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A Descriptive Study on the Emergency Preparedness Knowledge of

Students, Faculty, and Staff at Halifax Community College

Kevin Kupietz

Halifax Community College

Weldon NC

CERTIFICATION STATEMENT

I herby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate and that appropriate credit is given where I have used the language, ideas, expressions or writings of another.

Signed: _____

ABSTRACT

There are more than 3.5 million students attending more than 4,000 colleges and universities in America. These students, along with faculty and staff members could be at risk of injury or death from natural or manmade incidents and disasters on and off campus. It is known that how well prepared and the actions one takes during an emergency can have a significant impact on the events outcome. The problem is that the emergency preparedness knowledge of students, faculty, and staff of colleges, like Halifax Community College is unknown. It is critical for emergency preparedness planning to understand the core knowledge of the group that it intends to develop protection plans for. With this in mind the purpose of this descriptive study was to examine the current emergency preparedness knowledge of Halifax Community College students, faculty, and staff members. This study used a web based testing instrument to explore the following questions pertaining to campus students, faculty, and staff: What is their current understanding of campus emergency procedures? What their current level of knowledge is in regards to basic emergency preparedness? What is their current level of emergency preparedness based on the prevention actions they have taken? The study found that overall knowledge towards preparedness and prevention was fair to good for those that participated. The study also indicated that while the knowledge may be possessed the prevention actions were not always put into place by the participants. This study makes several recommendations including more research in the area, prevention training to become more all hazards in nature, as well as a more aggressive plan to make emergency procedures and information more significant to students, faculty, and staff members.

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INTRODUCTION

Fire prevention has been an issue for mankind since the discovery of the useful but dangerous tool of fire. One can easily imagine the first caveman burnt by fire trying to communicate the dangers to his fellow cave dwellers. While fire prevention is an important task for every fire department, the fire service should no longer be an agency of merely fire prevention but of community risk reduction in general (EACRR, 2009). This makes sense, as one can imagine early man concerned about other dangers such as weather, attacks, and wild animals, not merely fire. Modern society is no different as it seeks to prepare for, respond to, recover from, and mitigate risks. After centuries of dealing with risks, society finds itself still faced with disasters that claim numerous lives in a matter of mere moments. The reports of such disasters big and small cause organizations, such as Halifax Community College (HCC), to continually make efforts to reduce the risk to the populations in which they serve.

The problem is that the emergency preparedness knowledge of campus students, faculty, and staff at Halifax Community College is unknown. It is critical to understand the base knowledge level of these groups in order to plan for future emergency response training, actions, and procedures. With a proper base of planning, communicating, and practice it can be assumed that an actual emergency can be dealt with much more successfully than if a strong foundation is not already in place.

The purpose of this research project is to examine the current knowledge level of campus students, faulty, and staff at Halifax Community College in order to explore strengths and

weaknesses to be used in future campus emergency preparedness plans. Armed with this knowledge the college will be able to more effectively plan, develop, and implement procedures in order to move forward in an efficient manner to preserve life and property in the event of a disaster on campus.

This descriptive study used an electronically administered quantitative survey to examine the following research questions: What is the current level of emergency preparedness knowledge of HCC students, faculty and staff towards campus emergencies? What is the current general emergency preparedness knowledge level of HCC students, faculty, and staff? What is the general level of preparedness effort the HCC student, faculty, and staff member have taken for their own protection? This study used a questionnaire of multiple choice questions to explore the participants' knowledge base of HCC emergency procedures on campus, the participants' general knowledge of emergency preparedness and finally a self reported section of the participants' personal preparation for an emergency.

Background and Significance

Every year thousands of lives are lost due to natural and manmade emergencies in America. Fires alone are reported to kill over 3,000 people each year and injure more than 15,000 (NFPA, 2011). There are approximately 60 people in America killed per year in tornadoes but have been known to kill many more. The tornado of 1925 in the Midwest cut a path of destruction across 219 miles killing 695 people (NSSL, 2011). An average of 23 Americans die in hurricanes annually (Glickman, Witt &Daley, 2011). Catastrophic events dilute these numbers as seen in Hurricane Katrina where more than 15 million people were affected and 1865 deaths were attributed to the storm (Kurpis, 2011). The list of other incidents that regularly cause unintentional injuries and death to the population could go on and on.

Colleges are certainly not exempt from these fatality numbers. For example, the website firesafety.gov (2011) reports that college students are experiencing a growth in fire related emergencies every year. Since January of 2000 Campus Fire Watch (2011) has reported 135 college campus related fire deaths in the United States. While there may be several reasons for these fire events most have been attributed to a general lack of fire prevention education and safety knowledge (firesafety.gov, 2011). Campus residents do fall victim to other incidents other than fires as well. For example, violent shootings such as the ones at Virginia Tech and the University of Arizona have resulted in numerous deaths and injuries of campus inhabitants (Associated Press, 2007).

Often in the presence of safety education assumptions are made that adults already know proper safety information, knowledge and habits. Even the adults themselves often think they know everything that they need to about safety (Byrne, 2008). Even prevention specialists such as those in the fire departments often believe the safety message is fully understood and no form of evaluation is conducted to verify their educational efforts (Gaull, 1997).

College campuses must look further than just those incidents that have in the past resulted in death and or injury. College leadership must look to the events that could be realistically possible in the future (Carr, 2007). For example, while the campus injury rate may not be significant at this time from natural disasters such as earthquakes, tornadoes, and severe weather, colleges should be prepared for these events in order to minimize the risk. Manmade incidents such as industrial accidents and events of terrorism could also have a significant impact on college campuses and again the college and inhabitants should be prepared to minimize the effects of such events (Chun, 2008).

Campus leadership has a moral and economic motive to ensure student and staff safety even during off campus times (Clunn, 2010). Annually college students, staff, and faculty are killed and injured in off campus fires, vehicle accidents and a wide array of other accidents (NJIT, 2011). In contrast to on campus events where college leadership can physically take progressive steps to remove the dangers, off campus the college leadership typically has little control over the risk mitigation except in the area of education on how to reduce the risk for the potential victims.

It is hoped that this paper will give preparedness insight to all campuses across America. The primary purpose of this paper is to focus on the emergency preparedness knowledge maintained by Halifax Community College students, faculty and staff. With deaths from emergency situations such as fires, storms, and accidents still being a common fixture in the nightly news the knowledge level and ability to think through such crises could save a person's life or minimize the risk to the individual or even the group as a whole.

Halifax Community College is a small two year college serving approximately 1,700 curriculum students, over 3,000 continuing education students, approximately 100 early college students, with around 150 faculty and staff members (Griffin, 2010). The college serves a community base of approximately 70,000 people from two rural economically scored Tier I counties. While most of the students at HCC come from these two counties, there are those other students that come from other locations including international students and faculty. HCC is located in Northeast North Carolina less than half a mile from Interstate 95, a major rail route, and a local industrial park (Temple, 2008).

HCC is not without its own history of incidents. For example, February 12, 2007, Keith Titus Anyonyi, a student at Halifax Community College lost his life in an off campus fire in the

apartment where he was living (Campus Fire Watch, 2011). It was determined that he had

purposely disabled his smoke detector so he could smoke in his apartment (Martin, 2007). The

campus was forced to evacuate when a nearby industrial facility thought it had a Hydrogen

Sulfide leak from a digest tank (Kline, 1999). HCC was spared the damaged suffered by other

area businesses during storms such as Hurricane Floyd and the recent tornadoes of 2011. While

these events have occurred in the past it is just as likely to be similar events now and in the future

as the risks are still in existence.

This paper will not only give insight into the knowledge level and preparedness attitude

of HCC students, faculty, and staff, but it will also meet the requirements of the of the applied

research program for the National Fire Academy (NFA) Executive Fire Officer (EFO)

Community Risk and Reduction Course as the paper explores the base knowledge and attitude of

community risk reduction of those on campus at Halifax Community College. By examining

core knowledge and attitudes officials will be better armed in their planning, preparation, and

execution of future community risk reduction plans at the college (Byrne, 2008). By being better

equipped with this knowledge the evolutionary process of risk reduction can proceed more

efficiently and quicker thus resulting in improved prevention and response capabilities (EACRR,

2009). This paper will hopefully be able to serve as a guide for local fire departments and other

agencies that participate in community risk reduction to understand what areas of their respective

programs have been remembered and utilized and which areas may need to be strengthened.

With a better understanding of the general emergency preparedness knowledge and

preparation of HCC students, faculty and staff positive gains can be made on the life safety

conditions of those on campus. This has a direct impact on the USFA (2003) operational

objectives. By understanding the knowledge level of campus personnel better risk reduction

efforts can be tailored thereby reducing risk. By understanding the knowledge and preparation level of a core group programs can be altered or developed to improve preparedness efforts. This study also has the potential, when shared with the local fire departments that service Halifax Community College students, faculty, and staff, to raise the capabilities of the areas prevention education programs resulting in an elevation of the fire service's professional status in the region.

LITERATURE REVIEW

Introduction

The CDC (2007) reports that unintentional injuries are the leading cause of death in the typical college age population. More than 30,000 deaths occur annually from unintentional injuries for those between the ages of 15 and 35 (CDC, 2007). The reports also name homicide and suicide as the next two most frequent causes of deaths in this age group. The U.S. Census Bureau (2008) reported that in 2006 with 17.1 million undergraduate and 3.4 million graduate students there are more than 20 million college students in the United States. This represents an increase in students by 3 million, or 17 percent, from the 2000 census information. In addition to the campus students safety considerations must be given to the employees of the colleges as well. In 2007 college employees in the 4,314 degree seeking institutions was estimated to be more than 3.6 million people (Drysdale, Modzeleski, & Simmons, 2010). Every college is at risk from natural and manmade incidents (Aschenbrener, 2001). Colleges represent a significant target hazard for the communities that they serve with potential for staggering amounts of loss of life, economic resources, and future potential if an incident on campus was to occur (Mowrer, 1999). A significant event at a college could have a lasting effect on the college and the community in which it serves (Akers, 2007).

It is known that the most practical way to save a life from an unintentional injury is through the prevention of a dangerous occurrence (Gaull, 1997). The American fire service has participated in fire prevention practices since the days of Benjamin Franklin. Mr. Franklin's quote "an ounce of prevention is worth a pound of cure" from one of his newspaper articles, actually was referring to the common hazard of carrying smoldering embers through the home (Byrne, 2008). The dangers that threaten people though are more than just fires (EACRR, 2009). College campuses have suffered through violence (Carr, 2007; Hendy,2010; Zuckerman, 2010). Campuses have been damaged by hurricanes, tornadoes, earthquakes, and terrorist events (UTD, 2011). Campuses can learn from the disasters and close calls of the past to make for a safer future (Chun, 2008; Mowrer, 1999).

