Emergency Nurses and Their Roles in Injury Prevention

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Emergency Nurses and Their Roles in Injury Prevention

Carissa Schutter

Carroll College
This thesis for honors recognition has been approved for the Department of Nursing.

Director

Date

Reader

Date

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Date
Abstract

Hundreds of thousands of individuals living in the United States are accidentally injured every year. The purpose of this thesis is to identify risks contributing to accidental injury, individuals’ perception of injury prevention, and the availability of prevention measures. Using surveys, 41 respondents identified the cause of injury, factors influencing injury, available prevention measures, and education received after the injury. Distracting factors were involved in 43.9% of all injuries. Most respondents (80.4%) thought their injuries could have been prevented, and 43.9% were aware of ways to prevent the injury. Few respondents (19.51%) received prevention information, and over half (68.29%) will make lifestyle changes to prevent future injury. The results indicated individuals are ready for enhanced learning related to injury prevention. Nurses can play a vital role in educating the public on how distractions play a part in causing injuries and ways to decrease distractions during potentially risky behaviors.
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To Dad and Mom
Table of Contents

Signature Page....................................................................................................................2
Abstract...............................................................................................................................3
Acknowledgements..............................................................................................................4
Dedication..............................................................................................................................5
Table of Contents................................................................................................................6

Chapter I

Emergency Nurses and Their Roles in Injury Prevention..................................................9
  Epidemiology.....................................................................................................................9
  Risk Factors......................................................................................................................10
  Etiology.............................................................................................................................10
  Economic and Social Impact..............................................................................................11
  Conclusion..........................................................................................................................11

Nursing Theory....................................................................................................................12

Chapter II

Review of Research.............................................................................................................14
  High Risk Populations......................................................................................................14
    Rural...............................................................................................................................14
    Children........................................................................................................................15
    Teenagers.......................................................................................................................17
    Elderly............................................................................................................................18
    Alcohol Use....................................................................................................................19
  Recovery...........................................................................................................................21
Complications........................................................................................................21

Posttraumatic Stress Disorder..........................................................................22

Re-injury...........................................................................................................23

Attitudes Towards Health Promotion...............................................................24

Individuals........................................................................................................24

Parents...............................................................................................................24

Communities....................................................................................................25

Nurses...............................................................................................................25

Conclusion........................................................................................................27

Chapter III

Methodology......................................................................................................28

Survey...............................................................................................................28

Analysis..........................................................................................................29

Limitations......................................................................................................29

Chapter IV

Results.............................................................................................................30

Demographics.................................................................................................30

Type of Injury..................................................................................................30

Factors............................................................................................................30

Perception/Prevention......................................................................................31

Conclusion.......................................................................................................31

Chapter V

Discussion.......................................................................................................32
Chapter I

Emergency Nurses and Their Roles in Injury Prevention

Hundreds of thousands of individuals living in the United States are injured every year. Some injuries lead to permanent disabilities; many others lead to death. Most of these life-altering injuries are initially seen in emergency departments around the country. Emergency department nurses are often the first healthcare providers to assess the seriousness of the injury and intervene. One of the main roles of a nurse is prevention. With so many preventable injuries nationwide, it is crucial for emergency nurses to do everything in their power to prevent as many injuries as possible. The purpose of this thesis is to identify risks contributing to accidental injury, individuals’ perception of injury prevention, and the availability of prevention measures.

Epidemiology

Injuries are the leading cause of death in Americans age 1 to 45 years old and are the fourth leading cause of death overall (Peek-Asa, Zwerling, & Stallones, 2004). In 2001, one in ten Americans went to the emergency department with injuries (Vyrostek, Annest, & Ryan, 2004). In 2002, 106,742 people died due to unintentional or accidental injuries (National Safety Council, 2003). Another 31,655 died due to intentional injuries (National Safety Council). In 2003, hospital emergency departments nationwide cared for 40.2 million people who had injuries (McCraig & Burt, 2005).

In addition to causing death, injuries are also the leading contributor to disability and decreased quality of life (Peek-Asa et al., 2004). Long-lasting physical and psychological burdens, such as post-traumatic stress disorder (PTSD), may impede recovery and alter the lifestyle of patients (Read et al., 2004).
Risk Factors

Some populations are at higher risk for injuries than others. Rural populations have injury fatalities of 54.1 per 100,000 people, which are twice as high as urban populations (Peek-Asa et al., 2004). Age also makes a difference in who is at risk. The two age groups seen the most in emergency departments are children under 15 years of age (20.6%) and adults age 25-44 years (31.8%) (McCraig & Burt, 2005). Nonfatal injury rates are highest for persons age 15-19 years (Vyrostek et al., 2004). Gender is another major factor that plays a role in injuries. The fatal injury rate for males is 2.6 times higher than for females, and the nonfatal injury rate for males is 1.3 times higher (Vyrostek et al.). Finally, race makes a difference in the number of injuries. Black or African Americans have the highest fatal injury rates, more than any other nationality or race (Vyrostek et al.).

