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University of Alberta

Working at Night: Building Service Workers' Perceptions of Personal Safety

by

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A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of *Master of Science*

Centre for Health Promotion Studies

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Dedicated to my father
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Abstract

The purpose of this exploratory, descriptive study was to determine from building service workers (BSWs) who work nighttime shift work what they perceive about personal safety at work and factors that affect it. One-on-one semi-structured interviews were conducted with a convenience sample of nighttime BSWs from a large Canadian university. The interview guide was subjected to expert reviews and pilot testing. Ten interviews were conducted (response rate = 11%). Transcribed data were subjected to content analysis using descriptive, interpretive, and pattern coding. Three themes emerged: *framing personal safety of nighttime building service workers, assessing interpersonal relations for personal safety, and assigning meaning of gender to personal safety.* Results confirm that BSWs who work nighttime shift work are exposed to personal safety hazards. Results also indicate that culturally and linguistically appropriate delivery of safety training and education on policies and procedures are required for culturally diverse BSWs.

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Chapter 1

Introduction

Safety is identified as an important issue for people who work alone (Government of Alberta, 2001). In Alberta, Human Resources and Employment has developed a number of occupational health and safety regulations (Government of Alberta). As a result, employers have new responsibilities to minimize and eliminate risks associated with workers who work alone (Government of Alberta).

Safety risks are increased when people who work alone also work at night (2300 to 0700 hours). A number of risks that are specific to working at night include disturbance to the circadian rhythm resulting in maladjustment to internal clocks causing insomnia, sleepiness, malaise and mood disorders, disrupted eating habits, poor diets, and gastrointestinal problems (Poissonnet & Veron, 2000; Scott, 2000). These risks may be indirectly related to poor judgment or poor decision-making causing reduced safety behavior (Fischer, De Castro Moreno, Da Silva Borges, & Louzada, 2000). Poor safety behavior results in increased injuries and incidences, lost time at work, increased absenteeism, increased healthcare costs, and intangible personal costs (Jones, Casswell, & Zhang, 1995).

A considerable number of people who work in the building services sector work alone at night. Organizations have found that building service workers (janitors and cleaners) are more effective and productive when they perform their jobs at night because there is less interference (P. Noseworthy, personal

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communication, October 16, 2002).

Personal safety is defined for the purposes of this study as anything that affects a worker's health or body integrity, including risks of violence, illness and injuries (Canadian Centre for Occupational Health and Safety [CCOHS], 2002). Building service workers (BSWs) are subjected to many personal safety hazards. For example, excessive exposure to cleaners and solvents increases the risks of nausea, asthma, and ear, throat, and lung disorders (e.g., Reinisch et al., 2001); repetitive job activities over a long time increase the risks of repetitive strain disorders; and cleaning slippery surfaces and stairwells increases the risks of falling or slipping, especially if the surfaces are wet. When BSWs work at night, there may be increased risks of abuse or violence; for example, going to/from work in the dark increases the risks of violent acts by intruders. In most cases, there are no supervisors or other employees nearby; when incidents do occur help may not be quickly available or may be very limited. As well, the majority of the people who comprise the building services staff are people whose birth language is not English. Thus, despite receiving personal safety instructions and directions, BSWs may not understand what is being explained to them. People from a large number of different cultures and cultural norms may adopt different patterns of safety behavior. It is therefore important to identify any cultural and/or language barriers in order to ensure that health and safety policies and procedures are effective.

Unsuccessful health and safety policies and procedures training may

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increase workplace insurance costs. Workplace insurance premiums for employers have increased almost every year. For example, the Worker's Compensation Board in Alberta (WCB) increased the premium costs for employers by approximately 13% each year (on average) between the years 1999-2004 across all organizations (Worker's Compensation Board [WCB], 2004). In 2002, the premium rates were increased by 27.3% from 2001 rates and premium rates for 2003 increased 12.5% from 2002 rates in Alberta on average across all industries (WCB, 2004). Between 1997 and 2001, claim costs almost doubled and the average cost per claim has risen 15% from 2001 (WCB, 2004). This increase may be attributed to inflation, a better-paid workforce, increased cost of services and benefits, increase of workers in the workforce, and/or total increased workplace injury claims (WCB, 2004). Total workplace injuries increased approximately 20% between 1998 to 2004 (WCB, 2004). This increase may be attributed to the increased total number of employers and workers insured by WCB. Although the rate of injuries has not increased at the same rate as the number of insured workers every year, unintentional injuries still cost Canadians billions of dollars each year (Health Canada, 2002). With a more positive outlook, 2005 rates were reduced by 7.6% from 2004 rates in Alberta on average across all industries (WCB, 2004).

Multiculturalism and language differences may mitigate the effectiveness of safety policies and procedures in place to reduce or prevent workplace injuries. Past research and legislation have addressed personal safety issues by exploring

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personal safety hazards of building service occupations, the hazards of working at night, and the hazards of working alone (e.g., Brooks, 2000; Reinisch et al., 2001). Past research in nursing and the healthcare field has shown that cultural sensitivity and language barriers may have an impact on effectiveness in the delivery of healthcare (e.g., Phillips & Weekes, 2002).

The review of the literature indicates that there is not a clear and current picture of the issue of personal safety of BSWs who work nighttime shifts. Research and legislation have addressed personal safety issues by exploring personal safety hazards of building service occupations, the hazards of working at night, and the hazards of working alone. However, the documented research explores the hazards mainly from a physiological and biological point of reference, and is mostly epidemiological. Little published research explores how multiculturalism and language barriers may affect the delivery and uptake of health and safety policies and procedures and the training provided on personal safety hazards for BSWs. There is also little information from the perspectives of BSWs about these issues. Moreover, little is known about personal safety of BSWs in a particular setting, the University.

A university is a foundation for education, research, housing, recreation and leisure, culture, and work. A university forms a social, study, and/or work setting. As such, a university can be regarded as a city within a city. Therefore, the personal safety of students, faculty, and support staff is integral for the achievement of a healthy university and towards a healthy city. The university

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offers an ideal setting for studying personal safety of BSWs.

Workplace hazards exist in work environments. These hazards can be biological, chemical, ergonomic, physiological, psychological, or sociological (Plog, 2002). Exposure to workplace hazards can have implications on health, safety, and social well-being. Working nighttime shift work can further weaken health, safety, and social well-being. Government legislation is an attempt to minimize these work-related health and safety hazards.

The purpose of this study was to determine from BSWs who work nighttime shift work what they perceive about personal safety at work and factors that affect their personal safety. Reported is an overview of the current published literature of the phenomenon, a description of the methods used in the current study, and a report and analysis of the results. The results of this research may be used to create a more supportive, personally safe working environment for BSWs who work at night. It has implications for the improvement of personal safety training and policy and procedure development. It also has implications for future research in the area of BSWs, culturally diverse work populations, and those who work nighttime shift work.

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Chapter 2

Literature Review

A literature review of previously conducted and reported research on nighttime shift work, building service workers (BSWs), personal safety, and cultural diversity was performed. As well, a literature review of the "Healthy Cities Movement" and "Healthy Universities" was conducted. The overview of these topics was used to assist in the direction and formulation of the research questions.

The literature review was conducted by a search on MEDLINE, ERIC, PSYCHINFO, INGENTA and PUBMED from 1985 to December 2004 using the keywords *personal safety, occupational safety, occupational health, building services, health promotion, healthy cities, working alone, shift work, nighttime shift work, workplace health, multiculturalism, transculture, janitors, and cleaners.* Current journals were accessed in person and further documents were reviewed at the Government of Alberta Occupational Health and Safety department library. Statistics were obtained by email and phone contact with the Worker's Compensation Board (WCB) and the Manager of Human Resources and Procurement at a large university in western Canada. Websites accessed included www.gov.ab.ca, www.wcb.ab.ca, www.paho.org, www.ualberta.ca, www.ccohs.ca, www.who.int, www.wsib.on.ca, and www.med.ualberta.ca/acier.

The literature review includes a discussion of the healthy cities movement, including healthy schools and healthy workplaces, and the similarities of a

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university and a city. Next, a review of workplace hazards is followed by a review of building services including: the hazards of building services jobs, health effects and equipment hazards in building service jobs, the effects of nighttime shift work, and the safety risks of working alone at night. Third, the review examines provincial legislation, economic costs of illness and injuries, cultural and linguistic influences on personal safety on the working population, and policies and procedures of safety and how these impact building services workers at a major western Canadian university. Methods of previous studies with shift work and building service occupations are also reviewed.

Healthy Cities Movement

In 1981 the World Health Organization (WHO) declared a global strategy termed "Health for All by 2000" (World Health Organization [WHO], 1995). From this strategy, a global movement named the "Healthy Cities" evolved by 1987. The goal was to promote comprehensive local strategies for health and sustainable development in the twenty-first century, ultimately seeking to enhance the physical, mental, social, and environmental well-being of people who live and work in cities (WHO, 2002).

In Canada, led by Trevor Hancock, the first healthy city workshop "Healthy Toronto 2000" was held (Hancock, 1997). This workshop led to the establishment of the WHO "Europe Healthy Cities Project" (Hancock). The intention of the project was to devise ways of applying the principles and strategies of "Health for All" through local action in cities and to put it on the

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agenda of local government (Werna, Harpham, Blue, & Goldstein, 1999; WHO, 1978).

In the Americas, the Pan American Health Organization has initiated the "Healthy Municipalities and Communities Project." The mission of this project is to strengthen the implementation of health promotion activities at the local level, placing health promotion as the highest priority of the political agenda (Pan American Health Organization [PAHO], 2002). The movement seeks to build and strengthen multisectoral partnerships in order to improve the social and health conditions in the spaces where people live, advocating for the formulation of healthy public policy, maintenance of healthy environments, and promotion of healthy lifestyles (PAHO, 2002). The organization has also produced a document titled "Healthy Municipalities and Communities: Mayor's Guide for Promoting Quality of Life" (PAHO, 2004). The guide was designed to contribute to building greater local capacity to promote health and human development in the region by disseminating well known, effective health promotion strategies and continuing to strengthen the Network of Healthy Municipalities and Communities in the Americas.

Healthy schools. The Healthy Cities movement led to the "Healthy Settings" development (WHO, 2004). The concept of the "Healthy Settings" was to establish more effective work relations between the health sector and other sectors to create a healthier environment. Created within the "Healthy Settings" concept was the "Healthy Schools" initiative. This initiative was launched at the

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global level in 1995 (WHO). It was created to recognize that schools have the capacity to promote health, the need for a clear policy to be developed to provide comprehensive school health education, and to establish a national network of health promoting schools. The initiative was designed to improve the health of students, school personnel, families, and other members of the community through schools. Health promoting schools would be characterized by those schools who continually strengthen their capacity as a healthy setting for living, learning, and working. The strategies for the initiative include research to improve school health programs, building capacity to advocate for improved school health programs, strengthening national capacities, and creating networks and alliances for the development of health promoting schools.

Healthy workplaces. Within the "Healthy Settings" concept was also the creation of the "Healthy Workplaces" initiative in 1997 (WHO, 1999; WHO, 2002; WHO, 2004). This initiative is aimed at creating healthy workers which in turn would lead to productive workers, successful businesses, a healthy economy, and sustainable development (WHO, 1999). The objectives are to create a healthy, supportive, and safe work environment, to ensure that health promotion and health protection become an integral part of management practices, to foster work styles and lifestyles conducive to health, to ensure organization wide participation, and to extend positive impacts to the local and surrounding community and environment (WHO, 2002). A healthy workplace is not only free of hazards, but it also provides an environment that is stimulating and satisfying

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for those who work there (WHO, 2002). The WHO produced the "Regional Guidelines for the Development of Healthy Workplaces" in 1999, a valuable tool for developing occupational health and safety standards so that conditions can continuously improve for the working population (WHO, 1999).

Universities as Cities

Universities and colleges are similar to cities. A university is not only a research and education core but it is also a centre that provides housing, working environments, sports and recreation, cultural activities, and a sense of belonging. A university is a city within a city. A university campus is bound by tradition, governance, sense of place, interdependent living, and special interest groups (Jackson & Weinstein, 1997). As such, an emergence called the "Healthy Universities" concept has evolved. Utilizing the same concept and principles of "Healthy Cities", the goal is to foster better overall health within a campus based (university or college) environment. For example, Jackson and Weinstein discussed a framework for understanding issues that contribute to vibrant and healthy communities of higher education. They addressed several questions including the importance of maintaining healthy communities within colleges and universities and why it should be done. Specifically, three major questions the authors addressed are: Why should colleges maintain healthy communities? How do we define health in colleges and universities? And what are the key responsibilities in fostering healthy educational communities?

Universities as healthy schools. The university is a school. Its core

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function is to provide a centre for learning and education and therefore it is an integral component of the "Healthy Settings" concept. The university is a large institution that has the capacity to influence and contribute to communities. Seifer (2000) explored how colleges and universities have an important role to play in building healthier communities and offered strategies for engaging colleges and universities in the "Healthy Communities Movement." Downey (2003) has described the university in its institutional form as a trinity, three simultaneous incarnations in one: corporation, collegium, and community. It is the symbiotic equilibrium among the three forms that is essential to the proper functioning of the whole. As such, the university is a school and a workplace.

Universities as healthy workplaces. A university employs faculty, support, recreational, leisure, and building staff. Dooris (1998) describes the "Health Promoting University Project" and the use of a settings-based approach to promote the health and well being of staff, students, and the wider community. Additionally, Fisher, Konkel, and Harvey (2004) examined risk factors contributing to work-related musculoskeletal injuries in an office setting within a university setting. The study was designed to determine differences between faculty and staff in the university setting and their exposure to physical risk factors and work-related musculoskeletal disorders.

It is evident that students, faculty, staff members, and support workers are integral to the university environment and their health and safety is therefore important. Unfortunately, little attention has been directed to BSWs. Building

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service workers assist in providing healthy and safe work and study environments for thousands of individuals. Therefore it is important that their health and safety be adequately promoted.

Workplace Hazards

It has been well documented that workplace hazards exist within working environments. Workplace hazards can be categorized as biological, chemical, ergonomic, physiological, psychological, or sociological (Plog, 2002).

Biological. University laboratories generally contain animals, insects, or plants for the purposes of agriculture, research, and medical activities. These laboratories could contain biological agents associated with infectious, allergenic, toxic, and carcinogenic reactions in humans (Harding, Fleming, & Macher, 2002). Knowledge and awareness of these biohazards is essential to minimize and control exposure.

Chemical. Chemical hazards include inhaling chemical agents in the form of vapors, gases, dust, fumes, and mist, or by skin contact with these materials (Plog, 2002). The degree of risk in handling a given substance depends on the magnitude and duration of exposure. Building service workers are highly exposed to and have direct contact with dust and vapors from cleaning products.

Ergonomic. Ergonomic hazards include improperly designed tools, work areas, or work procedures (Plog, 2002). Improper lifting or reaching, poor visual conditions, or repeated motions in an awkward position can also result in accidents or illness in the work environment. Musculoskeletal disorders of the

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upper extremity are one of the most commonly reported workplace disorders and are generally a result of the poor arrangement of office equipment, such as furniture, computers, and supplies, causing awkward posture and strained upper body muscles (Fisher, Konkel, & Harvey, 2004). The most common musculoskeletal disorder is carpal tunnel syndrome (CTS) and it is often associated with repetitive wrist movements. For instance, CTS may be developed from repetitive movements from washing walls or dusting (McDiarmid, Oliver, & Ruser, 2000). The use of equipment may also cause musculoskeletal disorders. Using or wearing heavy vacuum cleaners may cause back pain in the lumbar spine when operated incorrectly. Likewise, lifting or carrying heavy objects may also elicit back pain.

Physiological. Physical hazards may include such things as noise, temperature extremes, ionizing radiation, nonionizing radiation, and pressure extremes (Plog, 2002). Building service workers experience loud noise from using vacuum and floor cleaners. As well, extreme temperature exposure can exist when taking garbage outside in the winter and going from warm indoor temperatures to freezing cold outdoor temperatures.

Psychological. Psychological hazards such as high job demands and low control can cause emotional stress and strain (Gross & Pechter, 2002). Factors that can result in emotional strain include boring, repetitive tasks, shift work, fear of layoffs or physical violence, and the absence of social or coworker support.

Sociological. Musculoskeletal disorders resulting in the workplace may

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have great economic and sociocultural implications. When a worker is injured and cannot perform his or her regular job duties, the cost for an organization in terms of rehabilitation for the worker and a replacement can be quite high. As well, when a person cannot perform certain work activities it may also interfere with personal and domestic activities.

The degree and exposure to a workplace hazard will depend on the individual workplace and its ability to recognize and address the hazards and to minimize the risks associated with them. Overall, workplace hazards can be alleviated with proper attention: recognition, evaluation, and control (Plog, 2002).

Health Effects of Building Service Jobs

Building service personnel are subject to a number of personal health effects. Heavy exposure to solvents and cleaners may lead to nausea, ear, throat and lung disorders, and asthma (Reinisch et al., 2001). Reinisch et al. examined the average annual reporting rate for work-related asthma in California. The results showed that janitors and cleaners had one of the highest reported rates during the years 1993-1996. Exposure to solvents and cleaning materials was determined to be associated with the reports of asthma. Rosenman et al. (2003) examined cleaning products and work-related asthma from 1993-1997 in four American states. Out of the confirmed cases of work-related asthma associated with exposure to cleaning products, 22% of these cases were those who worked as janitors and cleaners. Arif, Delclos, Whitehead, Tortolero, and Lee (2003) analyzed associations between occupation and work-related asthma and work-

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related wheezing among U.S. workers and found several occupations that were at risk of developing these, with cleaners and equipment cleaners showing the highest risks. As well, Jaakkola, Piipari, and Jaakkola (2003) found that asthma risk increased for women cleaners in a population-based incident case-control study.

