Gender Differences in the Long-Haul Trucking Industry

Related to Worker Health Perception - A Pilot Study

by

Diane M. Layne

A Master's Paper submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Public Health in the Public Health Leadership Program.

2007

Approved by:

Bonnie Rogers, Advisor

Susan A. Randolph, Reader
ABSTRACT

Over 3 million long-haul truck drivers transport goods across the United States and truck driving is listed as the nation's third largest growth occupation (U.S. Bureau of Labor Statistics, 2004). Over 360,000 women now make up a part of this traditionally male dominated profession, and the number of women employed in the trucking industry is growing daily (U.S. Bureau of Labor Statistics, 2004). Long-haul truck drivers who are gone from home at least one overnight each week makes up a unique subset of this occupation.

Long-haul trucking has been found to be associated with a number of medical problems including musculoskeletal disease, sleep disorders, hypertension and cardiovascular disease, obesity and gastrointestinal disease, substance abuse and alcoholism, various types of cancer and reproductive issues (Solomon, Doucette, Garland, & McGinn, 2004). These health risks are often attributed to lifestyle, work environment including unpredictable work hours and geographical locale, along with lack of health insurance, and occupational exposures (Solomon et al., 2004). Increased health risks and transience are, therefore, characteristics long-distance truck drivers share with other vulnerable populations (Solomon et al., 2004). As the long-haul trucking workforce continues to grow, and as the number of women truckers increases, so too will the incidence of these health care problems. Limited information was found in the literature about how this at-risk and growing population utilizes the healthcare system in this country, and more specifically how this population of workers
attempts to take care of their chronic, acute or preventable health problems (Solomon et al., 2004).

As the truckers' workplace is the community, the health of this population is of special interest. This descriptive pilot study of 25 male and 25 female truck drivers was conducted to identify health conditions and limited health care access of male and female long-haul truck drivers to ascertain if gender differences do exist in this population. Data indicate that 54% of males and 66% of females had a usual place of health care with only 21% of males and 35% of females, respectively, reporting no health insurance coverage. Both male and female drivers reported common health problems like back pain, sinus problems, hypertension, headaches, and arthritis. Drivers of both genders often waited until returning home to seek treatment for health problems while working, and about half expressed dissatisfaction with health care while "on the road." Occupational and environmental health nurses are in positions to address the special needs of drivers through websites, trucker health clinics, or occupational magazines and newsletters.
ACKNOWLEDGEMENTS

I would like to thank my advisor Dr. Bonnie Rogers for her patience and understanding as she guided me through this process.

I would like to thank Judy Ostendorf and Susan Randolph for their inspiration and encouragement. I would also like to acknowledge the valuable insight and assistance provided by Deborah B. Reed, RNC, PhD, and Mark Weaver.

Finally, to my husband David who has been my rock and my greatest cheerleader. Without your love, and especially your understanding through all my highs and lows this would have never been possible. Thank you - you’ve been wonderful and this could not have been done without you!
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CHAPTER I

INTRODUCTION

There are over 3 million commercial motor vehicle operators in the United States (U.S.), representing one of the largest occupational groups in this country (U.S. Bureau of Labor Statistics, 2004). This study focuses specifically on long-haul truck drivers who are away from home overnight at least one night each week. The long-haul truck drivers of this country are frequently referred to as the last cowboys because their lifestyles reflect those of cowboys of days gone by. Similar to cowboys, truck drivers live on the road and bring their worldly belongings with them as they travel the countryside delivering goods that keep this country moving on a daily basis (Stratford, Ellerbrock, Akins, & Hall, 2000). It is this nomadic-type lifestyle that medical professionals may not understand to meet the health care needs of this large working population. In addition, truckers are often faced with irregular schedules, difficult working conditions, high-pressure jobs, and family demands, which may place them at high risk for multiple health problems. This has implications not only for the welfare of truckers who may be suffering effects of untreated medical problems such as hypertension and sleep disturbances, but also for the safety of the community-at-large with whom they share the road while operating these large vehicles.

Every 16 minutes, a person is killed or sustains injuries in accidents involving 18-wheelers, tractor-trailers, or semi-trucks (Trucking Accident Facts, n.d.). The majority of fatal truck accidents occur in rural areas (68%) during the daytime (66%) and on weekdays (78%) (Trucking Accident Facts, n.d.). From
1992 to 2002, the number of large trucks involved in fatal crashes increased by 10% due to driver fatigue, unsafe vehicle operation, large, unstable loads, or defective equipment. The Insurance Institute for Highway Safety reports that in crashes involving large trucks and other vehicles, 98% of the fatalities occur to the people in passenger vehicles (Trucking Accident Facts, n.d.).

Long-haul drivers operate trucks or vans with a capacity of at least 26,000 pounds Gross Vehicle Weight (GVW) (U.S. Bureau of Labor Statistics, 2006-07). The Federal Motor Carrier Safety Administration (FMCSA) Motor Carrier Management Information System (MCMIS) classifies a truck as large if its gross vehicle weight rating (GVWR) exceeds 10,000 pounds (Trucking Accident Facts, n.d.). Considering the average vehicle on the American road today weighs 3,500 pounds, any large truck could quickly become a moving missile if the truck driver does not have complete control of the vehicle at all times. They transport goods including cars, livestock, and other materials in liquid, loose, or packaged form, often adding additional weight creating loads weighing in excess of 80,000 pounds. Many routes are from city to city and cover long distances. Some companies use two drivers on very long runs - one drives while the other sleeps in a berth behind the cab. These "sleeper" runs can last for days, or even weeks. Trucks on sleeper runs typically stop only for fuel, food, loading, and unloading. Drivers on long runs face boredom, loneliness, and fatigue and are away from their families for long periods of time. Drivers often travel nights, holidays, and weekends to avoid traffic delays.
To drive a commercial vehicle between states, one must be 21 years of age, according to the U.S. Department of Transportation (2005c), which establishes minimum qualifications for truck drivers engaging in interstate commerce. Other qualifications are related to health, alcohol and drug use, language abilities, and previous motor vehicle accident involvement. In addition, many trucking operations have established standards higher than federal requirements. Many firms require that drivers be at least 22 years old, able to lift heavy objects, and have driven trucks for 3 to 5 years. Many prefer to hire high school graduates and require annual physical examinations.

The trucking industry is considered a high growth industry, growing at almost 5% annually (U.S. Bureau of Labor Statistics, 2006-07). Historically, trucking has been a male-dominated occupation. However, more women are finding that a career in trucking offers many rewards and that the sacrifices and challenges are well worth the effort. This high growth rate is affecting the gender make up of the driver workforce as the number of females employed as truck drivers has risen from an estimated 513 drivers in 1970 to over 360,000 in 2006, or 4.5% of the workforce (Lembright & Riemer, 1982; U.S. Bureau of Labor Statistics, 2006-07).

Median hourly earnings of heavy truck and tractor-trailer drivers were $16.11 in May 2004 (U.S. Bureau of Labor Statistics, 2004). The middle 50% earned between $12.67 and $20.09 an hour. The lowest 10% earned less than $10.18, and the highest 10% earned more than $24.07 an hour.
According to the U.S. Bureau of Labor Statistics (2005) National Compensation Survey, 70% of workers in private industry had access to medical insurance care plans, and 53% participated in such plans. The measure of current lack of coverage provides an estimate of persons who at any given time may experience barriers to obtaining needed health care, as well as not obtaining preventative services as well as care for illness and injury. Specific data regarding national truck driver medical insurance coverage were not available, although one recent trucker survey indicated 31% of respondents were uninsured (Solomon et al., 2004).

Driving is an extremely stressful job because of the hypervigilant state the driver must maintain for long periods (Renner, 1998). This stress can induce mental and physical fatigue, which is compounded by the drowsiness created by the monotony of the job. Drivers' prolonged stationary seated position can cause back disorders and decreased circulation of the lower extremities. The sitting position combined with the constant vibration of the truck can increase the incidence of kidney disease and herniated intervertebral discs. Demanding delivery schedules produce highly erratic work and rest schedules, which in turn creates myriad of health risks including family strife, drug abuse, stress, smoking, excess caffeine intake, sleep deprivation, and disenfranchisement from family, friends, and coworkers (Renner, 1998).

Outside the commercial driver medical fitness examination required by the U.S. Department of Transportation (2005c), little is known or understood concerning the health status and behaviors of the long-haul truck drivers. The
purpose of this study was to identify and compare long-haul truckers gender differences and similarities about health care status and needs, social, economic, and behavioral factors that influence access to health care, and health care satisfaction.
CHAPTER II
LITERATURE REVIEW

Trucking Industry

The total distance driven by commercial truck drivers in the U.S. exceeds 150 billion miles each year (Trucking Stats and FAQ's, n.d.). Professional drivers in the United States drove 200 billion miles in 2000. By 2004, total miles driven by all commercial truck drivers were 197 billion miles compared to 152.5 billion in 1994. A truck driver in the United States travels an average of 64,200 miles per year with the average trip for trucks about 420 miles one way. By 2008, the trucking industry will haul 9.3 billion tons, approximately 64% of total U.S. freight. Eighty-seven cents of every dollar of U.S. freight revenue in 2008 will go to the trucking industry. The majority (70%) of U.S. communities depend solely on trucking for delivery of their goods and commodities. Commercial trucking keeps this country operating on a daily basis.

This country depends on the operators of these commercial vehicles on a daily basis. There are almost 3 million commercial motor vehicle drivers in the United States (U.S. Bureau of Labor Statistics, 2006-07). Little research, however, has been done specifically to examine the health status and health care access needs of these workers (Solomon et al., 2004). Truck drivers are a constant presence on our Nation's highways and interstates. They deliver everything from automobiles to canned food. Firms of all kinds rely on trucks to pick up and deliver goods because no other form of transportation can deliver goods door-to-door (U.S. Bureau of Labor Statistics, 2006-07). Even if some
goods travel most of the way by ship, train, or airplane, almost everything is
carried by trucks at some point in its journey (U.S. Bureau of Labor Statistics,
2006-07). Thus, it is important to understand who makes up this occupational
population, as well as their health needs.

Truck drivers can be categorized into subpopulations: local, regular route,
and long-haul irregular route truck drivers (Renner, 1998). Local drivers typically
return home every night and are able to stay within their geographic area.
Regular route truck drivers are assigned specific routes and return home on a
regular schedule. These subpopulations are generally able to seek health care
with their preferred provider on a regular basis. The long-haul irregular route
trucker provides services between large geographic areas, frequently from one
coast to the other (U.S. Bureau of Labor Statistics, 2006-07). These drivers
typically are not routed home on a regular basis. Some drivers may stay out on the
road for several weeks before being routed home making it difficult for these
workers to obtain consistent health care services (LaDou, 1988; Renner, 1998).
With erratic work hours, scheduling appointments with healthcare providers is
virtually impossible; thus, treatment is delayed or is often sought at multiple
emergency departments or freestanding ambulatory clinics where costs are high
and care is generally nonholistic and fragmented (LaDou, 1988; Renner, 1998).

Companies have an economic incentive to hire good drivers as they use
less fuel and cost less to insure. Drivers must get along well with people because
they often deal directly with customers. Employers seek driver/sales workers who
speak well and have self-confidence, initiative, tact, and a neat appearance.
Employers also look for responsible, self-motivated individuals who are able to work well with little supervision (U.S. Bureau of Labor Statistics, 2006-07). It is estimated that 21% of those working as truck drivers are self-employed, working as owner operators or independent drivers (U.S. Census Bureau, 2000).

**Regulations**

The commercial trucking industry, the vehicles, and the employees of this industry are subject to many federal and state regulations. The Federal Motor Carrier Safety Administration within the U.S. Department of Transportation governs the activities of this transportation mode. There are 12 different parts within the Department of Transportation Title 49 that specifically address the trucking industry (U.S. Department of Transportation, 2005d). These parts include controlled substances and alcohol use and testing; commercial driver's license (CDL) standards; compliance with CDL program; general Federal motor carrier safety regulations; qualifications of drivers; driving of commercial motor vehicles; parts and accessories for safe operation; hours of service of drivers; inspection, repair and maintenance; transportation of hazardous materials; transportation of migrant workers; and employee safety and health standards.

Physical standards for commercial drivers were first issued by the Interstate Commerce Commission (ICC) in 1939 when "Good physical and mental health; good eyesight; adequate hearing; no addiction to narcotic drugs; and no excessive use of alcoholic beverages or liquors" were the only criteria needed (Hartenbaum, 2003, p. 3). It was not until 1970 that actual medical standards were implemented. The current medical standards were implemented in
2000, an expansion of those set in 1970 (Appendix A). Drivers are required to be at least 21 years old and pass a physical examination a minimum of once every 2 years. The main physical requirements include at least 20/40 vision with glasses or corrective lenses, and a 70-degree field of vision in each eye. Drivers may not be colorblind. Drivers must have good hearing, including ability to hear a forced whisper in one ear at not less than 5 feet, with a hearing aid if needed. Drivers must have normal use of arms and legs and normal blood pressure. Drivers may not use any controlled substances, unless prescribed by a licensed physician.