Etiology

The leading causes of fatal and nonfatal injury vary by sex and age. Across all age groups, unintentional motor vehicle crashes were the leading cause of death in 2001 (Vroystek et al., 2004). Also in 2001, the leading cause of nonfatal injuries for both males and females was unintentional falls (Vroystek et al.). Firearm suicide, unintentional poisoning leading to death, and firearm homicide ranked high for males. Unintentional falls and poisoning resulting in death ranked high for females. For females, the third leading cause of nonfatal injuries was unintentional motor vehicle crashes. For males, unintentional motor vehicle crashes ranked fifth after the unintentional falls, unintentional overexertion, and unintentional cut or pierce categories (Vyrostek et al.).
Economic and Social Impact

Every year, the United States spends an average of $200 billion for bills concerning intentional and accidental injuries (Peek-Asa et al., 2004). The estimated cost of one emergency visit ranges from $192 to $412 (Kellermann, 2005).

Beyond economic implications, there are many social implications. For example, after an injury, there are potential physical and psychological burdens that impede recovery and alter an individual’s lifestyle (Read et al., 2004).

Psychological effects include posttraumatic stress disorder (PTSD). PTSD is recorded in 22% of children who have been in motor vehicle accidents regardless of sex or age (Zink & McCain, 2003). Adults can also experience PTSD due to a motor vehicle crash (Bryant & Harvey, 2002).

Conclusion

Millions of Americans every year are injured leading to permanent disability, acute stress disorder, or death. Emergency departments are constantly busy supervising, managing, and treating these injuries. The high number of injury-related visits the emergency department sees annually can be decreased through nursing education and prevention. The purpose of this thesis is to identify and explore the problem of injuries and possible interventions. The interventions indicate short-term solutions to prevent injuries. Unfortunately, the interventions have not been tried out in emergency departments. Without more in-depth experimentations and research, long-term effects and practicality of interventions will not be known.
Nursing Theory

Orem’s self-care model is a professional nursing practice model that focuses on enhancing an individual’s ability to care for him- or herself. It is based on the idea that an individual’s self-care deficits are the result of environmental situations and that individuals can take responsibility for their health and the health of others (Wilson, Mood, Risk, & Kershaw, 2004). Generally, people have the capacity to care for themselves and their dependents.

Three systems exist within this model: compensatory system, partially compensatory system, and educative-development system. In the compensatory system, the nurse provides total care. The nurse and patient share the responsibility for care in the partially compensatory system. In the educative-development system, the client is primarily responsible for his or her personal health and the nurse acts as a consultant (Nurses.info, n.d.). The ideal system is the educative-development system because the patient is in control and determines his or her own care.

According to Orem’s theory, a nurse’s role is to promote and maintain health systems (Denyes, Orem, & SozWiss, 2001). Health education informs, motivates, and enables individuals to adopt healthful lifestyles. By informing, motivating, and helping individuals implement healthful lifestyles, the nurse empowers clients and their families, which is the goal of self-care.

Every person has the nursing diagnosis of risk for injury and knowledge deficit related to some aspect in his or her life. People may be at risk for injury at home, at work, or when recreating. There are dangers everywhere, and many may be unaware of what
the dangers are or how to prevent them. Dangers can lead to injuries, and injuries can result in a trip to the emergency department.

Many injuries seen in the emergency department are preventable (National Fire Protection Association, n.d.). Motor vehicle crashes can be prevented by drivers paying more attention to the road. Falls and the resulting lacerations, ecchymosed areas, and fractures can be prevented by removing obstacles in the environment and teaching individuals to be more attentive. Childhood trauma, such as accidental poisoning, drowning, and falls, can be prevented by teaching parents how to remove risk factors from the environment (Posner, Hawkings, Garcia-Espana, & Durbin, 2004). Injuries in and of themselves can lead to impaired self-care as well as other negative outcomes (Read et al., 2004).

Deficient knowledge of safety measures leads to injury. By educating clients and their families concerning environmental risks, a nurse can prevent injuries and enhance clients’ lives. Following Orem’s theory by educating clients and reducing environmental risk factors will empower clients and their families by teaching them additional ways to care for themselves, leading to decreased injuries.
Chapter II

Review of Research

The following research studies focus on risk factors of injuries, the recovery process, some complications, and attitudes of patients, nurses, and communities towards health promotion. Each section includes a look at ways emergency department nurses can prevent injuries in that area.

*High Risk Populations*

Everyone is at risk to experience injury; however, some populations are at higher risk for injury than others. The following are some examples and interventions for high-risk groups.

*Rural.* Rural populations in the United States exhibit disproportionately high injury mortality rates compared to urban populations. Deaths resulting from motor vehicle crashes, traumatic occupational injuries, drowning, residential fires, and suicide are twice as high as the urban rate (Peek-Asa et al., 2004). Motor vehicle crashes account for the majority of increased death rates in the rural population. Many factors contribute to the increased mortality and injury rate in rural environments. Roads are narrow and lack safety features, jobs are more dangerous, residents are less likely to use seat belts or helmets, and injuries are more severe (Peek-Asa et al.).

Location of emergency medical services and trauma care play a role in the high mortality rates in rural areas. Because of distance between hospitals and accident sites, an injured individual does not receive help as quickly as an urban person would. The delay in care is responsible for many unnecessary deaths (Peek-Asa et al., 2004).
Prevention programs need to be designed specifically for rural populations; previous studies implementing urban programs in the rural environment have not worked. Challenges include sparse populations, greater geographic areas, different injury risks, isolation, increased behavioral risk factors, and lack of access to care (Peek-Asa et al., 2004).