Cucino and Sonnenberg (2002) examined esophageal squamous cell carcinoma and its association with different occupations. They found that this cancer was high among occupations associated with the use of chemical solvents or detergents; specifically, they found that the cancer reports were high in the occupations of janitors and cleaners (Cucino & Sonnenberg). However, the study did not consider the length of time spent in individual industries or occupations.

Blair et al. (2000) conducted a population-based case-control study in Iowa and Minnesota to evaluate the association between various occupations and leukemia risks. Results showed an increased risk of leukemia among those employed in building and related service occupations; specifically, risks were observed for janitors working for 10 or more years (Blair et al.). Exposure to solvents, various chemicals, and cleaning chemicals was associated with greater risks of leukemia. Although an association between leukemia and janitors was observed, the study was not consistent across solvent-related occupations (Blair et al.).

Zheng, Cantor, Zhang, Keim, and Lynch (2001) examined the association between occupational and industrial exposures and the risk of brain cancer in men

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and women from a population-based case-control study of brain glioma in Iowa. Results showed that among men, workers in cleaning and building service occupations, janitors and cleaners (especially those with more than 10 years of experience), experienced an increased risk for brain cancer (Zheng et al). However, the authors explain that chance alone or coincidence cannot be ruled out as the explanation for the observed associations.

Krishnan et al. (2003) compared occupation and adult gliomas in the San Francisco Bay area. Results showed that higher or statistically significant elevated odds ratios (estimations of odds comparing cases and controls) were found overall for men who were janitors as their longest held occupation. However, the study identified that participation biases may have played a role in some of the findings and that the odds ratios also might have been affected by the fact that most controls were relatively healthy people.

In a case-control study that evaluated the risk of gastric cardia cancer by occupation and industry using information from death certificates, for 24 US states between 1984 to 1992, it was found that there was a significant increase in risk observed in the industry of colleges and universities, and in the occupations of janitors and cleaners for white men (Cocco, Ward, & Mustafa, 1998). However, one limitation of the study was the use of the death certificates where the occupational information on the death certificates was limited to only one occupation and industry title, with no indication of duration of employment or the possibility of other employment (Cocco et al.).

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Kogevinas et al. (2003) examined occupations and industries that were at high risk for bladder cancer in men. The study found that high risk was observed for non-industrial janitorial workers. However, other factors indirectly related to the job may have influenced risk, such as previous health factors.

A number of studies have examined the association between paternal occupational groups and the risk of offspring for birth defects. For example, Shaw, Nelson, and Olshan (2002), conducted a large population-based, case-control study of fetuses and liveborn infants with neural tube defects (NTD). Among the births and fetal deaths between 1989 to 1991 in California, they looked for an association between paternal occupational group and risk of offspring with NTDs. Data from fathers who were janitors and cleaners revealed such an association (Shaw et al., 2002). Chia, Shi, Chan, Chew, and Foong (2003) evaluated the association between the prevalence of birth defects among maternal and paternal occupation groups in Singapore from 1994 to 1998 to determine whether there were associated maternal and/or paternal occupation groups that are associated with an increased risk for birth defects versus chromosomal single birth defect, nonchromosomal single birth defect, and multiple birth defects. The study found that mothers and fathers who work as cleaners and laborers and related workers appeared to have a higher risk of giving birth to children with chromosomal single birth defects, nonchromosomal single birth defects, and multiple birth defects. However, the association consisted mainly of workers in the manufacturing of metal products, machinery, and

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equipment where exposure to solvents is common. In a review by Chia and Shi (2002), epidemiological studies on paternal occupations and birth defects were reviewed for the period 1989 to 1999 inclusive. The review revealed an association between janitors, as a paternal occupation, and birth defects. However, the review identified weaknesses of the studies determining that inaccurate assessment of exposures, different classification systems, different inclusion criteria of birth defects, and low statistical power may have biased some of the results from the studies (Chia & Shi). Despite these weaknesses, it was still observed that there might be an association between paternal occupations and offspring birth defects.

Equipment Hazards in Building Services

Building service workers generally use equipment to perform their job. These include mops, vacuum cleaners, and larger machines to wash the floors. It is often the improper fit of the equipment or improper use of the equipment that causes strain on the worker leading to musculoskeletal injuries. For instance, improper bending to vacuum or wash floors can lead to lower back pain and spine injuries. Lifting heavy objects incorrectly may also cause lower back injuries (Cole, Grimshaw, & Burden, 2004). From 1999 to 2003 the back, including the spine and spinal cord, was the most common body part injured and accounted for about 30% of the total insurance claim costs in Alberta (WCB, 2004).

Effects of Shift Work

Working at night can have a profound effect on human welfare.

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Nighttime shift work can influence health, safety, and social well-being.

Health effects. Several researchers examined the health effects of nighttime shift work (e.g., Brooks, 2000; Davis, Mirick, & Stevens, 2001; Hansen, 2001; Scott, 2000). These studies focus on how shift work affects a person's health. For example, Scott (2000) reported on shift work and its relationship to specific medical disorders. In particular, sleep deprivation, gastrointestinal disorders, cardiovascular morbidity, and problems with reproduction were discussed.

Numerous authors of studies and reviews have reviewed the effects of shift work and sleep (e.g., Akerstedt & Knutsson, 2000; Fisher et al., 2000; Poissonnet & Veron, 2000; Somerville, 2001). It is well documented that sleep disorders are frequently associated with working shifts (Poissonnet & Veron, 2000). Shift work disrupts the human biological or circadian rhythms and disruptions in the circadian rhythms may cause sleep disorders (Akerstedt & Knutsson). It is argued that sleep quality and duration are a causal factor influencing workplace performance, absenteeism and stress, while sleep deprivation can lead to both physical and psychological ill-health (Brooks, 2000). In an older study by Folkard, Monk, and Lobban (1978), it was identified that shift workers who sleep at the same time every day have better health than those who vary their sleeping habits. Thus, disruption to the circadian rhythm is often the cause of other health related problems.

Tolerance for nighttime shift work after a period of normal rest (awake

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during the day) may not be evidenced until the fifth night. In a study by Hennig, Kieferdorf, Moritz, Huwe, and Netter (1998), changes in cortisol secretion during shift work were examined to determine the size of changes and the time point of the changes in biological rhythms during night shift and whether they were associated with tolerance to shift work. Results indicated that a reversal of circadian function could be observed after the fifth night. Hence, health related problems associated with intolerance to shift work might never adequately be alleviated if tolerance to shift work does not occur until the end of a continuous rotation of nighttime shift work. In contrast, Tucker, Smith, Macdonald, and Folkard (2000) assessed the effects of the direction of shift rotation. Looking at the results within 8-hour shift systems they assessed sleep, shift alertness, physical health, and psychosocial well-being and found an absence of negative effects of advancing shifts (a shift system that rotates from morning shifts to night shifts to afternoon shifts) on chronic outcome measures. However, the results of the study may have been tempered by the possibility that difficult shift systems self select those workers most able to cope with their deleterious effects and therefore advanced shift rotations may have no significant effects on the study sample population (Tucker et al.).

In some older studies, an increased incidence of illnesses has been recorded among shift workers, including neuroticism (Bohle & Tilley, 1989), cardiovascular diseases (Gordon, Cleary, Parker, & Czeisler, 1986), and gastrointestinal problems (Costa, 1996). Gastrointestinal problems may be

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associated with the limited choices available for meal acquisition during the night (Brooks, 2000). As well, night-workers' meal times are in conflict with the circadian rhythms of gastric acidity emptying (Goo, Moore, Greenberg, & Alazraki, 1987; Scott, 2000). Moreover, Lavie, Chillag, Epstein, and Tzischinsky (1989) found that shift workers who were categorized as nonadapters (those workers who were unable to adapt to working at night) had a higher incidence of hypertension than day workers. In addition, a Swedish retrospective study by Alfredsson, Karasek, and Theorell (1982) found that men with a history of myocardial infarction were significantly more likely to be shift workers than controls matched for gender and age.

A risk of breast cancer has been shown to be associated with nighttime shift work. In a case-control study by Davis, Mirick, and Stevens (2001), it was found that breast cancer risk was increased among subjects who frequently did not sleep during the period of the night when nocturnal melatonin levels (mammalian hormone involved in circadian rhythms and sleep and potentially in restraining tumor growth [Brzezinski, 1997]) are typically at their highest. There was an increased risk with increasing years and with more hours per week of graveyard shift work (Davis et al., 2001; Hansen, 2001).

Safety risks of shift work. Reduced alertness and performance of people who work at night have been documented. Williamson and Feyer (1995) found a higher incidence of errors and accidents in many areas of work for night shifts. As well, Gold et al. (1992) found that nurses who worked nighttime shift work

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had a greater chance of nodding off while driving to/from work and increasing their chances of having work related accidents or performing medication errors compared to their day shift counterparts.

Social effects of shift work. Domestic and social life balances are disrupted with nighttime shift work. Such imbalance may indirectly contribute to neuroticism. To illustrate, when Hennig et al. (1998) studied cortisol secretion changes of shift workers, those who were labeled "non-adapters" to nighttime shift work revealed higher values in neuroticism, excitability, feelings of stress, and psychosomatic complaints. However, the results were insignificant due to the small sample size of the study.

Safety Risks of Working Alone

Safety issues are increased when people who work at night also work alone. Workers who are isolated from public view are at risk of violent attacks. For example, abuse or violence risks are increased if a person has to walk alone to/from a parking lot or bus station/stop in the dark. As well, if an incident occurs, there is generally limited assistance either available or quickly. In particular, BSWs who work nighttime shift work generally work alone. They are generally isolated from public view and are therefore at risk of violent attacks.

There is often little supervision for workers who work alone. Without proper guidance or supervision, improper handling of chemicals and equipment could occur resulting in injuries. Falls are among the major causes for hospitalization for injuries sustained by workers (Alberta Centre for Injury

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Control and Research, 1997; Barss, Smith, Baker, & Mohan, 1998). Out of the 21 reported incidents from BSWs at a large Canadian university, five were the result of falls or slips (G. Thomlison, personal communication, November 28, 2002). This number could be underreported since only those that may have felt compelled to report the incident or suffered severe and obvious injuries did. As there are no witnesses available to confirm the incident, it is possible that many people do not report incidents for fear of losing their job. From an economic standpoint it may appear like a cost saving to employ people to work alone, however, if a person becomes injured from working alone, it is questionable whether the cost saving outweighs the financial costs of replacement, rehabilitation, and personal well-being of the injured worker.

Provincial Legislation

The Alberta Occupational Health and Safety Act and the Working Alone Safely Regulation (Government of Alberta, 2000) have legislated a number of employer responsibilities for workers who work alone. The regulation requires the employer to conduct a hazard assessment to identify existing or potential safety hazards in the workplace associated with working alone. As well, employers need to implement safety measures to reduce the risk to workers from the identified hazards, to ensure that workers have an effective way of communicating with their employer or supervisor in case of an emergency situation, and to ensure that workers are trained and educated so they can perform their jobs safely (Government of Alberta, 2001). The province of Alberta has

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made progress to educate employers and employees to work alone safely by creating and making available a guide for working alone (Government of Alberta, 2000).

Governments are becoming more involved with workplace safety. In 2002, the Minister of Alberta Human Resources and Employment launched an initiative titled "Workplace Safety 2.0". This initiative was meant to reduce workplace injuries by 40% by the end of 2004 (Government of Alberta, 2004).

Economic Costs of Illness and Injuries

Health problems, reduced sleep, and poor safety behavior result in increased workplace injuries and incidences, lost time at work, increased absenteeism, increased healthcare costs, and possible high employee turnover (Brooks, 2000). As well, Gold et al. (1992) found that night nurses on permanent night shifts and rotating nurses were more likely to use sleep-inducing medications to get to sleep. There may also be an increased use of stimulant enhancing drugs among night shift workers in order to stay alert while on the job and/or to cope with the social effects of working night shifts. In both cases, there may be a reliance or dependence on the drugs, potentially causing substance use.

Working adverse schedules provides access and opportunities for substance use (Trinkoff & Storr, 1998). Researchers examined work schedules and substance abuse in nurses. Work schedule components of shift, shift length, weekends, and overtime were examined in a nationally representative sample of employed registered nurses. Results indicated that there were modest associations

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with substance use and work schedules. Nurses working greater than 8-hour night shifts had the highest likelihood of alcohol use and smoking (Trinkoff & Storr). Greater autonomy of working alone and less supervision may provide an environment in which substance use is tolerated or remains undetected (Trinkoff & Storr).

Nighttime shift work employee retention is a challenge. In some cases, individuals prefer to work at night rather than during the day. They are likely able to tolerate and adapt to the changes of the circadian rhythm disruptions. For example, in an older report, Harrington (1978) found that about 10 percent of shift workers enjoyed shift work. Despite this finding, the majority of individuals and the world population as a whole, generally work during daylight hours and sleep during the night. Brooks (2000) identifies a series of moderating variables that may predict how likely a person will continue to work nighttime shift work. These variables include choice, predictability and regularity of shifts, social and domestic preferences, physiological and psychological tolerance, and extrinsic rewards. Regardless, any employee turnover costs employers financial loss.

Workplace injuries increase insurance premiums for employers. The Worker's Compensation Board in Alberta (WCB) increased the premium costs for employers by approximately 13% each year (on average) between the years 1999 to 2004 across all organizations (WCB, 2004). In 2002, the premium rates were increased by 27.3% from 2001 rates and premium rates for 2003 increased 12.5% from 2002 rates in Alberta on average across all industries (WCB, 2004).

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Between 1997 and 2001, claim costs almost doubled and the average cost per claim has risen 15% from 2001 (WCB, 2004). This increase may be attributed to inflation, a better-paid workforce, increased cost of services and benefits, but also to increased workplace injury claims (WCB, 2004). Total workplace injuries increased approximately 20% between 1998 and 2004 but this increase may be attributed to the increased total number of employers and workers insured by WCB (WCB, 2004). With a more positive outlook, 2005 premium rates were reduced by 7.6% from 2004 rates in Alberta (WCB, 2004). In comparison with other provinces, the Workplace Safety and Insurance Board (WSIB) in Ontario did not change premium rates from 2001 to 2002, increased rates by 3% in 2003, and maintained the 2003 rates for 2004 and 2005 (Workplace Safety and Insurance Board [WSIB], 2004). The Saskatchewan Worker's Compensation Board increased rates for 2004 by 12% from its 2003 rates but decreased rates for 2005 by 4% from 2004 rates (Saskatchewan Workers' Compensation Board, 2004). Alberta's employer premium rate for 2005 is one of the lowest compared to the other Canadian provinces, with only Manitoba lower than Alberta (WCB, 2004). However, in 2002 according to the Association of Workers' Compensation Boards of Canada [AWCBC] (2003), Alberta had one of the highest reported numbers of claims (fourth to Ontario, British Columbia, and Quebec).

Although it cannot be measured, the social costs of workplace injuries may be high. Workplace injuries require acute care treatment, rehabilitation,

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disability payments, social assistance, and impact the pool of social resources. The resources required for back to work rehabilitation may inhibit effective resource usage in other healthcare emergent areas. Disability payments increase the pool of insurance premiums on the population as a whole. Similarly, when workers require social assistance from governmental agencies, it reduces allocation of such funds towards the development and sustainability of social and community programs. Even when a worker does receive disability payments or social assistance, the payment amount is not as high as the amount of pay a worker would have normally received had he or she continued to work. As such, this may increase the pressure on other members of the household to earn more income to compensate for the injured worker, possibly impacting the family or household dynamics negatively.

Linguistic and Cultural Influences on Personal Safety

People who speak English as a second, third, fourth, or more language may be at greater risk for personal safety hazards in the workplace because of inadequate understanding of policies and procedures presented in English. For instance, occupational health and safety training programs may be beyond the employee's literacy or English speaking capabilities. Hong (2001) identifies that successful occupational health and safety training with minority populations requires that organizations incorporate safety and health education with ongoing in-house English as a second language (ESL) instruction and a multilingual videotape approach.

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Culture and diversity have also influenced workplace research. Nursing research has identified the need for cultural awareness in meeting healthcare needs of patients from different ethnic backgrounds. Phillips and Weekes (2002) identified the need to incorporate multiculturalism into oncology nursing research. The researchers from the study examined articles published in the *Oncology Nursing Forum* from 1990 to 2000 and concluded that cultural competency guidelines needed to be refined, strengthened, evaluated, and integrated when doing oncology research.