Persons with epilepsy are not permitted to be interstate truck drivers. Recently, insulin dependent diabetics have been issued waivers if good control of their disease process is demonstrated. Federal regulations also require employers to test their drivers for alcohol and drug use as a condition of employment, and require periodic random tests of the drivers while they are on duty. A driver must not have been convicted of a felony involving the use of a motor vehicle; a crime involving drugs; driving under the influence of drugs or alcohol; refusing to submit to an alcohol test required by a State or its implied consent laws or regulations; leaving the scene of a crime; or causing a fatality through negligent operation of a motor vehicle.

The U.S. Department of Transportation governs work hours and other working conditions of truck drivers engaged in interstate commerce. A long-distance driver may drive for 11 hours and work for up to 14 hours - including driving and non-driving duties - after having 10 hours off-duty. A driver may not drive after having worked for 60 hours in the past 7 days or 70 hours in the past 8
days unless they have taken at least 34 hours off-duty (U.S. Department of Transportation, 2005a). Many drivers, particularly on long runs, work close to the maximum time permitted because they typically are compensated according to the number of miles or hours they drive (U.S. Bureau of Labor Statistics, 2006-07).

**Truck Drivers**

According to the U.S. Bureau of Labor Statistics (2005), 13.1% of employed persons are Hispanic/Latino, 10.8% are Black or African American, and 4.4% are Asian. Specifically, the driver/sales workers and truck driver workforce is made up of 14.5% Black or African American, 12.7% Hispanic/Latino, and 1.1% are Asian. Over 88% of truck drivers have a high school diploma or better (Trucking Stats and FAQ's, n.d.). This is a higher level of education than the general population age 20 and over, in which 83% are high school graduates or more (U.S. Bureau of Labor Statistics, 2006-07). The average age of those employed in the truck transportation industry is 43 years, with the average age of the American workforce at 41 years in 2000 (U.S. Census Bureau, 2000). Average yearly income for a driver was estimated to be $32,000 exceeding the $23,848 median per capita income in 2004 for the United States as a whole (U.S. Census Bureau, 2005). Employers pay long-distance drivers primarily by the mile. The per-mile rate can vary greatly from employer to employer and may even depend on the type of cargo hauled. Some long-distance drivers are paid a percentage of each load’s revenue. Typically, earnings increase with mileage driven, seniority, and the size and type of truck driven.
A review of the existing academic and trade literature reveals limited information about the health, health behavior, and health status of truck drivers. Of the 3 million Americans employed in the truck transportation industry, 12.4% are female (U.S. Bureau of Labor Statistics, 2004). Truck driving is rated as the Nation’s third largest growth occupation, with estimated growth of 5% annually. Industry experts estimate 300,000 new drivers will be needed each year through 2014 to keep up with the growing demand for the transport of goods throughout this country (Holmes, Power, and Walter, 1996; U.S. Bureau of Labor Statistics, 2006-07). As this industry continues to grow, so too should concern for the trucker’s health not only to preserve the trucker’s livelihood, but also to protect the motoring public with whom the trucker shares the nation’s highways.

All drivers must be able to read and speak English well enough to read road signs, prepare reports, and communicate with law enforcement officers and the public (U.S. Bureau of Labor Statistics, 2006-07). Although the vast majority of drivers are healthy and easily comply with the medical standards set forth in the D.O.T. regulations, this examination is not a wellness exam and those drivers who do not have a primary medical provider often are not in the best of health to meet the medical requirements set forth (Auerbach, 2003).

**Morbidity and Mortality**

According to Occupational Injury and Illness data compiled by the U.S. Bureau of Labor Statistics (2003), incidence rates for injuries range from 1.7 per 100 full-time workers in financial activities to a high of 7.8 per 100 workers in the transportation and warehousing industry, with private industry as a whole having
an incidence rate of 5.0 per 100. With over 151,000 injuries in 2003, truck drivers had more nonfatal injuries than workers in any other occupation. Half of these nonfatal injuries were serious sprains and strains, with bruises, fractures, and lacerations accounting for many of their other common injuries. Truck drivers suffered nearly 14% (862) of the 6,238 fatal occupational injuries during 1997 (U.S. Bureau of Labor Statistics, 2003). Workers in the trucking industry experienced the most fatalities of all occupations. This number far exceeded the next closest high-risk occupation, farm occupations, with 616 fatal injuries in 1997. The number of fatalities among truck drivers increased fairly steadily, from 699 in 1992 to 862 in 1997. Over the same period, the fatality rate increased from 26 to 28 per 100,000 workers. In 1997, more than 50% of the fatalities occurred in trucks with trailers or semi-trailers, and more than 80% occurred in transportation-related incidents. From 1996 through 1997, fatalities from jackknifing and from collisions between vehicles increased by 16% and 9% respectively. Causes of death among the 862 truck driver fatalities in 1997 included transportation incidents, contact with objects or equipment, assaults and violent acts, falls, exposure to harmful substances or environments, and fires and explosions (U.S. Bureau of Labor Statistics, 2006-07). More than half of the fatal occupational injuries among truck drivers occurred on interstate highways, freeways, expressways, or other State or U.S. highways.

According to the U.S. Department of Transportation (2005b) Large Truck Crash Facts 2003, fatalities in crashes involving large trucks made up 12% of all fatalities in motor crashes in 2000. Of the 4,883 drivers of large trucks involved
in fatal crashes, 363 (about 7%) were 25 years of age or younger, and 118 (about 2%) were 66 years of age or older. In comparison, 14,117 (30%) of the 47,548 drivers of passenger vehicles in fatal crashes were 25 years of age or younger, and 5,620 (about 12%) were 66 years of age or older. About 2% of all the drivers of large trucks involved in fatal crashes were female, as compared with 30% of all drivers of passenger vehicles involved in fatal crashes. Finally, of the 4,883 drivers of large trucks involved in fatal crashes in 2000, 897 were not wearing a safety belt at the time of the crash; of those, 22% were completely or partially ejected from the vehicle.

**Health Risks**

Truck drivers are subjected to physical and psychological stresses inherent in their occupation which often includes long and irregular working hours causing excessive fatigue and mental stress (Bernard, Bouck & Young, 2000). Fatigue compromises the safety of the trucker and others on the road, and may pose long-term threats to their overall health and longevity (Reed & Cronin, 2003). According to a 2001 Federal Motor Carrier Safety Administration Report, driver fatigue is recognized as a major factor in accidents involving long-haul truck drivers (Dingus et al., 2001). Participants at the 1995 Federal Highway Administration Truck and Bus Safety Summit rated driver fatigue as the most significant safety issue of their industry (Hamilton, 1995).

Potential health risks faced by this workforce include loading and unloading heavy cargo, irregular work/rest cycles, unsatisfactory sleeping accommodations, anxiety, vibration, noise and temperature variations, the
monotony of driving, the need for extreme mental alertness, irregular mealtimes, and unhealthy food choices (Robinson and Burnett, 2005). In a study of 2,945 drivers in the United States, Korelitz et al. (1993) found that more than 50% of drivers admitted to smoking one to two packs of cigarettes per day, almost 90% of drivers exercised only sometimes or never, 61% reported having 2 or more snacks daily, and 75% had a body mass index of >25. Drivers reported being diagnosed with back injuries, hearing loss, hemorrhoids, hernias, and unspecified types of heart disease. Drivers also complained of backaches, tiredness, leg pain, insomnia, and gastrointestinal distress.

Roberts and York (2000) conducted a study for the Federal Motor Carrier Safety Administration and focused on six risk factors and their subsequent disease states, including smoking, obesity, hypertension, alcohol and drug abuse, stress, poor eating habits, and physical activity. The results of this study revealed an overall poor state of health for truck drivers when compared to the U.S. general population with a prevalence of 49-54% of drivers smoking, 70-73% obese, 33% hypertensive, and 91% reporting higher stress levels.

The major health concerns of drivers identified during this study were lack of family time, lack of exercise, weight, fatigue, poor diet, and stress. Drivers taking part in this study perceived their profession as less healthy than the average U.S. population. The researchers believe that the conclusions from these results were that medical and absenteeism costs were directly affected and driven upward by these health concerns. Annual excess claim costs of over $500 per claim were directly affected by poor eating habits, and overweight conditions alone with over
$300 in excess claim costs attributed to stress (Roberts & York, 2000). Indirectly, excessive driver turnover was also believed to be influenced by these driver concerns.

Driver turnover has been estimated to cost $1,000 per incident and the cost of recruiting, hiring and training a new driver has been estimated at $5,000 (McElroy, Rodriguez, Griffin, Morrow & Wilson, 1993). A study conducted by Robinson and Burnett (2005) revealed that long-haul truck drivers under age 55 at death were identified as experiencing significantly higher mortality from lung cancer, ischemic heart disease, acute myocardial infarction, and other forms of heart disease when compared to those in the general U.S. population based upon data gathered from 1979-1990. Age-adjusted proportionate mortality ratios (PMR), defined as the proportion of workers with a specific cause of death in a specific occupation compared to the proportion of workers with that cause of death in all occupations, indicated that Caucasian and African-American male long-haul truck drivers age 15-64 had 109 PMR for ischemic heart disease, 112 PMR for acute myocardial infarction, 123 PMR for other forms of heart disease, and 117 PMR for lung cancer (Robinson & Burnett, 2005).

Lifestyle factors including poor diet, sedentary job, and higher prevalence of cigarette smoking than found in many other occupations were identified as contributing factors to a higher mortality rate. Worksite factors including long hours, vigorous exertion, strict road rules, stress, fatigue, and potential exposure to high noise levels, diesel fuel combustion exhaust, carbon monoxide, lead,
freon, and the vast array of substances carried as cargo were also identified as
contributing factors to a high mortality rate.

**Gender Specific Literature**

Gender differences regarding the health status and health behaviors of
commercial drivers were generally not identified in the literature published to
date. The commercial truck industry is a male-dominated profession, estimated to
be 87.6% male (U.S. Bureau of Labor Statistics, 2004). With an occupation that
is one gender dominate, it is not surprising that limited information exists in
identifying the health care status of females, the minority population in this group.

However, Bernard et al. (2000) and Reed and Cronin (2003) specifically
focused on female truck drivers and their health issues. Bernard et al. (2000)
noted various health problems of the long-haul female driver to include muscle
strains in the legs, arms, and back, and stomach, bladder, and hearing loss
problems. Other health problems identified by female drivers during this survey
included digestive problems, menstruation concerns, muscle spasms, kidney
stones, and vision problems. Female drivers who participated in the Reed and
Cronin (2003) study reported sinus problems, back pain, migraine headaches,
high blood pressure, and vision problems as their top medical problems. Other
health problems identified included arthritis, depression, frequent heartburn,
asthma, chronic bronchitis, diabetes, and sleeping difficulty. More than 40% of
female truckers expressed dissatisfaction with health care while "on-the-road"
(Reed & Cronin, 2003). As the number of female truckers continues to escalate,
it is imperative for their health status to be examined and for the appropriate

Theoretical Framework

Health care access and use of health care services in the United States are complex issues. Many factors are responsible for how and why individuals choose to use the health care system. This study is based upon Andersen's Behavioral Model of Health Services Use which is a conceptual framework presenting a systems approach to understanding a specific population's access to health care and how population characteristics, in this case gender, determine predisposing characteristics involving health care behaviors (Andersen, Rice, & Kominski, 2001).

The United States holds the dubious distinction of being the only developed country that does not ensure access to health care through guaranteed coverage (Andersen et al., 2001). Access is defined as "actual use of personal health services and everything that facilitates or impedes their use" (Andersen et al., 2001, p. 3). Access means not only getting to service but also getting to the right services at the right time to promote improved health outcomes. Research has proven that improved equity, effectiveness, and efficiency of the health care system will reduce the effects of chronic diseases and prolong life (Andersen et al., 2001). Understanding access to health care is the key to the development of sound health policy because it provides an environment for predicting and measuring health services use and for promoting health outcomes.
The Behavioral Model of Health Services Use, depicted in Figure 2.1, is a conceptual framework that presents a system's approach to understanding a population's access to health care. The model consists of four major components: Contextual Characteristics, Individual Characteristics, Health Behaviors, and Outcomes. The framework purports that each of the components exerts an influence on the others so the use of health services is a composite of the whole.

Contextual Characteristics contain the external environment and the health care system itself. External environmental factors affect an individual's health status and reflect the economic climate, relative wealth, politics, level of stress and violence, and prevailing norms of society that may affect the way society views health and whether access to health care is considered the responsibility of the individual or the state (Andersen et al., 2001). Characteristics of the health care system include policies, resources, organization and financial transactions that influence the accessibility, availability, and acceptability of medical services.

The second component, Individual Characteristics, includes the personal characteristics of the population at risk that compel individuals to demonstrate certain practices and to use particular health services. Within Individual Characteristics reside predisposing characteristics, such as age and gender, enabling resources and barriers to care, such as fiscal resources and availability of care, and need, including both evaluated and perceived needs.

