THE ROLE OF GENDER AND RISK PERCEPTION AMONG POLICE OFFICERS: GENERAL LIFESTYLE RISKS AND OCCUPATION-SPECIFIC RISKS

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ABSTRACT

THE ROLE OF GENDER AND RISK PERCEPTION AMONG POLICE OFFICERS: GENERAL LIFESTYLE RISKS AND OCCUPATION-SPECIFIC RISKS

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The role of gender has been shown to be important in numerous academic fields. This is the case for the study of risk perception and the study of policing. Within the risk perception literature, it has been consistently found that women tend to perceive higher levels of risks compared to men. Similar results remain even when factors such as education and knowledge are controlled for; such as examining specific occupation groups such as scientists, where a gendered driven risk perception gap still exists. The effect of gender is less consistent when examining police officers' behavior. However, there is a noticeable lack of studies that focus on the study of risk perception among police officers with an emphasis on gender effect. Thus, this research is an attempt to bridge the gaps between the two fields via the investigation of whether gender difference in risk perception occurs within one particular occupation – police officers. Two police departments from a city in the Mid-West were selected for this study. Surveys, both by paper and electronically, were administered to the departments. The survey examined officers' perception of risk in relation to work related hazards and hazards encountered in daily civilian life and related factors (such as worldviews). The survey was adapted from previous studies on risk perception and the "White Male Effect". The results of the research will expand existing literature from a theoretical and practical viewpoint: theoretically, it will expand the knowledge on how risk perception is viewed in occupational groups working under a higher-risk environment and the role that gender plays in this process. Practically, it will provide new information to aid policing agencies in addressing potential gender gap in risk perception related to work activities.

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Chapter 1

Thesis Overview

This thesis project examines the connection of gender to police officers' risk perception. In this chapter, I will provide a broad overview of the concepts and theories that inform this work from three distinct bodies of literature: 1) sex and gender, 2) risk and risk perception, and 3) policing. Furthermore, I will examine the extent that these concepts have been studied in conjunction with each other. Finally, I will provide a description of my research methodology, and study area.

Chapter 2 of the thesis is an article that will be submitted for publication. Within the article, there is a more specific discussion of the theoretical background of the study than found in Chapter 1, an analysis of the survey data collected, practical and theoretical implications of the work, and suggestions for future research directions. The thesis closes with Chapter 3, which is a self-reflection on the research process.

Introduction

The effect of gender has been shown to be important in various fields. Particularly, the effect of gender has been examined in the field of risk perception (Baldassare & Katz, 1992; Bazley, Lersch, & Mieczkowski, 2007; Cutter, Tiefenbacher, & Solecki, 1992; Finucane, Slovic, Mertz, Flynn, & Satterfield, 2000; Van Liere & Dunlap, 1980), and policing (DeJong, 2004; Maguire & Nolan, 2011; Rabe-Hemp, 2008; Savage, 1993; Schuck & Rabe-Hemp, 2005; Sjoberg, 2003; Sun, 2007). The risk perception literature has consistently found that females perceive higher risk compared to males (Barke, Jenkins-Smith, & Slovic, 1997; Slovic, Trust,

Emotion, Sex, Politics, and Science: Surveying the Risk-Assessment Battlefield, 1999). The effect of gender on policing and police behavior is less consistent across various police officers' behavior (DeJong, 2004; Rabe-Hemp, 2008; Riksheim & Chermak, 1993).

The importance of gender difference in risk perception can be profound due to gender's potential to alter and influence one's behavior. Brody (1984) found that women show a lower level of support to nuclear power is due to their greater concerns about the safety of nuclear power plants, both at a general level and within local communities. Baldassare and Katz (1992) found that the most significant predictor of environmental actions is perceived personal threats, which women tended to view as more serious than men. Applying this finding and concept to policing, it can provide some insight as to how officers' risk perception can affect how they react to specific situations. Although situational factors play an influential role on officers' behavior, the importance of individual-level factors has also been acknowledged (Riksheim & Chermak, 1993).

Despite the influence gender has on behavior, there is a noticeable lack of studies that focus on the study of risk perception among police officers with an emphasis on the role of gender. Recent policing studies have also included the examination of risk within the field of policing, but with a central focus on the application of risk management at the organizational level (Heaton, 2010). Risk perception processes, which function at a micro-level, are less of a focus in the policing literature. Thus, the proposed research will investigate whether the gender difference commonly found in risk perception literature occurs within one particular occupation – police officers.

Sex and Gender

"Gender" and "sex", although commonly used interchangeably, has specific definitions in the field of psychology (Stoller, 1974). Sex is defined based on one's biology and physiology, such as the sex chromosomes and secondary sex characteristics. Gender, on the other hand, is defined based on one's social and cultural experiences. When one is categorized as a male or female, it is referring to their sex. When one is described as being more masculine or feminine, it is referring to their gender (Delphy, 1993; Unger, 1979). The distinction was made in attempts to understand cross-gender individuals (Stoller, 1974). Unger (1979) later emphasized on using the term "gender" to "… reduce assumed parallels between biological and psychological sex or at least to make explicit assumptions of such parallels." (p. 1086). Although the distinction between gender and sex appears to be quite straightforward, the true dynamics between the two concepts are far more complicated.

Since the distinction was made between the terms "sex" and "gender", there has been a debate on the relationship between the two concepts. The commonly held assumption is that gender is a result of one's sex (Delphy, 1993; Unger, 1979). The underlying logic of the assumption is that one's biological sex is natural and unchangeable, and thus it acts as a stimulus variable, which in turn influences one's sociocultural experiences. One's responses and internalization of these experiences then result in the formation of one's gender identity. Gender identity is one's views on the properties that correspond either to being masculine, feminine, or androgynous (Delphy, 1993; Unger, 1979). Recent argument to rethink this assumption of order between sex and gender has been made. Delphy (1993) argued that gender actually precedes sex. Her arguments mainly proposed that the concept of gender is another social method of creating hierarchy and division of labors, and that the dichotomy of sex is simply a label for the

hierarchy. Generally, the main distinction between sex and gender still circle around biological and sociocultural differences.

The dynamic between sex and gender is perceived as being correlated when examined as a factor in risk and risk analysis studies. Explanations proposed on the differences between males and females have been gender-related. Gender roles were one of the proposed explanations for the differences in risk perception between males and females (Brody, 1984; Gustafson, 1998). Females are viewed as nurturers and are more likely to value the safety of other individuals and human lives in general. Thus, females tend to see greater risks and have greater worries about these risks. Males, on the other hand, tend to value economic growth and thus perceive less risk in regards to environmental concerns. Another explanation of the gender difference in risk perception is the authority and power between men and women (Finucane et al., 2000; Flynn et al., 1994; Gustafson, 1998). Men are more likely to be involved in realms such as politics and education, which in turn allows them to attain greater power. Thus, they tend to see fewer risks and have less concern about risk. This explanation is highly related to the "White Male Effect", which also suggests sociopolitical factors rather than biological factors to be the cause of differences in risk perception (Flynn et al., 1994).

It has also been suggested that gender differences from studies in risk perception are due to research design (Cutter et al., 1992; Gustafson, 1998). The main issue lies in the interpretation of the word "risk". Gustafson (1998) suggested that females and males might have different conceptualizations of risks. Cutter and colleagues (1992) recommended that gender orientation of activities and situations used to measure risk perception should be taken into consideration. In general, all of the explanations for differences between men and women are mainly based on sociocultural variation rather than biological dichotomy. However, the instruments used in the

measurement of gender have relied on the self-identification of participants as "men" or "women" (Finucane et al., 2000; Flynn et al., 1994). Thus, it is safe to conclude that there is an assumed dynamic between sex and gender in risk and risk analysis studies that recognizes the difference between the two ideas. Attempts to incorporate the influence of each to some degree have also been made.

