Cronbach's Alpha	Number of Items
UWES	.918	9
WIS	.870	7

Workplace Incivility Scale

Research question 1. What is the prevalence of workplace incivility in the pharmaceutical industry? The frequency that participants encountered incivility from their supervisor or coworker during the past year was measured by seven questions. Each question had five possible response options that were scored from zero (never) to 4 (most

of the time, a few times a week). Responses to the seven questions are displayed in Table 11. For each of the seven questions, a majority of survey participants selected either "never" or the "rarely, once a month or less" response options.

Table 11
Responses to Individual Items in WIS

Item	Never	Rarely	Sometimes	Often	Most of the time
Score	0	1	2	3	4
Put you down or was condescending to you in some way	48.8% n = 100	38.5% n = 79	10.2% n = 21	2.0% n = 4	0.5% n = 1
Paid little attention to a statement you made or showed little interest in your opinion	26.3% n = 54	50.2% n = 103	17.1% n = 35	5.9% n = 12	0.5% n = 1
Made demeaning, rude, or derogatory remarks about you	77.6% n = 159	16.1% n = 33	4.4% n = 9	1.5% n = 3	0.5% n = 1
Addressed you in unprofessional terms, either publicly or privately	79.0% n = 162	17.1% n = 35	1.5% n = 3	2.0% n = 4	0.5% n = 1
Ignored or excluded you from professional camaraderie	58.5% n = 120	30.2% n = 62	7.8% n = 16	2.9% n = 6	0.5% n = 1
Doubted your judgment in a matter over which you have responsibility	45.9% n = 94	41.0% n = 84	9.8% n = 20	2.9% n = 6	0.5% n = 1
Made unwanted attempts to draw you into discussion of personal matters	82.0% n = 168	14.6% n = 30	2.9% n = 6	0.5% n = 1	0% n = 0

The overall sums of the scores from the seven questions (possible range 0 to 28) were used to determine the prevalence. Larger sum scores are indicative of high prevalence of workplace incivility. The operational definition of prevalent incivility in

this study was experiencing acts of incivility daily or weekly, and this would translate into a score of 21 or higher. Only one responder (0.5%) had a score of 21 which met the operational definition prevalent incivility. The frequency of the sum scores is presented in Table 12. The mean sum score was 3.80 with a standard deviation of 3.822. The range, median, and mode of the sum scores were 21, 3.00 and 0, respectively. No participants reported experiencing incivility most of the time.

The analysis revealed that 81.5% of employees reported some experience with workplace incivility in the previous year. More specifically, 68.3% rarely encountered uncivil behavior an average of once or twice a month, 10.8% experienced incivility sometimes, and 2.5% endured uncivil behavior often.

Table 12
WIS Sum Score Frequency

SUM WIS Score	Frequency	Percent	Cumulative Percent
0	38	18.5	18.5
1	23	11.2	29.8
2	29	14.1	43.9
3	35	17.1	61.0
4	17	8.3	69.3
5	12	5.9	75.1
6	14	6.8	82.0
7	10	4.9	86.8
8	5	2.4	89.3
9	4	2.0	91.2
10	7	3.4	94.6
11	2	1.0	95.6
12	2	1.0	96.6
14	2	1.0	97.6
15	1	0.5	98.0
16	1	0.5	98.5
18	1	0.5	99.0
20	1	0.5	99.5
21	1	0.5	100

Never = 0; Rarely = 1-7; Sometimes = 8-14; Often = 15-20; Prevalent = ≥21

Utrecht Work and Well-being Survey

The UWES tool consisted of nine questions using a seven-point Likert scale with scores ranging from zero to six. The mean score of the UWES was computed by adding the scores for the nine items (possible range of 0 to 54) and dividing the sum by nine. The mean UWES scores were used to determine the level of employee engagement. The operational definition of prevalent engagement was experiencing positive feelings about work on a daily or weekly basis, and this would translate into a mean engagement score equal to four or greater (often or always).

Responses to each of the nine questions are summarized in Table 13. The mean item scores ranged from 4.06 to 5.27. The calculated mean UWES score was 4.54 with a standard deviation of 1.03. The range, median, and mode were 4.33, 4.44, and 6.00 respectively.

Table 13

Responses to Individual Items in UWES

Item	Never 0	Almost never 1	Rarely 2	Sometimes 3	Often 4	Always 6	Mean Median Mode Range SD
At my work, I feel that I am bursting with energy	0.5% N = 1	2.9% N = 2	5.4% N = 11	22.4% N = 46	43.4% N = 89	25.4% N= 52	4.07 4.00 4 1.341
At my job, I feel strong and vigorous	0% N= 0	1.5% N = 3	3.9% N = 8	23.9% N = 49	36.1% N = 74	34.6% N = 71	4.33 4.00 4 5 1.346
I am enthusiastic about my job	0% N = 0	1.5% N = 3	3.4% N = 7	10.7% N = 22	37.1% N = 76	47.3% N = 97	4.73 4.00 6 5 1.322
My job inspires me	1.0% N = 2	1.5% N = 3	4.9% N = 10	18.0% N = 37	33.7% N = 69	41.0% N = 84	4.46 4.00 6 6 1.450
When I get up in the morning, I feel like going to work	1.0% N = 2	2.4% N = 5	5.4% N = 11	18.5% N = 38	36.1% N = 74	36% N = 75	4.33 4.00 6 6 1.464
I feel happy when I am working Intensely	0% N = 0	0.5% N = 1	2.9% N = 6	12.7% N = 26	33.7% N = 69	50.2% N = 103	4.80 6.0 6 5 1.288
I am proud of the work that I do	0% N = 0	0.5% N = 1	2.4% N = 5	3.4% N = 7	25.4% N = 52	68.3% N = 140	5.27 6.00 6 5 1.142
I am immersed in my work	0% N = 0	0% N = 0	2.0% N = 4	8.3 N = 17	43.4% N = 89	46.3% N = 95	4.80 4.00 6 4 1.172
I get carried away when I am working	0.5% N = 1	2.0% N = 4	9.8% N = 20	21.5% N = 44	39.0% N = 80	27.3% N = 56	4.06 4.00 4 6 1.399

Seventy-two percent (72.2%) of the study population met the operational definition for experiencing feelings of high engagement on a weekly or daily basis in the past year. Participants reported experiencing positive feels about work always (11.7%), often (60.5%), sometimes (21.5%), rarely (5.9%) and almost never (0.5%). There were no responders who reported never experiencing engagement.

Table 14

UWES Sum Score Frequency

UWES Sum Scores	Frequency	Percent	Cumulative Percent
15	1	0.5	0.5
18	1	0.5	1.0
19	4	2.0	2.9
23	1	0.5	3.4
24	2	1.0	4.4
25	2	1.0	5.4
26	2	1.0	6.3
28	3	1.5	7.8
29	5	2.5	10.2
30	7	3.4	13.7
31	4	2.0	15.6
32	9	4.4	20.0
33	5	2.4	22.4
34	4	2.0	24.4
35	7	3.4	27.8
36	15	7.3	35.1
37	8	3.9	39.0
38	10	4.9	43.9
39	6	2.9	46.8
40	10	4.9	51.7
41	4	2.0	53.7
42	6	2.9	56.6
43	3	1.5	58.0
44	10	4.9	62.9
45	3	1.5	64.4
46	8	4.0	68.3
47	1	0.5	68.8
48	8	3.9	72.7
49	1	0.5	73.2
50	6	5.8	80.0
51	3	1.5	81.5
52	14	6.8	88.3
54	24	11.7	100.0

Assessment of Data Normality

Before conducting correlation and regression analyzes, the normality of the WIS (incivility) and UWES (employee engagement) data was assessed by graphical and numerical methods. The graphical method used a Normal quantile-quantile (Q-Q) Plot which compares the ordered distribution of a test sample with the quantiles of a standard Normal distribution. For normally distributed data, the data points will be positioned approximately along the diagonal line in the Normal Q-Q Plot (Henderson, 2006). UWES (employee engagement) scores were determined to be normally distributed by visual inspection of the Normal Q-Q Plot (see Figure 1). Visual inspection of the WIS Normal Q-Q Plot (see Figure 2) revealed that the WIS (incivility) scores were not normally distributed.