Next in the continuum of the framework is Health Behaviors. Health Behaviors consist of personal health practices as well as use of formal health services. Personal health practices include activities to maintain or improve
FIGURE 2.1

BEHAVIORAL MODEL OF HEALTH SERVICES USE (Andersen et al., 2001)

Contextual Characteristics  Individual Characteristics  Health Behaviors  Outcomes

Predisposing ➔ Enabling ➔ Need
Demographic  Health policy  Environmental  Social  Financing  Population  Health Indices
Beliefs  Organization

Predisposing ➔ Enabling ➔ Need
Demographic  Financing  Perceived  Social  Organization  Evaluated
Beliefs

Personal Health Practices
Process of Medical Care
Use of Personal Health Services

Perceived Health
Evaluated Health
Consumer Satisfaction
health such as appropriate diet and nutrition, exercise, stress reduction, control of alcohol and tobacco use, self-care, and compliance with medical regimens. By examining the use of health services and self-rated general health status, global measures can be identified that are possible predictors for health care access and use.

Contextual Characteristics and Individual Characteristics work through Health Behaviors to influence Outcomes. Outcomes involve people's perception of their health status and clinical assessment by health care professionals as well as their general satisfaction with the care that they received. This model also includes feedback. Health Outcomes may result in changes of health behavior and predisposing beliefs or perceived need. Health Behaviors can alter a person's need for health care services. The key to understanding health services use is understanding access. This model provides the necessary parameters that will guide this look at health care access among long-haul truckers.

The focus area of this study is Individual Characteristics. Individuals hold predisposing characteristics that influence their use of medical services prior to any onset of illness. Demographic factors such as age and gender may determine whether or not and what type of health services are needed. Social structure may also predict an individual's propensity to seek health care services. Andersen et al. (2001) postulates that traditional measures used to represent social structure include education, occupation, and ethnicity. Health beliefs, such as attitudes, values, and knowledge of health and health services, greatly influence a person's
perception of need and use of health care services. Each of these factors is a vital part of the trucker's access and utilization of health care.

The researcher hypothesized that long-haul truckers may not have ready physical access to care, may not have the fiscal resources to obtain care, and would minimize the need for care while on the job.
CHAPTER III

METHODS

Study Design

The research used a descriptive, cross sectional survey design with a non-random, convenience sample. The study was designed to answer three research questions:

1. What is the self-perceived health status of male and female long-haul truckers? Are there gender differences?
2. What are the health care needs of male and female long-haul truckers? Are there gender differences?
3. How satisfied are male and female long-haul truckers with their health care access? Are there gender differences?

Institutional human subjects review board approval was obtained from the University of North Carolina at Chapel Hill prior to data collection (Appendix B).

Study Variables

Independent and dependent variables were defined for the study.

Independent Variables:

- Demographic characteristics: gender, age, marital status, education, ethnicity, and income.
- Work practice variables: stress to get the job done in less hours, and stress relating to job demands.
- Driving environment: days on the road per year, years as a professional driver, and hours driving per day.
Dependent Variables:

- Research question 1: Self-perceived health status of the individual.
- Research question 2: Self-perceived health care needs of the individual.
- Research question 3: Trucker satisfaction with health care access.

Setting

Verbal approval from managers of truck stops from June 16, 2005 through July 14, 2005 was obtained. Three locations in rural Ohio were identified and included London, Ohio; Beaverdam, Ohio; and Jeffersonville, Ohio (Appendix C). These three sites were selected based upon their location on major interstate truck routes, proximity to large metropolitan areas, large diesel fuel island stations, proximity to dining establishments, and shower facilities for the professional drivers.

Sample

All subjects who were eligible to participate were volunteers who were male and female long-haul truck drivers (defined as truckers who were away from home overnight each week) and who were able to read, write, and speak English. Both male and female truck drivers who were observed exiting a truck within the truck stop fuel island area were asked by the researcher whether they were licensed long-haul drivers. Individuals who responded yes were invited to participate in the study. The study sample comprised 27 male and 26 female long-haul truckers. Two additional males and one additional female were surveyed to allow for replacement information if any questionnaires were found to be incomplete.
Recruitment

Recruitment occurred during five separate occasions, with two trips made to the London, Ohio truck stop, two trips to the Jeffersonville, Ohio location, and one trip to the Beaverdam, Ohio location. The principal investigator observed that more truckers were willing to participate during the evening mealtime of 5:00PM to 8:00PM. Interested male participants fitting the eligibility criteria were found to be plentiful with 27 volunteers identified during the first trips to each of the three selected locations. Interested female participants fitting the study criteria proved to be more difficult to locate possibly due to the overall fewer numbers of female truckers. Multiple trips to the London, Ohio and Jeffersonville, Ohio locations were required to exclusively recruit the desired number of 26 female long-haul truckers. Subjects who identified themselves as long-haul truckers were distributed a study recruitment flyer (Appendix D) which indicated the study purpose and eligibility requirements. Eligible subjects who expressed interest in participating were directed to a recreational vehicle parked in the truck stop lot for further study information.

Instrument Development and Testing

A five page, self-administered questionnaire (Appendix E) focusing on health access, health care, and health status was adapted from a questionnaire previously developed and used by permission of D.B. Reed (personal communication, July 31, 2004). Demographic, social, economic, and behavioral variables were included. This study also explored access to health-related educational material. The survey was divided into four sections including access
to medical care, trucking experience, health care and health status, and background demographic information.

The questionnaire was further developed by personal interviews with two male and one female long-haul truckers to frame the most pertinent questions and develop a better cultural appreciation and occupational understanding of long-haul truckers. This increased the validity of the instrument and ultimately the data derived from such. The questionnaire was then pre-tested with two male truckers to establish clarity, time burden, and content validity of the instrument. No female truckers were readily accessible during the pre-test phase and were not utilized for pre-testing the instrument.

The first section of the survey, Access to Medical Care, contained 13 questions. Questions in this section established if the participant had a usual place for medical care and the type of health facility, if a work-related injury had ever occurred and where treatment was obtained, where employment physical examinations were conducted including assessment of personal health status, and if the participant had health insurance and employer paid sick leave. Twelve of the thirteen questions were categorical type questions that requested a specific response, and one was a yes/no type question.

The second section, Trucking Experience, included five questions. These questions established the type of employer, years as a professional driver, number of days and hours typically worked, and job demands and pressure ratings. Four of the five questions were continuous type questions requesting a specific response, and there was one multi-part ordinal likert-type question.
The third section, Health Care and Health Status, included 14 questions. Twelve questions in this section were continuous type questions requesting a specific response. Two questions were ordinal likert-type questions. Questions in this section focused on use of health care services, use of medications, health problems experienced, smoking status, exercise levels, source of health information, and satisfaction with health care access while at home and at work.

The final section, Background Information, included seven questions. These questions, all continuous type questions, focused on establishing a demographic picture of the participants. These questions included age, marital status, number of children, level of education, ethnicity, and income.

Access to health care, defined as "actual use of personal health services and everything that facilitates or impedes their use" (Andersen et al., 2001, p. 3), was measured by the respondents' usual method of obtaining care while on the job and their satisfaction with access to care. A list of seven categories, including trucker magazines, other popular magazines, on-line trucker web sites, other websites, trucking company employer, health care provider, and occupational health clinics, as well as an open-ended response area where a specific other answer could be provided for respondents to check related to their methods of acquiring health care information was provided.

In addition to the survey, qualitative data were collected through personal interaction with the participants after they completed the survey. No formal interviews were conducted. Unsolicited statements by the participants included such comments like: "this is certainly necessary"; "it would be great to see more
accessible health services for truckers"; "many truckers are in very poor health"; and "it would be nice to have more affordable health services closer to the interstates." These data were entered as field entries and may be useful in generating hypotheses for future studies.

**Data Collection**

From June 16, 2005 through July 14, 2005, verbal approval from managers of the three truck stops was obtained. A recreational vehicle was parked in a prominent location within the truck stop parking lot near the fuel island and served as the base location for participants to utilize while completing their questionnaire. Surveys were generally administered from 1:00PM to 8:00PM at large interstate truck stops in London, Jeffersonville, and Beaverdam, Ohio.

Recruitment flyers were posted on the fuel islands directing any eligible participant to the nearby recreational vehicle. As truckers were observed pulling into the fuel island or parking area, the principal investigator approached their vehicle and handed a recruitment flyer to the driver. If the driver refused the flyer, he/she was thanked for their time and the researcher walked away. If the trucker expressed interest, read the recruitment flyer, and met the eligibility requirements, he/she was escorted to the recreational vehicle. A fact sheet (Appendix F) explaining the research and the survey was provided to the participant outside the recreational vehicle. The principal investigator asked each participant if there were any questions about the process or the fact sheet and all questions were answered accordingly. Questions that
were raised mainly concerned how the survey information would be used to assist in program development. The fact sheet served as the surrogate informed consent of the participant. The principal investigator then signed the bottom of the fact sheet acknowledging subject participation and informed consent. Participants were specifically requested not to provide their name or signature to maintain confidentiality and anonymity of the survey process.

After verbal consent was given, the first 27 male and 26 female self-identified eligible participants were escorted into a private area within the recreational vehicle, handed a questionnaire and a pencil, and offered a seat in order to complete the questionnaire in its entirety. Participants were limited to two at a time in the vehicle due to size and also to maintain confidentiality of the participants. A curtain was hung in the middle of the recreational vehicle that obscured the view from one area to another. Participation was strictly voluntary and the respondents were free to leave at any time during the survey process. The principal investigator remained outside the vehicle but was accessible at all times to answer any questions that arose. Completion of the survey generally took 10-15 minutes, although three participants took in excess of 30 minutes to complete the survey. No questions were asked by any participants during the survey process. Following completion of the survey, the truckers returned the form to the principal investigator, and were offered bottled water for their participation. The principal investigator maintained complete control of all survey data at all times.
Data Management and Analysis

Following the data collection process, all data were transferred to and maintained in a locked filing cabinet at the principal investigator's office under the principal investigator's control at all times. No personal identifiers were given to maintain the anonymity of the data. All data were analyzed and presented in aggregate form by gender.

Questionnaires were examined for completeness. Two male and 1 female questionnaires were found to be missing at least 25% of the data and were excluded from data entry, bringing the total sample for males and females to 25 each. Not all respondents answered all study questions. Frequency distributions were produced as appropriate and examined for each of the questionnaire items, and comparisons among subgroups were made. Questions with missing responses were excluded. Questions with inappropriate multiple responses were grouped into "other" for each respective question. Statistical analysis was conducted on the number of completed responses for each question. Frequencies were run to obtain the prevalence of reported health conditions within the sample, driving employment, and employee benefits.
CHAPTER IV
FINDINGS

There were 27 male and 26 female surveys completed as part of this pilot study. Male participants meeting the eligibility criteria were found to be readily available and willing to complete the questionnaire. Eligible female participants were much more difficult to obtain and proved to be a challenging group to access.

Background Information

The questionnaire requested general background information to establish a demographic picture of the participants. Table 4.1 indicates 9 (36%) of the male drivers were age 40-49, 7 (28%) were 50-59, 4 (16%) were age 60-69, 3 (12%) age 30-39, 1 (4%) age 22-29, and 1 (4%) was over age 70. The median age of the male drivers was 49.8 years. Eleven (44%) of the female drivers were age 50-59, 7 (28%) were age 40-49, 6 (24%) age 30-39, and 1 (4%) was age 60-69. The median age of the female participants was 47.4 years.

The majority of participants were married, as reflected by the data shown in Table 4.2. Of the male drivers, 16 (67%) were married, 4 (17%) were divorced, 3 (12%) single, and 1 (4%) was separated. For the women subjects, 13 (52%) were married, 6 (24%) divorced, 3 (12%) single, and 3 (12%) were separated.

Table 4.3 displays data concerning number of children under the age of 18 in the driver's household. Fifteen (60%) male drivers reported having zero
### TABLE 4.1

**AGE**

<table>
<thead>
<tr>
<th>Age Range (years)</th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>20-29</td>
<td>1</td>
<td>4%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>30-39</td>
<td>3</td>
<td>12%</td>
<td>6</td>
<td>24%</td>
</tr>
<tr>
<td>40-49</td>
<td>9</td>
<td>36%</td>
<td>7</td>
<td>28%</td>
</tr>
<tr>
<td>50-59</td>
<td>7</td>
<td>28%</td>
<td>11</td>
<td>44%</td>
</tr>
<tr>
<td>60-69</td>
<td>4</td>
<td>16%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>70+</td>
<td>1</td>
<td>4%</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>25</td>
<td>100%</td>
<td>25</td>
<td>100%</td>
</tr>
</tbody>
</table>
# TABLE 4.2

## MARITAL STATUS

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Married</td>
<td>16</td>
<td>67%</td>
</tr>
<tr>
<td>Divorced</td>
<td>4</td>
<td>17%</td>
</tr>
<tr>
<td>Single</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>Widowed</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>24</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
### TABLE 4.3

**NUMBER OF CHILDREN UNDER AGE 18**

<table>
<thead>
<tr>
<th>Children Under Age 18</th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>0</td>
<td>15</td>
<td>60%</td>
<td>19</td>
<td>76%</td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>16%</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>16%</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>4%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>4%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>25</strong></td>
<td><strong>100%</strong></td>
<td><strong>25</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
children under the age of 18, 4 (16%) had 1 child under age 18, 4 (16%) had 2 children under age 18, 1 driver (4%) had 3 children under age 18, and 1 driver (4%) had 4 children under the age of 18. Female drivers reported much the same way with 19 (76%) female drivers reporting have zero children under age 18.