Risk and Risk Perception

Definitions of risk, and risk perception, have been provided from a wide spectrum ranging from broad points of views to more specific and discipline related definitions (Fischhoff, Watson, & Hope, 1984; Kelman, 2003). The cause of the disagreement centers on the subjectivity of risks, the complex dimensions of risks, and the quantification of risks (Fischhoff et al., 1984; Slovic, 1999). For example, scholars distinguish risk as a socially constructed concept, whereas danger is real and practical. Thus, it implies the lack of objectivity in risks as whoever is in control of the society can easily manipulate what constitutes as risks (Slovic, 1999). In other words, it is almost impossible to construct what is known as objective risk because of factors such as politics and culture in a society. Although it is assumed that risks, as assessed by experts, appeared to be more objective, it is not the case. The similarity between experts' and laypersons' perception and assessment of risks lies in the systematic processes applied, and the difference lies in the actual processes selected (Fischhoff et al., 1984; Slovic, 1999). Thus, it is argued that there may not be true objective risks.

Similar to the dimensions of risks discussed above, the debate on the quantification of risk stems from the wide applications of risk and risk assessment on various topics and fields rather than in conceptual definitions. When assessing or measuring risks, the focus tends to lean

more toward specific potential consequences that the topic of interest (i.e. technology, an event) can bring, rather than the potential benefits. Some scholars suggested clarification and a more well-rounded consideration should be made when assessing and measuring risks, with a focus on negatives and benefits (Fischhoff et al., 1984). Quantifying risks poses similar difficulties in the method and wordings of the risks itself, and its relevant benefits and consequences (Fischhoff et al., 1984; Slovic, 1999). The potential influence of administration methods and wordings can illicit varying responses from participants. What one participant or one group of participants may see as a benefit may not translate over to another individual or group of participant.

Nonetheless, definitions of risk contain three components (probability, exposure, and outcome of exposure), commonly expressed formulaically as risk = likelihood x consequence. The first addresses the possibility of an occurrence, which can be an event, a hazard, or a loss. The second attends to the potential outcomes if the occurrence does happen; potential outcomes can be either positive or negative (Kelman, 2003). It is important to note that both aspects of the risk formula imply uncertainty in terms of the possibility of exposure and the potential outcomes. On the other hand, scholars defined risk perceptions as "intuitive risk judgment" (Slovic, 1987, p. 280). In other words, it is an individual's initial response to a risk, which is often not based on the complete risk equation.

In the field of risk and risk perception, studies have consistently found that systematic gender differences occur in how risk is perceived. Gender differences are found when examining risks in general, or when examining specific components of risk. The risks that have been examined include daily activities, accidents, environmental risks and concerns, and advanced technology. The samples of most studies are diverse in terms of age, income, race, education, and mainly drawn from metropolitan areas (Baldassare & Katz, 1992; Cutter et al., 1992;

Savage, 1993). Despite variance in the significant of difference across studies, gender difference is consistently found across different types of risks. The robustness of this effect is demonstrated by gender difference in risk perception still being present among practitioners in highly technical fields (such as chemistry) concerning hazards that affect that field (Barke et al., 1997; Slovic, Malmfors, Mertz, Neil, & Purchase, 1997). Consistently, studies have shown that men tend to perceive less risk from an array of hazards, activities and technology, when compared to women.

Factors affecting Risk and Risk Perception

Trust

In addition to the conceptual issues discussed above, risk research has identified variables that have an effect on risk and risk perceptions. Slovic (1999) has listed factors that need to be considered when measuring and assessing risks. These factors include trust, emotion, sex, and worldviews. Trust is measured in terms of confidence toward authorities. The authorities tend to vary depending on the topic of interest. Siegrist and Cvetkovich (2000) found that trust toward authorities significantly and negatively correlates with risk perception. The effect became more prominent when controlling for one's knowledge about the risks in questions. In other words, trust in authorities become more prominent under the situations where one lacks knowledge on a specific risk. A re-examination of three studies on food technologies from the United Kingdom found that the association between trust and perceived risk is mediated by an individual's acceptance of the technology (Eiser, Miles, & Frewer, 2002). It reasonably follows that the association between trust and risk perception does exist, although the strength and dynamics of the association are not simple or straightforward. However, an emphasis is placed on the

inequality between trust and distrust in terms of its manifestation and affect on an individual's responses to risk.

Worldviews

The definition of worldviews was derived from the concept of social relations in culture theory, which reflects the types of interpersonal relationships prevalent within a culture (Dake, 1991). Although initially measured as an aggregate variable, social relations is suggested to be the source of influence on an individual's view of the world and identities (Dake, 1992). Thus, research on worldviews and risk perception has operationalized worldviews in terms of the various forms of social relations. There are four basic forms of worldviews: hierarchical, fatalistic, individualistic, and egalitarian. The hierarchical worldviews endorsed rank and order. Authority resides in individuals of higher rank, and obedience is expected from individuals of lower rank. Egalitarian worldviews are quite the opposite from hierarchical. It emphasizes on equality among individuals. Individualistic worldviews valued individual rights and autonomy, but allow acceptance of authorities in matters that infringe on rights and autonomy. Fatalistic worldviews are more isolated and tend to focus on individuals rather than groups (Dake, 1991).

In a study on the relationship between social relations and risk perception, Dake (1991) has found differences in societal concerns among different worldviews. In general, egalitarianism correlated positively with items measuring societal concerns whereas the correlation of hierarchy and individualism was less consistent. In terms of technology and environment, the difference is more drastic. Moderate positive correlation was found among egalitarianism and technological and environmental danger, while moderate negative correlation was found between hierarchy and individualism. Peters and Slovic's later research (1996), focusing on the effect of worldviews and affect on risk perception, replicated these results. The

study examined different risks such as health, technological, and environmental health risks. Specifically, Peters and Slovic (1996) examined the role of affect (the feeling or experience of emotions) and worldviews on support toward nuclear power, and found interactions between the two factors. The consistency in results illustrates the importance of worldviews in how an individual responds to risks.

Optimistic Bias

Another variable shown to affect risk perception is optimism. Optimism, or optimistic bias, is when one unrealistically perceives oneself as having lower risk than others (Weinstein, 1987). Several factors, such as egocentrism and perceived controllability, have been proposed as the cause of optimistic bias. In a study examining the relationship between optimism and health problems, Weinstein (1987) discovered that participants had optimistic bias when asked about their risks of 32 hazards. When examining the effects of optimism on health risks with emphasis on sexually transmitted diseases, a significant association was found but the strength of the association was moderate (Van der Velde, Hooykaas, & Van der Pligt, 1992). Similar results are seen among college-aged individuals and their perception of traffic accident risk (DeJoy, 1989). The results of these findings are consistent with the potential effects of optimism on one's risk perception.

Policing

Historically, women have often been viewed as nurturers and caretakers (Garcia, 2003). Occupations such as education and social work have been the traditional professional home of females, whereas fields such as engineering and politics were dominated by males. Interestingly, females have had a long history within the criminal justice field, compared to other male-

dominated fields. For instance, females have been assigned to positions such as prison guards for females in custody or female prisoners (Brown & Heidensohn, 2000; Wells & Alt, 2005). Eventually, females were hired into the police field, but without any arrest power at first. Most often, these females had secretarial duties or duties involving women and children. In the post-Civil War era, women were hired as "police matrons" that involved duties similar to that of a probation officer today (Wells & Alt, 2005). The first policewoman was introduced into the policing field in 1910, and the first female Police Chief was appointed in 1914 in the United States. Similar patterns occurred in European countries during the same time period (Brown & Heidensohn, 2000).

However, women are still one of the minority groups in police organizations. Individuals in a minority group often face more obstacles in their career paths than individuals of the majority group. Sexism, harassment, discrimination, and higher stress levels are not uncommon among policewomen (Brown & Heidensohn, 2000; Burke & Mikkelsen, 2005; Greene & del Carmen, 2002; Morash, Kwak, & Haarr, Gender Differences in the Predictors of Police Stress, 2006; Wells & Alt, 2005). Studies have also focused on examining differences in behavior and attitudes between female and male police officers (Gerber, 1996; Greene & del Carmen, 2002; Hoffman & Hickey, Use of Force by Female Police Officers, 2005; Poteyeva & Sun, 2009). Gender differences can occur in various aspects of a police officers' work – attitudes, stress levels, use of force, perceptions of certain types of crimes and so forth. More recent studies on gender and police behavior have found gender differences in police behaviors ranging from the use of force to comforting behaviors toward victims (Bazley et al., 2007; DeJong, 2004; Maguire & Nolan, 2011; Rabe-Hemp, 2008; Schuck & Rabe-Hemp, 2005; Sun, 2007). In general, the effect of gender varies among different police officers' behavior and attitude.