In efforts to ensure that adequate health and safety practices are well communicated, organizations must explore beyond western cultural practices. This requires organizations to go beyond what is perceived within their own cultural relativism. Baker (1997) examines how cultural relativism and cultural diversity impact nursing practices. The author points out that optimal healthcare for minority populations requires that health care professionals seek understanding of the cultural interpretations of their client, and engage in critical examination of their own cultural interpretations before making judgments that represent their own best possible interpretation (Baker, 1997). Davidson, Daly, Hancock, and Jackson (2003/4) describe how cultural competence in the awareness of patient needs, values, beliefs, and health seeking behavior is important to improve health outcomes for an ethnically diverse Australian population. As well, Hoban and Ward (2003) illustrate how to build culturally competent college health programs to ensure health practices are effectively

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communicated. In addition, Kerr, Struthers, and Huynh (2001) provide a framework of cultural competence to guide occupational and environmental health nursing practice at the individual and population levels of care. The framework provides strategies for organizations and nurses to achieve cultural competence. Furthermore, Burgel, Lashuay, Israel, and Harrison (2004) examined the health outcomes of Asian immigrant women. It was concluded that culturally sensitive and effective outreach and education for factory owners and workers was needed.

Occupational health nurses can influence health outcomes for minority and immigrant workers. Tsai and Salazar (2004) examined Brazilian immigrant women's transnational experience and perspectives of domestic work and employment in the United States. The outcomes of the study demonstrated the importance of the occupational health nurse in contributing to immigrant workers' mental health.

Language barriers may prohibit successful communication of health policies and procedures. For example, in a study by Kaiser, Barry, and Kaiser (2002) that examined the delivery of healthcare, the researchers found that major language barriers contributed to the lack of understanding of a medicare system and prohibited adequate communication of health needs to healthcare providers resulting in the ineffective and inefficient delivery of services to minority populations.

Personal safety issues may be influenced by one's cultural norms, values,

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and practices. What is perceived as a personal threat in one culture may not necessarily be the same in another. Western ideology and perception is only one view. As such, organizational safety policies and procedures should be created with an understanding and translation of diverse cultural interpretations. The translation process is examined by Wenger (1993) (see also Teel, Meek, McNamara, & Watson, 1997). Wenger examines the conceptual bases for cultural meanings of symptoms and the relevance in nursing research and practice. As patients seek assistance from health professionals for physical symptoms, their symptoms require translation by the health professional before adequate treatments can be provided.

Biological variations may influence the risks to personal safety. For example, in a simple misunderstanding in a meat packing plant that was experiencing safety problems, the problems were related to the size of the tables on which the women employees were working. The tables were designed for taller Caucasian men, but the workers were much shorter Asian women and the simple solution of lowering the tables resulted in fewer cases of reported injuries (Ramage, 2002). The exploration of culture in relation to biologic influences on the risks to personal safety is required by organizations. Furthermore, Overfield (1995) describes biological variation in health and illness related to differences in race, age, and sex; specifically, differing reactions to matters such as stressors and disease.

Immigration is increasing in Canada and is a major source of new workers

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(Chui & Devereaux, 1995). Chui and Devereaux examined Canada's "newest workers" who were employed between 1986 and 1991 based on census data and showed that there was a shift of immigrants' origins away from European countries toward Asia, the Caribbean, and Central and South America. As the ethnic diversity within Canada increases, multicultural awareness and adaptations of this awareness will be necessary.

Building Services Workers at the University

According to senior administration at the University under scrutiny, BSWs work four (4) different shifts: 0730-0400 hours, 0330-2300, 2300-0300, and 2300-0700, with the majority of staff working between 2300-0700 (P. Noseworthy, personal communication, October 16, 2002). The BSWs represent a number of ethnic origins; many are from Eastern European countries with English as a second language (G. Thomlison, personal communication, November 21, 2002). This presents challenges to providing safety training to these employees and suggests that safety explanations and training may not be well understood by employees. As well, cultural norms, beliefs, and differences may impede or hinder understanding of particular personal safety protocols.

The age range for building service employees at the University of interest is from 24 to 65 years, and the ratio of male to female (for both part-time and full-time employees across all work shifts) is approximately 1:2, for every male there are two (2) females employed (G. Thomlison, personal communication, November 28, 2002). Many of the women employed as cleaners and janitors

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work two jobs, one during the day and one during the night (G. Thomlison, personal communication, November 21, 2002). As a result, sleep deprivation, risk of unsafe behavior, and the cumulative problems of working two jobs are increased.

Policies and Procedures for Safety

The University has a working alone protocol for personal safety. Included in the protocols are the training of staff in the use of such equipment as ladders and electrical equipment, provision of personal protective equipment and ensuring its appropriate use, and information about the location of first aid kits, fire alarms, and fire extinguishers. University staff members are encouraged to use the campus "Safewalk" service and to have personal cell phones in case of emergencies. As well, the University complies with all working alone policies and procedures set out by the Working Alone Regulations of the Government of Alberta.

Policy change. In a recent notice distributed to all buildings at the University, a reduction of cleaning services commenced September 1, 2002. This included cleaning private offices once every two weeks instead of once per week and cleaning research labs once per week instead of twice per week. This has implications not only for those who work and study within the buildings, but also for the health and safety of those who are employed to clean the buildings. For instance, the decrease in regular cleaning and maintenance of the buildings may result in increased exposure to fungus, mold, and bacteria, increasing the risk of

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medical disorders. As well, it may lead to strained interpersonal relations between building services workers and students, faculty, staff members who are angry at the reduced cleaning services.

Methods of Previous Studies

Research studies involving shift work occupations have generally been quantitative (e.g., Lamond et al., 2003). These studies have usually investigated physiological and biological risks associated with working at night and use epidemiological methods. In health related studies involving BSWs, health records or death certificates have been used (e.g., Krishnan et al., 2003). However, the objectives of these studies appear more quantitative and are more concerned with clear finite statistical results. Questionnaires have been used in other qualitative research studies involving building service occupations and the social and psychological risks associated with working nighttime shift work (e.g., Jansen, Kant, Nijhuis, Swaen, & Kristensen, 2004). This is evidenced in studies where study participants are more homogeneous (similar language and culture) (e.g., Flores & Deal, 2003). Questionnaires can be used in this setting since comprehension and understanding of what is being asked would not be an issue. In other qualitative studies not directly about BSWs but related to the use of different ethnic populations as the sample, interviews were used as the method (e.g., Rose, 2004; Tsai & Salazar, 2004).

Summary

Nighttime shift work is increasing. The need to employ cleaners and

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janitors at night is unlikely to change in the future. As such, the health and safety of this population must be adequately addressed in order to achieve "Health for All." The Canadian population comprises a number of cultures and languages. The multiculturalism of the Canadian population may impact the effectiveness of safety policies and procedures. Employers and other responsible agencies need to address and identify cultural differences and language barriers to ultimately increase the overall personal safety of BSWs and decrease organizational economic costs.

Previous published literature on BSWs has examined safety hazards of the building services occupation, the hazards of working at night, and the hazards of working alone (e.g., Brooks, 2000; Flores & Deal, 2003). These studies are primarily epidemiological and have reported that there are physiological and biological risks of working in the building services industry. It has also been reported that working at night promotes additional physiological and psychological stress on the body. As well, these studies have explored how there are increased safety risks when working alone. Legislation in the province of interest has also addressed hazards of working alone. The primary gaps in the research with BSWs are related to the perceptions of BSWs themselves about their own safety, the influence that culture and language may have on the delivery and uptake of policies, procedures, and the training about the personal safety risks for building service jobs. No published literature was located that has explored what BSWs think about their personal safety, what they think about the training

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for personal safety, or what knowledge they have of the policies and procedures in place that support their safety.

The following study determined from BSWs, who work nighttime shift work at the University, what they think about the current personal safety policies and procedures set by the University and how effective they are in addressing factors that affect their personal safety. It was expected that the results would illuminate perceptional differences about personal safety between nighttime BSWs and the organization where they work. It was hoped that perceptions of personal safety would add to the already published literature of the health and safety issues of building service work. As well, it was anticipated that linguistic and cultural perceptions would influence the delivery and uptake of personal safety issues. Furthermore, it was presumed that the results would reveal an unexploited cultural approach to safety training delivery and safety policies and procedures development for nighttime BSWs.

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Chapter 3

Method

A qualitative method was used in this exploratory, descriptive study in order to answer the research questions. The purpose of this chapter is to explain the purpose of the study, define terms, and to describe the design, the sample, the procedures for data collection and analysis, and the ethical considerations.

Purpose

The purpose of this study was to determine from building service workers (BSWs) who work nighttime shift work what they perceive about personal safety at work and factors that affect their personal safety.

The research questions were:

1. What do building service workers think about their personal safety?
2. What risks to personal safety do building service workers identify?
3. What education about risks to personal safety do building service workers report?
4. How do building service workers perceive the existing health and safety training?
5. What cultural and linguistic factors are associated with risks to personal safety of building service workers?
6. What policies and procedures do building service workers report as related to risks of personal safety?

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Definition of Terms

Building service workers refers to cleaners, janitors, and custodial staff who perform activities such as cleaning and moving of furniture and equipment (Human Resources Development Canada [HRDC], 2003).

Personal safety is anything that affects the body's integrity, including violence, illness, and injuries (CCOHS, 2002). Personal safety includes personal security and preventable injury.

Shift work refers to an arrangement of work hours that employs two or more shifts of workers in order to extend the hours of operation beyond that of conventional office hours (Akerstedt, 1990).

Design

The study was an exploratory, descriptive study with an ethnographic approach using one-on-one semi-structured individual interviews with workers drawn from a convenience sample to acquire information about the personal safety of BSWs (Brink & Wood, 1998). A convenience sample was chosen because key informants who have experience with the phenomenon being studied are able to answer the research questions. The objective of the study was to describe, document, and analyze the issue of personal safety of BSWs who work nighttime shift work.

A qualitative method was chosen for a number of reasons. First, the phenomenon of exploring personal safety of BSWs who work at night is relatively unknown. When little is known about a phenomenon, a qualitative design permits

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the researcher to capture and discover as many issues as possible from the participants of the sample who experience the phenomenon of interest (Brink & Wood, 1998). Second, this research study cannot be done with questionnaires. This research area has not been researched sufficiently to know and include all the issues in a questionnaire. As well, according to human resources personnel at the University, the BSWs would not be likely to return a questionnaire, partly due to limited English language skills. The qualitative design also permits participants to elaborate on an issue that may not be expressed in a questionnaire. In addition, when a population is diverse and has not been studied for their diversity, a qualitative design permits the researcher to discover factors that might be missed by a questionnaire. As well, the study was used to unravel complicated relationships and to discover important questions, processes, and relationships, not to test them. Moreover, interviews permit a larger breadth of information discovery providing more in-depth understanding of the phenomenon that may not be obtained through other methodological strategies. Finally, in similar research in health, interviews were used as one method for data collection. A one-on-one interview provides the researcher with the opportunity to probe responses and to solicit clear and valid responses.

The study was designed to observe the phenomenon specifically from an individual context. It is worth noting that society, organizations, and work groups may influence individual attitudes, beliefs, and perceptions. The organizational context to which a worker may be subjected, and the pressure and processes that

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an individual experiences when interacting within a group can have profound effects on an individual. However, within the scope of this study, only individual perceptions were examined.

Some precautions were considered with the use of the qualitative design. First, when drawing inferences and conclusions from the sample, considerations were given to the representativeness of the sample. Second, researcher bias and expectations were minimized by using the principle of cultural relativism (Baker, 1997). Participants were interviewed within the context of their own cultural system and the researcher remained as objective as possible keeping memos of thoughts, questions, and self-reflection during the interview process.

Researcher Bias

The researcher brought some biases, assumptions, and expectations to the research. It was assumed that people are generally concerned about their safety. Building service workers are no different and those who work at night were expected to be even more concerned about their personal safety while at work. Acknowledging the cultural diversity of those that work in building services, it was expected that the training they receive might be misinterpreted or not well understood. As well, language and culture may influence training acceptance, awareness of safety policies and procedures, and the conduct of personal safety behaviors. It was also anticipated that some of the BSWs would not want to participate in the study for fear of job loss or reprisal. In addition, it was thought that those with more experience or time working in building services might be

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more interested in participating in the study because they had more to say. As a result, it was presumed that an older age group of BSWs would be more interested in participating. Generally women are more apt to communicate their thoughts and feelings so it was predicted that more women would show interest in the study. Finally, whilst the sample population comprised a number of different ethnic backgrounds, since one of the criteria for inclusion in the study required the participant to be interviewed in English, it was likely that only those who felt fluent in English would participate in the study.

Sample

A convenience sample, the use of the most conveniently available people or objects as participants in a study, of BSWs was used (Polit & Hungler, 1999). The accessible population, approximately 125 nighttime BSWs comprised the sampling frame, which was accessed in coordination with the Manager of Human Resources and Procurement at the University. The sample comprised volunteers who consented to be part of the study following a recruitment effort of obtaining participants from a number of pre-arranged meetings that the researcher attended.

To encourage the employees to participate in the study, the researcher informed the potential participants that upon meeting her individually for participation in the research, she would provide at the individual meeting a snack, consisting of a sandwich and a drink. A snack was chosen because the researcher planned to meet the participant before or after his or her scheduled shift, which provided a good opportunity for the participant to eat and to have fluid intake

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before or after work. Since it was presumed that some interviews would be completed at the end of a participants' shift and given the physical nature of the work tasks, a snack and drink was considered to be a good choice to address any dehydration and/or hunger issues. Prolonged exposure to working in a warm environment can lead to progressive water and electrolyte loss from the body as sweat (Clapp, Bishop, Smith, & Mansfield, 2000).

After participants volunteered for the study, the eligibility to participate in the study was determined by two criteria: the length of service of the employee and whether the participant accepted being interviewed in English. A minimum of one year of employment service in the employee's current position was used as the baseline for inclusion in the study. One year as the minimum length of time was chosen because it is a reasonable length of time to be experiencing the benefits and risks of the work, training, and workplace interpersonal relationships of the organization, and the employee is no longer on probationary status and vulnerable. English is the language used for communicating policies, procedures, and safety training to BSWs and the researcher is fluent in English. An attempt was made to reduce or ensure that any gender bias was kept to a minimum by soliciting an equal number of men and women selected for inclusion in the study by the researcher; however equality of gender was not a criterion for inclusion. A total of 10 one-time interviews were conducted. It was expected that a number of issues would be identified by interviewing 10 employees who worked between the hours of 2300 to 0700 hours.

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Access Procedure

Permission was obtained from the Health Research Ethics Board at the University to access the sample (Appendix A). Following ethics approval, the researcher met with administration and the supervisors from the five areas where the nighttime building service employees are employed. This meeting was conducted at the beginning of the monthly supervisor meeting that commenced at 2300 hours. At this meeting, the researcher organized with the area supervisors five separate staff meetings at five different building locations to meet with the rest of the nighttime BSWs at the beginning of their scheduled shift commencing at 2300 hours. At each subsequent staff meeting, the researcher provided an information letter (Appendix B) to all present, explained the details of the study, and answered any questions. Attached to the information letter was a participation indication form (Appendix C). All employees present at the staff meeting were asked to submit into a box the participation indication form, marking off the appropriate box on the sheet (yes for participation or no for not interested). Requesting all employees present to fill out a form, whether interested or not, protected their anonymity with co-workers and supervisors at the meeting. It was not obvious to those present who had indicated interest or not in participating since everyone had to make checkmarks on the form and place it in a box. Those who indicated that they were interested printed a name and contact number where they could be reached. The employees were informed that if they had indicated that they would like to participate in the study, they would be

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notified by phone within about three weeks. After each separate staff meeting, the participation indication forms were reviewed and separated into three piles: yes, no, no response. At the completion of all separate staff meetings, the researcher separated the yes responses.

Data Collection

Instrument

The researcher developed a semi-structured interview guide (Appendix D). The interview guide began with a series of fixed questions to obtain the demographics of the participant sample (Part A). Part A included age range, year of building service experience, gender, work status (full-time, part-time, casual, permanent, or temporary), level of completed education, equipment used, consideration of being part of a minority group, number of languages spoken, birth language, and whether the employee worked another job and the duration. Part B addressed perception of personal safety using semi-structured questions. The self-designed interview questionnaire was developed by using a previously developed questionnaire and modifying the questions to meet the needs of the present study (Skillen, Heather, & Young, 2003).

Expert Reviews

Two reviews of the interview guide were conducted. In the first review, a panel of four experts, including two occupational health nurses (one had experience working with staff that speak English as their second language) and two experts familiar with questionnaire and research design (including one expert

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in adult education) were approached to ensure content validity. The experts were prepared at master or doctoral levels. Each expert was asked to provide feedback using a review form rating each question as (a) not relevant, (b) needs major revisions, (c) relevant with minor revisions or (d) very relevant (Lynn, 1986; Billay, 2001; Appendix E). Seventy-five percent agreement, that is three out of four among the experts was considered acceptable for the study (Lynn, 1986). In addition, experts were invited to offer any other suggestions to change, modify or improve each question, to suggest replacement wording after each question, and to provide any other comments. The results from the expert reviewers were compiled to increase the ease for assessment.

Results of first expert review. All questions were rated as acceptable (relevant with minor revisions or very relevant and succinct by three out of the four reviewers) with the exception of two questions. Part A, question seven, "Do you consider yourself part of a visible minority group?" was rated not relevant by two expert reviewers and rated very relevant and succinct by the other two expert reviewers. This question was retained because cultural identity may be a significant variable in relation to perception of personal safety. The second question that did not meet acceptance was in Part B, question 5, "Is there any equipment that you presently use that you find uncomfortable or does not fit you?" Only two expert reviewers responded to this question, one marked very relevant and succinct and the second reviewer marked the question as relevant with minor revision. The question was revised according to the suggestions made

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by the two reviewers by changing two of the words. In addition to the main interview questions, the expert reviewers also reviewed probe questions. All probe questions were rated as acceptable (relevant with minor revisions or very relevant and succinct by three out of the four reviewers). Experts also offered written comments that were considered in completing the revisions of the questionnaire and interview guide. Modifications were made following consideration of each reviewer's comments. Minor changes in the words used and the addition of words to further define the question were made.