Two female drivers (8%) had 1 child under age 18, 2 had 2 children under 18, and 1 (4%) had 3 children and 1 (4%) had 4 children under the age of 18.

To gain a picture of the educational level of the participants, drivers were asked to indicate the highest level of education completed (Table 4.4). Fourteen (56%) male drivers reported completing high school or obtaining their G.E.D. certificate, nine (36%) completed college courses or above, and two (8%) reported not completing their high school education. Female drivers reported completing a higher level of education than the men as 16 (64%) completed college courses or above. Seven (28%) female drivers completed high school or obtained their G.E.D. certificate, and two (8%) failed to complete their high school education.

When asked to describe themselves ethnically, the overwhelming majority of both genders reported being Caucasian, reflected in Table 4.5. Twenty-two (88%) male drivers considered themselves to be Caucasian, two (8%) were African-American, and one (4%) was of Asian descent. Among the female drivers, 19 (79%) were Caucasian, 2 (8%) African-American, 2 (8%) identified themselves as mixed descent, and 1 (4%) was of Hispanic origin.

The drivers were also asked to describe their 2003 gross household
<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Less than 12th Grade</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>HS Diploma/GED</td>
<td>14</td>
<td>56%</td>
</tr>
<tr>
<td>College or Higher</td>
<td>9</td>
<td>36%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>--------------</td>
<td>------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Caucasian</td>
<td>22</td>
<td>88%</td>
</tr>
<tr>
<td>African American</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>Asian</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Percentage may not equal 100% due to rounding
income as shown in Table 4.6. Twelve (52%) of the male participants had income between $35,001 to $55,000 per year, 4 (17%) reported income of $55,001 to $75,000, 3 (13%) reported income ranging from $75,001 to $100,000, and 3 (13%) reported income over $100,000. One driver (4%) reported gross annual income in 2003 of $35,000 or less. Female drivers reported income at a much lower level than their male counterparts with 8 (33%) having gross income at $35,000 or less. Five female drivers (21%) reported income ranging from $35,001 to $55,000, 4 (17%) had income of $55,001 to $75,000, 3 (12%) reported income ranging from greater than $75,000 to $100,000, and 4 (17%) had income of more than $100,000.

Access to Medical Care

Table 4.7 reflects that 13 (54%) of the male respondents had a usual place that they went when sick or needed advice about their health care. Of the female drivers, 16 (66%) had a usual place for their health care.

Of the 11 (46%) male respondents who did not have a usual place for their health care or advice, the most common reasons as shown in Table 4.8 were no insurance/can't afford (n=2, 18%), care was not convenient (n=2, 18%), don't know where to go (n=2, 18%), and 9% each reported they didn't need a doctor, that they had insurance but could not afford office visits (n=1, 9%), and didn't know (n=1, 9%). Three (37.5%) of the eight female drivers without a usual place for their health care felt they could not afford the office visits even though they had health insurance, two (25%) did not have health insurance and felt they could
TABLE 4.6

INCOME

<table>
<thead>
<tr>
<th>Income</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>$35,000 or Less</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>$35,001 to 55,000</td>
<td>12</td>
<td>52%</td>
</tr>
<tr>
<td>$55,001 to 75,000</td>
<td>4</td>
<td>17%</td>
</tr>
<tr>
<td>$75,001 to 100,000</td>
<td>3</td>
<td>13%</td>
</tr>
<tr>
<td>$100,001 or More</td>
<td>3</td>
<td>13%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>23</strong></td>
<td><strong>99%</strong></td>
</tr>
</tbody>
</table>

* Percentages may not equal 100% due to rounding
<table>
<thead>
<tr>
<th>Response</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>13</td>
<td>54%</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>46%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>24</td>
<td>100%</td>
</tr>
</tbody>
</table>

* Percentages may not equal 100% due to rounding
TABLE 4.8

REASON FOR NOT USING MEDICAL PROVIDER

<table>
<thead>
<tr>
<th>Reason</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>No Insurance/Can't Afford</td>
<td>2</td>
<td>18%</td>
</tr>
<tr>
<td>Care Was Not Convenient</td>
<td>2</td>
<td>18%</td>
</tr>
<tr>
<td>Don't Know Where to Go</td>
<td>2</td>
<td>18%</td>
</tr>
<tr>
<td>Don't Need Doctor</td>
<td>1</td>
<td>9%</td>
</tr>
<tr>
<td>Have Insurance But Can't Afford</td>
<td>1</td>
<td>9%</td>
</tr>
<tr>
<td>Office Visits</td>
<td>1</td>
<td>9%</td>
</tr>
<tr>
<td>Don't Like, Trust or Believe in Doctor</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>18%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>11</td>
<td>99%*</td>
</tr>
</tbody>
</table>

* Percentages may not equal 100% due to rounding.
not afford a visit, one (12.5%) female driver did not like, trust or believe in a
doctor, one (12.5%) female driver did not know where to go to seek health care,
and one (12.5%) felt she did not need a doctor.

When questioned where medical care was usually sought, Table 4.9
reflects that 20 (83%) of the male respondents went to a doctor's office or private
clinic for care, 3 (13%) went to an urgent treatment center, and 1 (4%) went to a
hospital emergency room. Eighteen (78%) of the female drivers sought treatment
at a doctor's office or private clinic, 3 (13%) went to an urgent treatment center,
and 1 (4%) each went to the hospital emergency room or a VA hospital or clinic.

Ten males (40%), and 13 (52%) females indicated they had experienced a
work-related injury while away from home. Two males and 1 female experienced
injury to multiple body parts. Table 4.10 shows the types of work-related injuries
reported. The most common complaint for males were back and neck injury
(n=4), shoulder injury (n=2), injury due to falling (n=2), knee injury (n=1),
laceration (n=1), foot injury (n=1) and inhalation injury due to noxious fumes
(n=1). For the female respondents, the most common complaint was injury due to
falling (n=4), back injury (n=3), hand, wrist or shoulder injury (n=3) broken
bones (n=2), and foot, ankle or toe injury (n=2).

Seven (70%) of the 10 male respondents who had suffered a work-related
injury while on-the-road felt that they required medical care but chose not to seek
care, as did 6 (46%) of the 13 female drivers. Respondents were asked to indicate
all reasons why they did not obtain medical care. Table 4.11 reflects that five
(71%) of the seven male respondents who did not seek medical care indicated
### Table 4.9

**Usual Location for Medical Care**

<table>
<thead>
<tr>
<th>Usual Location</th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Doctor's Office or Private Clinic</td>
<td>20</td>
<td>83%</td>
<td>18</td>
<td>78%</td>
</tr>
<tr>
<td>Urgent Treatment Center</td>
<td>3</td>
<td>13%</td>
<td>3</td>
<td>13%</td>
</tr>
<tr>
<td>Hospital Emergency Room</td>
<td>1</td>
<td>4%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>VA Hospital or Clinic</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>24</strong></td>
<td><strong>100%</strong></td>
<td><strong>23</strong></td>
<td><strong>99%</strong>*</td>
</tr>
</tbody>
</table>

*Percentages may not equal 100% due to rounding.*
TABLE 4.10

TYPE OF WORK-RELATED INJURY

<table>
<thead>
<tr>
<th>Injury Type</th>
<th>Male No.</th>
<th>Female No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back and Neck Injury</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Hand/Wrist/Shoulder Injury</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Falls</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Knee Injury</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Laceration</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Foot/Ankle/Toe Injury</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Inhalation of Fumes</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Broken Bones</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>12</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>
### TABLE 4.11

**REASON FOR NOT PURSUING MEDICAL CARE**

<table>
<thead>
<tr>
<th>Response</th>
<th>Male</th>
<th></th>
<th></th>
<th>Female</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Not Know Where to Stop</td>
<td>5</td>
<td>71%</td>
<td>2</td>
<td>29%</td>
<td>5</td>
<td>83%</td>
</tr>
<tr>
<td>Pressure to Make Delivery</td>
<td>3</td>
<td>43%</td>
<td>4</td>
<td>57%</td>
<td>6</td>
<td>100%</td>
</tr>
</tbody>
</table>
they were unsure of where to stop or find a medical provider while on-the-road while three (43%) did not stop for medical care due to pressure to make a delivery. Five (83%) of the six female drivers who suffered a work-related injury did not seek medical care while on-the-road because they were unsure where to stop or find a provider and all six (100%) female drivers also indicated they did not seek medical care due to demands to make a delivery.

When asked what the drivers did for treatment while on-the-road if they did not seek medical care, four males responded (57%) that they took over-the-counter medicine (Table 4.12). Two responses included they called their family physician office and asked for advice (29%), and one respondent (14%) ignored the injury. Among the six female drivers who chose not to seek medical care, three (50%) took over-the-counter medicine, two (33%) ignored the injury, and one (17%) called their family physician and asked for advice.

Table 4.13 indicates responses regarding the location drivers obtained their required Department of Transportation physicals. The majority of the males (n=13, 54%) utilized a company health clinic for their exams, 6 (25%) went to their family physician's office or clinic, and 5 (21%) utilized an occupational health clinic. Among the female drivers, 13 (52%) utilized a company health clinic, 7 (28%) an occupational health clinic, 4 (16%) their family physician's office or clinic and 1 (4%) utilized a walk-in clinic for their exam.

When asked to rate health status, 4 males (17%) assessed it as excellent or very good, 12 (50%) respondents assessed it as good, and 8 (33%) felt their health status was only fair (Table 4.14). Among the female drivers, 5 (20%) felt their
TABLE 4.12
TREATMENT FOR WORK-RELATED INJURY IF UNABLE/UNWILLING TO STOP FOR MEDICAL CARE

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Took Over-the-Counter Medicine</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Called Family Physician and Asked for Advice</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Ignored It</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>
TABLE 4.13
LOCATION OF DEPARTMENT OF TRANSPORTATION (D.O.T.)
EXAMS

<table>
<thead>
<tr>
<th>Location of D.O.T. Exams</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Company Health Clinic</td>
<td>13</td>
<td>54%</td>
</tr>
<tr>
<td>Family Doctor's Office or Private Clinic</td>
<td>6</td>
<td>25%</td>
</tr>
<tr>
<td>Occupational Health Clinic</td>
<td>5</td>
<td>21%</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>24</td>
<td>100%</td>
</tr>
</tbody>
</table>
TABLE 4.14

ASSESSMENT OF PERSONAL HEALTH STATUS

<table>
<thead>
<tr>
<th>Perceived Health Status</th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Excellent</td>
<td>1</td>
<td>4%</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>Very Good</td>
<td>3</td>
<td>13%</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>Good</td>
<td>12</td>
<td>50%</td>
<td>14</td>
<td>56%</td>
</tr>
<tr>
<td>Fair</td>
<td>8</td>
<td>33%</td>
<td>5</td>
<td>20%</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
<td>0%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>24</td>
<td>100%</td>
<td>25</td>
<td>100%</td>
</tr>
</tbody>
</table>
health status was excellent or very good, 14 (56%) judged their health status as good, 5 (20%) as only fair, and 1 (4%) judged their health status as poor.

When asked about medical insurance, 16 males (64%) worked for an employer who provided health insurance coverage, 5 (20%) drivers did not have health insurance coverage, 3 (12%) responded as other and 1 (4%) was self-employed and purchased his own coverage (Table 4.15). Among the female drivers, 13 (52%) indicated their trucking company provided their health insurance coverage, 9 (36%) did not have health insurance coverage, 2 (8%) were self-employed and purchased their own health plan, and 1 (4%) responded as other.

Among the males who worked for a trucking company, 7 (30%) indicated they had paid sick leave, 12 (52%) did not have paid sick leave, 2 (9%) did not know if they had paid sick leave, and 2 (9%) of the drivers indicated they were self-employed (Table 4.16). Fourteen (56%) female driver respondents indicated they did not have paid sick leave, 6 (24%) were self-employed, 3 (12%) did not know if their employer provided paid sick leave, and 2 (8%) had paid sick leave.

**Trucking Experience**

The majority of male drivers (n=18, 75%) worked for a commercial fleet operation (Table 4.17). Six (25%) of the males were owner-operators or independent drivers. Among the females, 17 (71%) worked as part of a commercial fleet, 5 (21%) were owner-operator/independent drivers, and 2 (8%) indicated they leased their vehicle and worked independently.