Children. Because unintentional injury is the leading cause of death in United States children, injury prevention should be a priority among families, communities, and nurses (Hall-Long et al., 2001). To demonstrate that education decreased injury, Hall-Long and colleagues evaluated a school based youth safety education program based on the Think First National Injury Prevention Program (2001). One hundred and forty second grade children in a mid-Atlantic elementary school took a one-hour-a-week injury prevention class for six weeks. At the end of the study, knowledge test scores showed an average increase of 35% over pre-test measures. Of the faculty, staff, nurses, student nurses, children, and parents surveyed, 98% indicated a positive overall value of the program and the need for it to continue (Hall-Long et al.). Study limitations include lack of experimentation on a wider population outside the region, lack of standardized tools with psychometrically validated measures, and lack of long-term follow-up on the impact of the classes. Future studies might include larger, random samples of youth and their families. The statistical test answered the question of whether or not the second-graders’ knowledge increased after going through the program, but did not show whether knowledge had a positive or negative effect on the frequency of unintentional injury in children; thus it did not verify the study’s hypothesis. The findings of increased
knowledge did not support the stated conclusion that education leads to prevention of injury (Hall-Long et al.).

Since unintentional injury is such a major health problem in America, especially among children, it is the responsibility of families, communities, and nurses to educate children about injury prevention. All nurses, including emergency department nurses, can promote injury prevention by advocating for education programs in local schools. Through research, interventions can be discovered to reduce injury in all age groups, especially children. As more studies are done, it is likely the results will indicate education prevents injury (Hall-Long et al., 2001).

Another way to prevent injury in children is for emergency department staff to provide safety information and devices to parents (Posner et al., 2004). Each year, millions of children are injured in their homes. The most common injuries are from falls, poison, fires, burns, lacerations, and suffocations (Posner et al.). Injury prevention requires knowledge of countermeasures. However, many parents are unaware of what they can do to prevent childhood injury. As a result, injuries children sustain are often seen in the emergency department.

In a randomized clinical study, emergency department care-givers gave 69 parents information regarding child safety and 67 parents information on injury prevention and safety devices (Posner et al., 2004). Parents who received information improved significantly in their home safety practices, especially in the areas of poisoning, cuts, and burns. Parents who were provided with safety equipment and instructions used the equipment more than those who did not receive free equipment (Posner et al.).
Teenagers. Teen motor vehicle crashes are a serious and persistent problem in the United States. In 2002, 526,738 crashes were reported among young drivers, and $42.3 billion dollars were spent on teen crashes in 2001 (Chen, Elliott, Durbin, & Winston, 2005). Greater than the numbers, however, are the fatalities experienced both by the drivers and their passengers. In an effort to prevent fatalities, many states have implemented a graduated licensing program, in which teens cannot drive anyone outside of their family members for a certain period of time. Yet none of these laws prevent teens from driving younger siblings. The research question was, “do children involved in teen crashes suffer greater injury than children involved in crashes with adult drivers?” (Chen et al., 2005).

The younger the driver, the more likely the child passenger is to be inappropriately restrained (seat belts, car seats) and seated in the front, leading to greater injury in motor vehicle crashes. Teens tend to drive older and smaller vehicles than adults, which increases injury risk to occupants. Additionally, teens are more likely than adults to be in a motor vehicle crash (Chen et al., 2005).

While children riding with teen drivers have an increased risk of being in a motor vehicle crash, they sustain no greater injury than children involved in a motor vehicle crash with an adult driver. Despite these findings, teens should be taught appropriate child restraint and seating as part of driver education, and vehicles driven by teens should be chosen with safety in mind. Improvements in graduated licensing laws may further prevent injury in child passengers (Chen et al., 2005).

Injury prevention education increases safety precautions in teen behaviors (Liller & Pintado, 2005). In 1999-1992, students in Pinellas County completed a survey rating
their safety behaviors. Ten years later, the same survey was done on the same students, showing an increase in frequency of safety behaviors. During the 10 years, students received education about motor vehicle injury prevention. In the middle schools, children watched videos about drunk driving. High school students participated in role playing and presentations concerning drunk driving. Teen drivers were randomly checked for safety belt use as they arrived or left school (Liller & Pintado). Safer trends have been observed for all variables concerned with traffic safety except alcohol consumption (Liller & Pintado). No statistics were available concerning decreased numbers of motor-vehicle-related injury related to injury-prevention programs.

_Elderly._ The elderly have an increased risk of being under-triaged after sustaining injuries in motor vehicle crashes. Inadequate triage leads to decreased survival rates (Scheetz, 2005). For each year of advancing age, the odds of being admitted to a trauma center decreased slightly, indicating an increased risk of the elderly being under-triaged. The most vulnerable age group was those 85 years or older who sustained less severe injuries. That age group was likely to be admitted to non-trauma centers and die from their injuries. The elderly had an under-triage rate of 40%, compared to a 21% under-triage rate in younger people (Scheetz).