In the second expert review, once revisions were made to the original interview guide based on the first expert review, one occupational health nurse familiar with research and prepared at the masters level was asked to review the new revised interview guide. The reviewer was asked to provide feedback using a revised review form rating each question similarly to the first expert review (Appendix F).

Results of the second expert review. All questions and probe questions were rated as acceptable. The reviewer offered written comments that were considered in completing a second revision of the interview guide. Minor changes in the words used and the addition and removal of words to further define the question were made.

Pilot Interviews

Two pilot interviews were conducted to pretest the interview guide and procedures. The interview was pre-tested to determine length of time to complete

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interview, unanticipated problems, and interviewer's skills (Brink & Wood, 1998). The interviews were pretested with two BSWs (janitors) not employed by the University. The pilot interviews were conducted outside the University in order to maintain the eligibility of the entire population of BSWs at the University. Of the janitors who pre-tested the interview, one was the owner of a janitorial company where English was a second language, and the other was an independent contract janitor where English was the first language. The pilot interviews were conducted at a location where the janitors worked; this included a private room in an office building and a room in a residential building. The interviews were audiotaped and sent to one expert reviewer, a registered nurse prepared at the doctoral level with expertise in conducting qualitative studies and interviews, to evaluate the researcher's interview skills and ability to conduct one-on-one interviews. The pilot interview expert reviewer was asked to provide feedback using a review form evaluating the interviewer on voice skills, listening skills, questioning skills, and interview techniques (Bickley, 2003; Appendix G). The expert was also invited to comment on interviewer bias, to provide any other suggestions for change, and to make any comments.

Results of expert review on pilot interviews. The expert reviewer rated the interviewer as having appropriate voice skills. The expert reviewer rated the interviewer with good listening skills in two of the reviewer questions (Questions two and four). When asked, "Does the interviewer show ability to frame respondent answers to the next question? (Question three), the reviewer made the

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comment "no, not always," and made suggestions on how to frame questions for one of the pilot interviews. When asked, "Does the interviewer know when to prompt?" (Question five) the expert reviewer commented that more prompting could have been made and offered specific examples for both pilot interviews. When asked, "Does the interviewer know when to tactfully intervene?" (Question six), the reviewer did not evaluate because it was not necessary in either pilot interviews. In regards to questioning skills, the expert reviewer rated the interviewer as having the appropriate questioning skills except when asked, "Does the Interviewer avoid asking two questions in the same sentence?" (Question 10), the reviewer commented that three questions were asked in the same sentence for one of the interview questions. The expert reviewer also commented that the silence between questions sounded awkward on the tape but also made note that it may have been satisfactory in person. The expert reviewer felt that there was no interviewer bias but also made the comment that she needed to know the research methodology of the study to really comment. In regards to interviewing techniques, the reviewer rated the interviewer as using the following techniques: active listening, adaptive questioning, empathetic responses, and highlighting transitions for both pilot interviews. Facilitation, echoing, validation, reassurance, and summarizing were not applicable in either pilot interview. The researcher incorporated the expert reviewer's comments and suggestions when she conducted the actual interviews, ensuring to frame questions, using more prompt questions, and only using one question per sentence. No changes were made to

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the interview guide.

Interviews

After participants agreed to take part in the study, arrangements were made to explain the study, answer questions individually, obtain written consent, and interview them at one of the pre-established five rooms on the University campus. The five rooms included four classrooms and one open public access area. As the study was exploring BSWs who work nighttime shift work, the interviews were conducted around the hours of 2200 and 0700 hours. This time period was chosen because some employees work second jobs during the day and it may have been more difficult to recruit participants during daytime hours if they were normally sleeping due to working at night. As the interview location was on the University campus where the BSWs worked, participants preferred to meet either before or after their shift.

The researcher protected her personal safety by carrying a cell phone and leaving the address and exact location with a personal friend during data collection. Prior to conducting the research, the locations for the interviews, including parking areas, were visited by the researcher to determine and anticipate potential threats or dangers within the location (Patterson, Gregory, & Thorne, 1999). Exit doors, fire routes, and escape routes were identified in case a clear escape from the research setting was required. The location of the nearest police station and hospital were noted. The researcher sat closest to the door to ensure that exit was possible should a threat occur. If any incident to the researcher had

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occurred, debriefing with the researcher's supervisor would have occurred within 48 hours of the incident, and additional assistance if required would have been sought from the occupational health nurse at the University.

Data collection consisted of audiotapes with informed consent. After the researcher read the Information Letter (Appendix H) to potential participants, they were asked to sign a consent form (Appendix I) indicating that they understood the purpose of the study and consented to have their interview audiotaped for later transcription. The researcher hired an external transcriber to transcribe the audiotapes. Interviews lasted approximately 20 to 55 minutes and were conducted in English. Interviews consisted of semi-structured open-ended questions using a guide developed by the researcher and which was subjected to expert reviews and pilot testing (Rubin & Rubin, 1995; Appendix D).

Data Analysis

Descriptive summary. A summary of the demographic data explaining the range of response was created. The characteristics that were addressed included employment status (casual, part-time, or full-time), number of years working in current position, number of years working in building services, highest education level, age range at time of interview, consideration of belonging to a minority group, birth language, number of languages spoken, whether the participant also had another job, and the chemicals and equipment that were used and/or carried.

Qualitative data analysis. The transcriptions of the audiotaped interviews were submitted to the researcher who conducted content analysis using

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descriptive, interpretive, and thematic or pattern coding (Miles & Huberman, 1994). In total, 184 pages of transcribed interviews were subjected to content analysis; the shortest interview transcribed was 11 pages long, the longest was 26 pages. A total of 4786 lines were transcribed. The researcher examined the transcribed data line by line until the basic textual unit size became apparent. The textual unit was highlighted. Using inductive reasoning, descriptive codes were applied to all transcribed pages then more abstract (interpretive) codes and categories became apparent. First-level coding (descriptive) focused on the substance of the participant's observations and reduced the risk of imposing preconceptions on the data. The researcher organized the descriptive codes into clusters and assigned interpretive codes. All data fit into conceptual categories that emerged from the interpretive codes. The thesis supervisor reviewed the interpretive codes and categories. Three themes were discovered using constant comparisons within and between interviews. The researcher wrote narrative summaries of the individual interviews after the completion of each interview, to assist with interpretation and consideration of alternative explanations for observations. Specifically, the narrative summaries were used in conjunction with the transcribed data during the analysis process. For instance, when a section of transcribed data required deeper examination, the narrative summaries were reviewed. The researcher kept an ongoing journal to record the progress of the interviews, environmental conditions, and any anomalies that may have existed during the interview process. Because the focus of the research was to identify

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personal safety issues rather than differences between organizational positions, interviews were not segregated according to staff or supervisory positions.

Ethical Considerations

Ethical approval for this research was obtained from the Health Research Ethics Board at the University where the research was conducted (Appendix A). The Manager of Human Resources and Procurement at the University was consulted about the process and procedures for the research study. A letter permitting access was obtained (Appendix J). The letter also represented organizational support.

Participants received an Information Letter (Appendix H) about the research and a copy of a blank Informed Consent Form (Appendix I) for their information and records. Completion and return of the Informed Consent Form at the time of the interview implied informed consent.

Participants were made aware that they could withdraw at any time and could refuse to answer any question(s). Anonymity was protected but could not be guaranteed for all BSWs who volunteered to participate in an interview because the researcher knew the identity of the participant. The researcher did not divulge the identity to anyone else. The transcriber signed an oath of confidentiality (Appendix K). Audiotaped interviews were assigned codes to assist the transcriber with transcriptions and data management. Only the researcher, thesis supervisor, and the transcriber had access to the raw data. Only aggregate data were reported. The findings that are presented as quotations were

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done so that participant's identities were protected. If participants had concerns about the conduct of the research, they were advised to contact the Centre for Health Promotion Studies, where a contact name and phone number was given. The researcher will keep the data stored separately from informed consents in a locked area for a minimum of five years before destroying them. If a secondary data analysis is to be conducted for additional research, further ethical approval will be sought.

Benefits to participants included an opportunity to discuss potential and actual personal safety concerns at their workplace, to participate in research, and to have an influence on future safety training, policies and procedures. Potential risks to participants included fear of reprisal from direct supervisors, fear of job loss, and/or feelings of discomfort related to discussion of personal safety risks. If the researcher had determined that the employee would benefit from discussing the discomfort with someone, she would have referred the employee to the occupational health nurse at the University. During the interview, a participant would have been encouraged to end the interview if he or she had become frustrated. The researcher conducted debriefing immediately after the interview. The researcher allowed the participant an opportunity to provide open comments and to discuss how he or she felt after completion of the interview. If participants had had further concerns about their participation in the study after the interview, they would have been encouraged to talk with a member from the Centre for Health Promotion Studies and/or the occupational health nurse at the University.

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There were no physical risks to participants resulting from participating in the research study.

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Chapter 4

Results

An exploratory, descriptive study using an ethnographic approach with one-on-one semi-structured individual interviews was conducted to advance knowledge about personal safety of building service workers (BSWs) who work nighttime shift work. The purpose of this chapter is to describe the sample population and to report the findings of the study. Content analysis using descriptive and interpretive coding was performed to conduct the data analysis. Thematic schemes elicited from the coded data were discovered.

Population of Interest

From the 125 nighttime BSWs employed at the University, a total of 93 employees (74%) were present at the five separate staff meetings to recruit participants. Out of the 93 present, a total of 28 employees (30%) indicated interest in participating by marking the "yes" box on the participation indication form. From the total present at the meetings, 63% (n=59) marked the "no" box on the participation indication form, and 7% (n=6) did not respond. Using a telephone procedures checklist (Appendix L), the researcher contacted the interested participants by phone to set up individual interviews. Out of the 28 volunteers interested, eight were ineligible; seven had not been employed for at least one year, and one did not want to conduct the interview in English. Seven employees who initially indicated interest were no longer interested when they were contacted by phone. Of those, three were considered to be no longer

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interested after they did not return the researcher's call after three messages were left on either their answering machine or with someone in their residence over a three week period, two who met eligibility could not meet for an interview outside of their work time, and one left a phone number that was out of service. Total response rate from the BSWs was 11% (n=10). Out of the BSWs who indicated initial interest, the initial response rate was 36% (n=10).

Characteristics of Sample

Grouping the responses and not divulging specific information that could reveal an individual protected the identities of the participants. Of the 10 participants in the study, all identified themselves as permanent full-time employees working 37.5 hours per week. A total of four male participants and six female participants were interviewed. The number of years the BSWs had been working at their current position varied from six to more than 16 years, with four (n=4) of the participants between six to 10 years and six (n=6) in the over 16 years group. The number of years the BSWs had been employed in building service jobs anywhere varied from six to more than 16 years, with four (n=4) who had worked between six to 10 years and six (n=6) over 16 years. Four (n=4) of the BSWs had some university, a diploma, or higher, whereas six (n=6) of the BSWs had education of Grade 12 or less. One (n=1) of the BSWs identified their age group in the equal to or less than 40 years age group, nine (n=9) identified themselves in the over 40 years age group. Table 1 represents the demographic characteristics of the sample.

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Table 1

Demographic Characteristics of Building Service Worker Participants (N=10)

Characteristic	Number of participants (n)
Employment Status	
Casual	0
Part-time	0
Full-time (37.5 hours per week)	10
Gender	
Male	4
Female	6
Number of years working at current position	
6 to 10 years	4
11 to 15 years	0
16 or more years	6
Number of years working in building services anywhere	
6 to 10 years	4
11 to 15 years	0
16 or more years	6
Highest level of education	
Baccalaureate Degree	1
Some University	1
Diploma plus some University	1
Diploma	1
Grade 12	2
Grade 11	1
Grade 10	2
Less than Grade 10	1
Age at time of interview	
≤ 40 years	1
> 40 years	9

Four (n=4) of the BSWs considered themselves to be part of a visible minority group, whereas six (n=6) did not. Four (n=4) of the participants reported English as their birth language. The number of languages spoken varied from one to five, with six (n=6) of the participants identifying two languages.

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The birth languages were variable. To protect the identities of the participants, the languages are identified only as Eastern languages. Table 2 describes some cultural aspects of the BSWs.

Table 2

Cultural Aspects of Building Service Workers

Characteristic	Number of participants (n)
Consider part of minority group	
Yes	4
No	6
Birth language	
English	4
Other	6
Number of languages spoken	
5	1
3	1
2	6
1	2

When asked if the BSW had another job, seven (n=7) of the participants indicated that they did not have another job, whereas three (n=3) of the participants did. For those with other part-time jobs, their frequency for working at the other job varied. Table 3 describes their part-time job frequency.

Table 3

Part-time Job Frequency

Number of participants (n)	Number of days per week	Number of hours per week	Number of hours per day
1	3	10.5	3.5
1	3	21-24	7-8
1	5	7.5	1.5

Table 4 lists the equipment and chemicals that the BSWs identified using.

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Table 4

Equipment and Chemicals Used or Carried

Equipment used or carried	Chemicals used
Vacuum (backpack and push), Radio, Machines, Scrubbers, Mops, Sweeping, Pail/Bucket, Pen, Emergency Flashlight, Putty Knife, Security Access Cards, Cart with products, Tank, Wet Mop, Dust Mop (for spring cleaning), Garbage, Boxes, Supplies, Paper products, Glove, Carpet Cleaner, Floor washings, Running Machines, Push Hallway machine, Towels	WHMIS products, Soaps, Strippers, Trouble-shooters, Wax, Crew, Trite, Sunlight (from home), Environmentally safe chemicals, Disinfectant, All-purpose or General cleaner, Descaler, Stride, Detergent, Triad, Bleach, Spring Cleaning chemicals, Scaler, Spit-fire, Floor Chemicals, Vinegar

The one-on-one interviews focused on BSWs perceptions of personal safety, including what personal safety means, risks, education, training, cultural and linguistic factors associated with risks, and knowledge of policies and procedures. Attitudes, beliefs, and values also became evident during the interviews. Psychological and physical aspects of personal safety were included. From the transcribed data, three themes emerged: *framing personal safety of nighttime building service workers, assessing interpersonal relations for personal safety,* and *assigning meaning of gender to personal safety.*

Themes

Framing Personal Safety of Nighttime Building Service Workers

The first theme *framing personal safety of nighttime building service workers* was divided into three sub-themes: *recognizing personal safety issues,*

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controlling personal safety issues, and evaluating personal safety issues.

Sub-Theme: Recognizing Personal Safety Issues

The categories that support the sub-theme are: being aware of hazards/dangers, recognizing equipment related hazards/dangers, being concerned/worried, and recognizing stressors/barriers.

Being aware of hazards/dangers. Participants recognized several potential hazards or dangers that they felt were a result of working in building services at night. These included: perceived threat to their personal safety at work (e.g., strangers hiding in buildings at night), increase of incidents from working at night (e.g., from sleep deprivation), health and personal safety effects from reduced cleaning services, and the perceived harmful air and light quality in their working environments (e.g., poor air quality). Participants made comments such as "don't sleep good...have accidents," ""When you're more tired everything can happen easier," and "The air quality is poor at night." Other comments included "Strangers hiding somewhere, it's after the fact that you know," "Where we parked it's dark and scary," and "One thing that does affect safety in the workplace is stress and improper sleep. After four o'clock in the morning the productivity level goes down."

Recognizing equipment related hazards/dangers. Participants identified several equipment related hazards and dangers as a result of working in building services. These included: risks from equipment due to job responsibilities (e.g., mopping) and uncomfortable and difficult to use equipment (e.g., backpack

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vacuum). Female participants felt that some of the equipment they were required to use to perform their jobs caused discomfort and pain when used over a long time. These included strains and pressure that they found to have great impact on their well-being even beyond working hours. Participants made these comments: "It's heavy. It's different if you just vacuum this room and leave it, the rest of it you know, wet mopping is the worst than probably the hallway machine," "experienced problems in my wrists, my back, and lifting heavy stuff too. It's due to mopping," and "The only equipment that I use and I don't like to use are those backpack vacuums. For me, they just don't feel comfortable, if they were cordless, yeah, I would like them, I can't stand that thing on my back."

Being concerned/worried. Participants identified several concerns and worry about their personal safety of working building services at night. These included: concerns about a) sustained injuries on the job, b) working alone, c) night work effects on health about, d) equipment maintenance, and e) job loss. They worried about personal safety and about their health effects from exposure to chemicals and materials. Participants said "I have problems with my wrists where I have to go see a doctor because of machine that was too heavy to push," "concerns about me walking down there [empty areas], cause you never know [who may be there]," and "The lack of sunlight is my major concern."

Recognizing stressors/barriers. Participants acknowledged several stressors and barriers to their personal safety. These included: feeling of being overworked, feeling of stress and pressure from staff shortage, stress from co-

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workers, and language barriers. Participants made the following comments "Too much people overworked," "It's very hard right now because they don't have enough staff, you're under a lot of pressure and stress, expected to finish your schedule," "It puts stress on me, more stress and pressure because if you get new hourly staff and they come here and they're not trained properly or they don't have enough training, they're just trained quickly, that's not good for us," and "When I start working, I didn't understand that much because my English was really, really poor."