Research Objectives and Hypotheses

Given the relative lack of occupation-specific risk perception study, the proposed descriptive research attempts to shed new light on this particular subfield. This will be achieved via the inclusion of detailed questions designed to increase understanding of the perception of both occupation-specific risk and general risk. In addition, the proposed research attempts to bridge the fields of risk perception and policing, which is a relatively new approach in the field of criminal justice. The central research goal is the examination of police officers' perception of risk (general risk and occupation-specific risk), with a focus on gender difference. In particular, the proposed research will examine both the direct and indirect effect of gender on risk perceptions among police officers. The format of the proposed research will bear some similarity with other risk perception studies, yet it will include elements and knowledge from the field of policing. The research is descriptive in nature.

There are mainly two hypotheses for this research. A previous study has found no gender difference when individuals are exposed to a highly stressed environment (Greenberg & Schneider, 1995). The definition of a stressed environment is an environment that consists of multiple hazards and risks. The nature of police work is highly uncertain and involves great risks (Homant et al., 2000; Mayhew, 2001; Uchida et al., 1987). With the nature of police work resembling the definition of a stressed environment, the proposed finding is the lack of gender difference in the perception of the occupation-specific risks.

With general risk, gender differences are found when examining risks that are more general and happen in daily lifestyle (Baldassare & Katz, 1992; Brody, 1984; Cutter et al., 1992; Finucane et al., 2000; Savage, 1993; Sjoberg, 2003; Van Liere & Dunlap, 1980). However, studies focusing on specific occupation groups, especially those that are considered to be more male-dominant, have found gender differences (Barke et al., 1997; Slovic et al., 1997). With

police work considered as a more male-oriented occupation, it is predicted that female officers would still perceive higher risks when compared to male officers in terms of general risks.

The following chapter contained an article that includes a thorough description of theoretical backgrounds and previous studies, sampling method and survey instrument. Foundational studies that have specifically examined gender effect on risk perception in police work and other occupations are examined in relevance to the current study. The construction of the survey instrument also relies on previous studies on risk perception, especially studies focusing on the "White Male Effect" (Flynn et al., 1994; Rivers, Arvai, & Slovic, 2010). Adaptations have also been made from existing survey items with literary support. The article also provides an in-depth description of the statistical analysis for the study. Results are discussed and explained within the contexts of the theoretical backgrounds. It also includes a discussion on the limitations of the study, indiciations for practical applications, and suggestions for future studies.

Chapter 2

Introduction

It has been almost a century since the first waves of women entered the criminal justice and law enforcement field (Brown & Heidensohn, 2000; Wells & Alt, 2005). Yet, the marginalization and unequal treatments of female officers are not addressed until about 30 years ago (Garcia, "Difference" in the Police Department : Women, Policing, and "Doing Gender", 2003). Despite the long history, the debate on women's capabilities and effectiveness to be good police officers persist. The origin of the debate is largely due to the perceived masculine nature associated with police work and police organizations, and the devaluation of characteristics traditionally attributed to females (Garcia, 2003). Rather than recognizing the potential benefits that these feminine characteristics may bring to the nature of police work, the debate commonly focuses on the absence of masculine characteristics.

There are indeed large discrepancies in the perception of female officers' competencies in the use of force, violence, and other characteristics associated with masculinity. Male police officers tend to have less favorable attitudes toward female officers' capabilities in carrying out patrol duties (Vega & Silverman, 1982). This is especially true with specific patrol duties that have higher probabilities of violence. Similar attitudes are also found among male criminal justice students (Austin & Hummer, 1994). On the other hand, female officers tend to view themselves as highly competent in carrying out patrol duties (Vega & Silverman, 1982), and administrative and supervisory tasks (Kakar, 2002).

Recent studies have begun to explore the potential benefits that women may bring to police work (DeJong, 2004; Miller, 1999; Sun, 2007). Yet, Hoffman and Hickey (2005) found a

lack of gender difference in traditionally masculine activities such as use of force. Exception to the finding is female officers' less frequent use of extreme force (Rabe-Hemp, 2008). In general, the debate has subsided. The focus has shifted toward understanding the influence of gender on policing behavior, and how such influence can be more beneficial to current policing styles.

What is missing from this debate and its recent shift in emphasis is the concept of risk perception. This concept is important to consider as it may have an effect on how an individual responds to a stimulus, situation, or context (Baldassare and Katz, 1992). In addition, it is relatively well-established that females perceive a higher level and frequency of risks than their male counterparts (Slovic, 1999). In other words, it is possible that gender difference can exist in how male and female police officers perceive an event encountered while on-duty.

The gender difference in risk perception is also prevalent when examining other male-dominated occupations, such as scientists and toxicologists (Barke, Jenkins-Smith, & Slovic, 1997; Slovic, Malmfors, Mertz, Neil, & Purchase, 1997). However, the effect of gender can be moderated by external factors such as the stress level in the environment (Greenberg & Schneider, 1995). Thus, it is crucial to determine if such a pattern of gender difference is present in police work. The presence of a pattern can assist police organizations in the development of training processes, while the absence of gender difference can change how others perceive female officers.

In the following section, I will discuss the existing literature on risk perception, gender, and policing. The literature review is followed by a brief description on the gap that exists between the three fields. This study attempts to address the gap by examining the effect of gender on officers' risk perception. The subsequent sections provide an in-depth description of

the instruments, the distributions of the instruments, and the findings. The paper concludes with a discussion of the findings.

Literature Review

Risk Perception

Definitions of risk, and risk perception are varied and are often discipline specific (Fischhoff, Watson, & Hope, 1984; Kelman, 2003). In general, most definitions of risk contain three components (probability, exposure and outcome of exposure), and this can be expressed formulaically as risk (r) = likelihood (l) x consequence (c). The first component, likelihood, indicates the possibility of an occurrence, which can be an event, a hazard, or a loss. The second component, consequence, refers to the potential outcomes if the occurrence does happen, and potential outcomes can be either positive or negative (Kelman, 2003). It is important to note that both aspects of the risk formula imply uncertainty in terms of the possibility of exposure and the potential outcomes. In terms of risk perception, scholars define the concept as "intuitive risk judgment" (Slovic, 1987, p. 280). In other words, it is an individual's initial response to a risk, which is often not based on the complete risk equation.

Studies in the risk and risk perception literature have shown systematic gender differences in how risk is perceived. "Gender", although generally measure as the male-female dichotomy, is seen as interactive and correlated with the concept of "sex" in risk perception studies. Hence, the terms "sex" and "gender" are sometimes use interchangeably. Gender differences are found when examining risks in general, or when examining specific components of risk. The risks that have been examined include daily activities, accidents, environmental risks and concerns, and advanced technology. The sample populations of most of these studies are

diverse in terms of age, income, race, education, and mainly drawn from metropolitan areas (Baldassare & Katz, 1992; Cutter et al., 1992; Savage, 1993). Despite variance in the significance of the difference across studies, gender differences are consistently found across different types of risks. The robustness of this effect is demonstrated by gender difference in risk perception still present among practitioners in highly technical fields (such as chemistry) concerning hazards that affect that field (Barke et al., 1997; Slovic, Malmfors, Mertz, Neil, & Purchase, 1997). Repeatedly, studies have shown that men tend to perceive less risk from an array of hazards, activities and technology, when compared to women.

The gender difference seems to hold true despite age. When examining driving behavior of young adults, gender difference was lacking in terms on their perceived frequency of risky driving behavior and the probability of being caught (DeJoy, 1989). However, with regard to the probability and severity of accidents, males considered risky driving behavior as less likely to result in accidents and less serious. These results reflect on the generalization of gender difference in risk perception across different types of contexts and populations.