Eight (33%) of the males indicated they had worked as a professional
<table>
<thead>
<tr>
<th>Type of Medical Insurance/Health Plan</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Trucking Company Provides Health Plan</td>
<td>16</td>
<td>64%</td>
</tr>
<tr>
<td>Don't Have Health Plan/ Medical Insurance</td>
<td>5</td>
<td>20%</td>
</tr>
<tr>
<td>Self-employed and Provide Own Insurance</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25</td>
<td>100%</td>
</tr>
</tbody>
</table>
**TABLE 4.16**

**PAID SICK LEAVE**

<table>
<thead>
<tr>
<th>Response</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>30%</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>52%</td>
</tr>
<tr>
<td>Don't Know</td>
<td>2</td>
<td>9%</td>
</tr>
<tr>
<td>Self-employed</td>
<td>2</td>
<td>9%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>23</td>
<td>100%</td>
</tr>
</tbody>
</table>
### TABLE 4.17

**EMPLOYMENT BY TYPE OF TRUCKING COMPANY**

<table>
<thead>
<tr>
<th>Type of Trucking Company Employment</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Commercial Fleet</td>
<td>18</td>
<td>75%</td>
</tr>
<tr>
<td>Owner-Operator/Independent</td>
<td>6</td>
<td>25%</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>24</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
truck driver for 20 years or more (Table 4.18). Five (21%) were on the opposite end of this spectrum and indicated that they had worked less than 5 years as a professional truck driver. Four (17%) worked 10 to 14.9 years as a driver, 4 (17%) worked 15 to 19.9 years as a driver, and 3 (13%) had worked 5 to 9.9 years as a professional truck driver. The male sample reported an average of 15.5 years experience as a professional truck driver. The majority of female drivers (n=12, 50%) indicated they had worked less than five years as a professional truck driver. Six (25%) had worked 5 to 9.9 years as a driver, 3 (13%) had worked 10 to 14.9 years, 2 (8%) had worked 15 to 19.9 years as a driver and 1 (4%) had worked twenty years or more as a professional truck driver. The female sample reported an average of 6.6 years experience as a professional truck driver.

Table 4.19 indicates that the majority of male drivers, (n=15, 63%) drove ten hours or less per day. The female drivers indicated a slightly lower number with twelve (55%) driving ten hours or less per day. The Department of Transportation (D.O.T.) dictates that a driver may drive for up to eleven hours per day before a mandatory rest period is taken (U.S. Department of Transportation, 2005 a).

When a male driver is on-the-road, 11 (44%) felt pressured several times a month to get the job done in less hours, 4 (16%) never felt pressured to complete the job in less hours, 4 (16%) almost never felt pressured to complete the job in less hours, 3 (12%) felt pressured several times a week, and 3 (12%) felt pressured on a daily basis to complete the job in less hours (Table 4.20). When asked if job demands were more than could be handled, 10 (40%) male drivers
TABLE 4.18
YEARS AS PROFESSIONAL TRUCK DRIVER

<table>
<thead>
<tr>
<th>Years Driving</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Less than 1 to 4.9</td>
<td>5</td>
<td>21%</td>
</tr>
<tr>
<td>5-9.9</td>
<td>3</td>
<td>13%</td>
</tr>
<tr>
<td>10-14.9</td>
<td>4</td>
<td>17%</td>
</tr>
<tr>
<td>15-19.9</td>
<td>4</td>
<td>17%</td>
</tr>
<tr>
<td>20+</td>
<td>8</td>
<td>33%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>24</td>
<td>100%</td>
</tr>
</tbody>
</table>
TABLE 4.19

DRIVING HOURS PER DAY

<table>
<thead>
<tr>
<th>Driving Hours per Day</th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>1-10</td>
<td>15</td>
<td>63%</td>
<td>12</td>
<td>55%</td>
</tr>
<tr>
<td>11 +</td>
<td>9</td>
<td>37%</td>
<td>10</td>
<td>45%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>24</td>
<td>100%</td>
<td>22</td>
<td>100%</td>
</tr>
<tr>
<td>Pressure to Get Job Done in Fewer Hours</td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------</td>
<td>--------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Several Times a Month</td>
<td>11</td>
<td>44%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>Several Times a Week</td>
<td>3</td>
<td>12%</td>
<td>5</td>
<td>20%</td>
</tr>
<tr>
<td>Daily</td>
<td>3</td>
<td>12%</td>
<td>8</td>
<td>32%</td>
</tr>
<tr>
<td>Almost Never</td>
<td>4</td>
<td>16%</td>
<td>8</td>
<td>32%</td>
</tr>
<tr>
<td>Never</td>
<td>4</td>
<td>16%</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>25</strong></td>
<td><strong>100%</strong></td>
<td><strong>25</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Job Demands More Than Can be Handled</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Several Times a Month</td>
<td>6</td>
<td>24%</td>
</tr>
<tr>
<td>Several Times a Week</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>Daily</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Almost Never</td>
<td>10</td>
<td>40%</td>
</tr>
<tr>
<td>Never</td>
<td>8</td>
<td>32%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>25</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

* Percentages may not equal 100% due to rounding
felt this was almost never the case, 8 (32%) indicated this was never a problem, 6 (24%) felt this was the case several times a month, and 1 (4%) indicated feeling this way several times a week. None of the male drivers indicated this was a problem on a daily basis. Eight (32%) female drivers indicated feeling pressure on a daily basis to get the job done in less time and 8 (32%) indicated that they almost never felt pressured to complete a job in less time. Additionally, 5 (20%) felt pressured several times a week, 3 (12%) never felt pressured, and 1 (4%) felt pressured several times a month to complete a job in less time. Concerning job demands being more than could be handled, 8 (33%) female drivers never felt this was a problem, 7 (29%) felt this was an issue several times a month, six (25%) indicated this was a problem almost never, two (8%) felt this was several times a week, and one (4%) felt this was the case on a daily basis.

Health Care and Health Status

Table 4.21 provides data concerning what a driver usually does if he/she gets sick or requires medical care while on-the-road. Among the male drivers, 10 (40%) took over-the-counter medication on their own, 8 (32%) waited until returning home to see their doctor, 2 (8%) called their family physician, 1 (4%) went to a local emergency room, 1 (4%) reported finding a local public health clinic for treatment, and 3 (12%) responded as other. Nine (36%) of the female drivers indicated they waited until returning home to see a doctor, nine (36%) took over-the-counter medication on their own, two (8%) went to a local emergency room, and one each (4%) ignored the problem, found a local public health clinic for treatment, consulted with a pharmacist, called their family doctor,
TABLE 4.21

MEDICAL CONCERNS WHILE ON-THE-ROAD

<table>
<thead>
<tr>
<th>Action Taken</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Take Over-the-Counter Medication On My Own</td>
<td>10</td>
<td>40%</td>
</tr>
<tr>
<td>Wait Until Home to See a Doctor</td>
<td>8</td>
<td>32%</td>
</tr>
<tr>
<td>Call Family Physician</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>Go to Emergency Room</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>Find Local Public Health Clinic</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>Ignore It</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Consult With a Pharmacist</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25</td>
<td>100%</td>
</tr>
</tbody>
</table>
or drew upon past experience for self-treatment.

The next question inquired what non-prescription medications were taken by the drivers regularly, at least twice a week. Ten male drivers took Tylenol/Advil/Aspirin on a regular basis (Table 4.22). Ten drivers also indicated taking other medications such as sinus and cold medications and high blood pressure pills. Nine male drivers took vitamins, 7 used antacid and heartburn medication, 1 driver used diet pills, and 1 used stimulants such as "No-Doz."

Among the female participants, 18 took Tylenol/Advil/Aspirin on a regular basis, 16 took vitamins, 5 used antacid and heartburn medication, 5 indicated taking other medications that included birth control pills and Sudafed. Four respondents indicated they used stimulants such as "No-Doz," and two took diet pills on a regular basis.

When asked about the conditions these over-the-counter medications were taken, 10 male drivers responded for headaches, 8 stated heartburn, 8 treated colds or flu, 7 had back pain, 5 had sinus problems, 4 were preventing colds and flu or muscle soreness, 3 were treating high blood pressure or arthritis, 2 were taking medications for energy, 1 was using over-the-counter medications for sleeping difficulty, and 6 indicated other reasons (Table 4.23). Among the female participants, 15 were treating headaches, 13 had sinus problems, 12 had back pain, 10 had arthritis or muscle soreness, 9 were treating colds and flu symptoms, 7 were treating heartburn or menstrual pain, 6 were attempting to prevent colds and flu, 5 were using over-the-counter medication for energy or other conditions, 3 had difficulty sleeping, and 2 were treating ulcers.
TABLE 4.22

TYPE OF NON-PRESCRIPTION MEDICATION USE

<table>
<thead>
<tr>
<th>Non-Prescription Medication Taken Regularly</th>
<th>No. Male</th>
<th>No. Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tylenol/Advil/Aspirin</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Vitamins</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Antacids/Heartburn Medication</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Diet Pills</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Stimulants (i.e., &quot;No-Doz&quot;)</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>
### TABLE 4.23

**USE OF OVER-THE-COUNTER MEDICATIONS BY CONDITION**

<table>
<thead>
<tr>
<th>Medication Usage</th>
<th>No. Male</th>
<th>No. Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headaches</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Heartburn</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Colds/Flu</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Back Pain</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Sinus Problems</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Preventing Colds/Flu</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Muscle Soreness</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Arthritis</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>For Energy</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Sleeping Difficulty</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Ulcers</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Menstrual Pain</td>
<td>N/A</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>
When asked if a health professional stated they had any of the following conditions, 10 male drivers listed they had been told they had high blood pressure, 7 had sinus problems, 6 had back pain, 4 each had frequent heartburn and diabetes, 3 each had arthritis, sleeping difficulty or vision problems, 2 had a heart attack or have chronic bronchitis, and 1 had asthma or migraine headaches (Table 4.24). Twelve female drivers indicated having sinus problems, 10 had back pain, 8 had arthritis, 7 had chronic bronchitis and vision problems, 6 had high blood pressure, 5 had frequent heartburn and depression, 4 indicated being told they were diabetic, asthmatic, or had migraine headaches, 3 had ulcers, and 1 had a heart attack or sleeping difficulty. Drivers may have indicated a variety of medical problems in their responses, thus these responses are not mutually exclusive.

Table 4.25 reflects responses regarding drivers having had any of the conditions in the past month. Eleven of the male drivers indicated having a backache, 9 had extreme tiredness, 7 had leg pain or diarrhea/constipation, 5 had difficulty sleeping or dizziness/headaches, 4 had depression, and 2 had stomach pain. Fourteen female drivers indicated problems with backache, 12 had leg pain or diarrhea/constipation, 10 had extreme tiredness, 8 had stomach pain or dizziness/headaches, 6 had depression, and 5 had difficulty sleeping.

Ten (40%) of the male drivers are current smokers as reflected in Table 4.26. Nine (36%) male drivers never smoked and six (24%) were former smokers. Among the female drivers, 15 (60%) are current smokers, 9 (36%) female drivers never smoked, and 1 (4%) was a former smoker.
### TABLE 4.24

**DIAGNOSED MEDICAL CONDITIONS**

<table>
<thead>
<tr>
<th>Diagnosed Medical Condition</th>
<th>No. Male</th>
<th>No. Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Blood Pressure</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Sinus Problems</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Back Pain</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Frequent Heartburn</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Diabetes</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Arthritis</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Sleeping Difficulty</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Vision Problems</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Heart Attack</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Chronic Bronchitis</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Asthma</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Migraine Headaches</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Depression</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Ulcers</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>
TABLE 4.25
HEALTH PROBLEMS IN THE LAST MONTH

<table>
<thead>
<tr>
<th>Health Problems</th>
<th>No. Male</th>
<th>No. Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backache</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>Extreme Tiredness</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Leg Pain</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Diarrhea/Constipation</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Difficulty Sleeping</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Dizziness/Headaches</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Depression</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Stomach Pain</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>
### TABLE 4.26

**SMOKING STATUS**

<table>
<thead>
<tr>
<th>Smoking Status</th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Current Smoker</td>
<td>10</td>
<td>40%</td>
<td>15</td>
<td>60%</td>
</tr>
<tr>
<td>Never Smoked</td>
<td>9</td>
<td>36%</td>
<td>9</td>
<td>36%</td>
</tr>
<tr>
<td>Former Smoker</td>
<td>6</td>
<td>24%</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>25</strong></td>
<td><strong>100%</strong></td>
<td><strong>25</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
When asked about exercising, the majority of male drivers ($n=15, 60\%$) indicated they did not exercise (Table 4.27). Seven (28\%) exercised 1 or 2 times a week, and 3 (12\%) indicated they exercised 3 or more times per week. Of the female respondents, 14 (58\%) indicated they did not exercise, 6 (25\%) exercised 1 or 2 times a week, and 4 (17\%) exercised 3 or more times per week.

Table 4.28 reflects data concerning the number of caffeinated beverages consumed per day. The majority of male and female drivers ($n=18, 72\%$ and $n=21, 84\%$ respectively) consumed one to five caffeinated beverages per day. There were two questions pertaining exclusively to female health care. Over half of the female drivers ($n=13, 52\%$) had their last Pap smear more than one year ago, 9 (36\%) had a Pap smear in the last year, and 3 (12\%) had never had a Pap smear (Table 4.29). Table 4.30 data indicates 11 (44\%) female participants had never had a mammogram, 8 (32\%) had their last mammogram more than one year ago, 5 (20\%) in the last year and 1 (4\%) did not know when their last mammogram had been.