Sub-Theme: Controlling Personal Safety Issues

The categories that support the sub-theme are: enduring the job, feeling content, feeling satisfied, feeling confident, preferring the conditions, and feeling optimistic.

Enduring the job. Participants acknowledged some negative job aspects to working in building services at night, however they also expressed that they could endure and tolerate the consequences. Some participants were not concerned about their sustained injuries on the job. For example, one participant declared, "That's an accident. This happens." Although almost all participants reported that the air quality in the buildings was poor, some felt that you had to live with it. For example, one participant said, "You just suffer," another said, "The air is very poor. But what are you going to do? I mean this is the policy." Other comments that were expressed included "Only once I have problem because I fell, but it's not bad, it wasn't any bad" and "You feel really hot, like you feel dehydrated a

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little bit, causes a little bit of stress, but we live with it."

Feeling content. Although some participants recognized concerns and worry about their personal safety, others did not perceive a threat or report worry about their personal safety. Participants made comments such as "I haven't had that feeling at all, or felt threatened at all," "I'm not quite worried. I feel that the campus is pretty safe," and "I feel safe enough that there is nothing I have to do."

Feeling satisfied. Some participants identified that they were satisfied with the safety training that they received, and that the air quality and lighting were fine. Participants said "Overall the health and safety programs that we have, you know, in place at this present time do their job and the information is available," "I think it's enough for, like, it depends on the person again. Some people need more, some people can pick it up right away," and "the lighting is good."

Feeling confident. Participants recognized that personal safety means to feel emotionally safe and secure at work, and the reasons for feeling safe and secure resonate with individuals' own actions. For example, one participant said "I feel safe because I know what I'm doing...I know how to use the equipment and the chemicals properly, and we all had proper training," another said, "I tried to use all chemical how they told us to use, to mix it with water, and some chemicals we can spray it." As well, one participant recognized that campus security also helped in making one feel safe, however that person also acknowledged that campus security seems to be less active than in the past. The

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participant said, "You don't see, at one time you used to see, but that's probably affected them too, campus security. You used to see them once in a while during the night."

Preferring the conditions. Two participants acknowledged that they preferred to work at night. The participants said, "I don't like it. It's not my favorite shift, but I mean I'd rather do that than the 3-11" and "I prefer work at nights than work in the afternoons, because, I've, I can sleep during the day, and that when there's too many people I just, I feel uncomfortable."

Feeling optimistic. Participants felt optimistic about the future outlook of their personal safety. In some instances, participants felt safe about working alone. One participant expressed that the present air quality is better than it was in the past, by making the statement "The air quality? It's better than it was." Participants recognized that the exposure to the chemicals and materials was quite safe and that with experience you could break down the concentration of chemicals where necessary, one participant said, "You can even break that down by adding extra water to it," another said, "I'm used to it." The participants were also optimistic about the policies and procedures in place and were happy with the current safety training offered to workers. Participants said, "I think the system is pretty good," I think they are pretty good about that," and "More than adequate. It's up to you to put into practice."

Sub-Theme: Evaluating Personal Safety Issues

The categories that support the sub-theme are: knowing what to do,

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offering suggestions, and evaluating training.

Knowing what to do. Participants acknowledged that personal safety also meant to be knowledgeable about the workplace and factors that affect the workplace, to know how to use equipment and tools properly, and to know how to do the job (proper training). Participants said, "Personal safety is to know what to do and don't do something that you're not aware of or you don't have the knowledge of. So a person have to be, take, precautions all the time," "You've got to understand your job," and "Make sure that I have the proper tools and equipment when I'm starting work." Knowledge of policies and procedures was identified by some of the participants, whereas others admitted that they did not know these. Participants said, "We have rules and regulations, this stuff is accessible, all P& P's are useful," "familiar with them," and "We do know that, get training also." Others said, "I don't know those" and "I don't think I know very much about."

Evaluating training. Participants recognized the training that they received. They said "monthly meetings, safety meetings," "They just made it mandatory here for everybody to have basic caretaker course," "We do have training all the time, like safety meetings, and stuff like that. We did also have meetings with security, campus security, building services and campus security care," and "We have that safety, and how to use chemical and how to use all equipment and everything." One participant did not recall receiving any training by saying, "I don't' remember receiving any training." Another participant

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identified other ways of getting the safety training needed with the comment, "There is some, but it's just, I watch quite a bit on Discovery [channel] or that."

Offering suggestions. Participants offered suggestions for change in regards to working alone, improvements for safety training, language barriers, safety reviews, and alternative training ideas. The following comments were made, "Hoping they're going to give us radios at least for one person in one building," "More often [training], just a little bit to remind these new workers who don't understand English very well," and "They could have someone, a speaker come in like say from Workman's Compensation or something like that, it would give you more information."

Although it was not directly asked by the semi-structured interview questions, language challenges and culture indirectly influenced the evaluation of safety training and policy and procedure education. Participants said, "We had to go to a pictorial type of presentation because a lot of them can barely read and write in English, or speak it. I mean, despite being here in Canada for many years a lot of these immigrants have stayed in their little communities," "I'm not saying I'm perfect, but there's lots of them who doesn't understand very much English," and "there are 80% of people that don't understand." As a result, participants made suggestions such as "It's very important to show a video or something, like something in sight, instead of," "It would be helpful in person [training one-on-one]...especially for those people that maybe English is not the first language," and "they should stay back and ask those people [if they understand]."

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Assessing Interpersonal Relationships for Personal Safety

The categories that support the second theme are: expressing positive attitudes and opinion and expressing negative attitudes.

Expressing positive attitudes and opinion. Participants expressed that personal safety meant to have a positive attitude at work. To illustrate, one participant said, "Attitudes that come to the workplace, coming with an open, positive attitude to work [means personal safety]". Despite safety threats that could exist, one participant expressed that she did not want a co-worker to lose his job even though her personal safety was at risk, the participant made the comment, "I didn't' want to see him lose his job because everybody needs a job."

Expressing negative attitudes. Participants expressed their attitudes towards supervisor, management and the organization. Participants perceived that the supervisors pushed them too hard and were not concerned about the workers personal safety. For instance, participants said, "feel sometimes the supervisor don't like check up on you" and "supervisors should be more concerned that there should be more people." As well, participants felt that the supervisors caused more stress on them, by pushing them too hard and making broken promises. They made comments such as, "They always promise we're going to get [radios] and a week later they say no money" and "they [supervisors] don't treat us properly".

Assigning meaning of gender to personal safety

The category that supports the theme is comparing gender roles.

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Comparing gender roles. Participants acknowledged gender differences in job responsibilities, working alone, and feeling safe. One participant felt that working alone was wrong for women, she made the comment "I don't think that we should, that we work alone, working alone 95% wrong especially for the ladies." Many of the job responsibilities such as mopping, pushing machines, and taking out the garbage were recognized as responsibilities for the men because they were stronger. Participants said "To work with chemicals, its not safety for me either. And for a woman, your age it's not really good to pushing that machines, to mopping the floors. I think that's a man's job. I don't think that's safety for woman."

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Chapter 5

Discussion

The following chapter is a discussion of the analysis of the results. The results from the study are compared and contrasted in relation to previously reported research. The analysis uncovers how the study extends knowledge of the perceptions of personal safety hazards of building service workers (BSWs) who work at night. The purpose, response rate, and method are discussed. The developed themes from the transcribed data are examined, including a discussion of the perceptions of personal safety, sociological factors, and language and culture influences. There is also a discussion on safety policies and procedures, healthy universities, negative cases, limitations of the study, and implications for future research. Conclusions and recommendations are made.

Purpose

The purpose of this study was to determine from BSWs who work nighttime shift work at a western Canadian university what they perceive about personal safety at work and factors that affect their personal safety. As well, the study was designed to determine from BSWs who work nighttime shift work, what they think about the current personal safety policies and procedures set by the University and how effective they are in addressing factors that affect their personal safety. It was expected that BSWs would identify a number of factors that affected their personal safety including the neglect of cultural and linguistic factors that are considered part of overall safety training and the administration of

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safety policies and procedures.

Response Rate

The initial response rate for the study was 30%. However, after eliminating potential participants who were interested but ineligible and those who were unable to meet for the study or could no longer be contacted, the overall response rate for the study was 11%. A number of factors may have influenced the response rate. First, the initial recruitment for participants was conducted in early January. Absenteeism due to illness and vacation is highest during the month of January (G. Thomlison, personal communication, December 15, 2003). Approximately one quarter of the total sample population was absent at the recruitment meetings. It is possible that a number of people who may have been interested in participating in the study were not present at the recruitment meetings. Due to the time of the recruitment meetings and the limited time frame for recruitment, the researcher was unable to repeat the recruitment meetings to allow those who were not present at the initial recruitment meetings to have an opportunity to indicate interest to participate. Extra copies of the information letter and participation forms were left with the area supervisors to forward to absent employees. Follow-up on this was not conducted. As well, according to area supervisors, there was a shortage of cleaning staff in general. The workload and stress levels to complete duties were high because of the staff shortage. Although the interviews were to be conducted outside work hours, the stress levels of the job at that time may have inhibited the desire to participate in the

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study. Also, the interviews were conducted outside work hours with preference for conducting the interviews either before the start of the employee's shift or at the end of their shift. Bus schedules and car-pooling with co-workers or family limited potential participants to meet during these preferred times. In addition, there may have been employees who wanted to participate in the study but did not have the time to do so outside of their work hours, especially if they had another job.

Although an attempt was made to ensure that participants were interviewed in locations that were not near their usual location of employment, the location of the interview was still conducted on the University campus, where the participant worked. This may have deterred potential participants from participating in the study for reasons of confidentiality, such as fear that their supervisor or co-worker might see them participate in the study. Alternative locations for the interviews were not sought due to potential noise problems for tape recording, safety of the researcher, and confidentiality issues that may have arisen in more public locations. In contrast, despite an interest in participation, one who was fearful that the supervisor or a co-worker might see him/her participate in the study, when offered to conduct the interview away from the place of employment (still on campus but further away from their actual location of employment), the participant did not want to do so and consequently was not included in the study.

The researcher was given only about 15 minutes at the beginning of the

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employees' shift to discuss the study and recruit participants. This may not have been a long enough time to fully communicate the purpose of the study and to stimulate interest in participation. Furthermore, anger and discontent regarding senior management may have been a factor for low response rate. At one of the recruitment meetings, two employees approached the researcher at the end of the meeting to express their anger at senior management. They made statements such as "they don't care about us", and "it doesn't matter what we do, they won't do anything".

Only four out of the 10 interview participants indicated English as their birth language. It is possible that a great proportion of the sample population may not have understood well the purpose of the study or could not have participated in the study due to language challenges. Finally, participants were given a snack and drink for their participation in the study. Perhaps this was not enticing enough for participation in the study. A better reinforcer may have been to offer a more tangible item, such as a personal first aid kit, or an item with greater perceived value.

One-On-One Interviews

The method of one-on-one semi-structured interviews was chosen for a number of reasons. First, the use of self-complete questionnaires in a population where English is a second language had the potential for low response rates, as they require a level of literacy to complete. Second, in general, building service occupations require less skill and literacy compared to other occupations, making

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it unlikely that a self-complete questionnaire would be returned. This was also suggested by senior management of the University (G. Thomlisson, personal communication, November 28, 2003). Third, self-complete questionnaires are less suitable for recording open-ended data, complex questioning, and question skip patterns (Meadows, 2003). Fourth, in other research where language challenges exist, interviews were conducted instead of using questionnaires (e.g., Rose, 2004; Zhang, Snowden, & Sue, 1998). Finally, it was expected that some perceived fear of reprisal from supervisors existed and therefore it was likely that the use of focus groups would not have created an environment for interested participants.

Perceptions of Personal Safety

In the emergent theme "*Framing personal safety of nighttime building service workers*" and its subthemes: *recognizing personal safety issues, controlling personal safety issues, and evaluating personal safety issues*, participants expressed the concerns that affected their physical integrity in terms of violence, illness, and injuries, and identified several potential hazards or dangers that they considered were a result of working in building services at night. These included health threats to their personal safety (e.g., the ill-adjustment of working at night), injury risks to personal safety, physical discomfort and/or disability from the use of equipment and chemicals, and working conditions causing threats to their personal safety.

Health threats to personal safety. It has been well researched that

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individuals who regularly work atypical hours (e.g., night shift) are at greater risk for physical and psychological impairment or disease than typical day workers (Smith, Folkard, & Fuller, 2003). In general, participants of this study recognized an increase of incidents at night due to sleep deprivation. This is consistent with previous research. Folkard and Tucker (2003) reviewed published studies of shift work, safety, and productivity. In their review it was concluded that both safety and productivity are reduced at night due to a number of factors, including impaired health, a disturbed social life, shortened and disturbed sleep, and disrupted circadian rhythms. Over the long term, sleep deprivation from the inability to sleep during daytime hours causes fatigue, which in turn increases susceptibility to more critical health issues.

Participants also recognized stressors from night shifts due to the imbalance of completing all their family and home responsibilities during daytime hours while also getting enough rest to work optimally at night. Shift work compared to regular daytime work hours has been reported to be a risk factor for general work-family conflict (Jansen, Kant, Kristensen, & Nijhuis, 2003; Jansen et al., 2004). Although the participants in the current study worked permanent night shifts, it has been reported that the direction of shift rotation has an effect on psychological health and work-family conflict. Van Amelsvoort, Jansen, Swaen, Van Den Brandt, and Kant (2004) investigated whether the direction of shift rotation was related to the need for recovery, fatigue, sleep quality, work-family conflict, and leisure time among three-shift work schedules. It was found that a

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backward rotation schedule (a schedule when one moves from night shift to evening shift to morning shift) was prospectively related to an increased need for recovery and poor general health compared to a forward rotation schedule (morning to evening to night shift). It was also discovered that a forward schedule was prospectively related to less work-family conflict and better sleep quality upon a 32-month follow-up. As well, high levels of fatigue, need for recovery, poor sleep quality, poor general health, insufficient leisure time, and work-family conflict at first measurement were associated with an increased risk of leaving a shift work job during the 32-month follow-up. However it was noted that one of the main problems of the study was finding appropriate comparison groups with comparable types of jobs, therefore differences between jobs may have biased the outcome of the results.

Injury risks to personal safety. Performance and alertness decrease over the course of a night shift. It is not surprising that participants would perceive an increase in incidents during the end of their shift. One participant said, "At the end of the shift when you are tired and you don't think as quick and as clear, those are when accidents, I believe, the majority of those accidents can happen or take place." This is consistent with mental and motor functioning in previously reported studies. In a study that examined stress states experienced by thermoelectric operators at work under a fast rotating 12-hour shift system, distractibility increased and alertness decreased after 0300 hours in the morning on the night shift (Ognianova, Dalbokova, & Stanchev, 1998). However, it

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should be noted that the study found that there were correlations of sleep disturbances with age but not with the years of shift work experience, and the study examined 12-hour shifts. It is possible that efficiency and reliability of the operators would not be affected in night shifts under 12 hours. Personality variables and preferences also helped in coping with the shift work. The length of night shift for the current study was no more than 8 hours.

Commuting to and from work during atypical hours of the day was a concern for some of the female participants. One participant commented that the area to park vehicles was "dark and scary." Driving home at the end of the shift in the morning while feeling tired was another concern participants had. One participant said, "if you drive and going home in the morning you could be totally fatigued going home." Rogers, Holmes, and Spencer (2001) studied the effects of shift work on driving to and from work and found that workers were more tired when driving to and from work than non-shift workers.

Working alone was a major concern of participants. Participants indicated fears of people hiding in buildings after a building was closed, fear of an injury occurring during a shift with little or no help nearby to assist, and fear of attacks from strangers while walking between buildings. It is possible to suggest that incidents are increased during nighttime hours because there is generally reduced supervision during night shifts. As well, not only are workers working alone, but sometimes night shift workers are also less experienced than day shift workers because of a "seniority" system allocating shift workers to permanent shifts

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(Folkard & Akerstedt, 2004). Participants believed that there should be more people working together at the same time and that everyone should carry radios to ensure ultimate personal safety.

Physical discomfort and/or disability from the use of equipment. Janitors and cleaners are at high risk for developing painful and disabling musculoskeletal disorders (Flores & Deal, 2003; McDiarmid et al., 2000). In the present study, participants described pain in their wrists and back due to mopping, vacuuming, and lifting heavy items. As one participant indicated "it is uncomfortable because it's on your back, and it's not just on your back, it's heavy sometimes because you cannot change the bag all the time and it's like you're using your back at the same time you're using your hands. So it is very uncomfortable." Pain and discomfort from cleaning equipment have been documented in other studies. Flores and Deal (2003) examined work-related pain in Mexican American custodial workers. Results of the study showed that most of the janitors and cleaners reported experiencing pain for at least half the day, every day, during the previous month of the study. The majority of the participants in that study reported pain in their torso and/or back and over half reported sub-chronic pain defined as pain lasting longer than three months. However, despite the presence of persistent and moderate pain, most participants reported that pain had not prevented them from working, although increased financial outcome may have been the reason to continue to work rather than the physical ability to continue the job. In contrast, participants in the reported study also provided a number of

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explanations for their pain including non-work related reasons.