Information for this literature review was located from many different sources including local libraries, The National Fire Academy Resource Center, the Capella online library, the internet and other sources. Key words used in searches included but were not limited to campus safety, prevention, retention, effectiveness, cognitive, evaluation, and education.

The review of the literature found substantial information on fire prevention programs and education tactics. Little information though was found on the retention of prevention knowledge and skills especially outside the realm of fire prevention. Furthermore, there was little information on safety prevention knowledge of adults and even less on campus inhabitants. No study was found that attempted to assess the emergency preparedness knowledge, or behaviors of campus students, faculty, and staff.

A few themes did become obvious through the literature review. The first being that college campuses do pose a serious safety concern in that they do have the potential for large scale incidents to occur as well as they do provide a gateway into good community stewardship

for those that come through (Mowrer, 1999). The second important theme that came to light from the literature is that the fire service has traditionally concentrated on young children for prevention activities because of the ease of access as well as the risk factor that they represent (Byrne, 2008). Unfortunately, this inactivity in prevention education for adults may be causing problems with those adults representing college campuses today (Campus Fire Watch, 2011). With these themes in mind the literature review was broken down into two major topics. The first being the risk factors associated with college campuses. The second was prevention education and the retention of that material.

Risk Factors

The release of the America Burning Report in 1973, from the National Commission on Fire Prevention and Control, was the formal declaration to the seriousness of the fire problem in America (EACRR, 2009). NFPA (2011) reports that from 1977 to 2006 that the fire rate in America dropped from 3.2 million fires to approximately 1.6 million. Though that represents almost a 50% drop in fires, the firesafety.gov (2011) reports an increase in the number of campus related fire deaths. Since January 2000, 135 college students have been reported to be killed in fires (firesafety.gov, 2011).

Fires are certainly not the only risk that campus personnel have to be concerned about though (Rhodes, 1991). Events such as the shooting incidents at Virginia Tech, University of Texas at Austin, and Seton Hall have captured much media attention (Fleming, 2010). A study conducted by the U.S. Secret Service and the U.S. Board of Education concerning campus violence, found from 2005 to 2008 there were 174 homicides, 13,842 forcible sex offenses, and 21,675 aggravated assaults associated with campus life (Drysdale, Modzeleski, & Simmons, 2010).

The multitude of risks to college students on and off campus can be further demonstrated in an incident that injured 22 students from Washington and Lee University when they were injured from a deck collapse during an off campus party (Valencia & Codispoti, 2011). Deck safety is not typically reviewed in traditional prevention programs. The cause of the injury nor the location does not negate the need for personal prevention training (Chunn, 2010). These nontraditional injury examples bring into context new risks for college students and even their faculty and staff members that most traditional prevention programs have not begun to deal with yet.

It is true that death and disabling injuries occur from an abundant of different sources (Rhodes, 1991). While examining possible risks, the close calls and property damage only incidents need to be evaluated as well (EACRR, 2008). For example, one tornado caused 50 million dollars of damage to Adolphus College in 1998 (Aschenbrener, 2001). East Carolina University suffered approximately five million dollars in damage due to flooding from Hurricane Floyd in 1999 (Aschenbrener, 2001). Events like these could have easily led to injuries or even fatalities under different circumstances.

There are many risk factors that could be associated with college life that predispose the individual to suffer an unintentional injury or make the event more severe. For example, alcohol use by college students has proven to be a safety issue. USA Today (2006) in an analysis that they conducted, found one in every five college students that died of unintentional injuries or illness had been drinking immediately prior to their death. It has been found that over 50% of the adult fire death in America is alcohol related (Fire Safety.gov, 2011). Alcohol abuse continues to be a problem in colleges across the country when it comes to the safety of the student (Caires, 2009).

Another example of a predisposed at risk college population could be those with learning disabilities. Studies conducted in burn centers indicate that approximately 40% of the younger patients of burns have some form of learning disability (Maley, 1988). At first glance this may appear to be an insignificant risk to colleges, but studies are showing that student populations with learning disabilities are increasing across the country. Banco (2010) reports, that more than 200,000 college students in America have been diagnosed with learning disabilities. College preparatory programs to help students with learning disabilities have increased by tenfold in the past nine years (Banco, 2010).

American colleges are seeing a growth in the number of international students studying within their walls. Choudaha (2010) reports that the number of international students in American institutions of higher education has grown significantly in the last five years and has now surpassed 675,000 international college students in America. This can be causing an issue with a difference in prevention education from their home country and that taught in the United States (Klieger, 2005). This can cause several issues for colleges as the cultures towards safety prevention can be different, the prevention education can be different and language barriers may even keep on going campus prevention programs from being totally successful with these students.

Campuses do not only see a diverse group of students that make prevention efforts difficult they also see a diverse set of risks as well. For example, studies indicate that a new safety threat to college students is coming from their online computer use. As the younger generations participate more on social networking sites a lack of prevention education can make the student a target for predators (Pysz, 2008).

The H1N1 flu epidemic serves as a great example of new and emerging risk that can quickly have a significant impact on a college. From August to the end of September 2009, campuses had reported 13,434 cases of H1N1 and two student deaths (Park, 2009). Colleges across the country were forced to scramble to develop plans and implement counter measures to ensure the safety of their students and workers. Some colleges such as Arizona State went so far as to stock up on medications such as Tamiflu to dispense to students, other schools prepared dorms to be used as quarantine locations for infected students (McGraw, 2009). Almost all colleges developed and implemented some sort of prevention education program to deal with the spread of the flu. Ultimately, the education and prophylactic measures proved to be the most successful measures (CDC, 2010).

Not only are there realistic risks to the individuals on college campuses but campuses are target hazards that can represent a large loss of life (Mowrer, 1999). Meaning that with such a concentration of population in one confined location a small incident or emergency can quickly become severe due to the population response alone. How the population of the campus reacts to an emergency can have a significant effect on the outcome of the event including influence on how many people are injured or even killed (Brichford, 2010).

Campus safety is not only important to the lives of those on college campuses but t to the reputation of the college which is tied to its enrollment and in turn its economic success (Clunn, 2010). Campus safety has a direct bearing on student retention rates at colleges (Atkinson, 2008). Some may argue with this common sense approach though. One study that focused on three colleges that had notarized safety issues found that the enrollments in all three colleges were not significantly impacted by the safety publicity (Kelsay, 2005). Another study directly points to

safety as a critical factor among international students and the American colleges that they

choose (Klieger, 2005)

Federal and state laws have been enacted to help eliminate or at least reduce the loss of

campus life. For example, the federal government passed the Clery Act after the rape and murder

of Jeanne Clery in her dorm room (Talesha, 2007). The Clery Act affects colleges in several

ways including the requirement to maintain and post safety and security data on an annual basis.

Amendments to the law in 2008 following the Virginia Tech shootings strengthened the planning

phase with requirements like a mass notification system (Stelter, 2010). A study conducted of

two California campuses found the effectiveness of the Clery Act amongst students mixed, but it

did find that it helped campus safety professionals better prepare for both preventative and

response operations (Aliabadi, 2007).

Many states like North Carolina have adopted mandatory sprinkler laws for dormitories

and Greek housing following the tragic death of five college student in a fraternity house fire in

Chapel Hill NC in 1996 (Comeau, 2007). For example, Illinois passed the mandatory Fire

Sprinkler Act of 2005, which requires all dormitories of post secondary educational structures to

be equipped with a functioning sprinkler system by 2013 (Hardimon, 2010).

It is imperative that colleges plan for the unexpected and take action to ensure that those

on campus will be adequately taken care of in the event of an emergency incident. This includes

education, practice, supplies and progressive strategic plans (Chun, 2008). A study conducted of

51 different colleges and their support staff found a wide variety of crisis planning approaches.

The study found that some efforts were strong while others in comparison were weak it found

that there were economic, geographical, demographic, population, and leadership differences that

contributed to the wide array of differences (Akers, 2007). This may suggest that there is not a

one cure fix that will work for all colleges but maybe some best practices that may fit for some schools.

An important concept to understand in assessing the risk factors for a college is the duration in which in event can take a toll on the institute of higher education (Aschenbrener, 2001). The first 48 hours are crucial in an institutions' ability to quickly rebound from a disaster (FEMA, 2011). Therefore colleges must have plans that allow them to quickly and efficiently continue daily functions while recovering from the incident (Aschenbrener, 2001). Not only is it important for the plans to be in place but they need to be communicated, tested, and practiced through drills for optimal affect (Stetler, 2010). With good risk assessment, planning, and development more accurate and effective prevention training can be disseminated to the population.

Prevention Training Retention

It is recommended that individuals be prepared to take care of themselves for the first hours of an emergency or disaster (Bayless, 2011;FEMA, 2011). An interesting argument is how prepared college students are in the area of safety prevention. College Watch (2011) contends that a major reason for an increase in campus related fires is that the students' knowledge level in regards to safety aspects are not proficient. For example, the number one factor found in campus fires was cooking accidents (Campus Fire Watch, 2011). Cooking safety is a pretty common fire prevention topic in grade school so it is surprising that it would be the number one cause of fires on campus.

Knowledge does not merely refer to the regurgitation of information but to the ability to apply the information in a variety of different and evolving situations (Ip, 2003). In the field of prevention training what is taught is not as important as to what is remembered and usable by the

student (Smith, 1993). This may be the case with college students and their cooking issues. One might make the argument that the student is no longer cooking in a traditional home environment and therefore the safety knowledge is not applied appropriately.

There may still be a disconnect though between having a specific prevention knowledge and using that knowledge (Byrne, 2008). For example, one nutritional study of school aged children was conducted using a control group that received no prevention education and an experiment group that was given nutritional prevention education to the student and to the family. In post testing of blood lipids the data showed no significant difference between the control and the experimental groups (Yeh, 2009). Interestingly though the experiment group and parents both scored higher on nutritional knowledge exams (Yeh, 2009). This may suggest having the knowledge does not guarantee the use of the information.

The disconnect of knowledge and action can further be shown with real incidents. For example, a fire in a fraternity house of the University of Massachusetts in Amherst found all of the smoke detectors covered with plastic and duct taped preventing their operation. The Fire Chief ordered an immediate inspection of all other Greek houses and found three other houses in the same condition (Comeau, 2007). A Halifax Community College student died in a fire started from smoking materials when the smoke detector that he had intentionally made inoperable failed to wake him up (Martin, 2007).