Special attention is needed when triaging older trauma patients because their injuries may be covert, thus putting them at risk for admission to a lower level of care than their injuries require. Medications and pre-existing co-morbidities, such as cardiovascular, renal, or liver disease, may affect signs and symptoms of trauma. The elderly are at a higher risk for poor outcomes due to the increase in the elderly population
in the United States, their increased risk of traumatic injury, and higher injury severity relative to the nature of the injury (Scheetz, 2005).

*Alcohol use.* Alcohol poisoning accounts for 4.4% of all emergency department visits. This percentage does not include injuries that are a result of alcohol intoxication (McCraig & Burt, 2005). Screening and referrals can temporarily reduce alcohol consumption (Crawford et al., 2004). Using a single-blind pragmatic randomized controlled trial, Crawford and colleagues looked at the short-term effect of screening and referral of 599 emergency department patients found to be misusing alcohol. Patients received either an information leaflet (control group) or an information leaflet plus an appointment with an alcohol health worker (variable group). The patients were interviewed and their hospital records were reviewed at 6 and 12 months. At 6 months there was a significant decrease in alcohol consumption among the variable group. At 12 months, there was still a decrease, but not a significant one. The results suggest identification and referral for alcohol misuse in an emergency department are feasible (Crawford et al.).

The research question is specifically identified. However, the hypothesis is only implied through the results of previous studies. Confidentiality, reliability, and validity were not discussed. Confounding variables were not identified, other than stating who dropped out of the study and why. The design was specific enough for replication. Findings were not related to a conceptual framework or theory. Also, recommendations for future research were not given (Crawford et al., 2004).

Alcohol consumption causes injury and increased emergency room visits leading to additional costs to the individual and the community (Crawford et al., 2004).
According to this study, referrals to a health provider specializing in alcohol misuse would briefly benefit patients suspected of abusing alcohol. However, the person has to be willing (Crawford et al.). Referrals can help the patient decrease alcohol intake, which is directly proportional to fewer emergency department visits and direct cost savings as well as improved health in general (Crawford et al.).

Nurses can help screen for alcohol misuse and advocate for referrals as well as teach clients reasons for decreasing alcohol consumption. As part of the health care team, nurses can assist with and independently implement various interventions to assist the patient in decreasing alcohol consumption (Crawford et al., 2004).

Many injuries seen in the emergency department are directly or indirectly related to alcohol abuse (Karlsson, Johansson, Nordqvist, & Bendtsen, 2005). Alcohol screening in the emergency department would be useful for secondary alcohol prevention via teaching (Karlsson et al., 2005). Nurses need to understand prevention (in this case prevention of alcohol related injury) is one of their responsibilities. If an individual at risk for alcohol abuse and alcohol related injuries presents to the emergency department, nurses need to be able to help and provide teaching and support. Unfortunately, the fast pace of the emergency department can interfere with all interventions except the most basic. The hope for this computerized screening program is that it will not take up time or interfere with the health status of the patient(s) while still identifying and helping those at risk (Karlsson et al.).

Recovery

Recovery from trauma takes longer and is less complete than previously thought (Richmond, Tompson, Deatrick, & Kauder, 2000). In an interview of 63 adults, 2-5 years
post-injury, three themes were identified: event, fallout, and moving-on. The event represents the "starting point," or the time of the injury. Fallout is characterized by the effect trauma has on an individual physically, psychologically, socially, and spiritually beyond the time of physical healing. Lastly, moving-on is the point where survivors recognize their lives will never be the same (Richmond et al., 2000).

Trauma, especially trauma perceived to be life-threatening, causes a heightened sense of vulnerability and mortality (Richmond et al., 2000). Many individuals who have been injured believe they are more susceptible to another injury: they feel vulnerable and out of control (Van Horn, 2005). This change, as well as physical changes, created challenges and stressors previously unknown. One of the main interventions interviewees wanted was support (Richmond et al.). Unfortunately, there was lack of support among the health care system, which one interviewee stated caused an impediment to recovery. Other impediments included conflicting information given and lack of preparation. Based on the survivor’s accounts, nurses should carefully consider the question, “What is successful recovery and how can I facilitate it?” (Richmond et al.).

Complications

Thousands of complications result from injuries, varying from person to person, circumstance to circumstance. The following are only two complications that arise from traumatic injury: posttraumatic stress disorder and re-injury.

Posttraumatic stress disorder. Motor vehicle crashes are responsible for many childhood injuries, including posttraumatic stress disorder (PTSD) (Zink & McCain, 2003). Parents of children who sustained injuries in a motor vehicle crash filled out the Child Behavior Checklist (CBCL) Behavioral Problem Scale, and both the children and
parents filled out the PTSD section of the Diagnostic Interview for Children and Adolescents. The results showed 22% of children met the criteria for PTSD. The only factor that influenced whether a child would have PTSD was the fact he or she sustained a traumatic injury. Age, gender, race, or cause of injury did not affect presence or absence of PTSD. The potentially confounding variables of family influence and severity of injury were not measured (Zink & McCain).

The study is limited by the fact the parent completed the CBCL Behavioral Problem Scale while the child was in the hospital. Because parents may have been emotionally upset, their responses may not have been accurate.

Nurses may be the first healthcare professionals to recognize warning signs and symptoms of PTSD and alert the doctor to the need for further evaluation (Zink & McCain, 2003). Nurses also need to be able to provide emotional support to patients with PTSD, especially in the hospital setting. One of the best ways to provide emotional support is to encourage the child and family to talk about the experience. The nurse also needs to provide families with information about PTSD and various support resources, so the family can watch for signs and symptoms and get help when needed (Zink & McCain).