When drivers were asked where they typically found information regarding health care topics, 9 male drivers received information from their health care provider, 5 ascertained health care information from trucker magazines, 3 utilized their employer as a source of health care information, 2 drivers utilized other popular magazines, 2 obtained information from occupational health clinics, and 3 responded other (Table 4.31). Among the female participants, 11 cited other sources of information, such as television, radio, and newsletters as their main venue for health care information, 10 respondents indicated their health
**TABLE 4.27**

**EXERCISE SESSIONS PER WEEK**

<table>
<thead>
<tr>
<th>Exercise Sessions Per Week</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>None</td>
<td>15</td>
<td>60%</td>
</tr>
<tr>
<td>1 or 2</td>
<td>7</td>
<td>28%</td>
</tr>
<tr>
<td>3+</td>
<td>3</td>
<td>12%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>25</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
TABLE 4.28

CONSUMPTION OF CAFFEINATED BEVERAGES

<table>
<thead>
<tr>
<th>Caffeinated Beverages Consumed Daily</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
<td>8%</td>
</tr>
<tr>
<td>1-5</td>
<td>18</td>
<td>72%</td>
</tr>
<tr>
<td>5+</td>
<td>5</td>
<td>20%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25</td>
<td>100%</td>
</tr>
</tbody>
</table>
TABLE 4.29

PAP SMEAR

<table>
<thead>
<tr>
<th>Last Pap Smear</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>More Than 1 Year Ago</td>
<td>13</td>
</tr>
<tr>
<td>In the Last Year</td>
<td>9</td>
</tr>
<tr>
<td>Never</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25</td>
</tr>
</tbody>
</table>
TABLE 4.30

MAMMOGRAM

<table>
<thead>
<tr>
<th>Last Mammogram</th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>More Than 1 Year Ago</td>
<td>8</td>
<td>32%</td>
</tr>
<tr>
<td>In the Last Year</td>
<td>5</td>
<td>20%</td>
</tr>
<tr>
<td>Never</td>
<td>11</td>
<td>44%</td>
</tr>
<tr>
<td>Don't Know</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>25</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
TABLE 4.31

SOURCE OF HEALTH CARE INFORMATION

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>No. Male</th>
<th>No. Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Care Provider</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Trucker Magazines</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Trucking Company Employer</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Other Popular Magazines</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Occupational Health Clinics</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Other Websites</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>11</td>
</tr>
</tbody>
</table>
care provider was their source of health care information, 7 cited other popular magazines, 6 utilized trucker magazines, 4 indicated their employer was a source of health care information, 2 indicated utilizing non-trucking related websites, and 2 utilized occupational health clinics as a source of information.

Regarding access to health care while on-the-road, two (11%) of the male drivers indicated they were very satisfied with their health care, four (21%) indicated they were somewhat satisfied, five (26%) were not very satisfied, and eight (42%) of the male drivers indicated they were not at all satisfied with their health care access while on-the-road (Table 4.32). Among the female drivers, none of the drivers were very satisfied with their health care while on-the-road, 7 (29%) were somewhat satisfied, 5 (21%) were not very satisfied, and 12 (50%) were not at all satisfied with their health care while on-the-road.

Table 4.33, however, reflects that 10 (50%) of the male drivers were very satisfied with their health care access while at home. Six (30%) indicated they were somewhat satisfied with health care access at home, 2 (10%) were not very satisfied, and 2 (10%) were not at all satisfied with health care access at home. Females reflected the same sentiments, with 11 (44%) very satisfied with health care access at home, 8 (32%) were somewhat satisfied, 4 (16%) were not very satisfied, and 2 (8%) indicated they were not at all satisfied with health care access at home. There was not, however, a significant difference found when comparing satisfaction between access to health care while on-the-road ($p = 0.93$) versus at home ($p = 0.5$) (Table 4.34).
TABLE 4.32

SATISFACTION WITH HEALTH CARE ON-THE-ROAD

<table>
<thead>
<tr>
<th>Satisfaction Level</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Very Satisfied</td>
<td>2</td>
<td>11%</td>
</tr>
<tr>
<td>Somewhat Satisfied</td>
<td>4</td>
<td>21%</td>
</tr>
<tr>
<td>Not Very Satisfied</td>
<td>5</td>
<td>26%</td>
</tr>
<tr>
<td>Not at All Satisfied</td>
<td>8</td>
<td>42%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>19</td>
<td>100%</td>
</tr>
</tbody>
</table>
TABLE 4.33

SATISFACTION WITH HEALTH CARE AT HOME

<table>
<thead>
<tr>
<th>Satisfaction Level</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percent</td>
</tr>
<tr>
<td>Very Satisfied</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>Somewhat Satisfied</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>Not Very Satisfied</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Not at All Satisfied</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
### TABLE 4.34

**COMPARISON OF SATISFACTION WITH CARE**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type of Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with Care While On-the-road</td>
<td>Chi-squared, Q</td>
<td>( p = 0.93 )</td>
</tr>
<tr>
<td>Satisfaction with Care While at Home</td>
<td>Chi-squared, Q</td>
<td>( p = 0.5 )</td>
</tr>
</tbody>
</table>
When asked what health related subjects the drivers would like to learn more about, male drivers indicated areas such as prostate health, cancer, circulation in legs, effects of sitting for long periods of time, effects of poor exercise, and nutrition. Females indicated many of these same areas, and additionally indicated they would like to learn more about alternative medicine therapies, women's health, dental health, and diabetes.
CHAPTER V

DISCUSSION/CONCLUSIONS

This was a descriptive study to identify the health care needs, health status, satisfaction with health care providers, and degree of health care access of the long-haul trucker comparing gender differences. This chapter will discuss the major findings, limitations of the study, suggestions for future research, implications for occupational and environmental health nurses, and conclusions.

Sample Characteristics

The ethnic make-up of the study population was predominately Caucasian (88% male, 79% female) with African Americans comprising 8% of both male and female participants. The study was lacking in minority representation with only one driver of Asian descent and one driver of Hispanic descent. This lack of minority representation may have been due to the rural locations chosen for the survey locations.

The study population tended to be older, better educated, and had a considerably higher income than the industry average. The average age of the study population, 49.8 years among males and 47.4 years among females, was older than the 40.6 years of the general working population and the average age of drivers in the trucking industry at 43.1 years. This difference may have been due to the time of day the survey information was collected, as senior employees tend to work the daytime hours. A second reason for the variation from the average age may be attributed to the large number of owner-operator drivers who participated in the survey, as these types of drivers tend to have more experience.
and thus are older in age. Ninety-two percent of both the male and female drivers participating in the study completed high school and/or higher education, compared to 88% of the general truck driver population. The vast majority of female participants had completed higher education than their male counterparts. Ninety-five percent of the male survey respondents and 67% of the females reported annual income over $35,000, higher than the industry average of $32,000 (Trucking Stats and FAQ's, n.d.). This finding was expected as the average age and experience level of the survey group was greater than the industry average.

Only 4.5% of the truck driver workforce is female according to the literature. As female truck drivers have been traditionally underrepresented in many previous occupational health surveys, special emphasis was taken in this study to capture a proportionally greater number of females with 50% of the study population being female.

The majority of the participants were married, and had no children under the age of 18 years. The female participants, however, had fewer children under the age of 18 years than the males, which is not surprising considering the nomadic-type lifestyle of the truck driver and the difficulty this would impose upon the traditionally female child-rearing role. It is thought that the female drivers are entering the profession after their child-rearing days are completed which could also be indicated by the significantly lower number of years experience as truck drivers, 6.6 years on average compared to their male counterparts with 15.5 years average experience.
Summary of Major Findings

The population characteristics of Andersen et al. (2001) Model of Health Services were used to guide this study. Findings identified predisposing characteristics, enabling resources, and need. Within this context, the findings indicate respondents in this study reported many chronic health conditions, requiring professional intervention. They also reported multiple barriers and few enabling resources at their disposal. Their real and perceived needs for health services were associated with their own health assessment and historical use of health services.

The majority of the male and female participants reported working as part of a commercial fleet and had health insurance and benefits provided by their trucking company. This finding was not surprising given the challenges of obtaining one's own affordable health insurance and benefits in this country today. As part of a commercial fleet, one has the advantages of group benefits, which makes this an affordable option. Health insurance coverage as a fiscal resource is viewed as a critical element of Andersen et al. (2001) theoretical model and is supported with the idea that individuals hold predisposing ideas in obtaining health care. Alarmingly, however, nine (36%) female respondents and five (20%) males reported not having any health insurance coverage as a barrier in obtaining proper health care. This finding was not usual, however, based upon findings from the 2005 National Health Interview Survey which indicated that over 22% of working-age adults do not have health insurance coverage (National Center for Health Statistics, 2005). The majority of both genders reported
obtaining their mandatory Department of Transportation health physical with their company health clinic. Independent truckers were far less likely to have health insurance, company sponsored medical providers, or paid sick leave than fleet drivers, reflective of the trend for self-employed individuals in the general working population to be less likely to have insurance (U.S. Census Bureau, 2000). Cost of insurance was not asked. The majority of respondents of both genders, however, reported not having company sponsored paid sick leave.

Access to health care is generally tied to the ability to pay for care (Andersen et al., 2001). Forty-six percent of the males and 33% of females reported not having a usual place for health care. Twenty-seven percent of the males and 62.5% of females who did not have a usual place for health care reported not having health insurance or not having the ability to afford a doctor's visit, again cited as a barrier to care according to Andersen's model. Private physicians led the list of primary providers for health care services.

Although both male and female drivers want increased access to health care services while working, there was not a significant satisfaction difference between the genders with access between home and on the road ($p = 0.93$ on the road, $p = 0.5$ at home). However, drivers are sometimes away from home a week or more at a time, making it extremely difficult to find and access health care. A characteristic of Andersen et al. (2001) Model, perceived need, is supported with these findings. Perceived need is thought to be largely a social phenomenon that should itself be largely explainable by a common social characteristic such as occupational group.
The number of days on the road is a barrier to engaging in structured and planned health care. Although there are a growing number of clinics located at truck stops, opportunity abounds for innovative ways to deliver accessible care for male and female truckers (Renner, 1998). Opportunities for direct service include conducting periodic health fairs at strategic truck stops or in conjunction with trade shows. Nurses may also be influential in opening additional clinics at truck stops, which would provide more health care services to drivers and myriad of opportunities for nursing practice, research, and education. Nurses also have the expertise to provide case management services to trucking companies for their drivers' health needs. Nurses may also choose to influence policy by researching drivers and their issues and advocating for the health care needs of the trucking profession. Further, women have different health care needs than men. The current clinics may or may not be equipped to meet these needs. Nurses should be involved in designing clinics that meet the health care needs of both genders.

Male truckers reported generally using traditional methods of obtaining health care information such as utilizing their health care providers and trucker magazines. Female truckers, however, showed their ingenuity for garnering health care information by utilizing other avenues including the radio, television, newsletters, and other popular magazines, as well as the more traditional method of their health care providers. Increasing numbers of truck rest stops are equipped with Internet capabilities, which two female drivers reported using as a source of their health care information. Truckers use these to communicate and to find loads. It seems only natural that as these technologic innovations become
more commonplace, their utilization for obtaining health care information will
grow as well. Incorporation of health links within trucker websites could provide
truckers with accurate and reliable health information. An "ask a nurse" link
could be one method of bridging the barrier to health information.

The majority of the male and female participants self-rated their health
status as only "good," or "fair." Only 16.7% of the males considered their health
to be "excellent," or "very good," where 20% of the females considered their
health to be "excellent," or "very good." These findings differed from what was
expected from a previous study which included only women drivers, of which
35.9% indicated they felt their health to be very good (Reed & Cronin, 2003).
Females included in the previous study may have had better access to health care
or possibly better insurance coverage which contributed to their improved self­
rating. Commercial drivers are required to undergo physical examinations to
maintain their licenses, thus a bias towards healthy workers was expected.
However, several chronic health conditions were reported between both genders.
One may also draw the conclusion that the upward trend of illnesses and injuries
in the trucking industry may be reflective of these findings as well.

Forty percent of male and 60% female drivers reported that they are
current smokers. This conflicts with the national trend, which indicates smoking
rates among adults is dropping with a prevalence of 21.6% in 2003 (U.S. Centers
for Disease Control and Prevention, 2005). A majority of survey participants of
both genders reported they do not exercise (males 60%, females 58%), and
consumed one to five caffeinated beverages per day. These findings were
comparable to the national averages and may be indicative of the boredom, monotony, and the need to stay awake and alert for long periods of time often experienced by the long-haul trucker. These findings are also supportive of the Health Services Use Model (Andersen et al., 2001) that personal health practices are behaviors by the individual, as well as the occupational cohort, that influence health status. The heavy use of caffeine, high smoking prevalence, and lack of exercise indicate the need for accessible wellness programs for all truckers.

Participants were asked to self-identify medical conditions they had been diagnosed as having by a health care professional. Twenty-two percent of the males reported having high blood pressure. Completing the top five medical conditions for males were sinus problems, back pain, frequent heartburn, and diabetes. These reported chronic health conditions among the males generally indicated complications commonly found among those who smoke and lead a primarily sedentary lifestyle, findings which have been indicated among many of those in this study (Renner, 1998). Among the female respondents, 16% reported having sinus problems. Other problems identified included back pain, arthritis, vision problems, and chronic bronchitis. The reported chronic health conditions of female truckers underscore the need for accessible health care as these are conditions commonly found among those that do not seek primary health care in a timely manner. Ready access to health care could mitigate the symptoms of these diseases. Instead, respondents usually self-medicated with over-the-counter medication or waited until they returned home before seeking treatment. This could mean a delay of care of several days.
Since the median age of the female participants was 47.4 years, many are rapidly facing menopause with its possible negative consequences. According to the American Cancer Society (ACS), to combat cervical cancer, all women should begin having Pap smears no later than age 21 with a repeat screening test performed every year with the regular Pap test or every 2 years using the newer liquid-based Pap test. The majority of the female truckers surveyed indicated it had been greater than one year since their last Pap test. This may indicate that the female truckers are unaware of the recommendations for annual screening, or this may indicate a lack of access to preventive health screening measures. Also, the ACS recommends yearly mammograms starting at age 40 and continuing for as long as a woman is in good health (Smith, Cokkinides & Eyre, 2006). Only 20% of the female truckers indicated that they have had a mammogram in the last year per the recommended guidelines, which was lower than what was expected.