The actual hands on practicing of safety prevention tactics may be a key to success. According to the triarchic theory knowledge is processed into usable information through a three step process. The first process is for the short term memory to sort out the relevant information from the sensory input (Ips, 2008). The second step allows a bridge to be made from the relevant pieces of information to create a holistic picture. In the third step the new concept is bridged

from the short term to the long term memory (Sternberg, 1985). If one subscribes to this theory

then students should be encouraged to focus more on processing information to allow for

practical use and longer memorization of the material than merely retaining facts. This can be

facilitated through exercises that allow the student to synthesize, analyze, and even contrast the

information (Ip, 2003).Unfortunately, there seems to be little research in the field of

experimental learning for adults and the information retention prospects (Spaulding, 2010).

The way that prevention material is presented has been shown to have an overall effect

on the retention of materials. For example, Smith (1993) reported on a study that the Northwest

Fire District in Arizona conducted with 175 second graders. The students were divided into three

groups for the study. All three groups were given a pretest to set a baseline of prevention

knowledge. Group 1 was then provided with the typical fire prevention program consisting of

one video, two teacher led discussion sessions and a visit from the fire department. Group 2 was

exposed to hands on activities instead of the normal lectures. They were also exposed to items

that related to each topic of discussion to stimulate conversation with the students. The third

group received no additional training and served as the control group. The grading of the post

test showed that the traditionally taught group did have an increase of knowledge of 118% over

the control group but the interactively taught group had an increase of 227% over the control

group. A similar study was reported by Mondozzi and Harper (2001) in which game playing was

used to improve the post test prevention education scores of students up to 50%.

Traditional prevention programs tend to focus on children because they are easy to reach

(Smith, 1993). Most traditional prevention programs stop by the third or fourth grade though

(Comeau, 2007). However, older children and adults are susceptible to unintentional injuries as

well. Therefore it is necessary to continue prevention education regardless of age (Byrne,

2008).Adults are an important part of the safety prevention equation as they will be setting the

example for the children and they will have the greatest effect on safety in their household

(Byrne, 2008). It becomes difficult to reach adults with prevention education though (Coleau,

2007).

Teaching adults presents a unique barrier in that they often feel they know everything that

they need to know concerning safety (Byrne, 2008). Goal orientation and perceived relativity of

the subject matter are two important factors when considering the success of a lesson with an

adult learner (MacFadgen, 2007). Spaulding (2010) reports that adults that were exposed to

playful adult learning activities did significantly better on post tests than those exposed to

traditional lecture modes. In this study 89 boaters volunteered for an experimental course in

boater safety. The experimental group was found to have a better knowledge base and better

retention rates than other students exposed to the traditional lecture mode.

Demographic differences can be a factor in prevention educational outcomes (Byrne,

2008). Interestingly one study concerning teaching styles for prevention techniques saw

consistently lower scores for boys than the tested girls whether a traditional lecture teaching

method was used or an interactive hands on method was used (Smith, 1993). Another study did

not find a significant difference in gender but geography. The study was conducted using

graduating high school seniors that had no formal prevention exposure in six years. The study

found that gender, race, nor ethnic group had a significant effect on the prevention retention rate.

What did have bearing on the retention was the geographical area from which the student

belonged. Those in economically depressed regions consistently scored lower than those in more

affluent areas (Brooke, 1990). The study also concluded that the absence of recent prevention

training led to inadequate safety behaviors overall in the groups tested (Brooke, 1990).

It is important that prevention programs focus on all the different sources of trauma not just the traditional fire safety education lectures (Rhodes, 1991). A multitude of events have been found to be responsible for college injuries. It makes sense that each of these dangerous situations be examined for preventative measures to reduce campus injury and death. This was exemplified with the prevention initiatives that came about due to the H1N1 virus and the potential impact that the pandemic could have had on the educational system in America (Park, 2009).

Another important concept often overlooked in prevention education is the need for evaluation (Byrne, 2008). The evaluation process is important to ensure the desired message was received, that it was done efficiently, and that there is a cost benefit to the program to help fund the program in the future (Gaull, 1997). It is important to measure the extent of success that a prevention program has on its overarching objective and conceptual goal (Rhodes, 1991). It can be difficult though to measure the successes of a prevention program as it tries to measure nonevents (Vadnails, 1999). A good evaluation program for prevention programs should consist of three basic components: a pretest with posttest, using a program that has a program evaluation process in place, and a tracking system for the prevention program (Gudie, 2010).

It is possible to measure prevention success through leading indicators such as the knowledge gained and actions demonstrated in drills, etc. Trailing indicators can give an indication through milestones (Vadnais, 1999). For example, there were twice as many fire responses in 1977 than in 2006 (NFPA, 2011). The problem with trailing indicators is that they take time to show up and it is hard to isolate the variable(s) that are truly responsible for the change (Schleifer, 2008).

Evaluations of prevention programs can show leadership strengths and weaknesses of the organization's efforts (EACRR, 2009). A study of Florida based community colleges demonstrated an increase in security measures after the Virginia Tech shootings, but it was found most of the efforts were in the response mode rather than the prevention mode (Kerkhoff, 2008). Often is the case that an emergency service organizations and especially individuals will tend to naturally gravitate to response plans rather than prevention. A study conducted by Bradley (1990) concluded that the entrance into the North Carolina state fire prevention certification seriously lagged behind other fire service voluntary certifications.

Summary

College campus students, faculty, and staff are at risk from a myriad of different hazards (Aschenbrener, 2001). Prevention practices can teach the normal person how to live safer and how to better be prepared for an emergency or disaster that may affect them and their family (Comeau, 2007). For college inhabitants to minimize their risk to death or injury from an unintentional injury they must have the knowledge and practice prevention strategies (Mowrer, 1999).

There are best practices available in many different realms of prevention training such as determining subjects to concentrate on, how to best teach the material for understanding and retention, even best practices for the evaluation of the students and the program (Smith, 1993). Unfortunately, these best practices are not always utilized by all prevention agencies so it may be that some of the education is not being as effective as it should be or could be (Bryne, 2008). The literature review suggests that this may be a problem in the fire service's efforts for community risk reduction.

The review of literature pointed out several significant factors that influenced this study in several different ways. Probably most notably was the indication that knowledge of preventative and safe practices does not necessarily equate to safe behavior (Comeau, 2007). The literature repeatedly cited examples of unsafe practices leading to college students' death and injuries even though the precautions are taught in basic elementary school prevention programs.

The literature review captured a wide array of risks that campus dwellers have to contend with. It was interesting to note the sudden incidents such as the H1N1 virus and how actions were quickly taken to deal with this outbreak (Park, 2009). While in contrast other issues such as alcohol abuse which was a contributing issue in many incidents from automobile accidents to fire deaths was mentioned as a concern but no real consorted effort given to correct the issue like that of the pandemic. Some issues such as fire safety, storm response, and safe driving where considered to be so intuitive that time did not need to be spent on formal prevention education topics (Brichford, 2010).

While a great deal of information was found concerning prevention programs, teaching strategies, and risks there was very little information found on the retention and usability of prevention knowledge. Very few studies were found on the retention and use of prevention materials and those that were found all tended to be localized studies. The campus safety issue is a national problem (Comeau, 2007). The literature review pointed out a theme of extreme diversity in regards to prevention problems and cures among the more than 4,000 institutions of higher education in America though. The diversity of campuses found in the literature review suggests that a more timely approach to this study be taken. Meaning that instead of a national survey or even a regional project be attempted that a more localized study be conducted of one

college instead of several. This study than can be compared to other local studies to see if this is a generalized issue or a region or school specific issue.

PROCEEDURES

This descriptive study used a quantitative survey tool to focus on the following research questions: What is the level of knowledge of on campus students, faculty and staff concerning actions to be taken in the event of a campus emergency? What is the general emergency preparedness knowledge of campus students, faculty, and staff? What is the preparedness level of campus students, faculty and staff for an emergency that may affect them?

Several different methods were considered for this study. An ethnographic study was originally considered to look at the difference of what people say they would do in an emergency situation as compared to what they are actually observed doing during the emergency. An ethnographic study explores the behaviors of a group or culture over an extended period of time in the group's natural environment (Creswell, 2009). This methodology was impractical due to the time constraints needed in completing the study within a six month window. A case study design was considered as well. A case study explores an event or activity over time (Creswell, 2009). This design considered using different campus emergencies such as the Seton Hall fire where three students died and many more injured in a prank that turned out bad (Goldman, 2000). It was decided that the use of the case study methodology would not give the direct results desired pertaining to the actual status of emergency knowledge of Halifax Community College students, faculty, and staff.

A quantitative study consisting of a self reporting survey of a campus sample was decided on as the best choice for the conditions given in answering the research questions asked. Quantitative studies can be used to find answers to social and behavioral questions (Beauchamp

& Childress, 2009). This study asks the question of what do college campus adults truly know or remember concerning emergency preparedness and prevention. This survey sought answers by administering a general preparedness test instrument to the participants. Based on the correctness of the participants' answers some general indications can be suggested concerning the group's overall performance in an emergency situation. College leadership does have a moral obligation to the safety and welfare of their charges on and off campus (Clunn, 2010). To determine preparedness levels of campus students, staff, and faculty on and off campus the survey asked questions that referred to actions to be taken on campus. Another section asked general safety questions that can be applied off campus. A different section of the survey addressed the safety prevention actions that the participants actually have taken already.

Participation in the study was on a totally volunteer base with no repercussions or rewards for participation or nonparticipation. The study was totally anonymous for the participants. At no time were participants asked to respond with personally identifiable information. Field testers and pilot study participants were purposely sought out by the researcher. The researcher is the only person that had access to the responses and identities of field testers and pilot study participants. Any personal information from the study was and is still protected for the confidentiality of all involved in any part of the study. Potential risks to participants were evaluated prior to and continually through the study to ensure the safety of all participants. No significant risk was noted with this study to any participant. Participants were given the contact information for the researcher in the event of a problem or question.

During the month of November 2010, a survey tool was developed to meet the needs of the study. The tool was placed online and field tested. A field test uses experts to examine the survey tool for issues such as validity, format, grammar, and the overall appropriateness of the

tool (Esposito, 2009). Field testers consisted of community risk reduction experts and academics. The leadership of Halifax Community College was also involved in the field testing process in order to obtain permission to conduct the study of their students, faculty, and staff. By the end of November 2010 the field test had been completed and permission had been received from the college's president to conduct the survey at Halifax Community College. The college also gave permission to use the college's webpage to advertise the study and to link to the survey tool. The field test did offered some minor word choice changes for easier readability. Comments from the field testers were mostly positive and enthusiastic about the study.