PTSD is also seen in adults following motor vehicle crashes. Historically, acute stress disorder (ASD), seen immediately following the trauma, has been used to predict the appearance of PTSD, although the predictability is unreliable. ASD is more accurate in predicting presence of PTSD in females and absence of PTSD in males (Bryant & Harvey, 2002). The main reason for the discrepancy is gender: males and females deal with stress differently. Because females reported peritraumatic dissociating more often
than men, the predictive power of ASD is greater for females than males. However, the absence of three dissociative symptoms in males indicated increased likelihood of PTSD (Bryant & Harvey).

Differences between females and males may be the result of one or many factors. First, cultural or societal factors may lead to men under-reporting symptoms. Second, neurobiological factors may increase females’ risk for PTSD. Third, childhood trauma and experiences may predispose a person to PTSD. Fourth, females are at greater risk for depression immediately after the motor vehicle crash, which may be associated with increased risk for PTSD. Fifth, females tend to be passengers more often than males, which could lead to a decreased sense of control and responsibility, which leads to PTSD (Bryant & Harvey, 2002). The ability to predict who is at risk for PTSD enables the individual to receive timely interventions and support, leading to decreased severity or duration of PTSD (Bryant & Harvey).

Re-injury. Individuals who have been accidentally injured have an increased risk to experience another injury (Van Horn, 2005). Many individuals who have been injured believe they are more susceptible to another injury, and they feel vulnerable and out of control. In an effort to prevent another injury, they implement a variety of environmental and behavioral changes. In an interview of people who sustained accidental injuries, 63% of individuals stated they had a large degree of control in making changes in order to prevent recurrent injury as opposed to 33% who stated they had limited or no control (Van Horn). Barriers to injury prevention included financial difficulty, functional limitations, time constraints, and limited information and support (Van Horn).
In the home environment, the potential for recurrent injury is considerably higher, especially if the injury affected individuals’ activities of daily living. Because of the potential for re-injury, many behavioral and environmental prevention measures initiated by the person occurred within the home, supporting the usefulness of the development of home-based interventions to prevent injury. Injury prevention strategies need to be tailored both to the individual and to the environment and need to focus on the subjects’ increased vulnerability (Van Horn, 2005).

*Attitudes Towards Health Promotion*

Attitudes towards health promotion affect prevention and recovery, as the following studies show.

*Individuals.* Vulnerability and feelings of lack of control lead individuals to implement a variety of environmental and behavioral changes (Van Horn, 2005). Vulnerability is an ideal time to set up safety measures because individuals are open to change and will try to prevent future injury in any way possible. Nurses can help clients identify potential hazards, discuss difficulties related to functional limitations, provide information regarding safety measures, and aid with problems related to mobility and activities of daily living (Van Horn).

*Parents.* Even though many parents receive safety information through their child’s primary care-giver at checkups, parents who received the same information in the emergency department improved significantly in their home safety practices, especially in the areas of poisoning, cuts, and burns. (Posner et al., 2004). The effectiveness of the information in preventing future injury was attributed, in part, to the setting: the emergency department. Parents may have been more receptive to information given in
the emergency department because of the influence of personal vulnerability and injury seriousness (Posner et al.).

Communities. Injury prevention education increased safety precautions in teen behaviors (Liller & Pintado, 2005). Based on this premise, the Pinellas County, Florida, school system provided education about motor vehicle injury prevention to students for 10 years. The whole community worked on motor vehicle injury prevention and health education programs each year. Local law enforcement and fire departments gave presentations to school children and allowed some middle-schoolers to ride along and observe emergency calls (Liller & Pintado).

Altogether, Pinellas County has one of the most active traffic safety teams in Florida. Safer trends have been observed for all variables concerned with traffic safety except alcohol consumption (Liller & Pintado).

Nurses. Health promotion attitudes of nurses impact patient care in the accident and emergency department (Cross, 2005). In a qualitative study, Cross explored accident and emergency nurses’ attitudes towards health promotion. Using Q methodology, 11 nurses from two different hospitals completed a 33-item Q-sorts and wrote personal definitions of health promotion. All questionnaires were anonymous, participation was voluntary, and no incentives were given. Based on published literature in the field, the Q sample was structured with reference to nurses’ attitudes towards health promotion. The most widely held opinion (9 out of 11 opinions) was a positive view of health promotion and the nurses’ role in health promotion in accident and emergency environments (Cross).
The researcher did not check back with the participants after the study, thus failing to establish credibility. Audibility and confirmability were not discussed. The limitations included few respondents and the possibility that the respondents provided answers they thought the researcher wanted, rather than how they really felt. Cross (2005) did not explain how nurses' attitudes might affect patient care.

The findings of this study enable nurses to know what beliefs are commonly held regarding health promotion and to see if a wider understanding of health promotion might be needed. In the future, this information can be applied to broader health promotion studies to see what impact various attitudes about health promotion can have on actual health promotion. In the short term, this study suggests nurses need more education about health promotion. In the long term and with more research, this study may be able to improve the care of clients in the accident and emergency department by way of health promotion (Cross, 2005).