However, there are exceptions to the well-established gender difference in risk perception. When the studies are restricted to certain contexts, little to no gender difference in risk perception is found (DeJoy, 1989; Greenberg & Schneider, 1995). For example, there is an absence of gender difference in the perception of environmental risk under the conditions of a stressful environment (Greenberg & Schneider, 1995). In this case, a stressful environment is defined as an environment with multiple hazards such as landfills, crime, and major highways. The main theoretical backgrounds that support the lack of gender differences in environments with higher stress have its origin in the studies of victims of natural disasters rather than risk

perception.. These studies tend to show no gender difference for victims who had experienced natural disasters.

Several explanations have been proposed for the gender differences found in risk perception. One set of researchers has suggested that the origin of the differences lies in gender roles. Females are viewed as nurturers and are more likely to value the safety of other individuals and human lives in general. Thus, females tend to perceive greater risks and have greater worries about these risks. Males, on the other hands, tend to value economic growth and thus perceive less risk with regards to environmental concerns (Brody, 1984; Gustafson, 1998). Another explanation of the gender difference is the difference in authority and power between genders (Finucane et al., 2000; Flynn et al., 1994; Gustafson, 1998). Men are more likely to be involved in politics and education, which allows them to attain greater power. Thus, they tend to perceive fewer risks and have fewer concerns about risk. This explanation is highly related to the "White Male Effect" (Flynn et al., 1994), which suggested that the difference in risk perception is derived from sociopolitical rather than biological factors.

It has also been suggested that gender differences in risk perception are due to research design (Cutter et al., 1992; Gustafson, 1998). The main issue lies in the interpretation of the word "risk". Gustafson (1998) suggested that females and males may have different conceptualizations of risks, while Cutter and colleagues (1992) recommended that the gender orientation of activities and situations used to measure risk perception should be taken into consideration. Although the explanations require additional supporting evidence, study results have illustrated that gender does make a difference in the perception of risk.

Some explanations of gender difference in risk perception have been investigated between specific occupations (Barke et al., 1997; Slovic et al., 1997). Among professional

scientists, females still perceive greater risk in terms of nuclear technology, and environmental and health hazards despite their levels of education (Barke et al., 1997). However, an individual's area of training in science can affect his or her risk perception. For example, physical scientists perceive less risk compared to life scientists, but within each field, gender difference is still evident. The ranking of sub-groups with the least perceived risk to the greatest is as follows: male physical scientists, female physical scientists, male life scientists, and female life scientists (Barke et al., 1997). The gender difference within life scientists was significant, and there is virtually no difference between the risk perception of female physical scientists and male life scientists.

Similar results were found when surveying toxicologists from Britain (Slovic et al., 1997). Female toxicologists are more likely to rate 27 out of 29 items as having moderate or high risk. In addition to risk perception, gender difference was also found in attitudes toward chemical risks. Female toxicologists have more negative feelings about chemicals than male toxicologists. The survey mainly focused on health risks of various types of hazards such as technology, lifestyle, and crime. The survey had five sections: (1) risk perception, (2) attitudes and opinions, (3) worldviews, (4) toxicological evaluation, and (5) personal characteristics and professional experience. These two studies provide a framework for this study, but the population of interest is a new occupation group – police officers.

In addition to gender, risk perception can be influenced by other individual-level factors. Slovic (1999) has listed factors that need to be considered when measuring and assessing risk. These factors include trust, emotion, and worldviews. Trust is measured in terms of confidence toward authorities. The authorities tend to vary depending on the topic of interest. Siegrist and Cvetkovich (2000) found that trust toward authorities significantly correlates with risk

perception. The effect became more prominent when controlling for one's knowledge about the risks in questions. In other words, trust in authorities become more prominent under the situations where one lacks knowledge on a specific risk. A re-examination of three studies on food technologies from the United Kingdom found that the association between trust and perceived risk is mediated by an individual's acceptance of the technology (Eiser, Miles, & Frewer, 2002). It reasonably follows that the association between trust and risk perception does exist, although the strength and dynamics of the association are more complex. There appear to be other factors that can intervene with the correlation.

Worldview has also been previously identified as a factor influencing one's perception of risk. The definition of worldviews was derived from the concept of social relations in culture theory, which reflects the types of interpersonal relationships prevalent within a culture (Dake, 1991). Although initially measured as an aggregate variable, the concept of social relations was suggested to be the source of influence on an individual's view of the world and identities (Dake, 1992). Thus, later research on worldviews and risk perception has operationalized worldviews in terms of the various forms of social relations. There are four basic forms of worldviews: hierarchical, fatalistic, individualistic, and egalitarian (Dake, 1991). Dake (1991) has found differences in societal concerns among different worldviews. Peters and Slovic's later research (1996), focusing on the effect of worldviews and affect on risk perception, replicated these results. The study examines different risks such as health, technological, and environmental health risks. Specifically, Peters and Slovic (1996) examined the role of affect (the feeling or experience of emotions) and worldviews on support toward nuclear power, and found interactions between the two factors. The consistency in results illustrates the importance of worldviews in how an individual responds to risk.

Risks in Policing

To examine risk perception among police officers, it is necessary to understand the specific risks encountered in policing. The nature of policing and police work has its unique features. Skolnick (2010) discusses the "working personalities" of policeman. In general, working personalities describe the impacts that one's occupations have on one's view of the world. In the context of policing, these personalities are developed due to two outstanding features of police work: danger and authority. These two features interact to create a sense of social isolation and heightened suspicions toward others among police officers (Skolnick, 2010). Although danger and risks are two distinct concepts, the unique nature of police work results in police officers being exposed to risks that are specific to their field.

In addition, police work involves a high level of uncertainty (Wilson, 1968). For example, police officers often times respond to a call or respond to a citizen with little information. In addition to uncertainty, situations encountered during work can become dangerous and life-threatening (Homant, Kennedy, & Hupp, 2000; Mayhew, 2001; Uchida, Brooks, & Kopers, 1987). Examples of common police encounters feature a high level of uncertainty include domestic situations (Rabe-Hemp & Schuck, 2007; Uchida et al., 1987), and encounters where quick judgment and use of force are required (Homant et al., 2000). The risk of being assaulted during work is only one of many risks that officers potentially face. Some examples of other risks include death, infectious diseases, fatigue, and injuries (Corrigan, Lester, & Loftus, 1980; Mayhew, 2001). To better reflect the wide range of risks involved in policing, there has been an effort to widen the definition of danger faced by police officers and to include injuries and deaths that occur as a result of accidents (Brandl & Stroshine, 2003).

Gender and Policing

Much recent studies on gender and police behavior have found gender differences in some police behaviors such as the level of force used (Bazley et al., 2007; Rabe-Hemp, 2008; Schuck & Rabe-Hemp, 2005), comforting behaviors toward victims (DeJong, 2004; Sun, 2007), and attitude on work assignments (Maguire & Nolan, 2011). Gender differences are also found when examining the likelihood of police officers themselves experiencing victimizations. With domestic situations, Rabe-Hemp and Schuck (Rabe-Hemp & Schuck, 2007) found that female officers were more likely to be victimized when handling family violence calls. However, no gender difference was found for police-citizen encounters in general.

There are other instances where the influence of gender on police behavior seems to be lacking. For example, it has been suggested that gender only plays a role when examining the types of weapons used in incidents and arrests where force was used (Hoffman & Hickey, 2005). In general, factors that have an effect on gender differences in officers' behavior include the gender of paired officers (Schuck & Rabe-Hemp, 2005), assignments (Rabe-Hemp, 2008), trust toward fellow colleagues (Maguire & Nolan, 2011), and situational contexts such as the type of crime and suspect behavior (Bazley et al., 2007; DeJong, 2004). Thus, it is in the interest of the researcher to examine whether there are patterns of officers' perceptions, using gender as the main variable. Locating the pattern, if any, is important since risk perception has an effect on one's behavior (Baldassare & Katz, 1992; Brody, 1984).

Perception and Policing

Plenty of research has examine how gender plays a role in the actions and behavior of police officers. An early study by Corrigan and his colleagues (1980) found officers who perceived higher level of danger were more likely to exert their authority. The perception of

danger is different than the perception of risk, but it illustrates the impacts perception can have on an individual's behavior. This study, however, provided no insight regarding gender differences since the sample only included male police officers.