A pilot test of a study adds to the validity and the reliability of the project (Valdez, 2008). Pilot tests are encouraged in studies that utilize newly developed survey tools to ensure the survey tool is appropriate and works as it was designed to (Leedy & Ormrod, 2005). A pilot test of this study was conducted in December of 2010 in the same online format intended for the main study. Non-probability purposive sampling was used for the pilot study. Two classes from the continuing education department of Halifax Community College were asked to voluntarily participate in the pilot study. They were chosen because of their limited access on campus so they would not be exposed to the main study. This group also had the added advantage accessibility so that their input as to the quality of the study could be easily obtained to improve the study. The pilot test was successful. No major changes were indicated by the pilot test for the survey tool.

The pilot test participants did answer all of the questions as well as make comments about the survey itself. The pilot study survey results were similar to those of the main study, which helped to ensure the validity and reliability of the instrument. The demographics of the group did mirror the actual demographics of the school in the pilot test better than the main

study. This could be attributed to the purposeful selection of the participant group in the pilot test versus the voluntary attribute of the main study. Generally speaking the pilot group did score slightly higher than the main study group in each group though the same problem areas were noted in the pilot group that was later found in the main study.

There were two differences between the pilot test and the main study. The first was the contact method. The pilot test participants were notified in person while the main study participants were notified via email. The second difference was that the pilot study participants accessed the survey with an access code while the main study participants were linked directly to the survey through the college website with no access code needed.

In January 2011 the main study was set up and opened in Surveymonkey©. See appendix A to view the actual survey tool used. The survey tool was linked to the Halifax Community College home webpage in the center of the page to attract attention. A general email was sent out through campus supplied email service seeking participants. The email explained the importance of the study and directions on how to access the survey. Subsequent emails were sent via the campus email system to solicit voluntary participation in the study. Faculty members were also asked to encourage students to participate in the study. The survey tool was taken off line in March of 2011 and the results collated.

Non-probability convenience sampling was used for the main study. It was thought that with a campus wide invitation to participate in the study a fairly stratified sample of the recorded demographic information would emerge from the volunteer participants. The diversity of the collected demographic information such as age groups and school districts made random probability stratified or clustering sampling problematic. It was for this reason that it was decided to use convenience sampling. Halifax Community College has an approximate

population of 1,028 full time students and 628 part time students (Imasuen, 2011). The college also employs approximately 150 faculty and staff members. The sample pool for this study consisted of volunteers from the entire college population. The desired sample size for the study would be 320 participants with a confidence level of 95% and a confidence interval of 5% (Macor, 2011). For a stratified sample of the colleges' population this would result in a sample with 87% of the total represented by students. Full time students should ideally represent 54% of the sample and part time students represent 33% of the sample size. Faculty and staff should ideally make up the remaining 13% of the sample size.

Assumptions

There were some assumptions that were made concerning this study. The first assumption made was that all participants would answer the questions truthfully and to the best of their ability. It was further assumed that the participants would take the survey unassisted to obtain answers to questions since one of the purposes was to assess the actual preparedness knowledge of the group. It was further assumed that each participant would only participate one time in the survey.

It is noted that there are considerable differences between institutions of higher education across the country concerning many different issues. These differences are noted even in the area of prevention education. It is assumed though that risks and prevention programs are similar across the country. It is believed that the information found in this study can be useful to other institutions of higher education and prevention education organizations.

Limitations

As with any study, this study is not without limitations. For example, random probability sampling that was stratified or clustered would have been preferred. With consideration towards

the demographics of the population and the lack of control over the population probability

sampling was abandoned for non-probability convenience sampling. Despite this method the

sample obtained was fairly representative of the population in regards to the collected

demographics. Another probability concern with this study is there is no way to compensate for a

lucky guess to an answer while checking for general prevention knowledge. This may skew the

results. It is not statistically likely that lucky guesses would significantly affect the study results

though.

Another limitation to be noted was the use of a new survey instrument. With the use of a

new survey tool the validity and reliability comes into question (Creswell, 2009). The survey tool

was field tested with only a few comments. The instrument was piloted with no significant

comments. The pilot test results were similar to the main study results. These facts do give the

instrument tool a better stance for validity and reliability. Future studies using this instrument

could further increase validity and reliability factor.

This study was conducted on a local level with participants only from Halifax

Community College. It has been noted that the risks and prevention tactics are similar for all

schools, but it has to be pointed out they are not exactly the same. This means that the results

from this study may not translate to other college campuses in America. Future research at other

colleges could help to show if this is a national issue or only a local concern.

RESULTS

The web based survey had 181 participants volunteer to participate in the study. Given a

95% confidence level with a sample size of 181 participants resulted in a 6.9% confidence

interval (Macor, 2011). The first question in the survey asked for the participants to give their

consent to participate in the survey. Eight of the participants chose not to give consent. These

participants were automatically electronically blocked from the rest of the survey. The remaining

173 participants proceeded on to the demographic information of the survey. This final number

resulted in a sample pool of 173 participants with a confidence level of 95% changing the

confidence interval to 7.1% (Macor, 2011).

Of the participants 76, or 48.7%, were fulltime students and 21, or 13.5% were part time

students. Students represented approximately 63% of the participants with the rest of the

participants, 37%, were representing faculty and staff members of HCC as seen in figure 1.

These numbers do represent slightly different than the desired numbers for a statistically
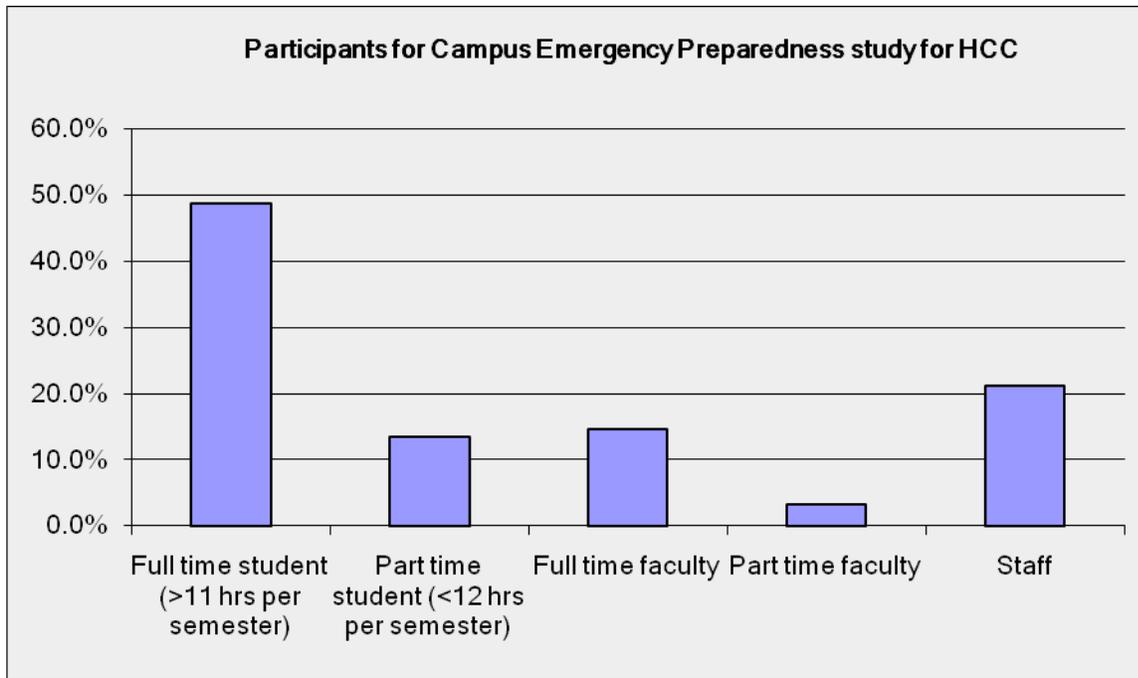
proportional stratified sample.

Figure 1. A breakdown is shown of the study's participants' affiliation with Halifax Community College.

Age was another demographic category that was collected of the participants in order to

look for trends. Interestingly the age group most represented by the participants was that of the

30-50. This age group represented 39.3% of the participants. The second highest represented age

group was the over 50 category as seen in figure 2. Interestingly the representation of the 30-50 age group was not directly reflected by staff and faculty but the age group was fairly equally represented by each of the affiliation categories. The over 50 age group was fully represented by faculty and staff members. Conversely, the majority of the participants in age groups under the age of 30 were student based in their affiliation. Women represented 76% of the participants. Gender had a consistent breakdown across the survey in age and affiliation groups. Halifax Community College student ratio is 64% female (HCC, 2010).
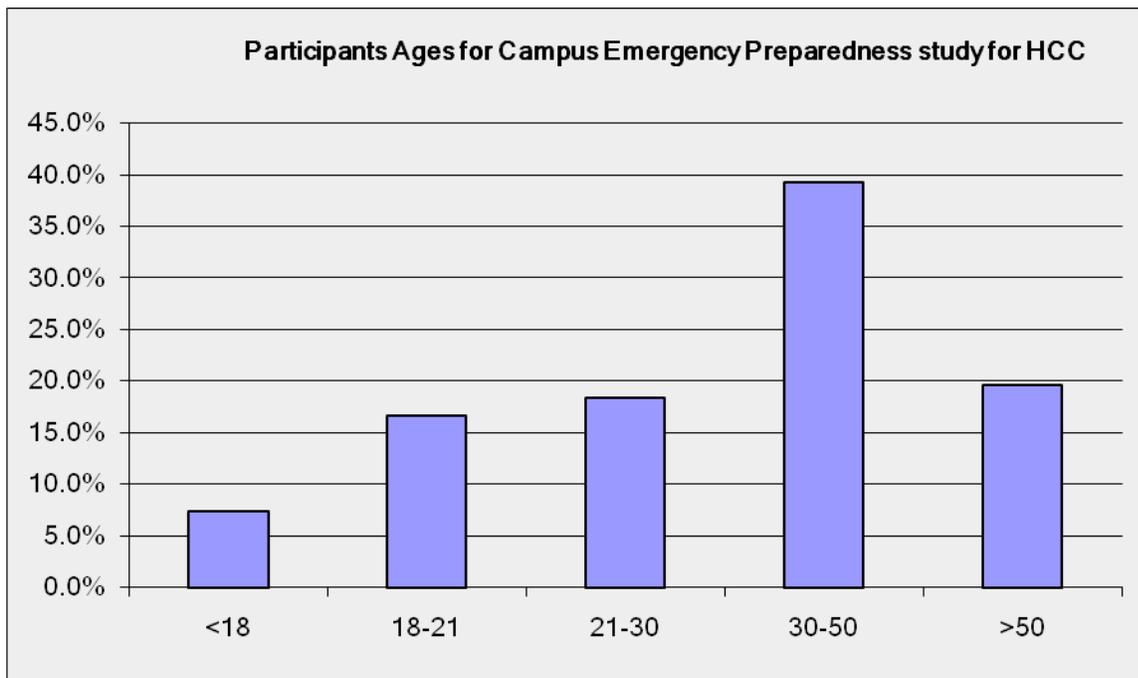
Figure 2. Age breakdown of participants is shown.