Lifting heavy items such as vacuum cleaners, mopping pails, and garbage may cause considerable strain on the lower back and spine, especially when improperly handling such items. Without the proper training to maneuver such equipment, it is likely that participants would develop lower back pain. In a study that tested work-related assessment tools it was found that lifting masses of 22.5 kg or more to the typical height of a work bench could produce loads on the spine that are considered potentially hazardous (Cole et al., 2004). Also, in a study that examined the static load in an in vivo feline model, results showed that static load magnitude was a risk factor in the development of cumulative low back disorder (Sbriccoli et al., 2004). Long-term exposure to static flexion would cause acute inflammation, progressing to chronic inflammation, which is known to be associated with pain, muscle stiffness, weakness, and limited range of motion thereby potentially causing critical disability. There is considerable static flexion from picking up garbage, vacuuming, and mopping in the building service jobs.

The use of vacuum cleaners was considered by several participants to be hazardous. They described the backpack vacuum as uncomfortable and ill-fitting. As well, the cord of the vacuum cleaner was identified as being hazardous especially when vacuuming near and on staircases. In a study that investigated the energy expenditure and myocardial oxygen demand associated with vacuuming using different models of vacuum cleaners, it was found that vacuuming with the self-propelled upright model resulted in significantly lower

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oxygen consumption, heart rate, and systolic blood pressure (Norman, Kautz, Wengler, & Lyden, 2003). However the study also found that participant rank order preferences for particular vacuum cleaner models were not well correlated to the actual ranking of energy expenditure and hemodynamic measures for the different vacuum cleaner models. Therefore, participant preference was not a reliable indicator for ranking which models of vacuum cleaner were the least physically demanding to use. Unfortunately the study did not test any backpack vacuums, which was expressed as a major issue in the present study.

Building service participants recognized the potential for disability from the use of ill-fitting and uncomfortable equipment over a long duration of time. In contrast, in one reported longitudinal study, duration of employment was not a predictor of disability for cleaners (Gamperiene, Nygard, Brage, Bjerkedal, & Bruusgaard, 2003). Although it was found in that study that the cleaning occupation had high disability rates compared with other unskilled occupations, a contributing factor to these high rates was a selection of women with prior poor health into the occupation. Perhaps the same is true in the present study, but participants were not questioned about their prior health. It could be that women with prior health problems became employed in building services and while working in building services their health issues were more evident.

Exposure to solvents and chemicals. Participants reported getting headaches from the solvents and chemicals that they were required to use. One participant commented, "I'm worried it's in my lungs because I'm always getting

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sick." Another participant was describing making holes in her clothes as she said, "I make all my pants [holes], can you imagine how the danger is, so that morning I have so hard time like to breathe." Long-term exposure to cleaning solvents is consistent in previous studies to cause respiratory conditions (e.g., Reinisch et al., 2001). In a study that assessed the risk of asthma in women employed in domestic cleaning it was found that employment in domestic cleaning might induce or aggravate asthma (Medina-Ramon, Zock, Kogevinas, Sunyer, & Anto, 2003).

Working conditions. The greatest perceived concern among the participants was the poor air quality in the buildings where they worked. Participants reported poor air ventilation causing hot dead air to circulate. Comments were made such as "it gets stuffy and muggy," "the air quality is poor at night. It's so hot in the building," and "its really bad inside, it's almost no air inside." Continued over a long time, poor air quality in a working environment could cause poor health.

Poor air quality can cause shortness of breath, eye and respiratory irritation, rhinitis, contact dermatitis, headaches, joint pain, memory problems, difficulty concentrating, and reproductive disorders (Wilburn, 1999). Triche et al. (2002) examined the effects of indoor heating sources on infant respiratory signs during the heating season of their first year of life. The results of the study showed that gas space heater use was associated with episodes and days of wheeze, wood stove use was associated with total days of cough, kerosene heater

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use was associated with episodes of cough, and fireplace use was not associated with any of the respiratory signs. It was concluded that some heating sources appeared to be related to respiratory signs in infants. The poor air quality that the BSWs expressed could be similarly related to the type of heater used in the buildings. As well, because there is no fresh circulation (no windows opened), the air that is created from the system gets re-circulated multiplying the risks for associated respiratory issues that may exist from the type of heat source.

Walinder et al. (1998) examined the relationship between the ventilation rate and the type of ventilation system and objective nasal measures. Results showed that inadequate ventilation is related to reduced nasal patency and signs of inflammatory activity in the nasal mucosa and that both the type of ventilation system and the air exchange rate may influence the nasal mucosa. Therefore, low air exchange rate in schools may affect the airways and cause a swelling of the nasal mucosa. The results from this study confirm the importance of proper ventilation in buildings.

Poor ventilation may also be associated with sick building syndrome (SBS) (Walinder et al., 1998). Jaakkola and Miettinen (1995) examined types of ventilation systems in office buildings and SBS. The results indicated that risk of the studied symptoms (ocular symptoms, nasal congestion and discharge, pharyngeal symptoms, and lethargy) is related to the type of ventilation in the existing office building. Simple mechanical ventilation (mechanical supply and exhaust ducts) was related to a higher risk of symptoms compared with natural

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ventilation. Building service workers complaints of poor air circulation and ventilation may be directly related to these similar symptoms.

Fatigue and sleepiness may result from environments that cause thermoregulatory problems and dehydration (Bishop, 1997; Clapp et al., 2000). The poor air quality described by participants was commonly referred to as "hot" air. It is possible that the hot air increases sweating, especially since the nature of the job requires physical expenditure. Coupled with poor hydration habits, fatigue and sleepiness are amplified.

Although not commonly expressed, participants also identified that the fluorescent lighting in the buildings bothered their eyes. There are many published studies that examine the effects of visual display units/terminals and visual disorders or eyestrain (e.g., Aaras, Hogan, Bjorset, Ro, & Walsoe, 2001; Wolska, 2003). In general, high exposure to visual display terminals causes eyestrain. It is possible that the lack of daylight that BSWs are exposed to with the combination of continual exposure to fluorescent lighting found in most buildings may mitigate the effects of visual disorders.

Sociological Factors

Age, gender, and work experience may influence perceptions of personal safety. Bonnefond, Rhomer, Hoeft, Muzet, and Tassi (2003) assessed whether age (junior versus senior groups) was related to task complexity as a function of time of day and time on task in a rapid rotating work-rest schedule. Participants performed either a simple or a complex task at three different moments of the day

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simulating the main shifts, morning, evening, or night. It was found that an age effect was only present on the more complex task, which demanded attention resources and memory load. The effect of time of day was restricted to the simple task for both age groups, whereby a longer reaction time was required during the night shift.

In a study by Baker, Roach, Ferguson, and Dawson (2004), it was found that dissatisfaction with shift work increased with age and work experience. The study found that preferred hours of work changed with years of shift work experience. For shift workers in their first five years and those in their 30th year plus of shift work, night work was a low priority. Shift workers with 17-30 years experience indicated a preference for work any time across the week. The results suggested that a person initially undertaking shift work may well be one with a less restrictive perception of time and its use, but this perception may alter over time.

Concerns for health and safety may increase with age and work experience. As people grow older their bodies become more fragile and susceptible to illnesses. Immune systems and the body's physical ability to repair itself decreases over time. As a result, perceptions of health and safety may be influenced by one's age. In the present study, the participants were predominately in the over 40 years age group. Perceptions of personal safety could have been different if the majority of the sample had been in the under 40 years age group. For instance, the results could have shown less concern for health and safety

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training. This difference between age groups could be attributed to less overall exposure to the job (less time in the job) for younger people and the ability of a young person to rehabilitate faster.

Overfield (1995) provides an overview of gender differences in relation to stressors, disease, and physical performance and strength. Some of the differences are biologically based whilst others may be a result of sociological influences. Regardless, differences in perceptions of personal safety could exist between genders. The results from the present study showed that female participants were generally more concerned about their personal safety than male participants. This is not an uncommon finding. Blair, Seo, Torabi, and Kaldahl (2004) investigated the impact of safety beliefs on safe behavior among midwestern college students and the effect of age, gender, class standing, and geographic region on those beliefs and behaviors. It was found that females were more safety conscious in behavior and beliefs.

Controlling personal safety issues. Despite the personal safety issues of working nighttime building services that were expressed, participants used mechanisms to control these issues. Participants controlled the issues by not being concerned about them too much. For example, one participant comments included, "not very serious injuries" and "one time I burned myself with the hot water, but nothing serious." Participants also felt that there was not much that could be done about the issues. For example, one participant commented, "you just suffer. They're not going to turn it [air conditioning] on unless they're

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cleaning, I mean, they need the fans on for like shampooing the rug or something like this." Another participant made the comment, "the air is very poor. But what are you going to do?" Since many of the participants did not have post-secondary education and did not have English as a first language, controlling personal safety issues could have been a consequence of societal survivability. All the participants interviewed were full-time permanent employees. It could be difficult for a person with little to no post-secondary education and English as a second, third, or fourth language to acquire a full-time and permanent job. The value of earning a full-time income or a permanency and continual flow of income could have created the satisfaction of the aforementioned participant comments.

Assessing Interpersonal Relationships For Personal Safety

A second major theme that emerged from the transcribed data concentrated around interpersonal relationships among BSWs, supervisors, and management. In general there was an unenthusiastic attitude towards supervisors and management. Participants made comments such as, "We are here like in a jail, stress between big bosses, managers, supervisor and everybody else," "supervisors should be more concerned that there should be more people," "feel sometimes that the supervisors don't like check up on you," and "supervisors are not professional people, they play with management, they give you more stress than anybody." Except in one case, overall it was perceived that there was little support from supervisors and management with respect to the welfare and safety

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of the BSWs. Instead, participants reported supervisor concern regarding completion of all job tasks in the time allocated. In front line work and occupations that require less skill and literacy, it is not uncommon to find dislike and intolerance towards superiors, especially during periods of budgetary constraints. The reduced cleaning services within the University were a result of financial changes. As there was a staff shortage at the time the research was conducted, negative attitudes towards supervisors and management could have been the result of the stress of having to do more than one's own duties and responsibilities, especially if the completion of duties was reflected in performance reviews that were contingent on potential pay increases.

Assigning Meaning of Gender to Personal Safety

A third theme that emerged from the transcribed data centered on gender roles. It was perceived from the BSWs that some job responsibilities and duties were more gender specific. It was also perceived that feeling safe working alone was gender dependent. For example, participants made comments such as, "mopping the floors, I think that's a man's job. I don't think that's safety for women" and "working alone 95% wrong especially for the ladies." Gender differences in the perception of safety and response have been reported in other research. In a study by Mulvey (2002) that analyzed the perceptions of safety and general quality of life by social status (gender) and social contexts (economic and historic) it was found that gender was related to perceived safety. Women felt less safe after dark downtown and in their own neighborhood than men.

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Gender differences in the perceptions of job responsibilities could be influenced by the differences in strength and anthropometry between men and women. In a clinical study by Marras, Davis, and Jorgensen (2003) that examined the differences in spine loading between men and women when exposed to similar workplace demands it was found that women relied on more hip motions and required more extensor muscle activity in response to the same workplace lifting demands as compared to men. As well, women were found to be at increased risk of injury especially when lifting heavy loads or under asymmetric lifting conditions.

Differences in pain perception may be a contributing explanation for perceptions in gender specific job responsibilities and duties. In a study that examined race and sex differences in cutaneous pain perception it was found that women showed a tendency to rate cutaneous pain stimuli as more unpleasant and more intense than men (Sheffield, Biles, Orom, Maixner, & Sheps, 2000). Some of the job responsibilities and duties described as being gender specific may require more physical effort and exertion. As such, it is reasonable to suggest that physical effort and exertion could be associated with pain perception. It is also possible that women are more prone to express pain and symptoms, either because they have a lower threshold for detecting pain and symptoms or because they are more willing to express their feelings than men (Robinson, Riley, & Myers, 2000; Hooftman, Van Poppel, Van Der Beek, Bongers, & Van Mechelen, 2004). Moreover, physician gender may mitigate response to pain perception.

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Weisse, Sorum, Sanders, and Syat (2001) studied whether patient gender and race affected decisions of physicians to treat patients on pain management. The results showed that male physicians prescribed higher doses of hydrocodone (pain medication) to white versus black patients for the treatment of renal colic. In contrast, female physicians prescribed higher doses to black patients. For persistent back pain, male physicians prescribed higher doses of hydrocodone to males versus females but female physicians prescribed higher doses to females. If primary care physicians treat patients differently based on race and/or gender, this may have profound effects on perceptions of pain, providing a false belief that higher doses of medication is used to treat higher pain. Therefore, societal influence and/or differences in pain perception between genders could contribute to the different beliefs in job responsibilities and duties for building service work between genders.

Language and culture

The BSWs acknowledged the existence of personal safety training. They reported monthly safety meetings, mandatory safety courses, and chemical and protective equipment usage training. The results are consistent with the actual training that BSWs receive. According to management, on the first night of employment a worker receives an orientation to the division and to the work he or she would be doing, watch a film on safety, and is told to report any problems immediately to their supervisor(s) (G. Thomlisson, personal communication, August 11, 2004). After the worker is assigned to an area, he or she receives

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specific instruction on how to perform the required tasks, what cleaning chemicals to use, how to use them, and what personal protective equipment to use. Workers are continually trained and there is a house trainer who is responsible for training workers on that continuous basis. Workers are also expected to experience the NorQuest College Building Service Worker Program through the house trainer. As well, workers are certified and re-certified in the Workplace Hazardous Materials Information System (WHMIS), and first aid/heart saver, as required. The organization has also held workshops on working alone and has requested campus security to run workshops for female workers on personal safety. Monthly safety meetings are held in each work area.

The BSWs also acknowledged that there were language difficulties and training uptake challenges for many of the English as a second language worker. For example, one participant made the comment "some people they don't understand English. They [trainers/supervisors] should be explaining a little bit more." They also indicated that when people don't understand, they don't ask for help or ask for further clarification. For instance, one participant said, "they showed us a video and that's very, very, very understanding way, the problem with them [those that do not understand] they don't ask questions." If there are language and literacy barriers in the uptake of safety training, this may lead to undesirable outcomes such as increased incidents causing absenteeism. In a study that investigated literacy and readability of written information used in an anticoagulation management clinic with African Americans, it was found that the

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readability of the information they were given was three to four grades higher than patients' actual reading abilities and none of the patient education materials were culturally sensitive (Wilson, Racine, Tekieli, & Williams, 2003). Similar results might be found with the present BSWs and the training material provided to them about safety.

Trainers and those who develop safety training for BSWs should be culturally competent to provide the best possible safety training. This has been a major factor in health research studies where cultural competence is necessary to increase positive outcomes. Kiger (2003) describes an approach used by the Center for Healthy Aging in Santa Monica, California, to implement three projects aimed at Hispanic and African American women to encourage early intervention behaviors for the education and screening of breast and cervical cancer of women. The model exemplifies the importance of health professionals recognizing multicultural and multilingual issues.

To achieve successful training that implements cultural and linguistic factors, senior staff and management must provide the highest level of participation in the development and implementation of culturally appropriate training. Shaw-Taylor (2002) examined the recommended standards for culturally and linguistically competent health care delivery released by the Office of Minority Health of the US Department of Health and Human Services in December 2000. It was determined that health agencies and especially upper management were the most significant factors for establishing the recommended

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processes for cultural and linguistic competence.

When asked about safety policies and procedures, some participants indicated that there were some that existed while others indicated that they did not know about them or did not know much about what they were. This finding is consistent with the results of perceptions of safety training. It could be that the workers simply do not understand what the policies and procedures are due to language and cultural barriers. Cultural acceptance of appropriate behavior has been found to be different across cultures in different areas of healthcare. For example, in a review of culturally diverse patients and their management of pain it was found that culture affects the assessment and management of pain (Davidhizar & Gizer, 2004). Access to healthcare services vary from culture to culture, similar conclusions could be made for the use of safety procedures with a diverse population of BSWs. Zhang et al. (1998) examined the differences between Asian and White Americans' help seeking and utilization patterns in the Los Angeles Area. Results showed that Asian Americans were more reticent than White Americans about mental distress. In another study that assessed East Asian immigrants' willingness to use psychological services if depressed and willingness to recommend psychological services to distressed friends, results showed that overall, East Asian immigrants appear to be unwilling to seek or to recommend psychological services to friends (Barry & Grilo, 2002). Cultural factors accounted for most of the variance in the strength of participants' willingness to seek treatment and to recommend treatment. However, it was

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found that the more fluent participants were in English, the more likely they were to seek treatment (Barry & Grilo). According to management, there is a policy and procedure manual and a Facilities Management and Utilities Health and Safety Manual in all working areas that can be accessed by workers through their supervisors. As well, all management and supervisors receive a one day course on the policies and procedures (G. Thomlisson, personal communication, August 11, 2004).

Participants in this study made a number of suggestions to improve safety training. These included providing review of safety training more often especially for those people where English is a second language, providing more training, shadowing workers on their first day(s) of work to ensure they understand what to do, providing qualified trainers to do the training, providing outside speakers to give more information about safety, using videos, and using pictorial type presentations to increase understanding. These suggestions are consistent with other studies that have examined the use of multicultural approaches to achieve successful education delivery. For example, in a review by Hoban and Ward (2003), the authors provided suggestions to build culturally competent college health programs related to HIV.