Another study examining perception of physical danger in the context of police departments found gender difference, but in the opposite direction expected (Jermier et al., 1989). Specifically, female employees in a police department, regardless of their occupational groups, perceived less physical danger than their male counterparts. The authors provided two explanations for the finding. The first explanation was that female officers and employees were less likely to be assigned to tasks involving physical danger. The second explanation was females' lower frequency in constructing images of danger. Although somewhat related to this research, the focus on the study was to understand organizational behavior. It relied heavily on organizational theories, and placed its emphasis on the role of physical danger within organizational settings where employees were exposed to a varying level of danger and risk.

There have also been attempts to understand the perception of risk in policing. This is done through the examination of police officers' cognitive decision-making processes (Flin, Pender, Wujec, Grant, & Steward, 2007). Officers were first asked to group 19 situations on different themes. In the second part of the study, the same group of officers were asked to assess each situation factors known to affect the decision-making process. These factors include amount of time available, risks to oneself, risks to others, familiarity to the situation, and level of stress involved. In addition to the first group of officers, a new group of officers were recruited for this part of the study. The descriptions of the situations used in both parts were written by experienced officers. However, gender was not a factor that was examined in the study.

Research Question

Although situational factors play an influential role on officers' behavior, the importance of individual-level factors has been acknowledged (Brown & Frank, 2006; Riksheim & Chermak, 1993; Rydberg & Terrill, 2010; Sherman, 1980). Thus, the central goal of this study is to examine police officers' perception of risk (general risk and occupation-specific risk), with a focus on potential gender differences. Given the relative lack of occupation-specific risk perception studies in the field of criminal justice, this analysis attempts to bridge the fields of risk perception and policing, which is relatively unique for both fields. In addition, this approach should provide some insight into how officers' perception of risk can affect their reactions to specific situations. Also, the research examines the effects of known factors on risk perceptions relationships among police officers. In general, the research is descriptive in nature.

There are two central hypotheses for this research. The first hypothesis is that there will be a lack of gender difference in the perception of occupation-specific risks (H_1). The main reason behind the hypothesis is based on the existing literature. A previous study has found no gender difference when individuals are exposed to a highly stressed environment (Greenberg & Schneider, 1995). The definition of a stressed environment is an environment that consists of multiple hazards and risks. The nature of police work is highly uncertain and involves great risks (Homant et al., 2000; Mayhew, 2001; Uchida et al., 1987). With the nature of police work resembling the definition of a stressed environment, it is logical to assume that the same patterns will be found in police officers' risk perception.

The second hypothesis, on the other hand, is that female officers would still perceive higher risks when compared to male officers in terms of general lifestyle risks(H_2). With general risk, gender differences are found when examining risks that are more general and happen in

daily lives (Baldassare & Katz, 1992; Brody, 1984; Cutter et al., 1992; Finucane et al., 2000; Savage, 1993; Sjoberg, 2003; Van Liere & Dunlap, 1980). However, studies focusing on specific occupation groups, especially those that are considered to be more male-oriented, have found gender differences (Barke et al., 1997; Slovic et al., 1997). With police work considered as a more male-dominant occupation, it is predicted that there will be a gender difference in the perception of general lifestyle risks among police officers.

Methodology

Survey Administration

The research design for this study is a non-experimental descriptive study. The method of data collection was through survey administration, which began in May 2012 and ended in August 2012. Convenience sampling was utilized for this research due to its preliminary nature. Initially, a total of four departments located around or within a university city in a Midwestern state were approached through e-mails to participate in the research. The departments in towns adjacent to this university city either declined or did not response. The two other departments, which were both located within the university city, agreed to participate in the survey. The police chiefs of both departments were given the proposal of the research project during an initial face-to-face meeting.

Electronic distribution of the survey has been preferred over the more common method of face-to-face survey administration during roll call due to time and budget constraints. Although electronic administration of surveys has been known for having a low completion rate, there are several possible methods of administration that can help increase completion rate (Evans & Mathur, 2005; Sax, Gilmartin, & Bryant, 2003; Vicente & Reis, 2010). One of the methods is to

increase interactivity within the survey, using radio buttons instead of drop-down menus, and keeping the survey at a moderate length (Vicente & Reis, 2010). Another method to increase response rate is to provide subjects with a hard-copy of the survey, but also provide the option to complete the survey online (Sax et al., 2003). This method has been found to be effective with college students. For the current study, a modified version of the mentioned method was adopted due to specific preference of the departments. Thus, rather than providing both electronic and hard-copy surveys to each department, only the department's preferred method was used.

Department A is a university police department with 69 sworn police officers. Department B is a local police department with 58 sworn officers and 43 non-sworn personnel. The method of survey administration differed between the two departments. For Department A, electronic distribution of surveys was preferred. For Department B, printed versions of the surveys was preferred. Due to the difference in administration methods, the two departments had different means of notifying the potential participants: sworn police officers. Several e-mails containing a link to the survey were sent through the period of data collection for Department A. For Department B, the survey was left with the Chief to be distributed at the beginning of the study. Completed surveys were collected periodically. There were periodic pick-up of completed surveys. The purpose of the research and approximated time of completion were stated at the beginning of each survey.

Survey Construction

There are four sections of the survey. A copy of the survey used can be found in Appendix A. On average, the time necessary for completing the survey was between 15 to 30 minutes. The first section consists of two lists of risk. The first list includes activities and risks that have been commonly used in risk perception studies. These activities includes

environmental risks and health concerns (Brody, 1984; Flynn et al., 1994; Savage, 1993). The second list includes activities and situations that police officers could encounter during their work shift. The list of activities and situations are derived from the literature (Flin et al., 2007; Homant et al., 2000; Mayhew, 2001; Uchida et al., 1987) and through interviews with experts. These activities and situations include domestic violence, situations involving use of force, situations involving narcotics, situations involving hazardous materials, terrorism and bomb threats, and traffic stops and accidents. The complete lists can be found in Appendix A. For this section, subjects were asked to rank these activities and situations on a scale from 1 to 10, which range from risky/dangerous to least risky/dangerous.

In the second section, subjects were asked to estimate the frequency of encountering situations and activities listed in the first section. These questions provide greater insights as to why certain situations are viewed as more risky by an individual. For these questions, a Likert-type scale is used. The third section includes various statements from indexes and scales that measure the following variables: trust, worldviews, dispositional optimism, and control. These variables have been shown in previous studies to correlate with one's perception of risk (Finucane et al., 2000; Flynn et al., 1994; Rivers et al., 2010). The specific scales and items in this survey are modified and adopted from those in previous studies (Finucane et al., 2000; Flynn et al., 1994; Rivers et al., 2010). The last section collects information on the subjects' demographic information. Specifically, it includes questions with regards to officers' income, education, rank, length of service, and sex.

Analysis and Findings

Univariate and Bivariate Analysis

Fifty-eight printed versions of the surveys were distributed in Department B, and all 69 sworn officers of Department A were contacted. The total number of collected surveys is 64, with 51 surveys collected electronically from Department A and 13 surveys collected physically from Department B. The total return rate is approximately 50.4%. The return rates for Departments A and B are respectively 73.9% and 22.4%. However, for the purpose of this research, cases with missing data on the variables of interests are excluded. Thus, the final sample size is smaller (N=51). Thirty-eight surveys, which accounts for 74.5% of the final sample size, comes from Department A. Department B has 13 surveys, which is 25.5% of the total sample.

In the final sample, the majority of the participants reported their ranks as " patrol officers". The highest education level achieved by most officers in this study is a four-year college degree, followed by a Master's degree. The mean of participants' age is about 40 years old and the range is 37 years. Length of service ranges from 1 year to 39 years, with a mean of 16.3 years.

Table 1. Cronbach's Alphas for Scales Prior and After the Adjustment in Sample Sizes

Names of Scales	Prior to Adjustment	After Adjustment
General Risks	0.839	0.831
Occupation-Specific Risks	0.867	0.876
Worldview	0.647	0.669
Trust	0.851	0.858

Table 1 includes the Cronbach's alphas for each of the scale created or adopted for this research. As shown, the majority of the scales (General Risks, Occupation-Specific Risks, Worldview Index, and Trust Index) have relatively high Cronbach's alphas ($\alpha > 0.831$), with the exception of the Worldview Index, both before and after the adjustment in sample sizes ($\alpha > 0.647$). The reason for the lower alpha is the measurement of the Worldview Index, which is a composite measurement of six sub-indexes with a total of 16 items. The composite measurement can hinder the reliability of the scale since each index attempts to measure different and specific concepts. The high Cronbach's alphas for the other scales indicate that these scales have high reliability.