In order to determine if the geographic location was a contributing factor in the participants' answers another demographic collected was the school system the participant completed the majority of their elementary education in. With this filter the data was able to be sorted by school district to see if any school system represented identifiable strengths or weaknesses in their prevention education programs. The largest local group represented in the

sample was Halifax county school representing over 40%. It should be noted that the

demographic of other in this category was removed from the statistical analysis in order to

maintain a statistical relevance to the local school systems without skewing data from the several

miscellaneous school systems that would be included in the other category.
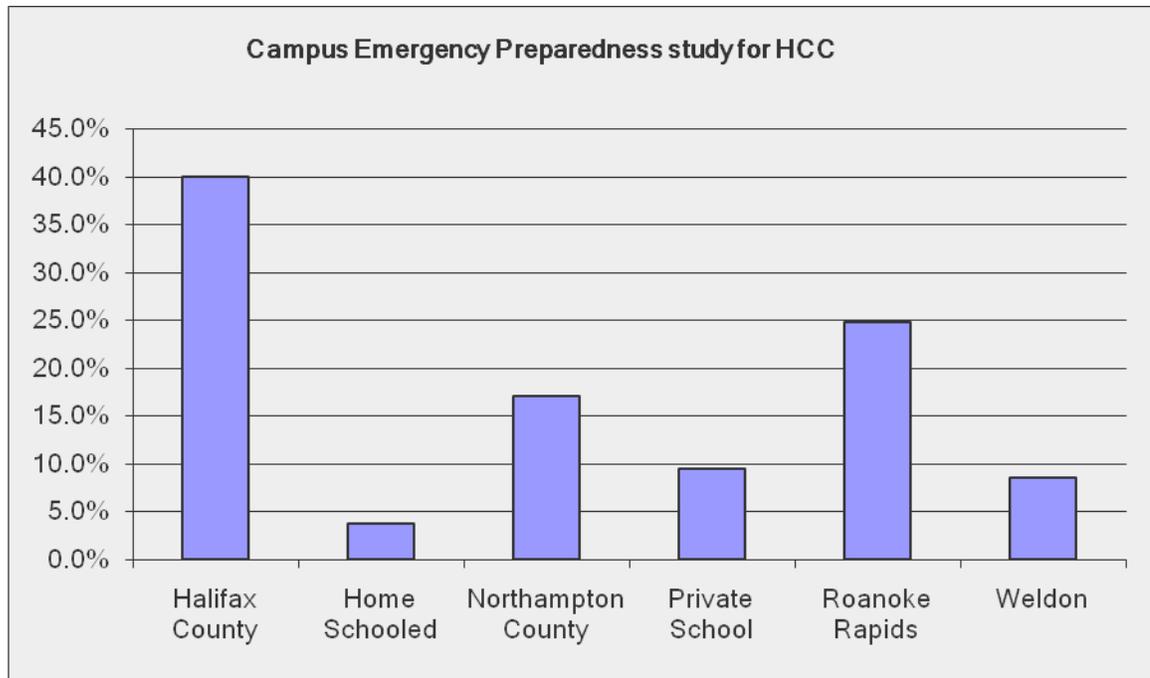
Figure 3. Breakdown of participants and their local elementry school system affiliation.

The percentage of participants that had children that lived in their homes was 49%

compred to the 51% of the participants that did not have children live in their homes. This

demograghic information was examined to see if there was any change in the prevention

knowledge or practices in households with children than those that did not have children. No

significant difference was determined in any of the responses between the two different

households.

Research Question 1

The first research question for this study asked: What is the current level of emergency preparedness knowledge of HCC students, faculty and staff towards campus emergencies? The second section of the survey focussed on the participants knowledge of emergency actions to be taken during an incident on campus. The first question asked whether or not the participant had viewed the online emergency action video that Halifax Community College had produced and made available through Youtube on the internet. A total of 44% of the participants had watched the video 51% admitted they had not and 5% could not remember if they had seen it or not. See figure 4. This video had been produced one year earlier. Students, faculty, and staff had been encouraged to watch it via email and group discussions. The video is required viewing for all students attending ASA 111, college orientation class, which is required of all new full time students on campus. There was a demographic difference in those that viewed the video and those that did not. Statistically of those that watched the video 70% were faculty or staff members. Of those that watched the video only 30% were students.
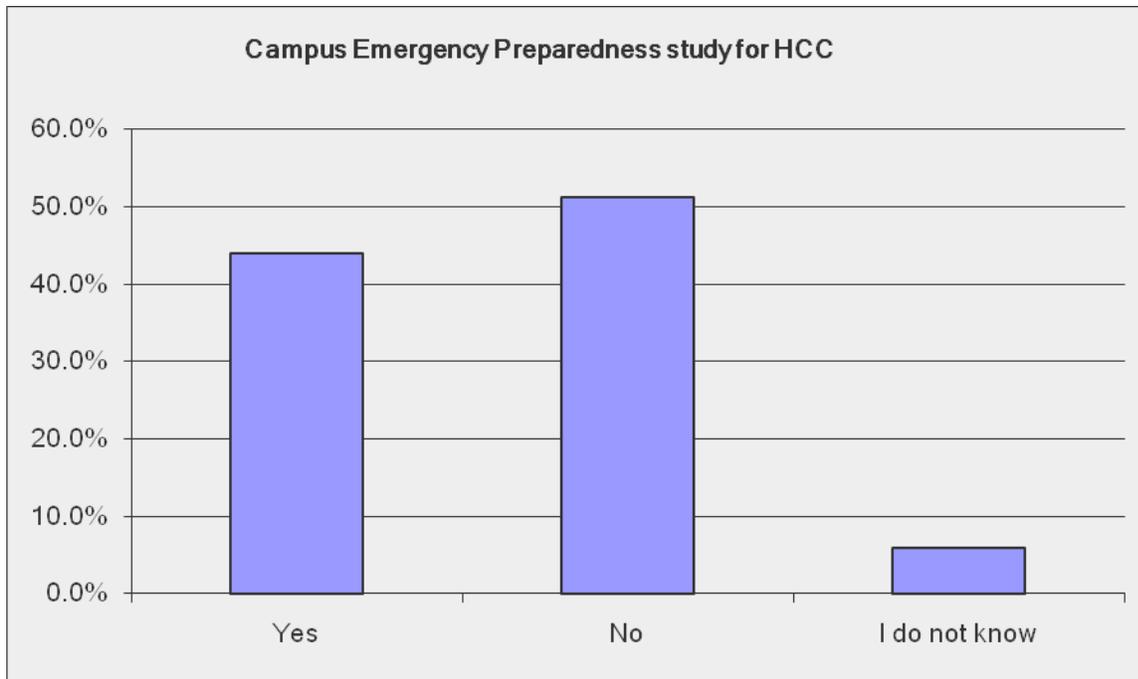
Figure 4. A breakdown of participants that had watched the Halifax Community College emergency training video.

In the second part of the survey participants were asked a series of five questions each a little more difficult than the next. As a group the participants scored favorably on the questions. The first question asked participants where they would evacuate to in the event of a fire. The majority of the participants, 79.3%, answered this question correctly. The second question asked the participants what their actions should be in the event of an active shooter on campus and 84% gave the correct answer. The third question asked the participants what to do if they found a suspicious bag on campus and 93% responded with the correct answer from the emergency action plan. The fourth question asked participants what their action should be in the event of an approaching tornado on campus. The correct responses were 90.7% from the participants. The fifth question in this section was the only question to receive less than a 70% correct response. The hardest question asked the participants what to do during a building evacuation with a handicapped student in a wheelchair. Currently the HCC emergency action plan states to help the wheeled chair victim to the protected stair well and leave them there to find firefighter help for a

rescue. Only 33.3% of the participants answered this question correctly. The most selected

answer was to carry the student down the stairs at 38% of the responses. This behavior was

observed by the researcher in a fire drill at HCC during the course of this study. Other students

helped the wheelchair bound student to the stairs. They knew not to take the elevator but began a

discussion about what to do with their friend once they made it to the stairwell. It was finally the

student in the wheelchair that pointed out the procedure and explained the possible harm that

could be done to him with an improper move. This explanation prompted the students to take the

proper actions according to the emergency action plan.
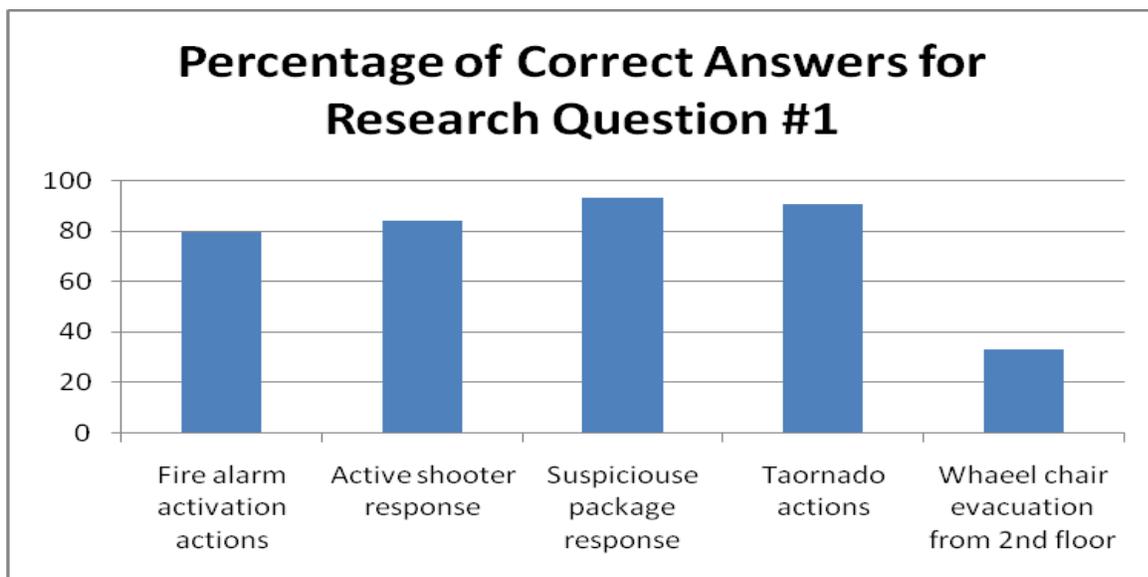
Figure 5. Shows the percentage of correct answers given to each of the individual questions regarding the knowledge of HCC students, faculty, and staff of HCC emergency action plans.