Depending on nurses' attitudes toward health promotion, alcohol screening may prevent injury (Karlsson et al., 2005). The study focused on nursing attitudes influencing the administration of an alcohol screening program. Before the study was conducted, staff attitudes toward injury prevention were obtained. The alcohol screening was observed by researchers in order to evaluate how the screening was performed and implemented. The results were that the concept of a computerized screening and intervention program was feasible despite time and environmental restraints, but the staff's negative health promotion attitudes were barriers to the program. Stated limitations include observer bias and influence of observer during the screening process. This study does not acknowledge credibility, consent, or confidentiality (Karlsson et al.).
Nurses need to understand that prevention is one of their responsibilities. Unfortunately, the fast pace of the emergency department and nurses’ negative attitudes towards prevention can interfere with all interventions except the most basic (Karlsson et al., 2005).

Conclusion

Medical and nursing journals provide information concerning trauma prevention related to a variety of topics. The prevention methods appear to work in the research environment, but not many are applied outside the experimental environment. Because the prevention programs are not applied in the everyday hospital setting, little information is available regarding the effectiveness of the programs. Americans in general do not receive injury prevention information. There is a need to implement injury prevention programs in American emergency departments and urgent care clinics. In order to identify areas for additional prevention measures, information must be gathered concerning common types of injuries, factors affecting injuries, and prevention measures individuals receive. After analyzing these areas, it may be possible to apply some injury prevention programs in local hospitals.
Chapter III

Methodology

In order to explore the question of “can accidental injuries be prevented,” a survey (Appendix) was created and placed in the Helena community. The purpose of the survey was to look at the cause and factors influencing accidental injury, available prevention measures, and areas for additional prevention measures.

Survey

The survey was comprised of 12 questions. The majority of questions were based on the Likert scale (Fain, 2004). Demographic questions were categorical. Approximately 25 surveys were placed at a local surgery clinic, and 70 surveys were handed out in the Helena community.

Individuals who experienced an accidental injury and were able to read and understand English were recruited. Individuals who were younger than 18 years and individuals who experienced a non-accidental injury were excluded. Gender and age were the only identifying characteristics. Names and/or identifying numbers were not used. Completion of the survey was voluntary and implied consent. All information gathered was kept confidential. In order to maintain confidentiality, the individual completing the survey sealed his or her completed survey in an envelope. Only the researcher unsealed the envelope and looked at the surveys. The study was reviewed and approved by the Institutional Review Board of Carroll College.
Analysis

Surveys were analyzed using descriptive statistics (LoBiondo-Wood & Haber, 2006). Nominal measurements were described using frequency distribution, range, and mode.

Limitations

Limitations of the study included the small sample size of 41 respondents. Most of the surveys were handed out in the rural community of Helena, Montana, although several were handed out in the urban area of Newberg, Oregon.

Respondent bias was another limitation. Respondents may have given the answer they thought the researcher wanted instead of answering accurately. Individual perceptions may have caused some inaccurate responses.

Some of the survey questions could have been worded more clearly or expanded on. Several individuals indicated confusion as to what questions applied to them. A wider response range would be beneficial to validate statistical significance.
Chapter IV

Results

The purpose of the survey was to look at the cause and factors influencing accidental injury, available prevention measures, and areas for additional prevention measures, especially in the field of emergency nursing.

Demographics

The majority of respondents were female between the ages of 51-65 years and 18-21 years (Table 1, Table 2). Most participants reported that they had either some college or a bachelor’s degree (Table 3). Out of 46 surveys completed and returned, 41 met the set criteria for this study. Four surveys were eliminated because respondents stated injuries were caused intentionally by themselves or someone else, and one survey was eliminated because the respondent was under 18 years of age.

Type of Injury

Motor vehicle crashes were the most common cause of injury, followed by falls, bicycle crashes, object fell on person, sports, burns, and firearms (Table 4). Burns included fire and chemicals. Other causes of injury included “scissors,” “tin can,” “metal shavings,” and “cut on meat cutter.”

Factors

Forty-three point nine percent of individuals responded positively to one or more distracting factors involved in their injury. Out of 41 respondents, one was talking on a cell phone, two were taking prescription medications, eleven reported that they were distracted, one reported that stress was a factor, and four reported that they did not receive adequate sleep the night before the injury. There was some overlap, with the same
respondent agreeing with multiple questions relating to distractions such as sleep deprivation or stress. Alcohol use was limited: 0% strongly agreed they consumed alcohol, 2.4% agreed they consumed alcohol, 0% were uncertain, 7.32% disagreed, and 85.37% strongly disagreed. Out of the 13 respondents whose injury was caused by motor vehicle crashes where seatbelt use was applicable, nine wore seatbelts and three did not wear seatbelts (Table 5). Where helmet use was applicable, one did wear a helmet, and four did not wear helmets (Table 6).

**Perception/Prevention**

The majority of respondents felt their injury could have been prevented, with 80.49% either agreeing or strongly agreeing with possible prevention. Awareness of ways to prevent the injury from occurring before it happened was split: 43.9% were aware and 34.14% were unaware. Preventative information was provided to 19.51% after their injury, while 68.29% did not receive any information. Temporary or permanent lifestyle changes were necessary for 36.58%, and 68.29% will do something to prevent similar injuries (Table 7).