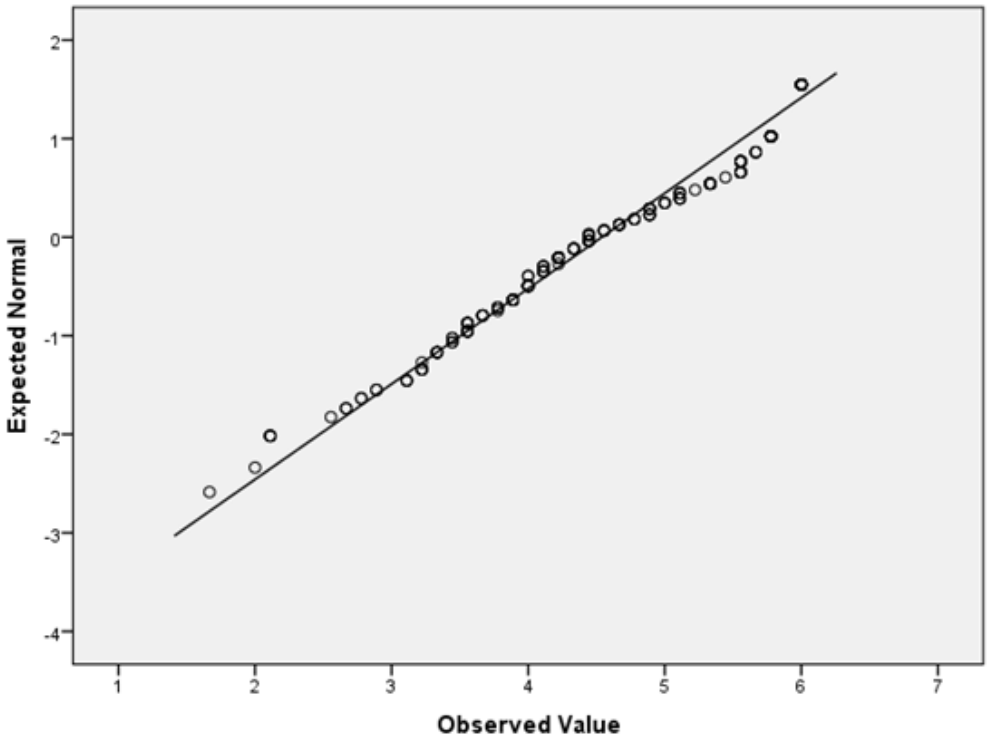

Figure 1: Normal Q-Q Plot of UWES.

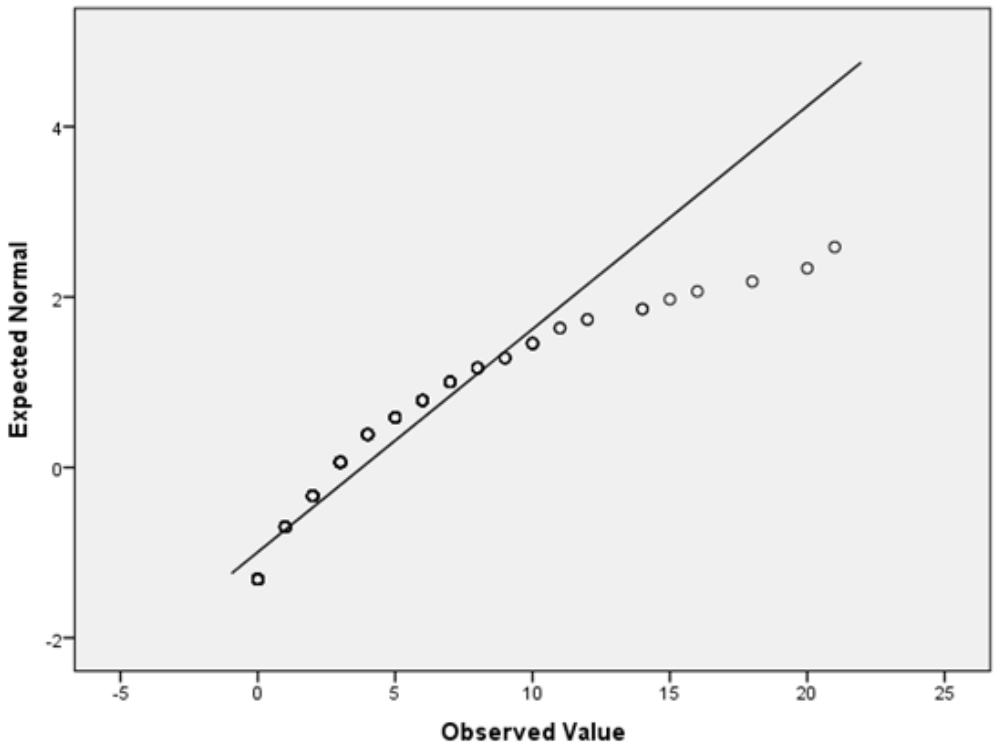

Figure 2: Normal Q-Q Plot of WIS.

The numerical method was used to calculate a z-score for skewness and kurtosis by dividing the skewness and kurtosis values by their respective standard errors. The resulting z-score was assessed at a statistical significance level of .01 (z-score of ±2.58). Normality was assumed if the z-score was within ±2.58 (Field, 2009). UWES (employee engagement) scores were normally distributed with a skewness of -0.300 (*SE* = 0.170), z = -1.76 and a kurtosis of -0.590 (*SE* = 0.338), z = -1.75. WIS (incivility) scores were not normally distributed with a skewness of 1.753 (*SE* = 0.170), z = 10.81 and a kurtosis of 3.991 (*SE* = 0.338), z = 11.81.

The use of parametric tests assumes normality of the data to be used in the analysis. If the data are judged to have a non-normal distribution by visual or numerical interrogation, then a transformation may be used to improve normality (Vogt, 2007). In

the case of positively skewed data, a logarithmic transformation is recommended to reduce skewness (Black, 1999).

The WIS (incivility) scores had a positive skewness resulting from 18.5% (N=205) employees reporting no incivility (score of zero). Based on this observation, a WISLg10 transformation was applied to the WIS (incivility) scores to reduce the positive skewness. The normality of the transformed scores was assessed by the graphical and numerical methods previously described. WISLg10 (incivility) scores were determined to be normally distributed by visual inspection of the Normal Q-Q plot (see Figure 3). WISLg10 (incivility) scores were normally distributed with a skewness of -0.142 (*SE* = 0.170), z = 0.84 and a kurtosis of -0.722 (*SE* = 0.338), z = -2.14.

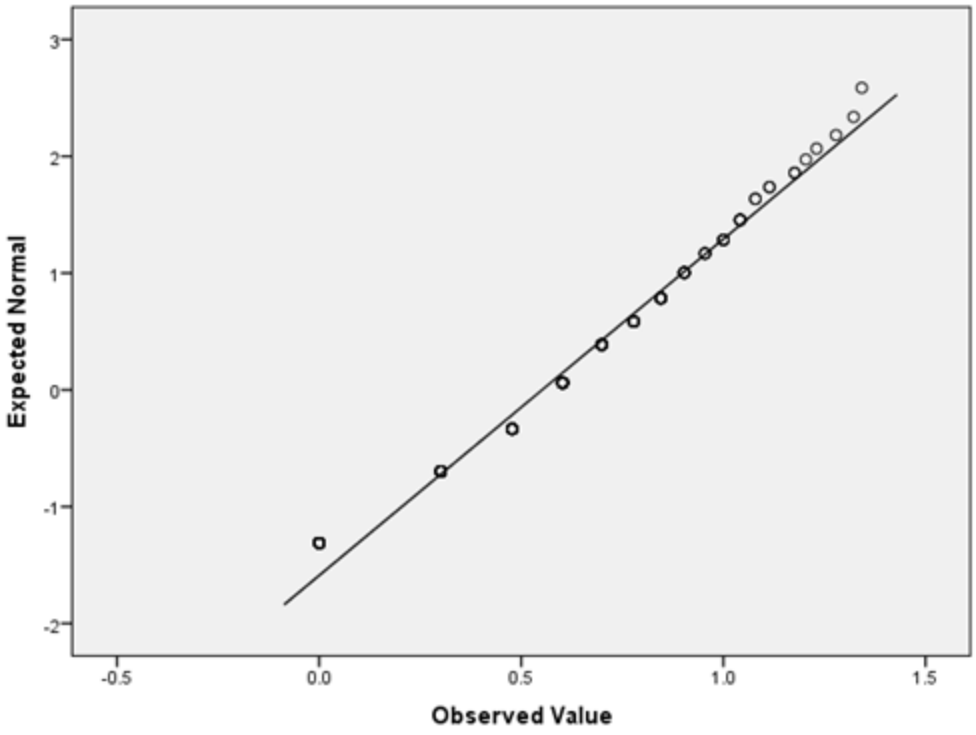

Figure 3: Normal Q-Q Plot of WIS Lg10.