For this research, the main independent variable is the officer's gender. Female officers are coded as "1", while male officers are coded as "0". Approximately 25.5% of the sample consists of female officers, and 74.5% of the sample members are male. For Department A, there are 27 male officers and 11 female officers, which account for 71.1% and 84.6% of each respective gender. For Department B, there are 11 male officers and 2 female officers, which are respectively 28.9% and 15.4%.

The second independent variable is the Worldview Index. As mentioned, this variable was coded from six different sub-indexes. The total possible scores for the Worldview Index range from -32 to 32. For the current data, the range of the Worldview Index is between -18 and 27. The mean is approximately equal to -3.78. The standard deviation for the Worldview Index is about 7.45, suggesting a high level of dispersion in the data.

The third variable of interest is the Trust Index. Since this index is measured with 11 items, the total possible scores range from -22 to 22. For the current data, the range of the Trust Index is from -21 to 12. The mean of the variable is approximately equal to -0.33. The wide

range of scores and low mean value suggest a lower of level of trust in officials to manage among the respondents. The high level of standard deviation (7.28) also suggests a high level of dispersion in trust level.

Table 2. Descriptive Statistics for Independent and Dependent Variables

Variable	Minimum	Maximum	Mean	Standard Deviation
Female	0	1	0.25	0.44
Worldview	-18	27	-3.78	7.45
Trust	-21	12	-0.33	7.28
General Risks	17	100	55.94	19.63
Occupation-Specific Risks	12	116	82.67	19.13
Age	23	60	39.83	8.23
Length of Service	1	39	16.33	8.59

There are two main dependent variables for the research: general risks and occupation-specific risks. The total score for each respondent on the General Lifestyle Risks Scale is calculated by summing respondents' scores across 12 items. The total possible range of scores is from 12 (perception of low risk) to 120 (perception of high risk). The range of scores for the current data is from 17 to 100. The mean and standard deviation were 55.94 and 19.63 respectively. This suggests moderate dispersion within data. In general, officers perceive moderate levels of general risks.

Each respondent's total score for the Occupation-Specific Risks Scale is calculated by summing respondents' scores on 12 items. The total possible range of scores is from 12 (perception of low risk) to 120 (perception of high risk). For the current data, the scores for the scale ranges between 12 and 116. The mean is 82.67, with a standard deviation of 19.13, which suggests some dispersion within the data. It also suggests that most officers perceive occupation-specific risks as more risky when compared to their perception of general lifestyle risks.

Table 3. Mean Scores on General Lifestyle and Occupation-Specific Risks for Female and Male Officers

Dependent Variable	Male Officers	Female Officers	Total
General Risks*	54.29	60.77	55.94
Occupation-Specific Risks**	81.26	86.77	82.67

* t=1.028, Significance=0.309
** t=0.849, Significance=0.376

To test the hypotheses, the Student's t-Test is conducted for the three main independent variables (Officers' gender, worldview, and trust) and the two main dependent variables (general risks and occupation-specific risks). The results are presented in Table 3. For officers' gender and general risks, pooled variance estimates are used since the F-test did not reach significance. The absolute mean difference between female and male officers' perception of general risks is equal to 6.48, with female officers having higher risk perception. However, the difference is insignificant. This finding does not support the second hypothesis.

When specific items on the General Risks Scale are analyzed by gender, none of the items reach significance. Although the differences are insignificant, female officers generally

have higher mean on perceived risks compared to their male counterparts on the specific items, with the exception of three items: vaccines, medical X-rays, and drinking sugar-sweetened beverages. The range of the absolute difference between female and male officers on each item is wide. It ranges from 0.07 ("Eating fatty food") to 2.15 ("Cigarette smoking").

When examining the specific items, none of the 12 items on the Occupation-Specific Risks Scale reach significance. However, like the General Risks Scale, female officers have higher means on the majority of items. There are two exceptions where male officers have higher means: vehicle accidents and being assaulted by suspects. The range of item-specific means is between 0.18 ("Investigating a methamphetamine laboratory") and 1.18 ("Arresting a suspect surrounded by bystanders").

Table 4a. Bivariate Regression of Worldview Index and General Risks

	Regression coefficient (B)	Standard Error	Beta
Y-Intercept	55.04	3.10	
Worldview	-0.24	0.38	-0.09

p=0.530

Table 4b. Bivariate Regression of Worldview Index and Occupation-Specific Risks

	Regression coefficient (B)	Standard Error	Beta
Y-Intercept	81.45	3.02	
Worldview	-0.32	0.36	-0.13

p=0.382

The Worldview Index is negatively correlated with the General Lifestyle Risks Scale and the Occupation-Specific Risks Scale. The correlation with general lifestyle risks is much weaker

than the correlation with occupation-specific risks. The negative correlation suggests that as one's worldview score increases, there is a decrease in risk perception. However, since worldview is a composite score from multiple sub-indexes, it is impossible to untangle which specific aspects of one's worldview is correlated with risk perception. Both of the regression models failed to explain any variations in risk perception since the p-values for each risk did not reach significance.

Table 5a. Bivariate Regression of Trust Index and General Risks

	Regression coefficient (B)	Standard Error	Beta
Y-Intercept	56.08	2.75	
Trust	-0.42	0.38	0.16

p=0.271

Table 5b. Bivariate Regression of Trust Index and Occupation-Specific Risks

	Regression coefficient (B)	Standard Error	Beta
Y-Intercept	82.81	2.67	
Trust	0.44	0.37	0.17

p=0.244

The models for Trust Index have also failed to address any variations since the p-values for both models are greater than the level of 0.05. The Trust Index is positively correlated with both scales. The correlation is relatively weak. In general, it appears that as one's level of trust toward officials increases, the level of risks perceived increases. Specifically, with an increase of

one point on the Trust Index, there is an increase of 0.42 in the General Risks Scale and an increase of 0.44 in the Occupation-Specific Risks Scale.

Multivariate Analysis

To determine the effect of all three independent variables on both of the dependent variables, it is necessary to conduct a multivariate analysis. To do so, the sample size has to be further reduced to exclude cases where there are missing information on some of the control variables (officers' rank, length of service, age, etc.). The final sample size for the multivariate analysis diminishes to 45. Most of the demographic variables are not affected by this reduction in sample size; however, the proportion of female and male officers has changed. Male officers now account for 73.3% of the sample, while female officers account for 26.7% of the sample. Due to the small sample size, the results of the multivariate analysis are to be taken as preliminary and exploratory rather than conclusive.

Table 6a. Multivariate Regression of General Risks

	Regression coefficient (B)	Standard Error	Beta
Y-Intercept	28.25	30.69	
Female	3.39	6.91	0.21
Worldview	0.06	0.43	0.02
Trust	0.21	0.39	0.08
Race/ Ethnicity	3.69	5.28	0.11
Age	1.27	1.20	0.53
Highest Education	-9.02	4.99	-0.27

Table 6a. (cont'd)

	Regression coefficient (B)	Standard Error	Beta
Current Rank	2.29	2.26	0.19
Length of Service	-0.62	1.20	-0.27

$p>.05$, $r^2=.255$

For both the Occupation-Specific Risks and the General Lifestyle Risks, none of the variables included in the regression models reach significance. Hence these regression models failed to address the variance in these dependent variables. A collinearity diagnostic is performed for both models to determine if there were any correlations among the variables, which can account for the insignificance of the regression models. The results of the diagnostics showed the variance inflation factors for participants' age and participants' length of service are higher than other variables. Subsequent regression models were conducted where participants' age, participants' length of service, or both variables were omitted. In these subsequent analyses, the models and the variables remained insignificant.