**Conclusion**

Overall, half the respondents indicated factors associated with their injury, most felt their injury could have been prevented, and few received injury prevention information.
Chapter V
Discussion

Most of the respondents reported that their injury could have been prevented, although half of them were unaware of how to prevent their injury. Many distractions were involved in accidental injuries. After the injury, most did not receive information regarding how to prevent future injuries. These findings indicate individuals are interested in preventing injury, but do not have resources or knowledge of how to go about doing it.

Distractions

Factors such as lack of seatbelt use, inadequate sleep, and other distractions were involved in half the injuries. One respondent stated, “[D]aydreaming and negotiating mountain trails are incompatible.” Another respondent said, “[S]hot myself through foot unloading a hunting rifle—distracted by children’s ‘antics.’” While some, like the previous respondents, indicated awareness about factors involved in their injury, others did not seem to be aware. A respondent injured in a motor vehicle crash marked “not applicable” regarding seatbelt use and wrote a comment stating, “I can’t remember, but I don’t think there was a seatbelt law.”

One person stated, “I believe I had a seizure that was induced by stress and possible medication. This situation led to a car accident.” Medications did not play a role in the majority of injuries.

Considerations. Distractions and injuries seem to go hand in hand. As one study concerning motor vehicle crashes reported, “When inattention and physical/mental conditions take place at the same time, the driver has a higher tendency of being involved
in a crash that collides into static objects” (Tseng, Nguyen, Liebowitz, & Agresti, 2005, p. 1188). Injuries caused by distractions are not just related to motor vehicle crashes. Devenport, Lane, and Hanin (2005) found sports participants who were stressed, fatigued, or depressed were at greater risk for injury, and Sorock et al. (2004) found risks contributing to on-the-job hand injuries included lack of glove use, distractions, and rushing.

*Nursing Implications.* The first step in prevention is awareness of causes leading to injury. Nurses have a vital role to educate individuals on how distractions play a part in causing injuries. Unfortunately, many people pass distractions off as a fact of life and unavoidable. Nurses can alert the public to dangers and risk factors, such as not using safety belts or helmets increases injury in motor vehicle crashes, or some medications may cause decreased alertness.

The second step is to help individuals realize most distractions can be decreased, such as not talking on a cell phone while driving, taking road trips when sleep deprived, or participating in high risk activities (cleaning guns) in an environment of distraction (children). Nurses can teach ways to prevent or decrease distractions during potentially risky behaviors. Community and school-based safety programs are a good way to start. A study by Hall-Long, Schell, and Corrigan (2001) suggests school programs should be implemented to teach young children basic safety habits, such as wearing a helmet when bicycling, in order to ingrain safer habits and life-styles. In the emergency room, pamphlets and risk factor screening can be used to alert individuals to their specific risk factors.
Perception of Prevention

Many respondents perceived their injuries as preventable and indicated they would try not to combine the same distracting factors with the activity leading to their injury. This correlates with Van Horn’s (2005) observation that vulnerability is an ideal time to set up safety measures because individuals are open to change and will try to prevent future injury in any way possible. Individuals are more open to injury prevention immediately following an injury.

When more than one person was involved in the injury, some respondents perceived the injury as preventable, but on another person’s part. One respondent stated, “Another driver fell asleep and ran into the car in which I was a passenger.” Another respondent said, “[C]aused by other person, drinking and fell asleep.” A third comment was “[I was distracted] disagree, though for coworker I agree. . . it was a work related accident caused by a coworker.”

Considerations. Attitudes play a large role in whether an individual is willing to prevent injury. If someone does not believe an injury can be prevented, he or she will take no steps to decrease risk factors. A study by Cross regarding nurses’ perceptions of injury prevention stated, “[I]f attitudes are precursors of behaviour, and nurses’ attitudes influence the quality of care given to patients, the profession must take note of this because nurses’ attitudes will have an impact on quality of care” (2005, p. 481). This holds true not just for nurses, but for everyone. Beliefs influence action—a belief that says injury prevention is possible will lead to actions taken to prevent injury. It may not be possible for an individual to prevent an accidental injury, but usually several factors are in the individual’s control to alter.
Nursing implications. Since many injuries are treated in the emergency department, this is a good place to set up interventions to prevent future injuries. As the nurse gathers patient information related to the injury, a risk factor may become apparent. With knowledge of a risk factor, the nurse can initiate education or provide information regarding how to decrease or eliminate the risk factor. As the individual is at a vulnerable point, he or she may be more open to suggestions and begin to make life-style changes (Van Horn, 2005).

Information

Few respondents received information on how to prevent future injuries. This correlates with other research stating “a concerning finding... was the low percentage of subjects receiving injury prevention information from healthcare providers” (Van Horn, 2005, p. 257). Van Horn stated, “[N]urses can provide patients with information regarding safety measures, both behavioral and environmental...” (p. 257).