Normality was also assessed statistically by the Shapiro-Wilk test, shown in Table 15. In this test, the study datasets were compared to normally distributed datasets of

scores with the same means and standard deviations (Field, 2009). Results from the Shapiro-Wilk test suggest that the WIS Lg10 and UWES data were not normally distributed because the p values for each variable was <.05, indicating that the null hypothesis statement (samples came from a normal distribution) should be rejected. According to Field (2009), Shapiro-Wilk test data should be interpreted with caution because this test can detect very small deviations from normal, particularly when the sample size is large. However, since statistical significance does not inform whether the deviation from normal is sufficient to bias any statistical procedures that may be applied to the test data, Field (2009) indicates normality assessments can be complemented with descriptive statistics (skewness and kurtosis) and graphical assessments (including histograms and Q-Q or P-P plots). Öztuna, Halil, and Tüccar (2006) reported that Shapiro-Wilk test works well if datasets contain unique values and that it doesn't work well when some values are duplicated in the data set. Frequencies reported in Tables 12 and 14 show that both variable datasets contained numerous non-unique values.

Table 15
Shapiro-Wilk Test of Normality

Variable	Statistic	Df	Sig.
UWES	.955	205	.000
WIS Lg10	.943	205	.000

Research question 2 and hypothesis. What is the nature of the relationship between being a target of workplace incivility and employee engagement?

$H1_a$: There is a negative relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H1_0$: There is no negative relationship between workplace incivility and employee engagement in the pharmaceutical industry.

The Pearson *r* is a measure of the linear relationship between two variables quantified on interval scales (Steinberg, 2011). The Pearson's correlations (bivariate analysis) were computed to examine the strength and the direction of the relationships between the study variables workplace incivility (WISLg10 score and employee engagement (UWES mean score) to address the second research question.

Preliminary analyzes showed the relationship to be linear with both variables normally distributed, as assessed by examination of normal Q-Q and histogram plots; examination of kurtosis and skewness values, and there were no outliers. Correlation coefficients can range from -1.00 to +1.00, where 0 indicates no relationship, +1.00 indicates a perfect positive relationship, and -1.00 suggests a perfect negative relationship (Steinberg, 2011). According to Field (2009), correlation coefficients ±.10, ±.30, and ±.50 are indicative of small, medium/moderate, and large/strong correlations, respectively.

Table 16 contains the bivariate correlation coefficients (Pearson *r*). There was a moderate negative correlation between being a target of incivility and employee engagement, $r\ (205) = -.270$, $p < .001$, with being a target of incivility explaining 7% of the variation in employee engagement. Further, the engagement subscales of vigor, dedication, and absorption were negatively correlated with being a target of incivility ($p<.05$). Since there was a statistically significant relationship between being a target of incivility and workplace engagement, the researcher can reject the null hypothesis and accept the alternative hypothesis.

Table 16
Means, Standard Deviations, and Correlations[a]

Variables	Mean	SD	1	2	3	4
1. Engagement[b]	4.5387	1.0329	1.000			
2. Incivility[c]	.5517	.3471	-.270**	1.000		
3. Education[d]	.53	.501	.179*	-.007	1.000	
4. Gender	.51	.501	-.017	-.091	-.133*	1.000

[a]n=205; [b]UWES Mean Score; [c] WIS Lg10 of Total Score; [d]Doctorate vs. all others
*p<.05; **p<.001; Two-tailed test

Power Calculation

Study power is the ability to reject the null hypothesis correctly when it is false (Steinberg, 2011). A power of 80% (.8) is accepted as sufficient for research studies. For the purpose of the power calculation, the alpha (one-tailed) value was set at 0.05. The Pearson *r* from the study was determined to be -.270 and the population size included 205 subjects. The power of the present study was calculated to be 99% (.99) using G*Power 3 (Faul et al., 2007).

Research question 3 and hypotheses. To what extent do higher education level and gender moderate the relationship between being a target of workplace incivility and employee engagement?

$H2_a$: Education level moderates the relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H2_0$: Education level does not moderate the relationship between workplace incivility and employee engagement in the pharmaceutical industry.

$H3_a$: Gender moderates the relationship between workplace incivility and employee engagement.

$H3_0$: Gender does not moderate the relationship between workplace incivility and employee engagement.

Hierarchical Regression Analysis

A hierarchical multiple regression analysis was run to predict employee engagement (UWES mean score) from being a target of incivility (WISLg10 Score, block 1); education level (52.7% doctorate vs. all other non-doctorate, block 2) and from gender (50.7% female, block 3). Regression is based on several assumptions about the data and variables being analyzed (Vogt, 2007) including: (1) independence of observations; (2) a linear relationship between the dependent variable and each of the independent variables, and the dependent variable and the independent variables collectively; (3) homoscedasticity; (4) the absence of multicollinearity; (5) the absence of significant unusual points; and (6) approximately normal distribution of residuals (Field, 2009). Relevant outputs in SPSS facilitated testing of each of these six assumptions.

The first assumption for hierarchical multiple regression is the independence of observations. The Durbin-Watson test was used to evaluate the independence of observations. This test examines 1st-order autocorrelation, whereby adjacent observations are correlated and not independent. The Durbin-Watson statistic can vary from 0 to 4 where a value of 2 indicates that there is no correlation between residuals (Field, 2009). For the present study, there was independence of residuals, as assessed by a Durbin-Watson statistic of 1.668. Thus, the observations were judged to be independent.

The second assumption of hierarchical multiple regression analysis is that the independent variables, collectively and independently are linearly related to the dependent variable. Linear relatedness was assessed by plotting the studentized residuals vs. the predicted values (unstandardized) and examining the partial regression plots (see

Figure 4). The observations were judged to be linearly related to the dependent variable, as the studentized residuals formed a horizontal band when plotted vs. the unstandardized predicted values.

The third assumption for hierarchical multiple regression is homoscedasticity, defined as the tendency to scatter in the same way (Vogt, 2007), relates to equality of variance in the data. Equality of variances was assessed by examining plots of studentized residuals vs. the unstandardized predicted values (see Figure 4). When the residuals are equally spread over the predicted values of the dependent variable, there is homogeneity of variance. If there is homoscedasticity, the spread of the residuals will not significantly increase or decrease the predicted values. The residuals were judged to be consistent, and the assumption of homoscedasticity was met.

