

Differences in Health Risk Behaviors between College Freshmen  
Living in Special Interest Housing and Traditional Housing

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ABSTRACT

Literature reveals that college freshmen that reside on American campuses partake in many risky health behaviors, but little is known on the effects of housing on these risk behaviors. The purpose of this study was to examine the health risk behaviors of college freshmen that lived in either traditional, non-themed housing or in wellness themed housing (WELL) and if there was a difference between the two. Four research questions guided this study: (1). What are the risk behaviors of freshmen college students? (2). What are the risk behaviors of students in the WELL LC? (3). What are the risk behaviors of freshman residing in traditional housing? (4). What are the differences in risk behaviors between the freshmen living in the WELL LC and traditionally housed freshmen? The health risk behaviors that were determined for testing were injury-related behaviors, substance use behaviors, sexual behaviors, dietary behaviors, physical activity and sleep. The instrument used was a combination of the National College Health Risk Behavior Survey and Epworth Sleep Survey. The Traditional and the WELL completed the surveys in the beginning of the fall semester and again at the end of the spring semester of the same academic year. There were a higher percentage of alcohol-related injury behaviors, substance use and sexual activity in traditional residents. Dietary behaviors, physical activity and sleep behaviors were not significantly different between Traditional and WELL residents. The conclusion of this study indicated that the WELL housing may have had a positive effect on abstaining from alcohol, drugs, and sexual behaviors. Further research is needed to explore the root cause of these behavioral differences.

## DEDICATION

The first dedication goes to my father. His consistent, yet gentle, encouragement and guidance never failed to lead me in the right directions. Without him, I would have never found the beauty of academia, the world representing free exchange of thought, scholarship, and the test of the expansion of the mind. He has given me the amazing gift and opportunity to be a lifelong member of a loving University community to which I parallel a great passion for higher education.

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## CHAPTER I: INTRODUCTION

Over the past several decades, there has been increased concern regarding college student (health) risk behaviors. Previous research has focused on the following six areas: injury related behaviors, substance use, sexual behaviors, nutrition, physical activity and sleep. Studies clearly indicate that college freshmen are the most vulnerable population within the university community.

Davis and DeBarros (2006) found that 47% of college campus fatalities were freshmen. A report announces that freshmen account for 40% of all undergraduate suicides and are victims of half of the undergraduate deaths from falls (Davis & DeBarros, 2006). Statistics like these challenge the idea that the existing on-campus environment with the supervision of dorm directors, resident advisors, and rules prohibiting alcohol usage are sufficient to ensure a safe transition for some freshmen. Freshman year is a major developmental transition as students will be making more decisions independent of parental guidance. Colleges can provide a safety net in continuing and or developing healthy behaviors that have strong potential for retention into their adult years. Just as the college environment can foster healthy decisions, poor decisions made during a freshman's first six weeks may set the tone for the remainder of their college years and quite possibly their life to come (Oster & Rosenbluth, 2005).

Because colleges and universities are aware of environmental influences on risk behaviors on campuses, there have been many attempts to counteract these negative effects. Common methods of intervention included focuses on education, social norms marketing, ordinance and laws, media, environmental manipulation or a combination of tactics. Among all, it is reported that the most effective tactics for curbing risky behaviors in the campus community is through enforcing existing laws and ordinances and social norms marketing (Brower, Golde,

Allen, 2003). If a student recognizes which behaviors will and will not be tolerated early in their college career, then the likelihood of their participation may be lessened. With social norms marketing, misconceptions are corrected by taking students' beliefs about the attitudes and behaviors that are normal, acceptable, or even expected in a particular social context and displaying what people are really doing. In many situations, people's perception of these norms will greatly influence their behavior (Higher Education Center, 2006). For example, the National Norms Resource Center has evidence of nine universities and colleges that have showed a 26 to 44% reduction in binge drinking by using a social norms marketing approach (National Norms Resource Center, 2007).

In order to decide what method of risk behavior reduction is most suitable, it is important to understand what characteristics the students collectively portray, especially as they are impressionable freshmen in transition. This understanding can give health administrators, resident life specialists, and student affair professionals insight on how to make an environment both healthy and attractive.

The students in college during the time of this study are the millennials, those who were born from 1982 to the late 1990s (Alberta Learning Information Service, 2005). The millennials have seven common traits: special, sheltered, confident, team-oriented, conventional, pressured, and achieving (Howe & Strauss, 2000). They are interested in new technologies, prefer group activities, and identify with the values of their parents (Oblinger, 2003). They also value strong leadership, concern for community, structure, fair play and diversity (Alberta Learning Information Service, 2005).