Education

Nurses have a responsibility to prevent injury in community. As Orem’s self-care theory indicates, educating clients and reducing environmental risk factors will empower clients and their families and will lead to decreased injuries (Denyes et al., 2001). Readiness for enhanced learning related to injury prevention in the community indicates nurses can play a vital role in education. Education can be focused on prevention of the injury before it can occur, or it can focus on taking steps after the injury to prevent future accidental injuries. There are many education tools and programs available to assist a nurse in injury prevention.
All suggestions noted fall under the category of education. Education is a vital part of nursing. Often nurses are the ones who see the whole picture regarding the injury. If a nurse does not step in and educate an individual concerning a risky behavior, the person may never realize a certain behavior or action caused the injury and continue to involve himself or herself in the behavior. Other interventions, such as providing assistive devices, may by useful in certain situations. It is up to the nurse to determine effective methods to prevent injury depending on the individual and the situation.

Recommendations for Future Research

Future research will be needed to investigate feasible ways to prevent accidental injuries, whether by education on how to decrease risk factors or information on how to avoid risky behaviors. Interventions specific to the emergency department and possible methods to implement them need to be researched in more depth. It would be interesting to note what kind of injury prevention education most individuals are open to and how much they would be willing to alter their lifestyle to prevent injuries. Another area to explore would be attitudes of patients and health care workers and how they influence injury prevention.

Conclusion

Overall, this study shows most accidental injuries are preventable, and individuals are willing to take actions to prevent them. Society needs to be more proactive in providing individuals with education and resources pertaining to injury prevention and decreasing risk factors. The emergency department would be a good first step in prevention of future accidental injury or prevention of recurring injuries. Emergency
department nurses have a crucial role to identify risks and provide education to individuals concerning accidental injuries.
References


Table 1: Age

<table>
<thead>
<tr>
<th>Years</th>
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<tr>
<td>18-21</td>
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<td>22-30</td>
<td>6</td>
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<td>66-75</td>
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</tr>
<tr>
<td>76+</td>
<td>0</td>
</tr>
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<td>No response</td>
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Table 2: Gender

- Female 70.8%
- Male 26.8%
- No response 2.4%
Table 3: Education

<table>
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<tr>
<td>Bachelor's degree</td>
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</tr>
<tr>
<td>High school</td>
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</tr>
<tr>
<td>Graduate degree</td>
<td>15</td>
</tr>
<tr>
<td>Some college</td>
<td>8</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 4: Cause of Injury

- Fall, 22%
- Motor Vehicle Crash, 32%
- Bicycle, 10%
- Sports, 7%
- Firearm, 2%
- Object Fell, 10%
- Burns, 5%
- Other, 12%
Table 5: Seatbelt Use in Motor Vehicle Crashes

<table>
<thead>
<tr>
<th>Status</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Not Applicable</td>
<td>8%</td>
</tr>
<tr>
<td>Not Used</td>
<td>23%</td>
</tr>
<tr>
<td>Used</td>
<td>69%</td>
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</tbody>
</table>
Table 6: Helmet Use in Motor Vehicle Crashes

- Blank: 23%
- Not Applicable: 38%
- Used: 8%
- Not Used: 31%
Table 7: Perception of Injury

Questions --
1. I think the injury could have been prevented.
2. I was aware of ways to prevent the injury from happening before it occurred.
3. After the accident, I received information on how to prevent future injuries.
4. My lifestyle changed because of physical problems caused by the injury.
5. I will do something to prevent similar injuries in the future.
Appendix

Survey

The purpose of this survey is to look at accidental injuries and see if there are ways to prevent them. By filling out this survey, you are giving permission for the information you write to be used in a research study written by a Carroll College nursing student. The information will not be traced back to you. If you have any questions, please call Carissa Schutter at 406-449-7101. When you are finished, please put the survey back in the envelope, seal the envelope, and return it to the front desk. Thank you for your help.

1. Injury was (please check):
   ____ Accidental
   ____ Caused intentionally by someone else
   ____ Caused intentionally by me

2. Cause of injury (please check):
   ____ Motor vehicle accident (includes cars, trucks, motorcycles)
   ____ Bicycle crash
   ____ Fall
   ____ Firearm
   ____ Fireworks
   ____ Other (specify): ____________________

3. Factors present at the time of injury (circle):
   • I was talking on a cell phone: Yes   No
   • I was under the influence of prescription or nonprescription drugs: Yes   No
     Specify: ____________________
   • I used a seatbelt: Yes   No   Not applicable
   • I wore a helmet: Yes   No   Not applicable
   • I was distracted:
     Strongly agree   Agree   Uncertain   Disagree   Strongly disagree
   • I was under stress:
     Strongly agree   Agree   Uncertain   Disagree   Strongly disagree
   • I had consumed alcohol:
     Strongly agree   Agree   Uncertain   Disagree   Strongly disagree
• I received adequate sleep the night before:
  Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

4. I think the injury could have been prevented:
  Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

5. I was aware of ways to prevent the injury from happening before it occurred:
  Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

6. After the accident, I received information on how to prevent future injuries:
  Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

7. My lifestyle changed because of physical problems caused by the injury:
  Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

8. I will do something to prevent similar injuries:
  Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

9. Age:  18-21  22-30  31-40  41-50  51-65  66-75  76+

10. Gender:  Male  Female

11. Highest level of education:
    Some school  High school  Some college  Bachelor’s degree  Graduate degree

12. Comments:  

    ________________________________________________________________
    ________________________________________________________________
    ________________________________________________________________
    ________________________________________________________________
    ________________________________________________________________