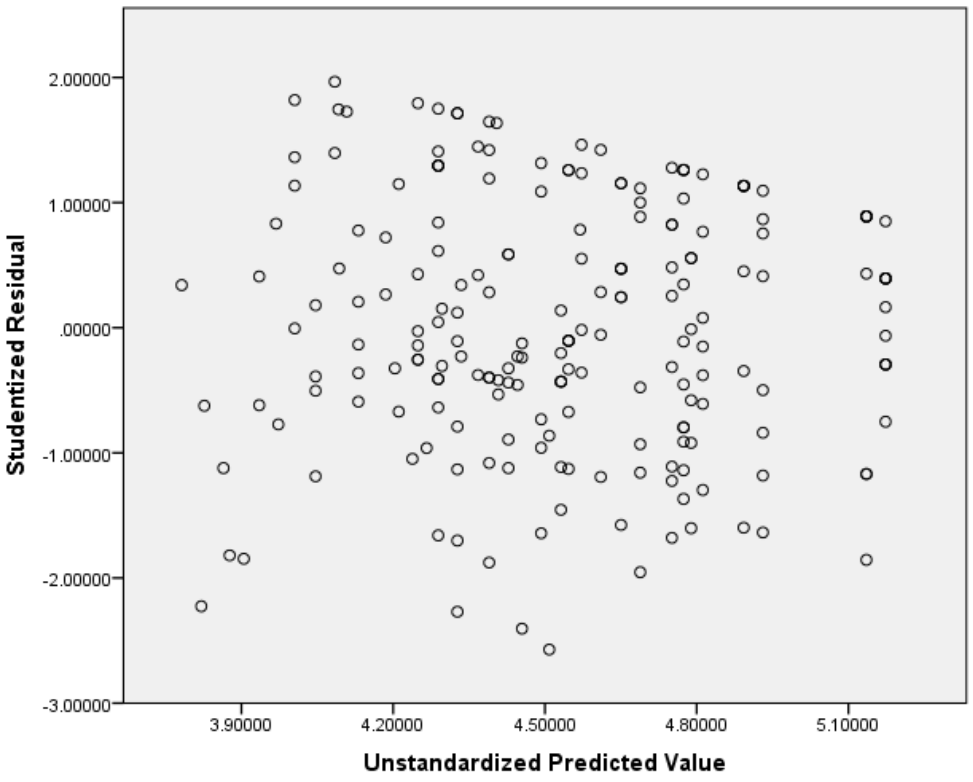

Figure 4: Plot of Studentized Residuals vs. Unstandardized Predicted Values.

The absence of multicollinearity is the fourth assumption for hierarchical multiple regression. Multicollinearity ensues when independent variables (two or more) are highly correlated with each other. The potential of multicollinearity was evaluated by inspection of correlation coefficients and Tolerance/VIF values from SPSS. Inspection of the correlation coefficients (see Table 16) revealed no correlations > 0.7 between independent variables, suggesting no multicollinearity. For the collinearity statistics (Tolerance (T) and VIF or 1/Tolerance), values of <.1 (T) and >10 (TIF) would suggest multicollinearity (Field, 2009). The values obtained for the present study (0.974 to 0.991 for T and 1.009 to 1.027 for TIF) suggest that there is no significant multicollinearity.

The fifth assumption for hierarchical multiple regression requires interrogation of the study data for presence of different types of unusual points that may be detrimental to the regression model fit. Outliers were assessed by examination of studentized deleted residuals and comparison to +/- 3 standard deviations. The standard deviations ranged from 1.981 to -2.609 and were judged acceptable. High leverage points were assessed using the following scale: <0.2 safe, 0.2 – 0.5 risky, >0.5 dangerous to model fit. The high leverage point values ranged from -0.008 to 0.032 and were judged safe. The highly influential points were assessed by the Cook's distance calculated in SPSS. If Cook's values are >1 than the data point should be investigated further and may be cause for concern (Field, 2009). The Cook's distances for the data ranged from 0.00 to 0.043 and were judged acceptable. The values examined for outliers, high leverage points and highly influential points suggested no unusual points that would negatively affect model fit.

The sixth assumption for hierarchical multiple regression is normality; assessed by visual interrogation of the Probability-Probability Plot (P-P Plot, see Figure 5). The points in the plot are aligned along the diagonal line suggesting normality.

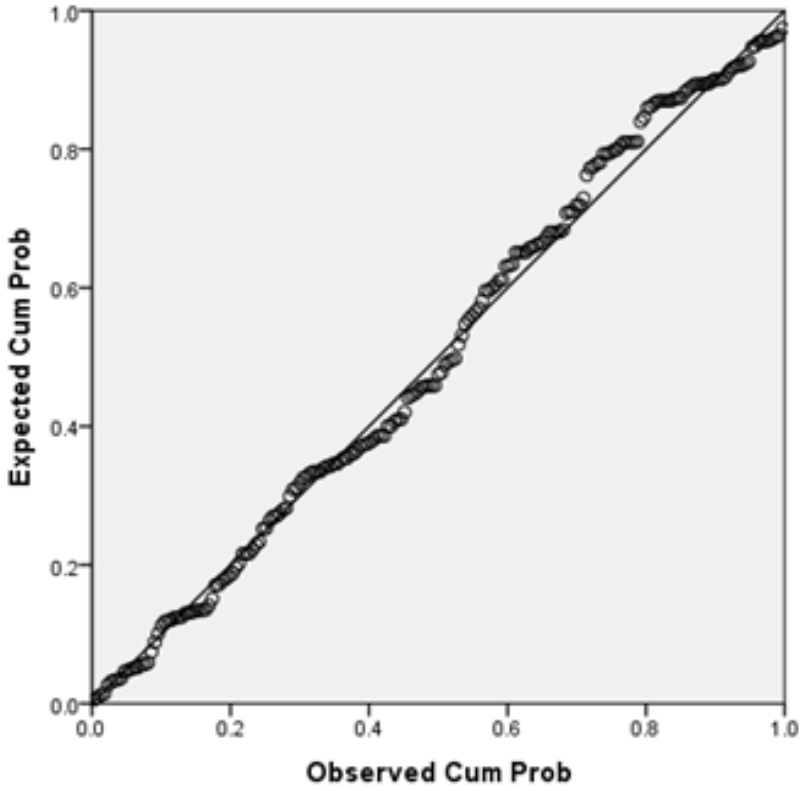

Figure 5: P-P Plot of UWES.

All six assumption for hierarchical multiple regression (independence of observations, linear relationship between dependent and independent variables, homoscedasticity, an absence of unusual points and multicollinearity, and normality of residuals) were met. This result supported the appropriateness of parametric statistical analysis and obviated the need to perform non-parametric statistical analysis. Thus, the Kendall's Tau and Mann-Whitney U tests were not performed.

A hierarchical multiple regression was run to determine if the addition of education level and the gender improved the prediction of engagement (UWES) over and

above incivility (WIS Lg10) alone. See Table 18 for full details on each regression model. Results of the regression yielded a statistically significant model $R^2 = .105$, $F(3,201) = 7.854$, $p<.0005$.

The analysis of variance (ANOVA) from the hierarchical regression analysis is depicted in Table 17. Model 1 containing the dependent variable (UWES score) and independent variable WIS Lg10 (block 1) was statistically significant ($p<.0005$). Model 2 containing the dependent variable (UWES score), WIS Lg10 (block 1) and Education (Doctorate vs. other, block 2) was statistically significant ($p<.0005$). The final model (Model 3) containing the dependent variable (UWES score), WIS Lg10 (block 1), Education (Doctorate vs. other, block 2) and Gender (block 3) was statistically significant ($p<.0005$).

Table 17
One-Way Analysis of Variance of UWES[a]

Model	*Df*	SS	MS	F	P
1					
Regression	1	15.90	15.90	16.001	.000[b]
Residual	203	201.76	.99		
Total	204	217.66			
2					
Regression	2	22.77	11.38	11.797	.000[c]
Residual	202	194.89	.97		
Total	204	217.66			
3					
Regression	3	22.84	7.61	7.854	.000[d]
Residual	201	194.82	.97		
Total	204	217.66			

Notes: [a]Dependent Variable: UWES, [b]Predictors: (Constant), WIS Lg10, [c]Predictors: (Constant), WIS Lg10, Education, [d]Predictors: (Constant), WIS LG10, Education, Gender

Regression coefficients can be found in Table 18. The results of the regression revealed that two of the three predictors explained 10.5% of the variation in employee engagement ($R^2 = .105$, $F(3,201) = 7.854$, $p<.0005$). It was found that incivility

significantly predicted employee engagement (B = -.806, p<.001), as well as moderator variable education (B = .361, p<.05). However, in Model 3, gender did not significantly predict employee engagement (B = -.038, p>.05).