Policy and Procedures

All but one of the participants acknowledged the existence of safety policies and procedures in this study. Although it was acknowledged, most participants had difficulty specifically identifying what the policies and

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procedures were about. Despite this lack of detail, it is reassuring to know that BSWs receive information about safety policy and procedures. However, acknowledging the existence of policy and procedures does not equate to knowing what they are. As such, the results show that the educational delivery process of the policies and procedures is not fully culturally and linguistically adapted.

Healthy Universities

The university has the capacity to influence and contribute to communities. All areas of the university (e.g., education, research, workplace) must be recognized to achieve the goal of the "Healthy Universities" concept and to foster better overall health within a campus based environment (Jackson & Weinstein, 1997). Successful achievement of the "Healthy Universities" concept will contribute to the success of the "Healthy Cities" goal.

To achieve a healthy university, achievements must first be made within the healthy schools and healthy workplace initiatives. All aspects of the university environment including students, faculty, recreational and leisure staff, and building personnel must be considered as part of the global outcome for achieving a healthy university. As well, the university should be considered as a corporation, collegium, and community as described by Downey (2003).

As a corporation, the university is bound by the same laws that apply to all corporations in the conduct of business and therefore has the responsibility to create the foundation for the health and personal safety of all its members (students, researchers, and staff) (Downey, 2003). As a collegium, the university

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is a network of traditions, relations, and structures that control and conduct academic and social affairs and therefore has the responsibility to ensure the health and personal safety of all its members. As a community, the university provides services, holds occupational and demographic diversity, represent a broad range of interest, competence, and ethnicity. In the present study, the results show that there are areas that need to be addressed within the context of personal safety of BSWs. For instance, adequate training on personal safety for those with linguistic challenges is required; an examination of the working conditions, especially the air quality in the buildings, and an evaluation of working alone at night should be made.

Negative Cases

According to Polit and Hungler (1999) a negative case can challenge the researcher's interpretations and provide insights for re-conceptualizations. The negative case may also be used to strengthen understanding of the phenomenon (Strauss & Corbin, 1990). After careful examination, a few segments were retained as a negative case and characterized as being incongruent with all other segments using the same pattern indicators.

The participants in this study worked the same weekly night shifts. Adaptation for the night shift likely occurred causing a desire to work the night shifts. Since tolerance to shift work will depend on the individual, there is a high inter-individual variability in tolerance to shift work and individual characteristics and social conditions can interact with working conditions influencing short and

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long-term adjustment and adaptation to night shift (Costa, 2003).

Lamond et al. (2003) investigated the factors that contributed to performance adaptation during permanent night work. The study showed that there was a significant increase in mean performance on a visual psychomotor vigilance task across the week, that daytime sleep quality and quantity were not negatively affected, and that the melatonin profile significantly shifted across the week. It was concluded that when sleep loss is minimized, adaptation of performance during consecutive night shifts might occur in conjunction with circadian adaptation.

With respect to threats and concern of their personal safety, some participants were content and were not overly concerned about risks to their personal safety. For example, comments such as "Not really worried," "I think our university is pretty safe," and "not really worried. I think there's enough networking around that the buildings are safe." It is not surprising to learn that some of the BSWs are content about their personal safety while others are more concerned. Building service occupations tend to be regarded as a low skill job. As such, those that occupy building service positions tend to be less educated and may be more concerned about financial welfare than health status.

Despite being informed that participation in the study would remain confidential, fear of job loss and/or reprisal from supervisors and/or management may still have influenced participants to display satisfaction with personal safety issues even if it was not true. Participants were told by the researcher that the

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results of the study would be shared with the management at the University. As a result, participants could have falsely believed that they could increase their job security and the relationships with their supervisors and/or co-workers if they demonstrated that their employer provided a safe working environment and that they were happy working at night.

Limitations

The sample population comprised a number of different ethnic origins and primary languages. Due to language challenges and cultural differences, there may have been limited understanding and reasons for participating in the present study. As the interviews were conducted in English, it could have hindered understanding of what was being asked. As well, the researcher could have misunderstood the meanings behind what was communicated. Precautions for language challenges were taken into consideration. The question was asked twice where necessary, if the participant continued to display difficulty in understanding the primary question asked, a back-up question reiterated in a different way and/or a simple probe was used. Answers to questions could be culturally dependent on what is deemed culturally appropriate. For example, in a study by Laws and Drummond (2002), it was discovered that culture impacted the way Italo-Australian men with sensitive health issues disclosed information about themselves.

The limited sample size could have biased results. Participants who volunteered to take part in the study could be those who culturally felt required to

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participate in such a study. Alternatively, those who were compelled to volunteer for the study may have higher literacy skills and are those who actually understand the importance of research. The self-selected sample could have given a biased perspective of the building services population.

The time of year the interviews were conducted may have also biased the results. The group meetings to solicit participants were conducted in mid-January. This time period may not have been the best time to recruit participants because it is just after the holiday break when people's finances are weak. Spending extra time either before or after a scheduled shift may have interfered with other potential income earning options. As well, generally when people are under financial constraints, psychological depression and negative emotions generally arise. As such, those who did participate in the study may have been influenced by atypical emotional and psychological states.

The age of the participants may have biased the results. Participants were generally in the over 40 years age group, a time when illness and injury become more prevalent and longer lasting. It is questionable whether results may have been different if all the participants were under 40 years of age.

The interviews were conducted in different buildings. Although the researcher determined the security of the building for confidentiality in advance, the researcher could only provide verbal assurance to potential participants that their participation in the study would remain confidential. So unless the participant was familiar with the exact location of the interview, the participant

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would have had to rely on the researcher's word. This process may not have given the potential participant enough confidence and assurance that his or her identity would not be revealed or that co-workers and/or supervisors would not have seen them participate, therefore limiting participation of those BSWs who cared less about their anonymity.

Additionally, a number of BSWs from the same area initially volunteered to participate in the study. The researcher made every attempt to include as many building service areas as possible in the study. For example, the researcher initially scheduled a maximum of two participants from the same area. However, since participation indication was low more than two participants in the same area were included in the study. Depending on the dynamics of the group, those with better group dynamics may have been more content and disinterested in personal safety issues because of the positive reinforcement they receive from being part of a more cohesive group.

The results of this study are limited to permanent full-time BSWs as all of the participants were permanent full-time employees. Part-time BSWs could illuminate different perceptions on personal safety.

The researcher conducting the interviews considered herself part of a minority group but had English as a primary language. The researcher was also female. This may have influenced initial desire for participation in the study (e.g., males who do not like to be interviewed by a female researcher). According to Meadows (2003), the personal characteristics of the interviewer (e.g., age, class,

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sex, race, level of experience) can have an effect on the response rates and the nature of the response in interviews.

Overall response rate might have increased if the interviews could have been conducted in the birth language of the participant. In a study exploring the perceptions and attitudes of older adults about human immunodeficiency virus (HIV), acquired immunodeficiency syndrome (AIDS), and HIV education, group interview sessions were conducted in the languages of the target population to increase and facilitate participation (Rose, 2004). However, issues in the translation process of the semi-structured interview guide used may result in a guide different from the original one (Strickland, 2003).

Implications for Host Organization

The results from the study provide insights for the host organization to assist in its delivery of personal safety training and policy and procedure development. In particular, the results provide raw data on first-hand concerns of nighttime BSWs. Specifically, the data demonstrate what BSWs perceive to be important, the concerns that they believe have not been addressed, and what they currently consider to be appropriate, adequate, and functional in their employment regarding personal safety. Results from the study may be used by university administrators to improve the overall well-being of BSWs who work alone at night.

Implications for Practice and Public Policy

Society is continually changing and evolving. As such, what may have

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been acceptable behaviours or practices in the past may no longer be acceptable in the present. Over time, safe working practices and procedures have changed and been adapted to reduce and eliminate risks in working environments and improve the overall well-being of workers. Results from the study have relevance for BSWs working in more than this environment. As well, the results may be adapted to other settings where a considerable number of people from diverse backgrounds are working together. Finally, by contributing to a body of literature, results from the study should inform occupational personnel and safety policy makers when they are undertaking revisions to safety labour standards and public safety policy.

Implications for Future Research

Based on the research findings, there are a number of implications for future research of this kind. Included are methodological, content and questioning, and population considerations.

Methods. As linguistic challenges existed in the current study, considerations should be given to conducting similar research in the birth language of the informant. This may eliminate the linguistic challenges and increase sample size. Alternatively, using a more homogeneous group with similar language backgrounds and conducting the research in that language could be used to test whether similar results would be revealed in comparison to this study.

A larger sample should be considered to further validate findings. This

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study could be replicated with a larger minimum number of interviews. The results from a duplicate study could be used to test against the results of the current study. A duplicate study would also add to the richness of information about nighttime BSWs and personal safety.

Triangulation of methods using both quantitative and qualitative could be used in future studies. Using both questionnaires and interviews with the same population could produce further insights and validate findings of the current study.

Researchers of different ethnic backgrounds could be used to test whether results would be contingent upon the ethnicity of the researcher. Perhaps more in-depth and richer data would be the outcome because the informant could associate more closely with the researcher.

Content and questioning. The current study examined the global perceptions of personal safety and not one specific area. Future research questions could be altered to specifically examine only one aspect of personal safety. For instance, examining specifically personal safety training could be done. This could produce richer data for the specific area creating a greater impact on the phenomenon and provide a more specific area for future change or modification.

Population considerations. The current study only used nighttime BSWs in the sample population. A comparison study could be used to test whether perceptions of personal safety are similar between BSWs who work at night and

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those who work during the day. An examination between the two groups could elicit greater information about the personal safety of BSWs. As well, the study could be duplicated with a different building service population group. For instance, BSWs who work in office buildings could be used. Alternatively, a different sample population using unionized workers and non-unionized privatized workers could be used to test whether differences of personal safety perceptions existed between the two groups.

Directions for Future Research. The primary focus for future research in this area should be the investigation to test the magnitude of linguistic and cultural factors associated with personal safety. A duplication of this study with a homogeneous population (similar language and culture) of BSWs in a similar location (university) should be conducted.

Although the present study examined the personal safety of nighttime BSWs, this study could be replicated with other occupations that may have culturally diverse populations who work during the night. These may include security personnel, respite workers in-group or single home settings, and taxi drivers.

Conclusions and Recommendations

It is clear that BSWs who work nighttime shift work are exposed to a number of personal safety hazards. This study provided a current description of the perceived risks to personal safety of BSWs at a large western Canadian university. An understanding of the perceived risks and the associated safety

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training and safety policies and procedures are necessary to improve the personal safety of BSWs who work at night. Although the working environment may not be totally controllable, every effort should be made to ensure that the mechanisms for optimal personal health and safety are in place and adequate education and training are offered and available. This study confirmed that BSWs who work nighttime shift work are exposed to personal safety hazards. It also confirms that there is not enough culturally and linguistically appropriate delivery of safety training and policies and procedures education for culturally diverse BSWs.

The results of the study may be used to improve the personal safety of BSWs who work at night, thereby decreasing employee stress, absenteeism, disability insurance claims, and improving the overall well-being of BSWs. This may also assist in developing successful employee retention and recruitment strategies for BSWs to work at night.

Several conclusions are drawn and recommendations made to improve the personal safety of BSWs who work at night. The results have relevance for other BSWs working in any environment.

1. Literacy levels of BSWS should be considered when developing safety training, policy and procedure delivery, and workplace health promotion.

2. Linguistic and cultural considerations should be acknowledged in the development of safety training, policy and procedure delivery, and workplace health promotion.

3. Changes to safety training should consider working alone factors and

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strategies to reduce or mitigate working alone risks.

4. The working environment should be examined with respect to health and physical risks.

5. Supportive policies and effective procedures are necessary to develop an environment that ensures safety of BSWs.

6. Further research is required to support and expand the findings of this study.

To design a tailor-made shift system, a compromise has to be found between the company's goals, and the worker's wishes while keeping optimal health and safety (Knauth & Hornberger, 2003). In a review by Knauth and Hornberger (2003), it was found that measures could be taken to optimize the well-being of shift workers and to identify ill-health at an early stage. To optimize the well-being of shift workers there must be the inclusion of culturally and linguistic factors that may affect the delivery and outcome of safety behavior. As well, employers and safety providers have a responsibility to use educational materials that will meet the unique learning needs of employees with low literacy levels. Providing understandable information is a first step to increase positive outcomes for personal safety. Ultimately, economic costs due to absenteeism, injuries, and loss productivity can be reduced with adequate and proper training and health promoting education. To determine the best strategies to deliver this training and provide optimal safety conditions, further research with BSWs who work nighttime shift work is necessary.

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Appendix A

Ethics Approval

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Appendix B

Initial Information Letter

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UNIVERSITY OF ALBERTA

Faculty of Graduate Studies
Centre for Health Promotion Studies
5-10 University Extension Centre
University of Alberta

INFORMATION LETTER

My name is Shelley Chen and I am a graduate student at the Centre for Health Promotion Studies at the University of Alberta. My research study is called "Working at night: Building Service Workers Perceptions of Personal Safety". I want to know how to promote safety of building service workers who work shifts at night. I am asking all nightshift workers in building services so that I can learn from their common experiences on safety. I am asking you because you are working shifts at night in building services.

The purpose of my study is to learn from Building Service Workers who work at night what they think about their safety and factors that affect their safety. First, I will ask what building service workers think about their safety risks. Second, I will ask about risks to safety of building service workers. Third, I will ask about the policies, procedures, and training that building service workers report about risks to safety. Finally, I will learn about other factors to help reduce safety risks.

It is your right to say yes or no about meeting with me. If you agree to be in my study I will meet you for about 45 to 60 minutes at a good time for you. All information will be held confidential. Only I will know that you are in this study. Only my supervisor and typist will see what you tell me. Your job will not be at risk if you do or do not meet with me. You may choose not to answer one or more of my questions and are free to stop the meeting at any time. Your name will not be on any research papers. All findings of the study will be reported as group findings. If findings are presented as quotes, it will be done so that your identity will be protected. What you tell me will be kept in a locked area and will be destroyed in five years. If another study of what you tell me is going to happen, the ethics board will have to approve it.

If you agree to meet with me, please check off the YES box on the attached form. If you do <u>not</u> want to meet with me, please check off the NO box.

Thank you for your help as I learn more about personal safety of building service jobs at night. I will use what you tell me to create ideas for safety in building service jobs. If you become uncomfortable describing something, or being in this research results in any upset while talking about something that has happened to you, I will assist you by telling you where to go for help.

Please call my supervisor or me if you have any questions about this study.

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Appendix C

Participation Indication Form

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UNIVERSITY OF ALBERTA

Faculty of Graduate Studies
Centre for Health Promotion Studies
5-10 University Extension Centre
University of Alberta

PARTICIPATION INDICATION FORM

Research Title: Working at Night: Building Service Workers Perceptions of Personal Safety

Please mark one box with a checkmark:

☐ **YES** I want to meet with you

Name (please print first name)_____

Phone number _____

☐ **NO** I do NOT want to meet with you

Please FOLD and put in the box labeled "FORMS"

Thank-You

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Appendix D

Interview Guide

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UNIVERSITY OF ALBERTA

Faculty of Graduate Studies
Centre for Health Promotion Studies
5-10 University Extension Centre
University of Alberta

INTERVIEW GUIDE

Research Title: Working at night: Building Service Workers Perceptions of Personal Safety
Researcher: Shelley Chen, MSc(C)

The information letter and the consent form will be read out loud with the participant first. After questions are answered and once the participant signs the consent form, the interview will proceed as follows.

PART A

The purpose of my first set of questions is to get a description of building service workers here at this time.

1. Are you a
   - ☐ part-time,
   - ☐ full-time, or
   - ☐ casual employee?

2. a. How many years have you worked in this job? _____

   b. How many years have you working in building services anywhere?
   _____

3. a. What equipment or tools do you use or carry, if any?
   _____

   b. What chemicals do you work with, if any?
   _____

4. I am going to ask you what age group you are in. The age groups are:
   ☐ 18-30 ☐ 51-60

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❑ 31-40 ❑ 61-65

❑ 41-50 ❑ over 65

What age group are you in?

5. What is your highest education level? _____
   Probe: How far did you go in school?

6. a. How many languages do you speak? _____

   b. What was your birth language? _____
   Probe: What language did you first learn?

7. Do you consider yourself part of a visible minority group?

   ❑ YES

   ❑ NO

8. a. How many hours a week do you work in this job? _____

   b. Do you have another job? If yes, what time and days of the week do you work at your other job?

   _____

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PART B

The purpose of my next questions is to hear what you think about your personal safety, the risks to your personal safety, and safety training.

Question	Response	Non-Verbal Comments
1. What does personal safety mean to you?		
Probes: a. *What do you think about when you think about your safety at work?*		
b. What is most important to you about your safety?		
c. In the last 5 years, how often have you felt that your personal safety at work was threatened?		
2. How worried are you about your personal safety at work?		
Probes: *a. [If not worried] What is it about your work that makes you feel safe?*		
3. How would you describe your personal safety at work?		
Probes: a. *What threat to your personal safety has happened while you were working at night? Did you report the situation? If not, what stopped you from reporting?*		
b. In the past year, cleaning services were reduced. How has this affected your personal safety? (There is less cleaning now than before.)		
4. Have you ever had an injury while working at night?		
Probes: *a. Tell me about it.*		
b. Did you report it?		
c. If not, what stopped you from reporting it?		