All of the question 1 responses concerning the participants' knowledge of what to do in

an emergency at HCC were cross tabulated to each of the demographic pieces of information

collected in the first part of the study. There was no significant difference found in responses by

any of the different groups represented by the demographics.

Research Question 2

Question two looked at the general safety prevention knowledge of the participants. The participant was asked a series of eight basic safety prevention questions in a multiple choice format. The participant was given the task of answering what they thought the correct answer was based on their current knowledge.

Responses to Research Question # 2

A bar chart titled "Responses to Research Question # 2" with a vertical axis ranging from 0 to 120 in increments of 20. The horizontal axis lists eight categories with the following approximate values:

- Actions if clothes on fire: 99
- How to ext. grease fire: 57
- How to escape smoke in a room: 85
- What is a class B fire: 21
- How sprinklers operate: 25
- Tornado safety actions: 93
- Car seat requirements: 90
- Bicycle helmet requirements: 64

Figure 6. represents the correct responses for research question #2 concerning the general prevention knowledge of participants.

The first question asked participants what their actions should be in the event their clothes were to catch on fire. This first question was answered correctly by 98.6% of the respondents. Indicating that most respondents knew about the stop, drop and roll procedures. The second question asked participants as to what is the best way to extinguish a grease pan fire. Only 57.1% of the respondents answered this question correctly. The next most popular answer

was to put salt on the fire with 37.4% of the respondents indicating this to be the most popular answer. The third question asked participants to identify the correct action to take in order to escape a smoke filled environment. A response of 87.1% indicated the correct answer of crawl low under the smoke. Participants did not fare so well when asked what type of fire a class B fire represented. Only 21% of the respondent's chose the correct answer of a flammable liquid fire. The majority of the participants, 49%, chose the answer of a paper or trash fire as the correct answer. Participants as a group scored even lower on the question asking how a typical sprinkler system operates. Only 24.7% of the respondents knew that typically only the sprinkler head at the source of the fire operates. The other 75.3% of the respondents answered that all of the sprinkler heads would activate in the event of a fire. Participants did very well with the question asking them what the proper action would be in the event of a tornado. The vast majority, 93.2%, of the participants indicated the correct answer of seeking shelter by lying flat in a ditch if caught outside by a tornado.

The final two questions for the second research question sought to explore what the understanding of participants' knowledge level was in relationship to North Carolina law and prevention. Participants were asked what the requirement was for children being in placed in car seats. A total of 89.8% of the participants were able to indicate the correct legal answer of when a child was to be placed in a car seat. Only 64.6% of the participants knew that it was a North Carolina law that children under the age of 14 were legally obligated to wear a helmet when riding a bicycle.

All of the responses were cross checked in comparison with each piece of demographic information to identify any significant difference in any of the demographic groups. Generally speaking the age group 30 to 50 consistently scored higher overall on general prevention

education answers than did the younger groups. Most of the answers were answered similarly by the respective demographic groups with the exception that more than half, 53.8% of the Halifax County School participants responded that salt was to be used in the event of a grease fire in the kitchen. No other statistically significant differences were found with any other demographic group for research question 2.

Research Question 3

Question 3 asked the participants nine different questions exploring the extent of their current prevention attitudes or actions. These questions explored the current actions that the respondents have taken towards prevention. These questions looked at general safety prevention actions as well as disaster preparedness.
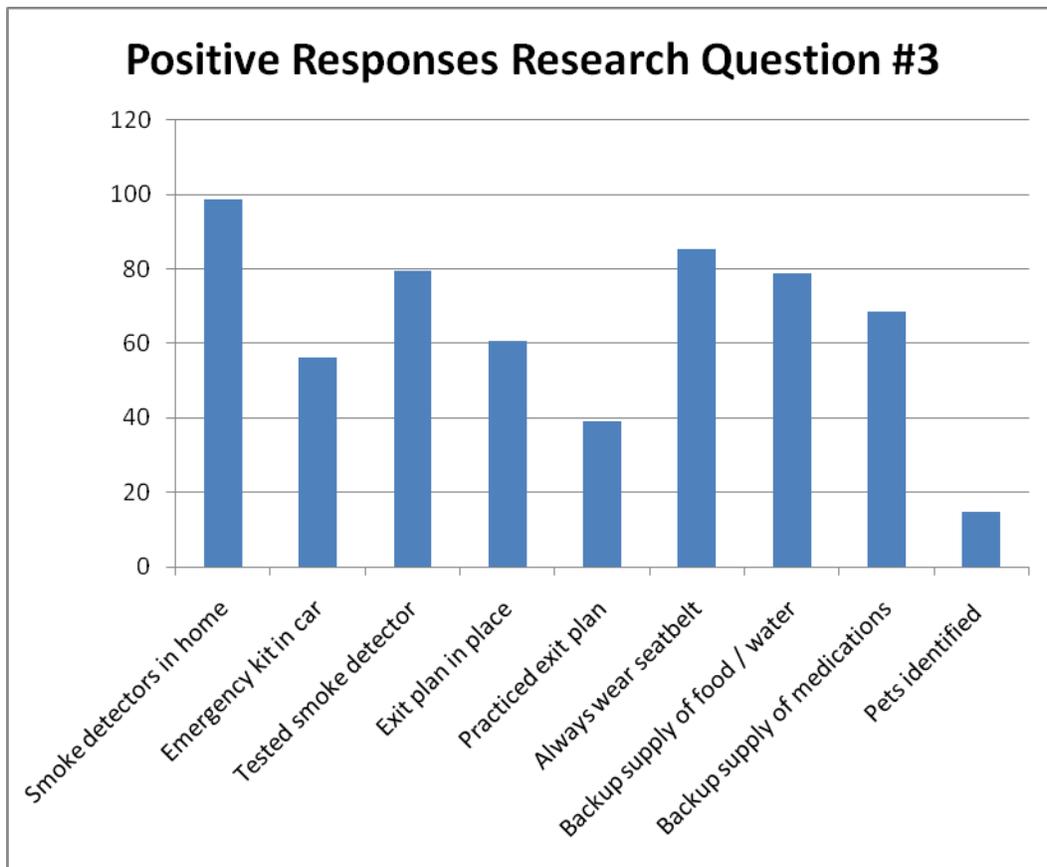

Figure 7. Participants' positive responses to research question #3 concerning their current prevention activities.

In the first question concerning prevention activities the participants were asked if they had a smoke detector in their home. The overall response for this question was overwhelmingly positive with 98.6% of the participants answering that they had at least one smoke detector in their home. More than 76% of the participants responded that they had more than one smoke detector in their home. More than 79% of the respondents answered that their smoke detectors had been checked at least in the past six months, with 38.7% of these being checked within the past month. Participants were also asked if they had an exit plan if an evacuation was needed in their home. A total of 60.8% of the respondents answered that they did have an exit plan for their home. The next question asked how many participants had practiced their exit plan. Only 39% of the respondents have practiced their exit plan and only 22% of the respondents have practiced their plan in the last six months. Another question asked the participants what their preparedness level was while on the road. A slight majority, 56.3%, of the participants indicated that they did carry an emergency kit in their car in case they were caught in a time of need on the road. Almost 40% of the respondents indicated that they would rely solely on their cellular phone for an emergency on the road. Seatbelt usage was also asked of the participants and 85.3% of the respondents that they wear their seatbelt all of the time. Another 12% of the respondents indicated that they wear their seatbelt sometimes.

In the area of preparedness participants were asked questions concerning their readiness for a disaster. A total of 78.8% of the respondents indicated that they did have a reserve of food and water for the event of a disaster. Only 42.1% of the respondents indicated that they had more than a week of such supplies. The participants were also asked about reserve medications in the event of a disaster with 68.6% of the respondents indicating they did have at least a week's worth of medications. Only 40.7% of the respondents indicated that they had more than a week's worth

of reserve medications. The final area of preparedness asked participants about planning for their pets in the event of an emergency. Only 14.9% of the participants indicated that their pets were identifiable with an identity chip. The majority of pet owners, 21% of the total respondents indicated that they would demand to take their pet with them during an emergency. The largest group of participants, 41%, indicated that they did not have pets and this question was not applicable to them.

The responses for research question three were cross tabulated across all of the demographic information to examine if any trends were present. A significant difference was found concerning the response of practicing fire evacuation plans at home dependent upon the reported school district attended by the respondent. Respondents that went to the Roanoke Rapids school district reported that 58% of them did practice evacuation plans. Respondents from Northampton school district reported that 64% practiced evacuation drills. This was in contrast to the Halifax County School District respondents that reported 60% do not practice evacuation drills and the Weldon School District respondents that indicated that 66% do not practice evacuation drills.

Age had statistically significant differences in seatbelt usage. The age group under the age of 18 reported that 66% of the group wears seatbelts sometimes in a moving vehicle. The less than 18 age group was found to generally score lower than all of the other age groups in each of the preparedness based questions. The only age group that self reported practicing evacuation drills with a score of more than 50% was the 21-30 age group. A total of 60% of this age group reported practicing evacuation drills. No other statistically significant differences were found with any other demographic group.

DISCUSSIONS/IMPLICATIONS

The purpose of this research project was to examine the emergency preparedness knowledge of the students, faculty, and staff of Halifax Community College. Several insights were gained from this descriptive study. It is hoped that the information gleaned from this study will assist leadership not only at Halifax Community College but institutions and organizations across the country to better prepare for emergency situations through prevention education.

The study was conducted using a field tested and pilot tested web based survey instrument. The survey was advertised through email and face to face via faculty and staff members. The study was placed on the college's home web page front and center. The survey was open to all campus students, faculty, and staff. Even though the survey was available to campus personnel for a month longer than originally planned, the sample pool ended up smaller than expected.