Table 18
Hierarchical Multiple Regression Prediction of Engagement (UWES Mean Score) from Incivility (WIS Lg10), Education and Gender

	Engagement					
	Model 1		Model 2		Model 3	
Variable	B	Beta	B	Beta	B	Beta
Constant	4.982**	-	4.787**	-	4.8112**	-
Incivility[a]	-.804**	-.270**	-.801**	-.269**	-.806**	-.271**
Education[b]			.366*	.178*	.361*	.175*
Gender					-.038	-.018
R^2	.073		.105		.105	
R^2 Adj	.068		.096		.092	
F	16.001**		11.797**		7.854**	
ΔR^2	.073		.032		.000	
ΔF	16.001**		7.711*		.074	

Note: n = 205, *p<.05, **p<.001, B = unstandardized regression coefficient; Beta = standardized coefficient; [a]WIS LG10 Total Score, [b]UWES Mean Score

Table 19 contains a summary of the regression analysis. Examination of the unstandardized B values revealed that employees who experienced workplace incivility had engagement scores that were 0.806 points lower (p<.001) than those who did not experience incivility. Also, employees with a doctorate had work engagement scores that were 0.361 higher (p<.05) than those without a doctorate.

Table 19
Summary of Hierarchical Regression Analysis

Variable	B	95% CI	SE_B	Beta
Intercept	4.812	[4.469, 5.155]	.174	
WIS Lg10	-.806**	[-1.199, -.412]	.199	-.271**
Education	.361*	[0.087, .635]	.139	.175*
Gender	-.038	[-0.313, .237]	.139	-.018

Note. *p < .05; **p < .001; B = unstandardized regression coefficient; SE_B = Standard error of the coefficient; Beta = standardized coefficient

To answer Research Question 3 and test for moderating effects of education and gender, an analysis was conducted using the approach reported by Baron and Kenny (1986). According to Baron and Kenny (1986), the data were split, and a linear regression analysis was performed of WIS Lg10 vs. UWES with non-doctorate only, doctorate only, and non-doctorate and doctorate combined to obtain the unstandardized regression coefficients (see Table 20). A multiple linear regression was conducted using UWES vs. WIS Lg10 and the interaction term WIS Lg10*Education to test the null hypothesis that the regression coefficients for non-doctorates and doctorates were equal (H_0: B-non-doctorate = B-doctorate). To reduce the risk of collinearity, the WIS Lg10 was centered by subtracting the mean score from each data point. The WIS Lg10 centered data were multiplied by Education level to generate a new variable. In the resulting model, the WISLg10*Education interaction term was not significant (t=.049, p=.961). Therefore, the null hypothesis (H_0 = B-non-doctorate = B-doctorate) was not rejected indicating that education did not moderate the relationship between workplace incivility and employee engagement. The absence of a moderating effect is also supported by Figure 6.

Table 20
Regression Analysis of WIS Lg10 vs. UWES to Test for Moderating Effects

Variable	R^2	F	Constant	B	T
Non- Doctorate	.075	7.676*	4.793	-.811	-2.770*
Doctorate	.075	8.577*	5.149	-.791	-2.929*
Non-doctorate + Doctorate	.073	16.001***	4.982	-.804	-4.000***
Males	.051	5.331*	4.922	-.626	-2.309*
Female	.101	11.484**	5.052	-1.020	-3.389**
Males + Females	.073	16.001***	4.982	-.804	-4.000***

*p<.05, **p<.001, ***p<.0005

For gender, the data were split, and a linear regression analysis was performed of WIS Lg10 vs. UWES with males only, females only, and males and females combined to obtain the unstandardized regression coefficients (Table 20). A multiple linear regression was conducted using UWES vs. WIS Lg10 and the interaction term WIS Lg10*Gender to test the null hypothesis that the regression coefficients for males and females were equal (Ho: B females = B males). To reduce the risk of collinearity, the WIS Lg10 was centered by subtracting the mean score from each data point. The WIS Lg10 centered data were multiplied by Gender to generate a new variable. In the resulting model, the WIS Lg10*Gender interaction term was not significant (t = -.973, p = .332). Therefore, the null hypothesis (H_0: B females = B males) was not rejected indicating that gender did not moderate the relationship between workplace incivility and employee engagement. The absence of a moderating effect is also supported by Figure 7.

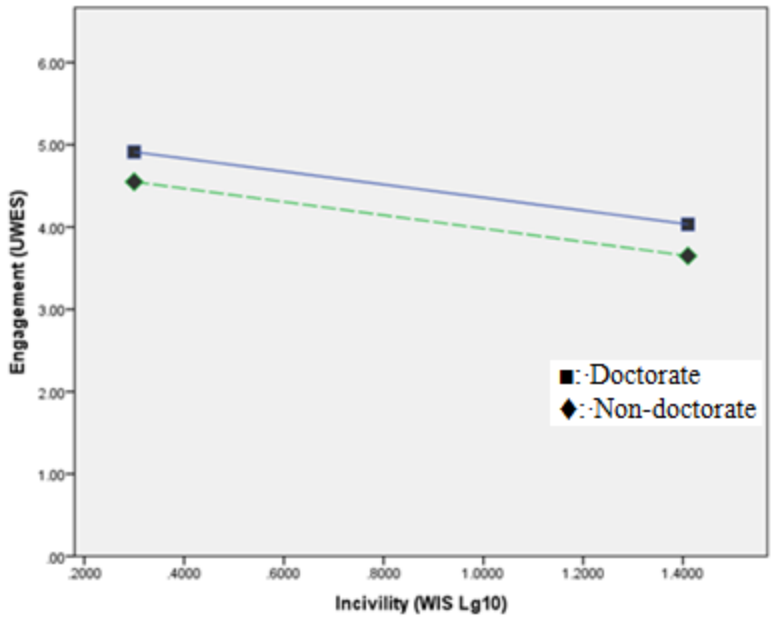

Figure 6: Plot of Regression Analysis of Doctorate vs. Non-Doctorate.

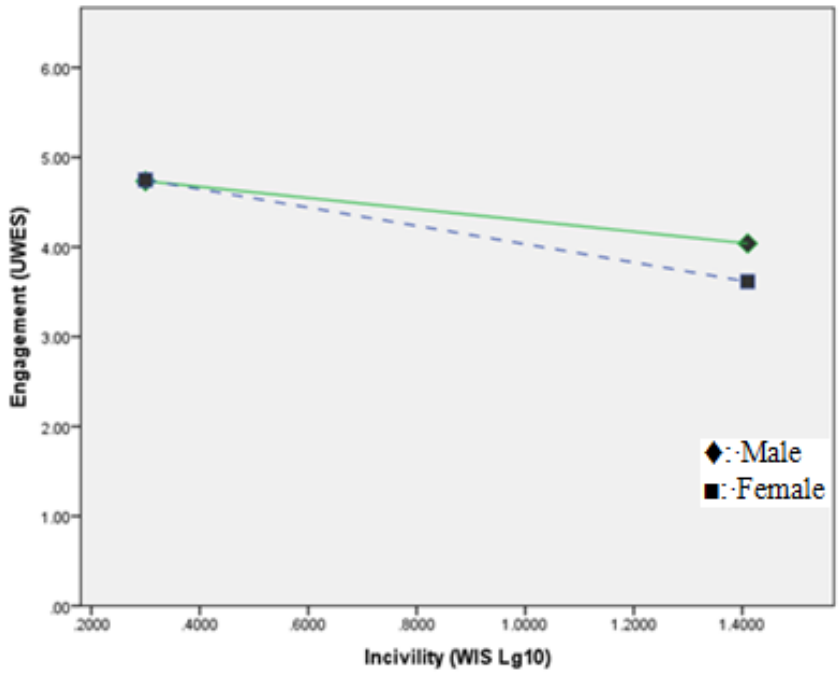

Figure 7: Plot of Regression Analysis of Males vs. Females.