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5. What dangers to your own safety are caused by your equipment, materials or tools?		
6. [If use some type of equipment as answered in PART A question #3] Is there any equipment that you now use that you find uncomfortable or does not fit you?		
Probes: *a. If so, what is wrong with the equipment?*		
7. What do you think about the lighting, ventilation, and air quality where you work?		
8. How worried are you about the exposure from the chemicals and materials that you use or that may be carried to your home from your clothing?		
Probes: *a. What do you do to prevent chemicals from going home with you on your hands and clothing?*		
b. Do any of the chemicals that you use make you feel sick? Do they irritate your eyes, nose, or throat, or cause you trouble with breathing?		
9. What training have you received about workplace safety and personal safety?		
Probes: a. *What do you think about the training you received for the equipment and chemicals that you handle?*		
b. How much did you understand about the training that you received on safety?		
c. [If answer is "not much" in 8b] Was it the words? Was it the language? Was it the way they did it?		
10. What other ways do you think safety training should be conducted?		
11. What do you know about safety policies and procedures at work?		

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Probes: *a. Are there any safety training policies and procedures that you find are not useful to you?*		
b. If yes, what are they and why do you find them not useful?		
12. Do you have any other concerns that you would like me to know about your safety at work?		

Thank you for your participation.

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Appendix E

Expert Review Form

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UNIVERSITY OF ALBERTA

Faculty of Graduate Studies
Centre for Health Promotion Studies
5-10 University Extension Centre
University of Alberta

Date, 2003

Dear _____,

Thank you for agreeing to provide an expert review of my interview guide for the study "Working at night: Building Service Workers Perceptions of Personal Safety".

Instructions for Reviewers

1. Attached is a copy of the interview guide and expert review guide.
2. Please read the research information below before reviewing the interview guide.
3. Evaluate each question using the 4 point scale provided on the expert review guide.
4. Please write any comments or suggestions directly on the expert review guide.
5. Please return the completed review to me by date, 2003.

Questions for Reviewer

1. Is the language appropriate?
2. Are the questions clear and unambiguous?
3. Are any questions threatening?
4. Are there any offensive or emotionally laden questions?
5. Could these questions motivate the respondent to participate actively in the interview?
6. Do you think the sequencing of the questions makes a difference?
7. Any suggested wording changes?
8. Any further comments?

The following information is for your information only:

Researcher Information

Researcher: Shelley Chen, MSc(C)
Thesis Supervisor: Dr. D. Lynn Skillen, RN, Ph.D.
Research Questions:

1. What do building service workers think about their personal safety?
2. What risks to personal safety do building service workers identify?
3. What education about risks to personal safety do building service workers report?

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EXPERT REVIEW ON INTERVIEW GUIDE

PART A

The purpose of my questions is to get a description of building service workers here at this time.

Please check off one box

Question	Not relevant	Needs Major Revision	Relevant with minor revision	Very relevant and succinct	Comments/ Suggestions for Change
1. Are you a part-time, full-time, or casual employee?					
2a. How many years have you worked at this job?					
2b.How many years have you worked in building services anywhere?					
3a. What equipment do you use or carry, if any?					
3b. What chemicals do you work with, if any?					
4. I am going to ask you what age group you are. The age groups are: 18-30, 31-40, 41-50, 51-60, 61-65, and over 65. What age group are you in?					
5. What is your highest education level?					
6a. How many					

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languages do you speak?					
6b. What is your first language?					
7. Do you consider yourself part of a visible minority group?					
8. Do you have another job? If yes, what time and days of the week do you work at your other job?					

PART B

The purpose of my next questions is to hear what you think about your personal safety, the risks to your personal safety, and safety training.

	Please check off one box				
Question	**Not relevant**	**Needs Major Revision**	**Relevant with minor revision**	**Very relevant and succinct**	Comments
1. What does personal safety mean to you?					
Probes: b. *What do you value most about your safety?*					
c. *In the last 5 years, how often have you felt that your personal safety at work was threatened?*					
2. How would you describe your personal safety at work?					
Probes: b. *How concerned are*					

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you about your personal safety at work?					
b. What risks to your personal safety have you encountered while working at night? Did you report the situation? If not, what prevented you from reporting?					
c. In the past year, cleaning services has been reduced, has this affected your personal safety?					
3. Have you ever had an injury while working at night?					
Probes: *a. Tell me about it.*					
b. Did you report it?					
c. If not, what prevented you from reporting it?					
4. What risks to your personal safety does your equipment/materials create?					
5. [If use some type of equipment as answered in PART A question #3] Is there any equipment that you presently use that you find uncomfortable or does not fit you?					
Probes: *a. If so, what is wrong*					

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with the equipment?					
b. What do you think about the lighting, ventilation, and air quality that you work in?					
6. How concerned are you about the hazardous exposure from the solvents that you use or that may be carried to your home from your clothing?					
Probes: *a. What do you do to prevent substances from going home with you on your hands and clothing?*					
b. *Do any of the solvents, substances, chemicals that you use make you feel sick? Or irritate your eyes, nose, or throat, or cause you trouble in breathing?*					
7. What training have you received about safety and personal safety?					
Probes: d. *What do you think about the training you received for the equipment and chemicals that you handle?*					
e. How					

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understandable was the training you received about safety?					
f. How understandable are the words and language (terms/phrases) used for safety training?					
8. What other ways do you think safety training should be conducted?					
9. What do you know about safety policies and procedures at work?					
Probes: *b. Are there any safety training policies and procedures that you find are meaningless?*					
b. If yes, what are they and why do you find them meaningless?					
10. Do you have any other concerns that you would like me to know about?					

Name of Reviewer:

Area of Expertise:

Thank you for your time and for your insightful contribution to my research study.

Sincerely,
Shelley Chen, MSc(C)

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Appendix F

Revised Expert Review Form

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UNIVERSITY OF ALBERTA

Faculty of Graduate Studies
Centre for Health Promotion Studies
5-10 University Extension Centre
University of Alberta

Date, 2003

Dear _____,

Thank you for agreeing to provide an expert review of my interview guide for the study "Working at night: Building Service Workers Perceptions of Personal Safety".

Instructions for Reviewers

1. Attached is a copy of the interview guide and expert review guide.
2. Please read the research information below before reviewing the interview guide.
3. Evaluate each question using the 4 point scale provided on the expert review guide.
4. Please write any comments or suggestions directly on the expert review guide.
5. Please return the completed review to me by date, 2003.

Questions for Reviewer

1. Is the language appropriate?
2. Are the questions clear and unambiguous?
3. Are any questions threatening?
4. Are there any offensive or emotionally laden questions?
5. Could these questions motivate the respondent to participate actively in the interview?
6. Do you think the sequencing of the questions makes a difference?
7. Any suggested wording changes?
8. Any further comments?

The following information is for your information only:

Researcher Information

Researcher: Shelley Chen, MSc(C)
Thesis Supervisor: Dr. D. Lynn Skillen, RN, Ph.D.
Research Questions:

1. What do building service workers think about their personal safety?
2. What risks to personal safety do building service workers identify?
3. What education about risks to personal safety do building service workers

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EXPERT REVIEW ON INTERVIEW GUIDE

PART A

The purpose of my questions is to get a description of building service workers here at this time.

Please check off one box

Question	**Not relevant**	**Needs Major Revision**	**Relevant with minor revision**	**Very relevant and succinct**	Comments/ Suggestions for Change
1. Are you a part-time, full-time, or casual employee?					
2a. How many years have you worked at this job?					
2b.How many years have you worked in building services anywhere?					
3a. What equipment or tools do you use or carry, if any?					
3b. What chemicals do you work with, if any?					
4. I am going to ask you what age group you are in. The age groups are: 18-30, 31-40, 41-50, 51-60, 61-65, and over 65. What age group are you in?					

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5. What is your highest education level?					
Probe: *a. How far did you go in school?*					
6a. How many languages do you speak?					
6b. What was your birth language?					
Probe: *i. What language did you first learn?*					
7. Do you consider yourself part of a visible minority group?					
8a. How many hours a week do you work in this job?					
8b. Do you have another job? If yes, what time and days of the week do you work at your other job?					

PART B

The purpose of my next questions is to hear what you think about your personal safety, the risks to your personal safety, and safety training.

Please check off one box

Question	**Not relevant**	**Needs Major Revision**	**Relevant with minor revision**	**Very relevant and succinct**	Comments
1. What does					

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personal safety mean to you?					
Probes: d. *What do you think about when you think about your safety at work?*					
b. What is most important to you about your safety?					
c. In the last 5 years, how often have you felt that your personal safety at work was threatened?					
2. How worried are you about your personal safety at work?					
Probes: *a. [If not worried] What is it about your work that makes you feel safe?*					
3. How would you describe your personal safety at work?					
Probes: c. *What threat to your personal safety has happened while you were working at night? Did you report the situation? If not, what stopped you from reporting?*					

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b. In the past year, cleaning services were reduced. How has this affected your personal safety? (There is less cleaning now than before.)					
4. Have you ever had an injury while working at night?					
Probes: *a. Tell me about it.*					
b. Did you report it?					
c. If not, what stopped you from reporting it?					
5. What dangers to your own safety are caused by your equipment, materials or tools?					
6. [If use some type of equipment as answered in PART A question #3] Is there any equipment that you now use that you find uncomfortable or does not fit you?					
Probes: *a. If so, what is wrong with the equipment?*					
7. What do you think about the lighting, ventilation, and air quality where you work?					
8. How worried are					

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you about the exposure from the chemicals and materials that you use or that may be carried to your home from your clothing?					
Probes: *a. What do you do to prevent chemicals from going home with you on your hands and clothing?*					
b. Do any of the chemicals that you use make you feel sick? Do they irritate your eyes, nose, or throat, or cause you trouble with breathing?					
9. What training have you received about workplace safety and personal safety?					
Probes: g. *What do you think about the training you received for the equipment and chemicals that you handle?*					
h. How much did you understand about the training that you received on safety?					

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i. [If answer is "not much" in 8b] Was it the words? Was it the language? Was it the way they did it?					
10. What other ways do you think safety training should be conducted?					
11. What do you know about safety policies and procedures at work?					
Probes: *c. Are there any safety training policies and procedures that you find are not useful to you?*					
b. If yes, what are they and why do you find them not useful?					
12. Do you have any other concerns that you would like me to know about your safety at work?					

Name of Reviewer:

Area of Expertise:

Thank you for your time and for your insightful contribution to my research study.

Sincerely,

Shelley Chen, MSc(C)

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Appendix G

Pilot Interview Expert Review Form

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UNIVERSITY OF ALBERTA

Shelley Chen, MSc Student
Centre for Health Promotion Studies
5-10 University Extension Centre,
University of Alberta

Interview Tape Review Guide

Questions for Reviewer

Voice Skills

1. Does the Interviewer use appropriate voice tone and pitch?
   Comments:

Listening Skills

2. Does the Interviewer show ability to listen to answers?
   Comments:

3. Does the Interviewer show ability to frame respondent answers to the next question?
   Comments:

4. Does the Interviewer know when to wait?
   Comments:

5. Does the Interviewer know when to prompt?
   Comments:

6. Does the Interviewer know when to tactfully intervene?
   Comments:

Questioning Skills

7. Does the Interviewer use appropriate language?
   Comments:

8. Are the questions asked clear and unambiguous?
   Comments:

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9. Does the Interviewer avoid leading questions?
   Comments:

10. Does the Interviewer avoid asking two questions in the same sentence?
    Comments:

11. Does the Interviewer transition well between questions?
    Comments:

Interviewer Bias

12. Does the Interviewer avoid interviewer bias (e.g. giving personal opinions)?

Interviewing Techniques

13. Does the Interviewer use the following interviewing techniques:

( ) Active Listening	( ) Not Applicable in this tape
( ) Adaptive Questioning	( ) Not Applicable in this tape
( ) Facilitation	( ) Not Applicable in this tape
( ) Echoing	( ) Not Applicable in this tape
( ) Empathic Responses	( ) Not Applicable in this tape
( ) Validation	( ) Not Applicable in this tape
( ) Reassurance	( ) Not Applicable in this tape
( ) Summarization	( ) Not Applicable in this tape
( ) Highlighting Transitions	( ) Not Applicable in this tape

Comments:

14. Any further comments?

Name of Reviewer:

Area of Expertise:

Thank you for your time and for your insightful contribution to my research study.

Sincerely,

Shelley Chen, MSc(C)

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Appendix H

Information Letter

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UNIVERSITY OF ALBERTA

Faculty of Graduate Studies
Centre for Health Promotion Studies
5-10 University Extension Centre
University of Alberta

INFORMATION LETTER – For Individual Interview

My name is Shelley Chen and I am a graduate student at the Centre for Health Promotion Studies at the University of Alberta. My research study is called "Working at night: Building service workers perceptions of personal safety". I want to know how to promote safety of building service workers who work shifts at night. I am asking all nightshift workers in building services so that I can learn from their common experiences on safety. I am asking you because you are working shifts at night in building services.

The purpose of my study is to learn from Building Service Workers who work at night what they think about their safety and factors that affect their safety. First, I will ask what building service workers think about their safety risks. Second, I will ask about risks to safety of building service workers. Third, I will ask about the policies, procedures, and training that building service workers report about risks to safety. Finally, I will learn about other factors to help reduce safety risks.

It is your right to say yes or no about meeting with me. If you agree to be in my study I will meet you for about 45 to 60 minutes at a good time for you outside of your work hours. I will provide you with a light snack and/or beverage while we meet. All information will be held confidential. Only I will know that you are in this study. Only my supervisor and typist will see what you tell me. Your job will not be at risk if you do or do not meet with me. You may choose not to answer one or more of my questions and are free to stop the meeting at any time. Your name will not be on any research papers. All findings of the study will be reported as group findings. If findings are presented as quotes, it will be done so that your identity will be protected. What you tell me will be kept in a locked area and will be destroyed in five years. If another study of what you tell me is going to happen, the ethics board will have to approve it.

Thank you for your help as I learn more about personal safety of building service jobs at night. I will use what you tell me to create ideas for safety in building service jobs. If you become uncomfortable describing something, or being in this research results in any upset while talking about something that has happened to you, I will assist you by telling you where to go for help.

Please call my supervisor or me if you have any questions about this study.

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Appendix I

Informed Consent Form

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I recognize that the benefits derived from this research will vary among the participants. I understand that the final report from this research will be made available as a bound thesis book to be held in the University of Alberta Library.

Signature of Research Participant	Date
Witness to Signature	Date

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Appendix J

Letter of Support

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Appendix K

Transcriber Oath of Confidentiality Form

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UNIVERSITY OF ALBERTA

Faculty of Graduate Studies
Centre for Health Promotion Studies
5-10 University Extension Centre
University of Alberta

OATH OF CONFIDENTIALITY FOR TRANSCRIPTION OF INTERVIEW DATA

Research Title: Personal Safety of Building Service Workers
Researcher: Shelley Chen, MSc(C)
Thesis Supervisor: Dr. D. Lynn Skillen, RN, PhD

Purpose of the Research
The purpose of this study is to determine from building service workers who work nighttime shift-work what they perceive about personal safety at work and factors that affect their personal safety. First, the study will identify what building service workers think about their personal safety. Second, it will identify the policies, procedures and training that building service workers report as related to risks to personal safety. Finally, it will identify cultural and linguistic factors that are associated with risks to personal safety of building service workers.

CONSENT:
This is to certify that I agree to maintain confidential data on the interviews that I will transcribe for Shelley Chen. I will not discuss the interview data with anyone other than Shelley Chen or Dr. D. Lynn Skillen. I will not keep data on the hard drive, and will only keep a copy of the data by making a backup copy of all disks that I prepare, and will submit the original and back up disks to Shelley Chen. I will keep the interview data, original tapes, original disks, and backup disks in a secure place while completing the transcription.

Signature _____ Date _____

Printed Name _____

Witness to Signature _____ Printed Name _____

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Appendix L

Telephone Procedures Checklist

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UNIVERSITY OF ALBERTA

Faculty of Graduate Studies
Centre for Health Promotion Studies
5-10 University Extension Centre
University of Alberta

Telephone Procedures and Eligibility Checklist

Research Title: Working at Night: Building Service Workers Perceptions of Personal Safety

Telephone Call Procedures:

1. Introduce self and explain reason for the phone call.
2. Explain research study.
3. Provide opportunity for participant questions about the study and answer questions.
4. Obtain verbal consent to participate in the research study.
5. Determine participant eligibility. Refer to the participant eligibility checklist below.
6. Remind participant that the interview will take place outside of their work hours.
7. Arrange date and time for interview. Ask which building the participant works in, and inform the participant the room in which the interview will take place. Record date, time, and place below.
8. Ask participant which choice of snack he or she would like. Record below.
9. Provide opportunity for more questions. Answer questions.
10. Thank participant, remind participant of the date, time, and location for the meeting.
11. Inform the participant that the next time you will speak to the participant will be at the arranged meeting.
12. Say good-bye and end call.

Participant Eligibility Checklist:

1. Have you been employed in building services at your present job for more than one year?

   ☐ YES

   ☐ NO If answer is NO, thank participant for their time and end call.

2. Will you do the interview in English?

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❑ YES

❑ NO If answer is NO, thank participant for their time and end call.

Participant Name: _____

Participant Phone Number: _____

Interview Date: _____ Interview Time: _____

Interview Location: _____

Snack Choice: _____

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