Table 6b. Multivariate Regression of Occupation-Specific Risks

	Regression coefficient (B)	Standard Error	Beta
Y-Intercept	85.60	32.58	
Female	0.82	7.34	0.02
Worldview	-0.36	0.46	-0.14
Trust	0.47	0.42	0.18
Race/ Ethnicity	7.26	5.60	0.21

Table 6b. (cont'd)

	Regression coefficient (B)	Standard Error	Beta
Age	-0.35	1.28	-0.15
Highest Education	-2.85	5.30	-0.09
Current Rank	3.16	2.40	0.26
Length of Service	0.47	1.27	0.20

$p>.05$, $r^2=.1$

Discussions

Based on the results from the statistical analyses, H_1 is supported in this analysis. There was a lack of gender difference in the perception of occupation-specific risks. The results indicate that female officers did have higher risk perception in comparison to male officers. When looking at specific occupation-specific risk, female officers perceived higher risks on most items with the exception of two items. In general, however, the univariate analyses showed these differences among male and female police officers in terms of the total or individual scores on each risk to be insignificant. This result replicates previous findings of no gender difference in risk perceptions in high-stressed environments (Greenberg & Schneider, 1995). Police work has been recognized as an occupation that has a high level of uncertainty and risks (Homant et al., 2000; Mayhew, 2001; Uchida et al., 1987). The results from this research imply that the definition of a high-stressed environment can be applied not only to daily encountered circumstances, but also the work environment.

Surprisingly, the results from the statistical analyses did not support the second hypothesis. No significant gender differences were found among officers on their perception of

general lifestyle risks. However, the differences for the total and individual score on each risk were in the expected direction. In other words, female officers tend to have higher mean scores than male officers. There were only three risks where male officers had higher mean scores than female officers, which were vaccines, medical X-rays and drinking sugar-sweetened beverages. This is contrary to the results from previous risk and risk perception studies (Baldassare & Katz, 1992; Brody, 1984; Cutter et al., 1992; Finucane et al., 2000; Savage, 1993; Sjoberg, 2003; Van Liere & Dunlap, 1980). One possible explanation is the effect of the small sample size on the statistical analyses. The small sample size could have masked or eliminated the potential differences. Another potential explanation is a spill-over effect. The lack of gender difference in risk perception on general lifestyle risks could have been a result of officers' necessary adaptation and changes in perceptions for their high-stress job environments. The adaptations and changes may be only for job-related risks, or may be so fundamental that it affects how risks are perceived in general. This effect may have been more significant for female officers because of the unique and possibly additional sources of stresses and challenges that originate from working in a male-dominated occupation (He, Zhao, & Archbold, 2002; Morash & Haarr, Gender, Workplace Problems, and Stress in Policing, 1995).

The bivariate analysis on worldview and trust indexes and the two dependent variables are preliminary attempts to examine the findings in previous literature (Dake, 1991; Eiser et al., 2002; Peters and Slovic, 1996; Siegrist and Cvetkovich, 2000). Negative correlations were found between worldview index and both types of risks. The trust index was negatively correlated to the general risks but positively correlated with the occupation-specific risk. One explanation for the positive correlation between trust and occupation-specific risk is the hierarchical structure of police work. Officers may be required to obey and place trust not only in their superiors.

However, police officers typically encounter these risks when they are out on-duty with their partners, and not their superiors. Hence, it is possible that the correlation is not meaningful. In general, the findings from these results are consistent with results from previous studies yet the correlations between these variables are generally weak. The correlations between the trust index and both types of risks are slightly stronger than the correlations of worldview index. Since the two variables are composite measures, it was hard to conclude which specific components of the index was correlated more strongly to the two types of risks.

The findings of the multivariate analysis did not indicate any of the independent or control variables to be strongly related to either of the dependent variables. This finding suggests that the dynamics involved in shaping an individual's perception of risk are much more complex than is currently known. The results are to be understood with caution. The applicability and generalizability of the results from this research are limited due to the focus on one specific occupation group. The dynamics and nature of this specific occupation group - police officers - are drastically different from most occupation groups. In addition, the results from this analysis needs to be interpreted with care due to the small sample size. Lastly, this research was designed as a preliminary examination of potential effects rather than to examine casual relationships between the variables.

The main limitation of this research is the small size of the sample. The size of the sample limits the types of statistical analysis that can be applied. Although insightful, the statistical analyses - bivariate and multi-variate - of this research offered only initial and surface knowledge on the factors and dynamics affecting the perception of risk among police officers. Another limitation of this research is a lack of variety in the types of police departments involved. The close proximity of both participating departments to a college could have potential

mediating effect on the correlation between gender and risk perception. It reduces the applicability of the findings to departments in other types of locations.

Future research needs to address the issue of sample sizes. One approach to the issue is to recruit police departments from different locations and of various capacities. This can potentially increase the number of participant officers, particularly the number of female officers. In addition, it increases the reliability of the research design because of the greater diversity in participants. The increase in both numbers and diversity of participants can provide a more complete picture on the relationship between gender and risk perception among police officers. It will also allow us to apply more advanced statistical analysis to examine the complexity involved. Qualitative methods, such as face-to-face interviews and grounded theory, should also be utilized to provide more in-depth understandings on how police officers perceive risks in their daily lifestyles and work environments.

Conclusion

Despite the long history of women's participation in policing, the acceptance of their presence in this male-dominated occupation remains relatively low (Vega & Silverman, 1982; Wells & Alt, 2005). The current study addresses a missing gap that can provide new insight in understanding the dynamics between gender and police work. Risk perception has been previously shown to affect an individual's behavior and decision-making framework (Baldassare & Katz, 1992; Brody, 1984; Flin et al., 2007). Two types of risks are measured in this study: general lifestyle risks and occupation-specific risks. The findings indicate the lack of gender difference in the perception of both types of risks. In other words, female and male police officers perceive the same level of risks with regard to scenarios officers can potentially face while on-duty or in their daily routines.

Other factors previously found to affect risk perception, such as trust and worldview, are also examined in this study. Although not the main focus, it provides some degree of replication. Both types of risks were found to correlate with these two factors, but were generally weak. The directions of the correlations were generally consistent with previous findings. Multivariate analysis, however, found none of the variables of interest to be significant, correlated with general lifestyle risks and occupation-specific risks. This indicates other factors having more influence on one's perception of risks.

However, the findings of this study should be interpreted with care as the sample size was relatively small. The findings may not be applicable to other occupations or in general. Future researchers should definitely account for such issues. As well, future research should attempt to understand the dynamics of risk perception among police officers with more qualitative methodology. This may capture information that is not translated into survey data. Nonetheless, it is an important initial step in encouraging new perspectives of evaluating police competency and gender differences within policing.

Chapter 3

The importance of this thesis to me, especially in shaping my future academic and career path, is undeniable. Upon receiving the admission decision for the doctoral program from Michigan State University, I debated if I should continue with this thesis or switch over to writing a policy paper. However, I was very pleased with my decision to go through with the thesis track. Through the process, I have learned multiple valuable lessons. Some of the lessons are related to specific technicalities involved in research conduct. Some other lessons are more related to personal growth. In various ways, this thesis has become a practice and a foreshadow of the dissertation process.

Due to the interdisciplinary nature of the topic, various obstacles were encountered at the initial planning stage. The original intention was to search through databases for usable existing datasets. However, due to the lack of convergence in the variables of interest (i.e. risk perception, gender, and police officers), it was necessary to design and develop instruments and scales from existing literature. I truly appreciate the helps and advices from all of my committee members during this process. Their guidance assisted the development of scales that truly reflect and capture what I wished to investigate. Without it, I would have easily lost sight of my research during the stage of literature review. Constant reminders of my research focus proved to be helpful.

The second challenge was in recruitment. A total of four police departments were approached. However, one declined to participate (due to lack of resources), while another department never replied to the request. It was frustrating because this meant a reduction in the potential sample size. The size of the sample is very important because it restricts the types of

statistical analysis that can be utilized, and hence the results that can be obtained. Luckily, the two participating departments provide a sufficient pool. Combined with the fact that the research is preliminary, the issue was overcome.

Another challenge that was encountered was the length and return rate during data collection. The length of time for data collection exceeded my expectations. The end date of the period was pushed back for a few times due to insufficient numbers of surveys returned. At first, I had a hard time accepting the extension because it delayed my schedule of completion. Eventually, I realized that no matter how impeccable and perfect the plan, we can never account for all the emergencies and sudden changes in life. I learned to be patient while handling the situation professionally. Although the target number was much lower than proposed and expected (i.e. 100 surveys), the results extracted from the collected data was adequate for the purpose of this research.