Full model. The full model (Model 3) of Incivility (WIS Lg10), Education, and Gender to predict Engagement (UWES) was statistically significant R^2=.105, F(3,201)=7.854, p<.0005, adjusted R^2=.092. The full model obtained from the hierarchical multiple regression analysis has the following form:

Eq. 1 Engagement = 4.812 – .806 (Incivility) + .361 (Education) – 0.038 (Gender). This formula can be used to predict engagement in the pharmaceutical industry based on data on incivility, education, and gender. However, as this model only explained 10.5% of the variation in employee engagement, there are other variables not evaluated in the current study that may have a greater impact on employee engagement.

Summary

The researcher presented in this chapter a restatement of the study design and methods, data collection, a description of study population, reliability of the scales, results and statistical analysis corresponding to each research question. A descriptive

correlational design and purposive sampling method were used to collect data from employees of the pharmaceutical industry via a self-administered survey. The survey included two commonly used academic measures of workplace incivility (WIS) and engagement (UWES). The alpha coefficients for both measures were above .7, indicating good internal consistency and reliability.

Two hundred twenty-three (223) subjects responded to the survey and 205 valid responders, working for 21 different pharmaceutical companies, for an average of 14 years, were included in the analysis. The most common reported areas of research were Chemistry, Manufacturing, and Controls (29%), Clinical Development/Clinical Safety (23.9%), and Regulatory (23.9%). The majority of the study population attended college and more than half (52.7%) held a doctorate. Director or manager was the most prevalent role at 51.7%. Men and women were equally represented and the majority of the population was Caucasian (64.9%) in the 35 to 54-year age group (62%).

Data on the prevalence of incivility in the pharmaceutical industry were presented to address Research Question 1. The analysis revealed that 81.5% of employees reported experiencing some workplace incivility from their supervisors or coworkers in the previous year. More specifically, 68.3% of employees experience incivility rarely (once or twice a month), 10.8% experienced incivility sometimes, and 2.5% often endured uncivil behavior. The operational definition of prevalent incivility in this study was experiencing acts of incivility daily or weekly, and this would translate into an overall sum score of 21 or higher. Only 0.5% of the study population met the operational definition and experienced prevalent incivility. The operational definition of prevalent engagement was experiencing positive feelings about work on a daily or weekly basis,

and this translated into a mean score equal to four or greater. There were 72.2% employees who met the operational definition for experiencing prevalent engagement.

A hierarchical multiple regression was run to predict engagement (UWES score) from incivility (WIS Lg10), education, and gender. All six assumption for hierarchical multiple regression (independence of observations, linear relationship between dependent and independent variables, homoscedasticity, the absence of unusual points and multicollinearity, and normality of residuals) were met. These variables statistically significantly predicted engagement, R^2=.105, F(3,201) = 7.854, p<.005.

The analysis supports rejection of the null hypothesis and acceptance of the alternative hypothesis for Research Question 2: there is a negative relationship between workplace incivility and employee engagement in the pharmaceutical industry. An analysis was conducted using the approach reported by Baron and Kenny (1986) to test for moderating effects of education and gender. For Research Question 3, the null hypothesis cannot be rejected that education does not moderate the relationship between workplace incivility and employee engagement in the pharmaceutical industry as there was insufficient evidence for its rejection. The analysis also did not support rejection of the null hypothesis that gender does not moderate the relationship between workplace incivility and employee engagement. There was no interaction between incivility and education.

Chapter 5

Conclusions and Discussions

In Chapter 5, the researcher summarizes the results from the study within the parameters of the research questions and in relation to published literature, identifies limitations of the research and draws conclusions on the potential implications of the research for leadership and future research. The intent of this study was to address a knowledge gap identified from the literature review and respond to Yeung and Griffin's (2008) call for more empirical research on the role of incivility on performance in a knowledge-intensive industry requiring teamwork and collaboration.

The pharmaceutical industry is a knowledge-intensive industry (Liu, 2014) that relies on cross-functional project teams (Zeller, 2002) possessing specific knowledge in various scientific fields to create innovations and achieve competitive advantages (Pisano, 2006; Poh-Lin & Roth, 1999). Teamwork and knowledge sharing are essential to performing research (Campbell, 2000; Lilleoere & Hansen, 2011). Employee engagement has been reported as a success factor in enhancing research and development productivity in the pharmaceutical industry (Shuck & Wollard, 2010; Tollman et al., 2011). Defined as the voluntary enthusiasm and commitment to performing the very best work (Maylett & Nielsen, 2012), employee engagement, is expressed in a physical, cognitive, and emotional manners (Kahn, 1990).

Preliminary empirical data are supportive of a negative association of incivility with employee engagement (Chen et al., 2012; Reio & Sanders-Reio, 2011; Yeung & Griffin, 2008). Workplace incivility is deviant behavior of low intensity that violates workplace norms with uncertain resolve to harm the target (Andersson & Pearson, 1999).

The general problem is that incivility is prevalent in American business (Porath & Pearson, 2013) and recognized across industries (Trudel & Reio, 2011).

The specific problem is that the prevalence of incivility in the pharmaceutical industry and the potential relationship between incivility and engagement are unknown. This knowledge gap is problematic for leaders and managers in the pharmaceutical industry. When managers lack information on factors associated with desirable outcomes like engagement, they may make less than optimal decisions about motivating, retaining, and attracting talented employees (Bhuvanaiah & Raya, 2015). Productivity and competitiveness could be at stake.

Discussion of the Results with Relation to Literature

The study was designed to address three research questions and three hypotheses that tested the statistical correlational relationship of workplace incivility and employee engagement and the moderating effects of educational level and gender on the relationship between incivility and employee engagement.

Research question 1. What is the prevalence of workplace incivility in the pharmaceutical industry? The frequency that participants encountered incivility from their supervisor or coworkers during the past year was measured by a validated seven-item questionnaire (WIS). The analysis revealed that 81.5% of participants reported experiencing some workplace incivility in the previous year from either their supervisor or their coworkers; this is comparable to the extent of incivility reported by Trudel and Reio (2011) and Reio and Sanders-Reio (2011) in different populations (see Table 21). The remainder (18.5%) of the study participants experienced no incivility. Furthermore, 68.3% rarely (an average once a month or less) encountered uncivil behavior and 10.8%

experienced incivility sometimes (a few times a month). Finally, 2.5% of study participants reported enduring uncivil behavior often (once a week); this finding is 8 to 20-fold lower than results reported by Pearson and Porath (2005) in a US and a Canadian white-collar population, respectively.

Many investigators reporting data on incivility focus on the overall percentage of workers who experienced workplace incivility. However, this does not inform the prevalence of the incivility in a population as defined in this study. For example, evaluating the total number of incidents per year for a person experiencing incivility once a week would result in 52 occurrences over the course of a year. In contrast, a person who rarely experiences incivility (once a month or less) would have 12 or fewer events.

Incidences of incivility reported by investigators who assess workplace incivility and reported frequency of responses are shown in Table 21. The WIS is the most commonly used tool for measuring incivility (Kunkel, Carnevale, & Henderson, 2015); however, investigators have used modified versions of the instrument, applied different scoring, and used different recall periods. Thus, comparing results across studies was challenging. The researcher concluded that for Research Question 1, the overall incidence of incivility in the Pharmaceutical industry was generally comparable to published data. However, as only one responder (0.5%) met the study operational definition of prevalent incivility (experienced daily or weekly), the researcher concluded that the prevalence of incivility in this pharmaceutical industry population is low.