The low response to the study may be an indicator that prevention is not given the priority level by individuals that would be desirable by emergency response officials. Prevention techniques are often taken for granted until an emergency occurs (Byrne, 2008). The outcome that a simple majority of respondents were older than younger may suggest even a lower level of prevention concern by the younger population. Organizations have noticed that the 18-24 age group, that is typically associated with college age, is a hard to reach group in respect to safety endeavors (Comeau, 2007). The lack of participation overall may even be associated with an attitude of denial. Several studies do suggest that risk taking behaviors do occur in the young as there is a belief of invincibility or it cannot happen to me thinking (Moen & Rundmo, 2005).

Research Question 1

The first research question explored the knowledge of HCC students, faculty, and staff concerning the actions that they would need to take during various emergencies on campus. The questions and answers were based off of the current emergency action plan for Halifax Community College (HCC, 2010). This plan can be found in the college catalog, in the policy manual for employees, and a web based video produced by Halifax Community College with the aid of students. Over all the knowledge that the respondents demonstrated towards campus emergencies could be rated as very good even though more than half of the respondents stated they had not watched the emergency procedure video. The high success rate of the answers by the participants in this section may be attributed to other factors then. For example, participation in recent campus wide fire drills may have prompted appropriate responses. Practicing knowledge with hands on scenarios can allow the brain to process and retrain the information better than lectures alone (Sternberg, 1985). The practice of faculty members reviewing emergency procedures with students at the beginning of each semester may have been a contributing factor. Repetition is a key component in retention (MacFadgen, 2007). It may be that the emergency procedures on campus are very similar to local school system procedures and the cross over knowledge served the participants well.

An argument may be made on the carryover of knowledge possibility. The one question that participants scored low on in this section of the survey dealt with how to handle a wheelchair student on the second floor during a fire alarm. The correct action by the college's emergency action plan is to lead the patient to the protected stairwell and leave them there and find fire department help to move the student down (HCC, 2010). The highest rated answer to

this question was the distracter of carrying the student down the stairs. This is the actual

emergency action plan at Roanoke Rapids High School, one of the local high schools.

Research Question 2

The second question of this descriptive research project examined the amount of general

prevention knowledge that the participants possessed through a group of general prevention

questions. The overall knowledge level of the group that responded to this survey could be

categorized as overall good. Questions dealing with general prevention safety questions that are

taught in general prevention programs in elementary school such as what to do in the event of

fire or tornado the participants scored high on. The participants scored very well in the general

fire prevention questions including what to do in the event ones clothes catch on fire and what to

do in the event of being in a room full of smoke. The question on crawling low in the smoke was

purposely asked as some local departments had found that in their programs students were

answering stop drop and roll to the question of exiting a smoke filled room.

Other questions that dealt with more specific prevention issues scored lower. For

example, questions dealing with actual fire suppression scored low. These are not topics taught

in general fire prevention classes as the primary goal of prevention. Classes for children are to

teach evacuation rather than suppression (Byrne, 2008). While the participants may have had

some exposure to the suppression information it can be presumed based off of typical prevention

programs that not much time or interaction was spent on the topic of suppression with the

students. This lack of interaction or time could result in a lower ability to recall this information.

The basic fire extinguisher question asking what type of fuel was burning in a class B fire

shows a lack of fire extinguisher training or knowledge in the group. This could be a serious

issue as the type of fuel has to be matched with the right fire extinguisher (IFSTA, 2008). Fire

extinguishers are abundant in homes, work, and public buildings like college campuses. It is important for people that may be tempted to use an extinguisher in a fire to use it properly. The question concerning sprinkler operations scored very poorly as well with many participants picking the Hollywood answer that all the sprinkler heads initiate at the same time. Sprinklers represent the most efficient form of fire control available to date (IFSTA, 2008). Despite this efficient tool it is only installed in a small fraction of structures in America (Byrne, 2008). Colleges are teaching the future of America and may be a great opportunity to increase the emergency preparedness knowledge of America (Comeau, 2007). With misconceptions like these and old tales such as putting salt on grease fires still so prevalent in this study it could be argued that prevention and emergency preparedness should be worked into normal college classes.

Research Question 3

It has been noted that during emergencies people are not always as prepared for the emergencies as their prevention education might suggest (Comeau, 2007). Question 3 of this study examined the actual preparedness steps that the participants have taken to avoid or reduce the effects of emergencies on them. This category was scored lower than the two previous questions. Based on the responses from the participants the overall score for this category would rank as a low fair, borderline poor. In future studies it would be interesting to have a baseline to compare the status or score of preparedness level from this study to others across the country. It could be that this is the normal level of preparedness for the entire country's general population. This might explain past response issues and problems such as those experienced in the wake of Hurricane Katrina.

With the typical fire prevention education topic of smoke detectors the group of participants scored high. This is a topic that is widely pushed in traditional prevention programs (Byrne, 2008). This may be attributed to the teaching method and the processing of that knowledge through multiple senses (Ip, 2003). Most programs will use real smoke detectors in their demonstrations to reinforce that information. The smoke detector can be seen, touched, and heard. In contrast the group scored very low in the practicing of exit drills in the home. This program is taught in most traditional prevention programs under the EDITH, exit drills in the home, topic. The EDITH curriculum does not normally actually practice the drills but merely discusses them and their importance. This lack of play education may be a reason for the lack of having a plan and the bigger lack of practicing the plan (Mondozzi & Harper, 2001). Smoke detectors are also required now in residential structures by most codes. Exit planning is not required by the average code. This may be another reason for the higher positive response rate for the smoke detector questions than the EDITH questions.

It was also interesting to find the number of people that care so much for their pets that they would demand to take them with them in an emergency, but yet have not had them identified with a chip or other permanent marking. While it may be desired to keep a pet with a disaster victim it is typically impossible (SPCA, 2011). This may go back to the innocence of the normal population in regards to a true disaster response. Unfortunately ignorance to the reality of the situation will not buy the disaster victim a second chance. The pet question was purposely placed in the lineup to test the pet owners' knowledge of how to care for their pets in a disaster. Pets have been a major concern in most evacuation disasters in this country for several years, yet the idea of permanent markings has still not caught on. This is one question that did result in

several phone calls being made to the researcher as to what the chipping process was and where it could be done at.

Summary of Discussions

This study suggests that while a fair amount of knowledge concerning emergency response is held by the students, faculty, and staff at Halifax Community there is room for improvement. The knowledge of traditional fire prevention topics seemed to be very good though knowledge of other generalized risks was not as good. This study also suggests that while the knowledge may be good some of the most important prevention steps such as practicing fire evacuation plans at home are not being acted on. Coupled with the lack of response to such an important topic one may argue that knowledge does not equate to action. This may be because individuals consider their risk to unintentional injuries minuscule.

The study echoed much of what was found in the literature review. Prevention education specialists agree that more and better prevention programs are needed in America (Bradley, 1990; Byrne, 2008; Mondozzi & Harper, 2001; Zuckerman, 2010). This study strongly suggests that there are holes in the prevention knowledge of the respondents. With regards to prevention and preparedness, knowledge does not always equate to proper actions (Brichford, 2010; Comeau, 2008; Yeh, 2009). This study supports this claim especially with the lack of families that have practiced exit drills with their families or the permanent marking of their pets.

The study by itself has generated positive conversations at Halifax Community College about preprdness issues. This by itself indicates that the conversation is not taboo and that actually there is an interest by some to work towards being safe. Following the survey being taken off line a series of uncommon tornados came through the area of Halifax Community College. While the tornados did not cause any injuries to Halifax Community College students,

faculty or staff the unusual events did initiate even more preparedness conversations. This indicates that more can be done to improve the knowledge level and actions of individuals. With the knowledge from this study recommendations can now be made for leadership and prevention specialists to act on.

RECOMMENDATIONS

The study brought forth several issues in the realm of campus safety and opportunities for improvements to campus prevention programs. The research and the literature review both shed light on problems in campus prevention knowledge and safety attitudes. Several recommendations are made from this study in this section.

While this study was successful in answering the research questions, upon reflection, the researcher would recommend a couple of points for consideration to those that may try to reproduce this study. Concerning the second research question looking at the general prevention knowledge of the participants it may be appropriate to change or move two of the questions. These two questions asked about the legal responsibilities for prevention activities of children, namely the use of car seats and bicycle helmets. It could be argued that these questions do not deal with general prevention knowledge as much as they deal with knowledge of specific legal requirements. For future studies it would be recommended to change the wording of the question to incorporate prevention without legal knowledge to eliminate the possible argument.

The participation rate in this campus wide survey was less than what was desired. While the study did receive a stratified sample pool in several different categories it could be argued that by the pool being comprised of participants that were self motivated to participate in the survey on their own that a bias could have been introduced. A solution to this might be a more purposeful sample. For example, the students could be selected by class. With each class

selection time could be made during the class to complete the survey either in a computer lab or by hand. This could be done with a random stratified or clustered sample. This type of approach may increase the participation and increase the diversity of the participants to a more representative sample. This could also result in purposely wrong answers as it takes away some of the desire and drive to participate in the study.

Recommendations for Halifax Community College

The research found the general knowledge of students, faculty, and staff to overall be very good in the area of campus emergency procedures. The general prevention knowledge was found to be good, and fair for the prevention actions that they have taken for their safety away from campus. Some exceptions were noted though.

The number of participants that self reported that they had watched the HCC emergency action video was lower than desired. It is recommended that the college leadership stress this on a higher level. It is also recommended that the college determine an accountability system that would allow for ensuring that everyone had watched the video and understood the contents. This could be done through a web based course with a short quiz at the end. Between the video and the quiz the actual time to take the course would probably be less than an hour. It should be noted that the college leadership has already moved the video link to the front center of the home page in an attempt to increase the number of people that will view it since this study was conducted.

The results of this study indicate weaknesses in general preparedness planning and a lack of intermediate prevention knowledge of campus inhabitants. It may be advisable for the leadership of Halifax Community College to consider implementing some basic prevention safety knowledge into curriculum programs. This could be done with the entry of a new course

or through the entry of new modules in courses already on the syllabus. Some programs such as nursing, dental and criminology program do already have pieces of prevention programs in them but they are small components. These weaknesses could be addressed to college faculty and staff members through professional development. More campus wide prevention advertisement may be used to help improve prevention knowledge as well as spark some to more aggressive prevention actions.

Recommendations for the Fire Service

This study utilized participants solely from Halifax Community College normally dictating that the results will apply only to that organization. An argument could be made though that the information obtained in this study does have validity to other organizations. After all the traditional fire prevention programs are similar in communities across the country (Byrne, 2008). Peoples attitude of risk tend to be similar across the country (Aschenbrenner, 2001). The risks to campus goers are similar across the country (Comeau, 2007). It would be interesting to see if this study proved to be reliable across the country. It is recommended that prevention specialists evaluate the current knowledge levels and actual prevention activities of the colleges in their district to see if holes exist in the current training or abilities of those that inhabit their campuses.