In addition, respondents of both genders reported chronic debilitating conditions requiring medical supervision and treatment. Most of these conditions appear to be self-treated or ignored, which can lead to negative consequences. This also underscores the need for accessible health care. Sinus problems, back pain, heartburn, and chronic bronchitis are usually treated with over-the-counter medications known to impair driving ability. These treatment modalities may be especially hazardous for long-haul truckers, whose lives depend on alertness while on-the-road.

The prevalence of the diagnosis of depression, reported by 6% of the female drivers, is not surprising given the many risk factors for depression present
in their work environment. Time away from family, pressure to get the job done, gender bias, and social isolation all set the stage for depression (McGrath, Keita, Strickland, & Russo, 1990). Not surprisingly, none of the male respondents reported having been diagnosed with depression, which is diagnosed less frequently in men throughout the general population (Korelitz et al., 1993). However, when the drivers were asked to self-report medical conditions they felt they had been bothered with in the last month, four males reported having bouts of depression. This finding also is not surprising as the male drivers are faced with the same lifestyle complications as the women drivers, often leading to depressed episodes.

No respondents, either male or female, reported alcohol or drug use. Although the questions were not identical in a similar study conducted with male drivers, nearly one fourth of that sample was determined to be alcohol dependent (Korelitz et al., 1993). More inquiry into this area needs to be conducted before conclusions can be drawn.

Surprisingly, only one female driver reported having been diagnosed with sleeping difficulty where as three males had been diagnosed with sleeping problems. Among those that self-reported medical conditions, an equal number of males and females (5), reported difficulty sleeping. The literature supports that sleep deprivation and irregular sleep patterns lead to disruption in the circadian rhythm (Dinges, 1991).

Given the findings of this study, the researcher’s hypothesis was correct, that long-haul truckers do not have ready physical access to care, in many cases
do not have the fiscal resources to obtain care, and often minimize their need for care while on the job.

Limitations of the Study

The long-distance truck driving population in general was a difficult group to access. According to Langer (1992), long-distance truck drivers tend to be distrustful of those who "aren't their own." Irregular work schedules and time demands, lack of availability at the study sites, and possible concern about the consequences of participating in the study may have also contributed to the poor accessibility and repeated sampling attempts.

The cross-sectional and convenience sample study design limits any generalizability that might be drawn from the data. Participants may have been representative of individuals who were highly interested in the subject and not representative of the entire population. Documented proof of driver status was not required; thus participants could have provided fictitious data that they fit the study criteria as long-haul truckers. Intentional over-sampling during the busiest times of the day excluded individuals arriving throughout the night and weekends. Locations were not consistently surveyed at the same timeframe during the day. Due to the nature of the trucking industry, traffic volume varied with location, day of the week, and time of day affecting the number of survey attempts made and completed. Mitigating this bias to some degree was the fact that most drivers have sufficiently irregular and unpredictable schedules thereby taking them to different locations in the U.S. at different times of the day throughout the year. Sites were chosen based upon geographic convenience for the principal
investigator. One location visited presented logistical difficulty that precluded conducting surveys and as a result a large proportion of truck stop franchises belonging to a single corporation were visited.

The small sample size limited generalizability and did not adequately reflect the demographic profile of the long-distance truck driving population as a whole. African American and Hispanic/Latino drivers were underrepresented; thus, findings related to ethnicity could not be adequately examined. The small size increased sampling error, making it difficult to distinguish atypical responses from responses more representative of the population. Statistical analysis that could be performed was also limited by the small sample size.

The survey was conducted while these workers were on the job and as such, the refusal rate was estimated at 65%. Selection bias is an important limitation due to the healthy worker effect, especially in light of the required periodic Department of Transportation physical. It was not within the scope of the study to assess the frequency with which this population applied to, or received healthcare benefits as a result of Workers' Compensation. Comparison of healthcare access of this population to other worker populations was not made. Having established the current methodology, it would be interesting to pursue further comparisons to other groups of workers.

The new survey instrument was not thoroughly tested for reliability and validity. Finally, data are subject to the limits and biases of self-report.
Suggestions for Future Research

Research on this very large, highly mobile population of long-haul truck drivers is scarce, and more research is needed. Research should address areas such as: What changes in access to health care can be made for this population, including male and female needs? In what types of health practices and health promotion activities do drivers participate? What health beliefs do drivers' hold and does this vary by gender? What types of chronic diseases do drivers' face? What types of prescription medications do drivers' take? Do these medications limit the ability of drivers to safely operate heavy equipment? Understanding a population's health care needs is critical during program development, and addressing questions such as these will be beneficial in best meeting health care needs.

The characteristics of truck drivers' as a population segment create new questions for policy-makers and offer additional nursing research areas as well. Potential research areas include: What types of policy changes should be made to ensure drivers' access to health care? How might public safety be enhanced by policy changes that affect drivers? Policies affecting drivers cannot be considered without considering the public. Because all persons in the United States share a single highway system, drivers' issues should be important to everyone.

Additional suggestions for future research should include improving on the current research's limitations. Increasing sample size, and removing as much bias as possible would enhance future research. There is a need for research to address potential solutions to the barriers truck drivers of both genders face while
on the road, such as having health care services in accessible locations for the truck drivers, in truck stops and along major truck routes. Other research areas include: What types of health services would drivers be amenable to using? Where would drivers like to see these services located? Where is it practical to locate services for drivers? As the more cost-effective, non-physician health care providers become more accepted among the general population, and as state nurse practice laws become more inviting to the nurse practitioner provider, future research into the role they could play in increasing occupational health care access should be undertaken.

**Implications for Occupational and Environmental Health Nurses**

Occupational and environmental health nurses need to be cognizant of the overall health of both male and female long-haul drivers. Moreover, occupational and environmental health nurses may be the point of health care access for these drivers. Access, design, and location of occupational health practices should accommodate the large vehicles of this occupational workforce. Future interventions must address the need and desire for health-related educational material, and more importantly, access to care while on the job. Other innovations in providing improved health information access such as instituting an ask-a-nurse line and expanding the access of the Internet in truck stops should also be considered. Creative solutions must continue to be developed in order to deliver health care services to this population with continuity of care.

Occupational and environmental health nurses should consider periodically conducting health fairs at strategic truck stops or in conjunction with
truck shows. Nurses also have the expertise to provide case management services to trucking companies for their drivers' health needs, both occupationally and non-occupationally. Nurses should also be involved in assisting both truck drivers and trucking companies in exercising their considerable economic clout to foster the creation of driver-friendly facilities for health promotion activities and to encourage truck stops to offer more "heart healthy" entrees. Occupational and environmental health nurses have the expertise to consult on a wide variety of topics that can have a positive impact on the lives of truck drivers.

Occupational and environmental health nurses should also consider stepping outside the direct services realm and work to affect policy changes on behalf of the trucking population. Many policies are under consideration for changes directly or indirectly related to drivers' health, and therefore the policies are related to the public's health. The D.O.T.'s 70-hour rule is an out-dated policy under investigation that directly relates to the fatigue factor of long-haul truck drivers and their hours spent behind the wheel. The development of the interstate highway system, improvements in truck power plants, and technologic advances such as the global positioning system may dictate that changes are past due in the D.O.T.'s hours of service rules (Renner, 1998). Creation of a D.O.T. certified panel of medical providers who will be closely monitored in conducting the required periodic driver health assessment is currently under governmental consideration and is undergoing public comment at this time. Occupational and environmental health nurses could provide comment and testimony concerning this panel and other policies under governmental consideration. Occupational and
environmental health nurses could also be involved in advocating for the creation of a national health insurance plan, which might have significant positive effects on the health of truck drivers. Insurance preauthorization and reimbursement issues also are areas ripe for change with nursing's influence on health care policy.

Historically nursing has chosen a direct service route - making a difference in the lives of specific persons rather than in whole populations. However, by influencing policy changes, occupational and environmental health nurses can exert a positive effect on whole populations and champions of change in the larger social context.

**Conclusions**

This study explored the dimensions of health care access and use of health services by long-haul truckers and focused primarily on the population characteristics component of Andersen's Behavioral Model of Health Services Use. The sample's perception of the availability and quality of health care, their extent of insurance coverage, and severity of their health conditions was surveyed.

Long distance truck drivers are one of the largest, fastest growing and most unique occupational groups in the United States. Facing difficult working conditions, long-distance truck drivers of both genders suffer from and are at an increased risk for numerous medical problems, and experience poor access to health care services in the United States, often as a result of lack of insurance, and more importantly due to transience required by their profession. Few differences
were found to exist between the genders. Further analytical studies and research focused on how to best provide health care access to this vulnerable, medically underserved population are needed. Health care solutions must involve health care providers of all types, insurers, as well as the trucking industry, the general public, and policy-makers in order to ensure the well being of this growing workforce.
REFERENCES


APPENDICES

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APPENDIX A

FEDERAL MOTOR CARRIER MEDICAL STANDARDS
(U.S. Department of Transportation, 2005c)

Subpart E — Physical Qualifications and Examinations

§391.41 Physical qualifications for drivers.

(a) A person shall not drive a commercial motor vehicle unless he/she is physically qualified to do so and, except as provided in §391.67, has on his/her person the original, or a photographic copy, of a medical examiner's certificate that he/she is physically qualified to drive a commercial motor vehicle.

The United States and Canada entered into a Reciprocity Agreement, effective March 30, 1999, recognizing that a Canadian commercial driver's license is proof of medical fitness to drive. Therefore, Canadian commercial motor vehicle (CMV) drivers are no longer required to have in their possession a medical examiner's certificate if the driver has been issued, and possesses, a valid commercial driver's license issued by a Canadian Province or Territory. However, Canadian drivers who are insulin-using diabetics, who have epilepsy, or who are hearing impaired as defined in §391.41(b)(11) are not qualified to drive CMVs in the United States. Furthermore, Canadian drivers who do not meet the medical fitness provisions of the Canadian National Safety Code for Motor Carriers but who have been issued a waiver by one of the Canadian Provinces or Territories are not qualified to drive CMVs in the United States.
(b) A person is physically qualified to drive a commercial motor vehicle if that person —

(b)(1) Has no loss of a foot, a leg, a hand, or an arm, or has been granted a skill performance evaluation certificate pursuant to §391.49;

(b)(2) Has no impairment of:

(b)(2)(i) A hand or finger which interferes with prehension or power grasping; or

(b)(2)(ii) An arm, foot, or leg which interferes with the ability to perform normal tasks associated with operating a commercial motor vehicle; or any other significant limb defect or limitation which interferes with the ability to perform normal tasks associated with operating a commercial motor vehicle; or has been granted a skill performance evaluation certificate pursuant to §391.49.

(b)(3) Has no established medical history or clinical diagnosis of diabetes mellitus currently requiring insulin for control;

(b)(4) Has no current clinical diagnosis of myocardial infarction, angina pectoris, coronary insufficiency, thrombosis, or any other cardiovascular disease of a variety known to be accompanied by syncope, dyspnea, collapse, or congestive cardiac failure;

(b)(5) Has no established medical history or clinical diagnosis of a respiratory dysfunction likely to interfere with his/her ability to control and drive a commercial motor vehicle safely;
(b)(6) Has no current clinical diagnosis of high blood pressure likely to interfere with his/her ability to operate a commercial motor vehicle safely;

(b)(7) Has no established medical history or clinical diagnosis of rheumatic, arthritic, orthopedic, muscular, neuromuscular, or vascular disease which interferes with his/her ability to control and operate a commercial motor vehicle safely;

(b)(8) Has no established medical history or clinical diagnosis of epilepsy or any other condition which is likely to cause loss of consciousness or any loss of ability to control a commercial motor vehicle;

(b)(9) Has no mental, nervous, organic, or functional disease or psychiatric disorder likely to interfere with his/her ability to drive a commercial motor vehicle safely;

(b)(10) Has distant visual acuity of at least 20/40 (Snellen) in each eye without corrective lenses or visual acuity separately corrected to 20/40 (Snellen) or better with corrective lenses, distant binocular acuity of at least 20/40 (Snellen) in both eyes with or without corrective lenses, field of vision of at least 70° in the horizontal meridian in each eye, and the ability to recognize the colors of traffic signals and devices showing standard red, green, and amber;

(b)(11) First perceives a forced whispered voice in the better ear at not less than 5 feet with or without the use of a hearing aid or, if tested by use of an audiometric device, does not have an average hearing loss in the better ear greater than 40
decibels at 500 Hz, 1,000 Hz, and 2,000 Hz with or without a hearing aid when the audiometric device is calibrated to American National Standard (formerly ASA Standard) Z24.5-1951;

(b)(12)(i) Does not use a controlled substance identified in 21 CFR 1308.11 Schedule I, an amphetamine, a narcotic, or any other habit-forming drug.