Table 21
Incidence of Workplace Incivility Described in Literature

Author	N	Population	Tool	Prevalence
Current 2016	205	Pharmaceutical Industry employees	WIS-7	• 18.5% none • 81.5% some • 68.3% once a month or less (rarely) • 10.8% a few time per month (sometimes) • 2.5% weekly (often)
Reio & Sanders-Reio, 2011	272	Computer services company employees	WIS-15	• 78% target of supervisor incivility • 81% target of incivility "a few times" in past year
Trudel & Reio, 2011	249	US companies in mid-west	WIS-7	• 86.2% experienced some form of incivility in the past year • 12.1% experienced incivility on a "sometimes" to "always" level of frequency
Pearson & Porath, 2005	800	Employees in US	Not reported	• 20% once/week
Pearson & Porath, 2005	126	Canadian white-collar workers	Not reported	• 25% observed incivility daily • 50% targets of incivility at least once per week
Yeung & Griffin, 2007	116,000	China, Hong Kong, India, Japan, Korea, and Singapore	WIS- 4	• 23% none • 46% low (once/twice/year) • 19% moderate (monthly) • 12% high (weekly)
Andersson & Pearson, 2001	1138	US Eighth Circuit Federal Courts system	WIS-7	• 71% experienced some incivility in 5 years

Research question 2. What is the nature of the relationship between being a target of workplace incivility and employee engagement? The UWES questionnaire, consisting of nine items, was used to measure employee engagement. The mean item scores ranged from 4.06 to 5.27. The calculated mean UWES-9 score was 4.54 with a standard deviation of 1.03 (n = 205). These results compare favorably to recently

published data from Ochalski (2015) in a United States Pharmaceutical and Healthcare population and Vincent-Hoper, Muser, and Janneck (2012) in a German scientific engineering field (see Table 22). Note, however, the mean score for work engagement in the Pharmaceutical industry was higher than results reported by Chen et al. (2012) in a population of technicians working for a large manufacturing company in China.

Table 22
Incidence of Work Engagement Described in Literature

Author	N	Population	Tool	Mean	SD
Current, 2016	205	• 100% Pharmaceutical • 100% R&D • 52.7% Doctorate • 50.7 % Female • USA	UWES-9	4.54	1.03
Ochalski, 2015	157	• 52% pharmaceutical 27% R&D • 7% Doctorate • 53% Female • USA	UWES-17	4.40	1.1
Chen et al., 2012	235	• Manufacturing technicians • China	UWES-9	3.35	.79
Vincent-Hoper et al., 2012	1032	• 55% Scientific and engineering • 45% different occupational areas • 47% Female • Germany	UWES-9	4.34	1.17
Denton, Newton, & Bower, 2008	326	• Dentists • With add. Qualifications • Without add. Qualifications • United Kingdom	UWES-17	3.8 4.1* 3.7	.80 .80 .80

Note: *p≤.01

Seventy-two percent (72.2%) of the study population met the operational definition for experiencing feelings of high engagement on a weekly or daily basis in the past year. Participants reported experiencing positive feels about work always (11.7%), often (60.5%), sometimes (21.5%), rarely (5.9%) and almost never (0.5%). There were

no responders who reported never experiencing work engagement. Furthermore, work engagement was higher in study participants who had a doctorate (4.71, with SD 1.00) compared to workers with all other degrees (4.34 with SD 1.04). Thus, work engagement results from this study appeared to be higher than those reported in published studies.

A recent survey of 1000 employees working in the life sciences industry revealed that approximately two-thirds of employees are positively engaged at work (66% in Pharmaceuticals, 69% in Biotechnology, 71% in Medical Devices, and 62% in Clinical Research Organizations, (ProClinical, 2016). Engagement in the United States (69%) was higher compared to that of Europe (66%) and Asia Pacific (64%). Data from ProClinical (2016) are comparable to data from the current study but very different from Gallup (2013) where only 13% of workers were engaged at work, and 63% were not engaged (lacking motivation and less likely to invest in organization goals or outcomes). Employee engagement varied by country or region; the highest level of engagement was reported in the U.S. and Canada (29% of workers engaged at work, 54% not engaged), followed by Australia and New Zealand (24% of workers engaged, 60% not engaged). East Asia, comprised of primarily Chinese workers was among the least engaged (6% engaged, 68% not engaged) in the world. Finally, results from the current study were very different from data presented on the Towers Perrin (2003) website where only 16% of respondents from pharmaceutical industry employees were highly engaged, 67% moderately engaged, and 17 % were disengaged.

The correlational aspect of Research Question 2 was examined by completing a Pearson *r* correlation analysis of being a target of workplace incivility to employee engagement. Table 16 contains the bivariate correlation coefficients (Pearson *r*). There

was a moderate negative correlation between being a target of incivility and employee engagement, r (205) = -.270, $p < .001$. Since there was a highly significant statistical relationship between being a target of incivility and workplace engagement, the researcher rejected the null hypothesis and accepted the alternative hypothesis that there is a negative relationship between workplace incivility and employee engagement in the pharmaceutical industry. However, being a target of incivility explained only 7% of the variation in employee engagement. Thus, there are other variables not evaluated in the current study that may have a greater impact on employee engagement.

The results from this study are comparable with those from Chen et al. (2012) and Reio and Sanders-Reio (2011). In a study of technicians working in a large manufacturing company in China, Chen et al. (2012) reported a negative correlation between being a target of incivility and workplace engagement, r (235) = -.26, $p < .01$. Reio and Sanders-Reio (2011) investigated supervisor and coworker incivility and workplace engagement (separate scales to assess meaningfulness, safety, and availability) in a computer sciences company in the United States. For incivility experienced from supervisors, there was a negative correlation with safety (r (272) = -.37, $p<.001$) and availability (r (272) = -.35, $p< .001$). For incivility experienced from coworkers, there was a negative correlation with safety (r (272) = -.45, $p<.001$) and availability (r (272) = -.32, $p< .01$). The negative correlation coefficients between supervisor and coworker incivility on meaningfulness were not significant ($p >.05$). Yeung and Griffin (2008) did not report correlational coefficients from their study.

Research question 3. To what extent do higher education level and gender moderate the relationship between being a target of workplace incivility and employee

engagement? A hierarchical multiple regression was run to predict engagement (UWES score) from incivility (WIS Lg10), education, and gender. All six assumption for hierarchical multiple regression (independence of observations, linear relationship between dependent and independent variables, homoscedasticity, the absence of unusual points and multicollinearity, and normality of residuals) were met. Thus, it was deemed appropriate to perform parametric, rather than non-parametric statistical analyzes. These variables statistically significantly predicted engagement, R^2=.105, F (3,201) = 7.854, p<.0005. In the model, there were statistically significant main effects for the predictor variable of incivility (-.806, p < .001) and the moderator variable of education (.361, p<.05). The source of increase in engagement for participants with doctorate degrees is unclear. It may be driven by personal motivation to help patients as many participants may hold medical doctorate degrees. Alternatively, it may be because participants with higher education may hold roles with higher responsibility. These roles would provide greater sight and alignment with organizational goals to address unmet medical needs and provide patients with new treatment options. However, the main effect of the moderator variable of gender was not significant (-.038, p > .05).

The analysis was performed to test for the moderating effects of education and gender according to the method described by Baron and Kenny (1986). A multiple linear regression was conducted using UWES vs. WIS Lg10 and the interaction term WIS Lg10*Education to test the null hypothesis that the regression coefficients for non-doctorates and doctorates were equal (H_0: B-non-doctorate = B-doctorate). In the resulting analysis, the WISLg10*Education interaction term was not significant (t=.049, p=.961). Thus, there was insufficient evidence to reject the null hypothesis (H_0 = B-non-

doctorate = B-doctorate) indicating that education did not moderate the relationship between workplace incivility and employee engagement.

Denton, Newton, and Bower (2008) reported that dentists with more professional qualifications had statistically higher levels of work engagement ($p \leq .01$) than all other dentists. Furthermore, in a study of 28 nurses, Lawrence (2011) reported that there was no statistically significant correlation between nurse's education and engagement (-.03, $p > .05$). The mean engagement assessed by the UWES-17 was 4.0 (SD = .88).

A multiple linear regression was conducted using UWES vs. WIS Lg10 and the interaction term WIS Lg10*Gender to test the null hypothesis that the regression coefficients for males and females were equal (H_0: B females = B males). In the resulting analysis, the WIS Lg10*Gender interaction term was not significant ($t = -.973$, $p = .332$). Thus, there was insufficient evidence to reject the null hypothesis (H_0: B females = B males) indicating that gender did not moderate the relationship between workplace incivility and employee engagement.