The difficulties and challenges that were encountered from the initial planning stage to the data collection stage are great overviews of the dissertation process. My chosen research focus gave me the opportunity to experience a process that resembles the process of writing a dissertation at a de-magnified level. It would serve as a guidance and reference point for me, as I decide what and how I would approach my dissertation. In general, the journey of writing this thesis makes the journey of writing a dissertation seems more realistic and manageable.

This thesis has been a great learning experience and opportunity for me. Despite the various challenges and obstacles that emerged throughout the process, it was a pre-dissertation challenge for me. Various abilities and skills were obtained and mentored when overcoming these issues and completing the thesis. These abilities and skills would prove to be vital in the

process of dissertation, especially in the development of instruments and the process of data collection.

APPENDIX

SURVEY

Gender and Risk Perception

There are several parts of the survey. At the start of each section, there are corresponding instructions. The survey is printed on both sides of a page. If you are unsure about any items please refer to the contact information found on the consent form. Thank you very much for your participation!

SECTION 1

General Risks

How much risk would each of the following items pose to your general well-being? Please rate on the scale of 1 (Low risk) to 10 (High risk).

	SCALE ON RISKINESS									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
	Low Risk				**Some Risk**	**Some Risk**				**High Risk**
AIDS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Vaccines	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Medical X-rays	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Climate change	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Natural disasters	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Water pollution	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Bacteria in food	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Eating fatty food	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Drinking sugar-sweetened beverages	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cigarette smoking	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Drinking alcohol	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Stress	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Occupation-Specific Risks

Imagine each item below as a real scenario encounters during your shift. How much risk would each pose to your personal safety? Please rate on the scale of 1 (Low risk) to 10 (High risk).

	SCALE ON RISKINESS									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
	Low Risk				**Some Risk**	**Some Risk**				**High Risk**
Your use of firearms	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Suspect's use of firearms	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Usage of a stun gun	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Arresting a suspect surrounded by bystanders	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Domestic violence situations with weapons	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Domestic violence situations without weapons	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Traffic stops	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Vehicle accidents	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Situations involving hazardous/chemical substances	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Investigating a methamphetamine laboratory	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Being assaulted by suspects	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Not being backed up by partners	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

SECTION 2

For this section, please estimate the frequency that you have encountered or participated in each item during the past six months.

General Risks

	FREQUENCY OF ENCOUNTER/PARTICIPATION IN THE PAST SIX MONTHS			
	Never	**Rarely**	**Sometimes**	**Often**
AIDS	☐	☐	☐	☐
Vaccines	☐	☐	☐	☐
Medical X-rays	☐	☐	☐	☐
Climate change	☐	☐	☐	☐
Natural pollution	☐	☐	☐	☐
Water pollution	☐	☐	☐	☐
Bacteria in food	☐	☐	☐	☐
Eating fatty food	☐	☐	☐	☐
Drinking sugar-sweetened beverages	☐	☐	☐	☐
Cigarette smoking	☐	☐	☐	☐
Drinking alcohol	☐	☐	☐	☐
Stress	☐	☐	☐	☐

Occupation-Specific Risks

	FREQUENCY OF ENCOUNTER/PARTICIPATION IN THE PAST SIX MONTHS			
	Never	**Rarely**	**Sometimes**	**Often**
Your use of firearms	☐	☐	☐	☐
Suspect's use of firearms	☐	☐	☐	☐
Use of a stun gun	☐	☐	☐	☐
Arresting a suspect surrounded by bystanders	☐	☐	☐	☐
Domestic violence situations with weapons	☐	☐	☐	☐
Domestic violence situations without weapons	☐	☐	☐	☐
Traffic stops	☐	☐	☐	☐
Vehicle accidents	☐	☐	☐	☐
Situations involving hazardous/chemical substances	☐	☐	☐	☐
Investigating a methamphetamine laboratory	☐	☐	☐	☐
Being assaulted by suspects	☐	☐	☐	☐
Not being backed up by partners	☐	☐	☐	☐

SECTION 3

For this section, please rate your response to each statement.

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
I feel that I have very little control over the risks to my general well-being.	☐	☐	☐	☐	☐
I rarely count on good things happening to me.	☐	☐	☐	☐	☐
Those in power often withhold information about things that are harmful to us.	☐	☐	☐	☐	☐
It's no use worrying about public affairs; I can't do anything about them anyway.	☐	☐	☐	☐	☐
I hardly ever expect things to go my way.	☐	☐	☐	☐	☐
Experts are able to make accurate estimates of the risks from lifestyle and habits.	☐	☐	☐	☐	☐
Many of the problems facing the world today are associated with technology.	☐	☐	☐	☐	☐
Differences of opinion about general risks can be resolved by scientific data and analysis.	☐	☐	☐	☐	☐
In uncertain times, I usually expect the best.	☐	☐	☐	☐	☐
We can trust the experts and engineers who build, operate and regulate new technology.	☐	☐	☐	☐	☐

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
When a risk is small, it is acceptable for society to impose that risk on individuals without their consent.	☐	☐	☐	☐	☐
I enjoy my friends a lot.	☐	☐	☐	☐	☐
Experts are able to make accurate estimates of the risks involved in policing.	☐	☐	☐	☐	☐
What this world needs is a more equal distribution of wealth.	☐	☐	☐	☐	☐
People have gone too far in pushing equal rights	☐	☐	☐	☐	☐
In a fair system people with more ability should earn more.	☐	☐	☐	☐	☐
When there is a really serious health problem, the public health officials will take care of it. Until they alert me about a specific problem, I really don't have to worry.	☐	☐	☐	☐	☐
It's important for me to keep busy.	☐	☐	☐	☐	☐
Government has no right to regulate people's personal risk-taking activities	☐	☐	☐	☐	☐
If people in this country were treated equally, we would have fewer problems.	☐	☐	☐	☐	☐

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
Overall, I expect more good things to happen to me than bad.	☐	☐	☐	☐	☐
Scientists are able to make accurate estimates of the risks from new technology.	☐	☐	☐	☐	☐
I often feel discriminated against.	☐	☐	☐	☐	☐
The police should have the right to listen to private phone calls to investigate a crime.	☐	☐	☐	☐	☐
Our government and industry can be trusted with making the proper decisions to manage the risks from law enforcement.	☐	☐	☐	☐	☐
It's easy for me to relax.	☐	☐	☐	☐	☐
Technological development is destroying nature.	☐	☐	☐	☐	☐
Scientists are able to make accurate estimates of the risks from lifestyle and habits.	☐	☐	☐	☐	☐
If something can go wrong for me, it will.	☐	☐	☐	☐	☐
I feel that I have very little control over the risks to my occupation.	☐	☐	☐	☐	☐
We can trust the experts and officials who create and draft policies on the criminal justice system.	☐	☐	☐	☐	☐

	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
I'm always optimistic about my future.	☐	☐	☐	☐	☐
People in positions of authority tend to abuse their power.	☐	☐	☐	☐	☐
Experts are able to make accurate estimates of the risks from new technology.	☐	☐	☐	☐	☐
I don't get upset too easily.	☐	☐	☐	☐	☐
I am in favor of capital punishment.	☐	☐	☐	☐	☐
Our government and industry can be trusted with making the proper decisions to manage the risks from technology.	☐	☐	☐	☐	☐

SECTION 4

1) What is your age?

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2) What is your sex?
   - ☐ Male
   - ☐ Female

3) What is your race or ethnicity?
   - ☐ Hispanic
   - ☐ White/Caucasian
   - ☐ Black/African American
   - ☐ Asian and Pacific Islander
   - ☐ Native American
   - ☐ Other (Please specify: _____)

4) What is the highest level of education you have attended or completed?
   - ☐ High school
   - ☐ Some college but no degree
   - ☐ 2-year college degree
   - ☐ 4-year college degree
   - ☐ Master's degree
   - ☐ Doctoral degree
   - ☐ Other (Please specify: _____)

5) What is your current rank in the department?

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6) How long have you served as a sworn officer?

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