At the local fire service level this study will be shared with the area fire departments so they can develop programs to help create stronger and more effective prevention programs than what they have currently in place. For example, one of the wrong answers that was responded to highly was the use of salt on a grease fire. This is not considered a best practice and it is an area that local fire prevention specialists can effect change to correct this misconception.

Recommended Research

Research is an important part of any profession's growth (Neuman, 2006). The literature review for this study found little with regard to studies conducted to examine the current prevention knowledge or actions taken by the general population. This is especially true when looking at communitywide risk from the multiple factors that can cause injuries. It is strongly recommended that further studies be done in this field.

This study suggests that there may be a disconnect between the knowledge that an individual has in terms of prevention and the actions they actually take. It would be worthwhile to look at the correlation between these two functions. It may also be helpful to look at the core reasons as to why people do not follow through with the prevention actions that may save their lives or their family's lives in the future.

Finally it would be worthwhile for other campuses to carry out a similar study to this one. Further studies would tell more about the reliability of this study. Other similar studies would help researchers understand the unintentional injury problem of college students and their faculty and staff better across the nation to incorporate some guidelines that could be used to efficiently cut down on preventable injuries on college campuses across the country. It would even be advisable to carry out this study at Halifax Community College to not only check the validity and reliability of this study but also to see if time has any effect on the outcome.

Conclusion

A college campus puts a large quantity of people together in a small geographical area. This can create the risk of an event leading to multiple injuries and/or deaths. College campuses often represent a new world of freedom for young adults that may lead to reckless behaviors such as drinking in excess. These factors, singularly and combined, put the typical college campus at

risk. Through prevention programs that are able to promote good information with high retention rates that inspire people to take preventative actions the risk can be greatly reduced. Through further research providing foundational information for prevention specialists to work from great strides can be made to protect the students, faculty, and staff of not only Halifax Community College but of colleges across the country.

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Appendix A Survey Instrument

Campus Emergency Preparedness study for HCC

1. Consent

INFORMED CONSENT

Thank you for your expressed interest in participating in this research study that is investigating the base knowledge that campus students, faculty, and staff have pertaining to emergency preparedness. Participants for this survey have been selected based on their campus affiliation with Halifax Community College (HCC).

Research Purpose: This descriptive study will be using a simple survey tool to explore the base knowledge of campus students, faculty, and staff concerning emergency preparedness. This knowledge will allow for a more effective review and possible update of current HCC emergency procedures.

Research Process: Each participant will be asked to voluntarily and anonymously, complete a web based survey that will collect demographic information, knowledge of HCC emergency response procedures, Base knowledge of emergency preparedness, and personal safety habits in regards to emergency preparedness.

Confidentiality: Anonymity is preserved between participants, as participants do not have interaction with anyone except the researcher. Interaction with the researcher is primarily through providing and receiving survey responses, although participants are able to contact the researcher if they have questions. Participant responses are completely anonymous; at no time will participants be asked any information that could identify them. All participant documentation will be held in strict confidence. No one except the researcher will have access to the data.

Risks and Benefits to the Participant: There are no psychological or physical risks to individuals who participate in this study.

Voluntary Participation: Participation is voluntary and you are able to stop participation at any time, without penalty. There are no associated risks or consequences in withdrawing from the study at any point in the process.

Compensation: There is no compensation provided for individuals participating in this study.

Contact Information: The researcher conducting this study is Kevin Kupietz, the fire / EMS Coordinator for Halifax Community College. At any point in this process, you may contact the researcher if you have questions or concerns about any aspect of this study.

Kevin Kupietz
Fire/EMS Coordinator
Halifax Community College
Kupietzk@halifaxcc.edu
(W) 252 536 7293
(C) 252 532 1242

* **1. I voluntarily consent to participate in this study.**

NOTE: If you do not consent to participate in this survey you will not be able to continue in the study.

☐ Yes

☐ No

Campus Emergency Preparedness study for HCC

2. Demographic Information

This section is going to ask you a few demographic questions in order to track study results. Please answer with the response that is most appropriate for you.

1. Which of the following best describes your affiliation with Halifax Community College

☐ Full time student (>11 hrs per semester)

☐ Part time student (<12 hrs per semester)

☐ Full time faculty

☐ Part time faculty

☐ Staff

Other (please specify)

_____

2. What is your age?

☐ <18

☐ 18-21

☐ 21-30

☐ 30-50

☐ >50

3. Are you

☐ Male

☐ Female

4. Which school system did you attend the majority of elementary school in?

☐ Halifax County

☐ Home Schooled

☐ Northampton County

☐ Private School

☐ Roanoke Rapids

☐ Weldon

Other (please specify)

_____

Campus Emergency Preparedness study for HCC

5. Do you have children that live with you?

☐ Yes

☐ No

6. Please include any further information or clarification that you think is relative to the above questions.

Campus Emergency Preparedness study for HCC

3. HCC Emergency Preparedness

In this section please answer the following questions as you understand them to apply at Halifax Community College.

1. Have you watched the HCC emergency response training video either in the classroom or on "you Tube"?

- [ ] Yes
- [ ] No
- [ ] I do not know

2. In the event of a fire alarm in the building that you are occupying at HCC you should?

- [ ] Evacuate to a different building
- [ ] Evacuate the building to the assigned outside rally point
- [ ] Evacuate to the parking lot
- [ ] Evacuate the building and go home

3. While in class at HCC, in the event of shots fired (an active shooter) you should:

- [ ] Evacuate to the building furthest from the shooter.
- [ ] Evacuate to the outside rally point with your instructor.
- [ ] Lock and barricade yourself in the classroom until the all clear is given.
- [ ] Leave the campus immediately.

4. If you should find an unattended bag or other suspicious item on campus you should:

- [ ] Call HCC security or the campus operator from a safe distance
- [ ] Call 911 and barricade the item
- [ ] examine the bag contents to identify if it is a threat or a lost bag
- [ ] Take the bag to the security officer

Campus Emergency Preparedness study for HCC

5. In the event of a fire alarm activation at HCC what should be done with students in wheelchairs on the second floor?

- [ ] Use the elevator to get the person to safety
- [ ] Carry the person down the stairs
- [ ] Remove the person from the wheel chair and drag them down the stairs
- [ ] Help the person to the stairwell, leave them their and notify the FD.

6. In the event of a tornado alarm (alert) while at Halifax Community College, you should:

- [ ] Leave campus immediately
- [ ] Seek shelter at a designated interior rally point inside the building
- [ ] Evacuate to an outside rally point
- [ ] Barricade yourself inside a classroom ensuring the door is locked

7. Please add any comments or clarification that you need to these questions

Campus Emergency Preparedness study for HCC

4. General Emergency Preparedness

Please answer the following general emergency preparedness questions with what you believe is the correct answer.

1. If your clothes catch on fire you should:

☐ Find and use a fire extinguisher on yourself

☐ Stop, drop and roll until the flames go out

☐ Run quickly to keep the flames away from you

☐ shout for help and remain motionless until help arrives

2. The best way to extinguish a pan of grease on fire on the stove is to:

☐ Carry it outside and dump it out

☐ Cover the pan with a lid

☐ Spray water on the fire

☐ Pour table salt on the fire

3. In the event of a fire and the room is filling with smoke you should

○ Stop drop and roll

○ crawl low under the smoke

○ hold your breath until you exit the room

○ find a water source so you can wrap a wet cloth around your face

4. What type of fire would a class "B" fire extinguisher work on?

☐ Fire involving burnable paper and trash

☐ An energized electrical fire

☐ A flammable metal fire

☐ A flammable liquid fire

5. When a fire is in a building or a house that is equipped with a typical indoor sprinkler system the sprinklers will

○ Cause every sprinkler head in the building/house to go off

○ Only the sprinkler head at the fire will go off

Campus Emergency Preparedness study for HCC

6. If caught outside with a tornado approaching, you should:

☐ Lie flat in a ditch

☐ Hide behind a large tree

☐ Find a high spot clear of trees to stand

☐ Stay in your car

7. For safety reasons and according to NC law a child should be in a car seat/booster seat until:

☐ 8years old and 80 pounds

☐ tall enough to see out the window

☐ they will no longer sit still in the car seat

☐ 10 years old or 100 pounds

8. When children ride bicycles

○ It is the state law they wear helmets

○ It is suggested they wear helmets

○ Helmets have not been proven to make a difference in children bicycle accidents

9. Is there anything else that you would like to add or clarify about these questions?

Campus Emergency Preparedness study for HCC

5. Emergency Response/Preparedness Behaviors

This section will ask you questions about your behaviors towards safety. Please answer these questions based on your current actions. Please remember that this is totally anonymous and will be used for future training to combat injury and death rates in our community.

1. Do you have smoke detectors in your home?

☐ yes more than one

☐ yes one

☐ no

☐ I do not know

2. In the event of an emergency while I am on the road in my vehicle

☐ I would rely solely on my cell phone

☐ I have an emergency kit in my car for emergencies

☐ I have not prepared for an emergency in my vehicle

3. Has the smoke detector(s) in your house been tested?

☐ Yes in the last month

☐ Yes in the last six months

☐ Yes longer than six months

☐ I believe so but do not know when

☐ No

☐ N/A

4. Do you have an exit plan for your house in case of fire with an outside meeting place assigned?

☐ yes

☐ No

☐ I am not sure

Campus Emergency Preparedness study for HCC

5. Have you practiced your exit plan in your house?

☐ Yes in the past 6 months

☐ Yes longer than 6 months ago

☐ No

☐ N/A

6. Do you wear your seat belt when in a moving car?

☐ yes always

☐ sometimes

☐ only when I drive

☐ Never

Other (please specify)
_____

7. Do you keep a supply of bottled water and canned food at home in case of an emergency?

☐ Yes less than a weeks worth

☐ Yes enough for more than 1 week

☐ No

Other (please specify)
_____

8. Do you keep an emergency supply of medicine at home in case of an emergency?

☐ Yes less than 1 weeks worth

☐ yes more than 1 weeks worth

☐ No

☐ N/A

Other (please specify)
_____

Campus Emergency Preparedness study for HCC

9. If you have a pet how would you deal with the pet in an emergency evacuation?

◯ Do not have a pet

◯ I would demand to take my pet with me

◯ I would prefer to take my pet with me but if I was unable to the pet is equipped with an ID chip so I can retrieve them from the animal shelter later

◯ I would set the pet free

◯ I have no plan for my pet(s)

10. Is there anything that you would like to add or clarify about these questions?