This finding is surprising based on published literature. Cortina et al. (2001) and Pearson and Porath (2009) reported that women are more likely to be targets of incivility and mistreatment than men. Lim et al. (2008) found that workplace incivility was associated with a lower supervisor, coworker, and work satisfaction but that the effects of incivility did not differ by gender. Loi, Loh, and Hine (2015) confirmed that women are predisposed to being targets of incivility, that they have high levels of tolerance for workplace incivility, and that they do not withdraw from work in response to uncivil behavior at work. The higher tolerance of workplace incivility by female participants may help to explain the unexpected finding.

Denton, Newton, and Bower (2008) found that work engagement in male and female dentists working in the United Kingdom was similar. This finding is consistent with outcomes presented in the Blessing White 2013 Report that gender is not an important factor of engagement in western countries (Blessing White, 2013). There are however differences in engagement reported between men and women in India, Gulf Cooperation Council, and South America. In contrast, Vincent-Hoper et al. (2012) investigated the mediation effect of work engagement between transformational leadership and subjective occupational success in men and women. In this study, women had a stronger mediation effect than men ($p=.021$) and there was sufficient evidence to reject the null hypothesis.

The researcher identified a model (Model 3) that could be used to predict work engagement in the pharmaceutical industry based on incivility, education, and gender. However, based on the model and the R^2, the test variables only explained 10.5% of the variation with employee engagement. Thus, there are other variables not evaluated in the current study that may have a greater impact on employee engagement such as employee resilience and management leadership style.

Implication of Research

The intent of this study was (1) to address a knowledge gap identified from the literature review regarding the prevalence of workplace incivility and the potential relationship between being the target of incivility and employee engagement and (2) to respond to Yeung and Griffin's (2008) call for more empirical research on the role of incivility on performance in a knowledge intensive industry requiring teamwork and collaboration. This study substantiated the existence of workplace incivility in the United

States-based pharmaceutical industry and provided empirical evidence of a negative correlational relationship between workplace incivility and employee engagement in this setting. Thus, HR practitioners, in the pharmaceutical industry should build an awareness of the phenomenon of workplace incivility by educating managers at all levels and team leaders about costly implications of incivility for employees and the organization.

A recent study by Sharifirad (2016, p. 200) revealed that incivility can repress creative performance of teams by hindering knowledge sharing ($p<.01$); that a collaborative and trusting climate can mitigate negative effects of supervisor's incivility within teams ($p<.05$). Training programs designed to recognize signs of workplace incivility, exercise zero tolerance, and provide guidance on how to create a civil and inclusive work environment should be developed. Finally, HR practitioners should encourage open communication about perceived acts of incivility and help employees to refocus from feelings of injustice to cognitive learning in areas of development and to work with a mentor (Porath, 2016). Managers should reflect on their actions, model good behavior, and request feedback (Porath & Pearson, 2013). Through systematic awareness and early intervention, organizational leaders and managers may curtail incivility (Pearson et al., 2001) and preclude spiral into increasing and intensifying forms of aggressive behavior (Andersson & Pearson, 1999).

Second, results from this study suggest that workplace incivility is low and that employee engagement is high in the United States-based pharmaceutical industry compared to results from published studies. Seventy-two percent (72.2%) of the study population reported experiencing feelings of high engagement on a weekly or daily basis in the past year. Work engagement is a concept of critical importance in the

pharmaceutical industry as it is the bedrock of innovations and competitive advantages (Pisano, 2006; Poh-Lin & Roth, 1999). Over the past decade, many pharmaceutical companies have implemented engagement programs aimed at boosting productivity and driving innovation (Catteeuw et al., 2007; Corace, 2007). The investments appear to be paying off for some companies. Munos (2016) assessed innovation of the pharmaceutical industry based on a "freshness index" (sales from recently approved medicines as a proxy for public health impact of the medications) and concluded that Johnson & Johnson and Bristol-Myers Squibb are the two most innovative pharmaceutical companies.

Since results from this study suggest that 23% of employees are not fully engaged, efforts to increase employee engagement in the pharmaceutical industry should be continued. According to Kusuma and Sukanya (2013), communication, career opportunities, leadership competencies, and performance management are four strategies that can be used to enhance employee engagement. However, Bersin (2015) posits that new approaches are needed as the balance of power has shifted from employers to employees and the competition for human capital is fierce. Specifically, Bersin (2015) recommends leaders adopt a model that encompasses five elements (meaningful work, hands-on management, positive work environment, growth opportunity, and trust in leadership) and 20 specific practices. Furthermore, he recommends the development of tools for continuous monitor information from employees on potential factors contributing to low engagement. Finally, he recommends elevation of employee engagement to a core business strategy.

Limitations

First, because this was a correlation design study, the results research cannot inform causality (Rumrill, 2004). Second, this study used a self-reported cross-sectional survey. A single administration of the questionnaires may only represent feelings and perspectives on that day and may not be extrapolated. Surveys have well-known advantages in that they allow collection of data from multiple individuals in a convenient fashion using tools that have shown to be useful empirically (Creswell, 2009). A third limitation was the diversity of participants with respect to employers. Although participants worked for a total of 21 different pharmaceutical companies, the majority of the participants reported working at Bristol-Myers Squibb (42%) and Janssen and Johnson & Johnson (43.9%). The final limitation was that one potential response option, "very often, a few times a week" was inadvertently omitting from the study survey of the UWES. This omission is expected to have a negligible effect based on findings from Matell and Jacoby (1972) who indicated that 6-points and a 7-points Likert scale are optimal.

Recommendations for Future Research

It would be valuable to replicate the findings from this study and to expand the study population in the next study to employees working in the United States and others working outside of the United States. Employee engagement is essential to employee and organizational success. Thus, further research is needed on positive drivers of employee engagement in a knowledge intensive industry requiring teamwork and collaboration, potential implications of the changing demographics of the workforce, and deployment of different strategies to address generational differences.

Conclusion

The intent of this study was to address a knowledge gap identified from the literature review and respond to Yeung and Griffin's (2008) call for more empirical research on the role of incivility on performance in a knowledge-intensive industry requiring teamwork and collaboration. This quantitative descriptive correlational study examined the prevalence of workplace incivility in United States-based pharmaceutical companies and the potential relationship between being a target of incivility and the level of employee engagement.

The prevalence of workplace incivility was low; only 0.5% of the study population experienced incivility daily or weekly. In contrast, the prevalence of employees experiencing positive feelings about work on a daily or weekly basis was high (72.2%). There was a moderate negative correlation between being a target of incivility and employee engagement. Being a target of workplace incivility explained only 7% of the variation in employee engagement. Thus, future research should focus on other variables (e.g., meaningful work, growth opportunities, or trust of leadership) that may have a greater impact on employee engagement. Education and gender did not moderate the relationship between workplace incivility and employee engagement.

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Appendix A

General Demographic Information

1. The following pharmaceutical company is my employer: _____.
2. How many years have you worked for the company? _____.
3. Do you work in research in development?
    a. Yes
    b. No
4. Do you work in the United States?
    a. Yes
    b. No
5. What is your position in the company?
    a. Senior executive (President, Vice-President, Senior Director)
    b. Director or Manager
    c. Supervisor or Foreman
    d. Specialist or Professional (individual contributor)
    e. Non-management salaried
6. What area of Research & Development/Functional Department do you work in?
    a. Discovery
    b. Drug Safety/Toxicology
    c. Chemistry, Manufacturing, and Controls
    d. Clinical Development/Clinical Safety
    e. Regulatory
    f. Other

7. What is your gender?
    a. Male
    b. Female
8. What race do you most identify with?
    a. Caucasian
    b. African American
    c. Hispanic/Latino
    d. Asian
    e. Indian (India)
    f. Other
9. What is your highest level of education completed (degree obtained)?
    a. High School
    b. Associate Degree
    c. Bachelor of Science/Art
    d. Master of Science/Art/Business Administration
    e. Doctor of Philosophy (Ph.D.), Doctor of Veterinary Medicine (D.V.M.), Doctor of Pharmacy (Pharm.D.), Medical Doctor (M.D.)/Doctor of Osteopathy (D.O.),
10. What age group do you belong?
    a. 18 to 25 years
    b. 26 to 34 years
    c. 35 to 54 years
    d. 55 years and older