(b)(12)(ii) *Exception.* A driver may use such a substance or drug, if the substance or drug is prescribed by a licensed medical practitioner who:

(b)(12)(ii)(A) Is familiar with the driver's medical history and assigned duties; and

(b)(12)(ii)(B) Has advised the driver that the prescribed substance or drug will not adversely affect the driver's ability to safely operate a commercial motor vehicle; and

(b)(13) Has no current clinical diagnosis of alcoholism.
TO: Diane Layne
DEPARTMENT: Public Health Leadership Program
ADDRESS: 6332 Nine Mile Rd.
Urbana, OH 43078
DATE: 04/08/2005
FROM: Suzanne West, Ph.D., Vice-Chair
Public Health IRB, Office of Human Research Ethics

IRB NUMBER: 05-2530
APPROVAL PERIOD: 04/08/2005 through 04/07/2006
TITLE: Gender Differences in the Long Haul Trucking Industry Related to Worker
Health Perception—A Pilot Survey
SUBJECT: Expedited Protocol Approval Notice—New Protocol

Your research project has been reviewed under an expedited procedure because it involves only
minimal risk to human subjects. This project is approved for human subjects research, and is valid
through the expiration date above.

NOTE:
(1) This Committee complies with the requirements found in Part 56 of the 21 Code of Federal
regulations and Part 46 of the 45 Code of Federal regulations. Federalwide Assurance Number:
FWA-4801, IRB No. IRB540.

(2) Re-review of this proposal is necessary if (a) any significant alterations or additions to the
proposal are made, OR (b) you wish to continue research beyond the expiration date.
APPENDIX C

MAP OF DATA COLLECTION SITES
(Ohio Map, 2007)
APPENDIX D
RECRUITMENT FLYER

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

SCHOOL OF PUBLIC HEALTH

OCURRENCE HEALTH NURSING PROGRAM
1700 AIRPORT ROAD
CAMPUSS BOX 7192
CHAPEL HILL, NC 27599-7192

Invitation for Long-Haul Truck Drivers to Participate in
Gender Differences in the Long Haul Trucking Industry Related to Worker
Health Perceptions: A Pilot Study

We are conducting a survey to better understand the on-the-job injuries and health
care needs of long-haul drivers in the trucking industry. You qualify to
participate because you are a long-distance truck driver who spends more than
one night on the road each week.

This survey is anonymous - you cannot be tied in any way to the information you
provide. Your participation in this study has no cost or risk to you. You can
withdraw from participating at any time by not completing the survey. This
survey is five pages, and should take less than 10 minutes to complete. Your
participation may benefit all long-haul truck drivers by helping to improve the
healthcare delivery system to better meet your needs.

If you are interested in participating in this study, please ask Diane Layne,
Principal Investigator who has given you this sheet for a survey. If you have any
further questions, you may call Bonnie Rogers with the University of North
Carolina at Chapel Hill School of Public Health at 919-966-1765. Thank you!
APPENDIX E

LONG-HAUL TRUCKERS SURVEY

This survey is being conducted by a graduate student at the University of North Carolina at Chapel Hill School of Public Health to better understand the occupational health care needs of long-haul truckers in the trucking industry. This is an anonymous survey and you cannot be linked to any information you provide. PLEASE DO NOT WRITE YOUR NAME ANYWHERE ON THIS SURVEY. If you feel there is additional important information we need to know please write it on the survey in the margins or at the end, or talk with the person here. Your answers are very important to us and to your fellow truckers. This survey should take less than 10 minutes to complete.

PLEASE NOTE THAT WE WANT INFORMATION FROM LONG-HAUL TRUCKERS (away from home overnight each week). IF YOU ARE NOT A LONG-HAUL TRUCKER PLEASE STOP HERE.

ACCESS TO MEDICAL CARE

1. Is there a particular doctor’s office, clinic, health center, or other place that you usually go to if you are sick or need advice about your health? CIRCLE ONE
   - Yes ➔ SKIP TO QUESTION #3
   - No

2. Which of these is the main reason that you don’t have a usual medical person or place? CIRCLE ONE
   - a. don’t need a doctor
   - b. don’t like/trust/believe in doctor
   - c. previous doctor is not available/moved
   - d. no insurance/can’t afford it
   - e. have insurance but can’t afford office visits
   - f. care not convenient
   - g. don’t know where to go
   - h. don’t know
   - i. don’t know
   - j. other (specify) ____________

3. Where do you usually go to for medical care? CIRCLE ONE
   - a. doctor’s office or private clinic
   - b. occupational health or school health clinic/center
   - c. urgent treatment center
   - d. hospital emergency room
   - e. VA hospital or clinic
   - f. military health care facility
   - g. other (specify) ____________
   - h. don’t know

4. Have you ever had a work-related injury while on-the-road? CIRCLE ONE
   - Yes
   - No ➔ SKIP TO QUESTION #10

5. What was the work-related injury? (briefly describe)

6. Have you ever felt that you needed medical care for a work-related injury but chose not to seek it because you were on the road? CIRCLE ONE
   - Yes
   - No
7. When you did not seek medical care that you felt you needed for a work injury while on the road, was it because you didn’t know where to stop or where to find a doctor or nurse? CIRCLE ONE

Yes

No

8. When you did not seek medical care for a work injury that you felt you needed while on the road, was it because you had to deliver a load (i.e. a “hot load”)? CIRCLE ONE

Yes

No

9. If you had a work-related injury while “on-the-road” and did not seek medical help, what did you do for treatment? CIRCLE ONE

a. ignored it
b. took over-the-counter medicine
c. consulted with a pharmacist at a drug store
d. consulted with an occupational health nurse
e. consulted with my employer about treatment
f. called my family physician and asked for advice
g. other (specify) ____________________________

10. Where do you usually have your D.O.T. health physicals performed? CIRCLE ONE

a. family doctor’s office or private clinic
b. occupational health clinic/center
c. urgent treatment center
d. company health clinic
e. military health care facility
f. other (specify) ____________________________
g. don’t know

11. How would you assess your own personal health status? CIRCLE ONE

excellent very good good fair poor

12. What type of medical insurance/health plan do you have at this time? CIRCLE ALL THAT APPLY

a. don’t have health plan/medical insurance
b. trucking company provides my health plan
c. another employer provides my health plan
d. my spouse’s employer provides my health plan
e. I am self-employed and provide my own
f. other (specify) ____________________________

13. Does your trucking company provide paid sick leave for you? CIRCLE ONE

Yes No I am self-employed Don’t know
TRUCKING EXPERIENCE

1. What type of trucking company do you work for? CIRCLE ONE
   commercial fleet  owner-operator/independent  other (specify) _________

2. How many years have you worked as a professional truck driver? _______ YEARS

3. On average, how many days per year do you spend on the road driving for work? _______ DAYS (YOUR BEST GUESS IS OKAY)

4. On the average, how many hours a day do you spend truck driving? _______ HOURS DRIVING PER DAY

5. When you are on the road how often do you feel: CIRCLE ONE NUMBER FOR EACH ITEM

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Almost never</th>
<th>Several times A month</th>
<th>Several times a week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure to get your job done in less hours</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Job demands are more than you can handle</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

HEALTH CARE & HEALTH STATUS

Next are a few questions about your health care and health status. This information will be helpful in identifying the types of health care services truck drivers need.

1. When you get sick or have a medical concern while “on-the-road” what do you usually do? CIRCLE ONE
   a. ignore it  e. take over-the-counter medicine on my own
   b. wait until I get home to see a doctor  f. consult with a pharmacist
   c. go to the emergency room  g. call my family physician
   d. find a local public clinic  h. other (specify) _________

2. What non-prescription medications do you take regularly (at least twice a week)? CIRCLE ALL THAT APPLY
   a. vitamins  e. stimulants such as "No-Doz"
   b. diet pills  f. tylenol/advil/aspirin
   c. antacids/heartburn medication  g. other (specify) _________
   d. sleeping pills

3. For what conditions do you take these over-the-counter medications? CIRCLE ALL THAT APPLY
   a. headaches  e. arthritis  i. menstrual pain  m. treat colds or flu
   b. back pain  f. prevent colds or flu  j. high blood pressure  n. other (specify) 
   c. heartburn  g. muscle soreness  k. for energy
   d. ulcers  h. sleeping difficulty  l. sinus problems
4. Have you ever been told by a health professional that you have any of the following medical conditions? CIRCLE ALL THAT APPLY

a. high blood pressure  e. chronic bronchitis   i. asthma   m. back pain
b. heart attack    f. arthritis     j. migraine headaches

c. frequent heartburn  g. diabetes   k. vision problems   o. drug or alcohol dependency

d. ulcers  h. sleeping difficulty   l. sinus problems

5. In the past month have you had any of the following conditions? CIRCLE ALL THAT APPLY

a. backache  e. stomach pain
b. extreme tiredness   f. dizziness or headaches

c. leg pain  g. diarrhea or constipation  
d. difficulty sleeping   h. depression

6. Are you a current smoker, former smoker, or have you never smoked? CIRCLE ONE

current smoker former smoker never smoked

7. How often do you exercise? CIRCLE ONE

1 or 2 times per week  3 or more times per week  don't exercise

8. How many caffeinated beverages such as coffee, tea or soft drinks do you drink per day? IF NONE, ENTER 0

________ SERVINGS OF CAFFEINATED DRINK PER DAY

QUESTIONS 9 & 10 FOR WOMEN ONLY

9. When was your last pap smear? CIRCLE ONE

In the past year More than a year ago Never had one Don't know

10. When was your last mammogram? CIRCLE ONE

In the past year More than a year ago Never had one Don't know

11. Where do you currently get your information on health care topics? CIRCLE ALL THAT APPLY

a. trucker magazines e. trucking company employer
b. other popular magazines f. health care provider
c. on-line trucker-web-sites g. occupational health clinics
d. other web-sites h. other (specify)

12. How satisfied are you with your access to health care when you are “on the road”? CIRCLE ONE

a. very satisfied c. not very satisfied
b. somewhat satisfied d. not at all satisfied
13. How satisfied are you with your access to health care when you are at home? CIRCLE ONE
   a. very satisfied
   b. somewhat satisfied
   c. not very satisfied
d. not at all satisfied

14. What health related subjects would you like to learn more about?

BACKGROUND INFORMATION

Please answer these last few questions so that we can better understand the profile of drivers in the 
trucking profession.

1. In what year were you born? __________ YEAR OF BIRTH

2. What is your gender? CIRCLE ONE
   MALE     FEMALE

3. What is your current marital status? CIRCLE ONE
   a. married
   b. single
   c. divorced
d. separated
   e. widowed

4. How many children under the age of 18 do you have? ENTER 0 IF NONE
   __________ CHILDREN UNDER AGE 18

5. Circle the highest level of education that you have completed.
   less than 12th grade
   High school diploma or GED
   College or above

6. How would you describe yourself? CIRCLE ONE
   a. White
d. Hispanic
   b. African American
e. Native American
c. Asian
   f. Other (specify) __________

7. Which of the following best describes your household income before taxes for 2003?
   CIRCLE ONE
   a. $35,000 or less
d. $75,001 to 100,000
   b. $35,001 to 55,000
e. $100,001 or more
   c. $55,001 to $75,000

Is there anything else you would like to add about your health and experiences as a long haul 
trucker? Please write any comments in the space below.

Those are all the questions. Please bring your survey to me outside the RV. Thank you very 
much for your time. This information will provide valuable insight into your profession and your 
health care concerns.
Title: Gender Differences in the Long-Haul Trucking Industry related to Worker Health Perceptions: A Pilot Study

What is the study about? What is the purpose?
This is a research study conducted by a master's student in the Public Health Leadership Program at the University of North Carolina at Chapel Hill School of Public Health. I am the Principal Investigator. I am conducting this survey to better understand the on-the-job injuries and health care needs of long-haul drivers in the trucking industry. You have voluntarily identified yourself as a long-haul trucker who is away from home overnight each week and are interested in completing this survey.

What will you need to do?
You will be asked to complete a five-page survey questionnaire here that will take about 10 minutes of your time to complete.

What are the risks/benefits of my participation?
This survey is anonymous - you cannot be tied in any way to the information you provide. There is no risk or cost to you. All completed surveys will be secured in a locked box and all results will be reported in group form only. You will not directly benefit from this study at this time.

Participant rights and confidentiality
If you agree to participate in this study, your participation is entirely voluntary (you do not have to do it). You have the right to stop your participation at any
time without penalty. You have the right to refuse to answer any questions if you chose to do so.

Please do not print or sign your name at any time on the survey form. Completed surveys will be kept for five years and then destroyed. Results of the study will be reported in group form and you will never be personally identified in any report or publication of this study.

This study has been reviewed and approved by the Public Health Institutional Review Board. If you have any questions, you may contact the Public Health Institutional Review Board, University of North Carolina at Chapel Hill, CB# 7411, Chapel Hill, NC 27599-7411, or call collect 919-966-3012.

Participant informed consent was obtained.

Diane M. Layne
Principal Investigator