Additionally, what is most concerning is that some risk behaviors, namely alcohol and drugs, are linked to many serious problems on campuses across the United States, such as sexual

assault, violence, vandalism, and disruptive behavior (Harvard School of Public Health [HSPH], 2003; Perkins, 2002; Presley, Meilman, & Cashin, 1999). Because the risk behaviors are commonly intertwined, it is difficult to tackle one issue without having to address others. For example, in considering a student, who doesn't eat well, also may not exercise due to lack of energy or from discomfort from frequent feedings from poor food choices. If concentration on one lone risk behavior could be addressed in isolation, then significant mileage on the behavior may be extremely impacted. If this were the case, then many risk behaviors would not be still as prevalent. However, if a college or university attempted to cover all, then the task of promoting a healthier campus on that large scale would be especially daunting. The intertwining themes are evident as the risk behaviors are identified and described.

Alcohol abuse among college students is traditionally of great concern. Binge drinking is often noted as a rite of passage (otherwise known as a ceremonial event that marks their passage into college from another stage of their life) for many campus groups. Binge drinking is defined as the consumption of five or more drinks in a row at least once in the past two weeks for men and four or more drinks in a row for women (HSPH, 2000a). Every year, approximately 150,000 students develop an alcohol-related health problem (National Institute of Alcohol Abuse and Addiction [NIAAA], 2002). In 1993, 44 percent of students reported engaging in binge drinking and four percent reported drinking daily. It is found that many academic and social behavior problems were associated with alcohol and other drug use (HSPH, 2003).

As the HSPH notes alcohol as a common player in social behavior problems, such as vandalism or lowered inhibition, it is also linked heavily to injury. Injury-related behavior is likely a product of indulging in other risk behaviors such as alcohol abuse. Injury-related behaviors in this study refer to a multitude of actions: motorcycle use, seat belt use, helmet use,

swimming and boating, drunk driving, suicide, and fighting (Centers for Disease Control (CDC), 1997). In spite of lower rate of criminal activity involvement compared to non-students, college students were victims of approximately 479,000 crimes annually from 1995 to 2002 (Baum & Klaus, 2005). Injury-related behaviors that link with alcohol use have included vandalism, fighting, injuries, and rape (Abbey, 1991). In another report from the NIAAA, 1,400 college students die from alcohol-related unintentional deaths each year while 500,000 suffer unintentional injuries. Furthermore, 600,000 have been assaulted by another intoxicated student, and 2.1 million have reported driving a car under the influence (NIAAA, 2002).

Though alcohol seems to be the primary focus of substance-abuse risk behavior, tobacco use is also prevalent with college students. “Although the overall prevalence of tobacco use in the United States has declined considerably over the past 20 years, cigarette smoking among adolescents and young adults shows only small reductions” (Emmons, Wechsler, Dowdall & Abraham, 1998). One study reported that nearly half (46 percent) reported using tobacco products in the past year and 33 percent reported using tobacco products within the past 30 days (Sax, 1997). Since that time, the percentage of college freshmen who report frequent cigarette use has been increasing (Moran, Weschler, & Rigotti, 2004). Tobacco use seems to be in transition along with college students as the behavior transfers from experimental to established use as they go from adolescence to adulthood (CDC, 2003; Johnston, O’Malley, & Bachman, 2001).

In addition to tobacco use, drug use is widely reported. Common illegal drugs used on campuses include, but are not limited to, marijuana, cocaine, amphetamines, ecstasy, and hallucinogens. According to the Core Institute, marijuana use has been on the rise at colleges with 31.3 percent having used the drug in 1995-1996 while that figure increased to 34.8 percent

in 2002 (Core Institute). This increase is of particular concern because marijuana may act as a ‘gateway’ drug, serving as an introduction to the ‘drug scene’ and additional types of drug use (Mackesy-Amiti, Fendrich, & Goldstein, 1997). In fact, studies have found that nearly all adolescents who use illicit drugs other than marijuana also used marijuana. The proportions of those who used other illicit drugs prior to (or without any) marijuana use are for the most part less than five percent (Magellan Health Services, 2005).

If alcohol and other mind/mood altering substances are commonplace, sexual risk behaviors also seem prevalent (Cooper, 2002). Drinking was strongly related to the decision to have sex and indiscriminate forms of risky sex (Cooper, 2002). Despite the fact most college students are very aware of the dangers of HIV and other sexually transmitted diseases, a large number are still participating in risky sex behaviors (Lewis & Malow, 1997).

Another concern with college students is their dietary habits. Although nutritionists applaud the grazing (eating smaller amounts more often) style that the majority of students have adopted, the nutritional value and serving amounts of the food problematic and of concern (Belaski, 2001). Because students are always on the go and have endless culinary options, most of which are convenient, it is easy to make less than nutritionally prime choices. Compounding this is the opportunity to select food service plans with fewer meals or none at all. Convenience stores, vending machines, and fast-food restaurants have moved onto campuses. The choices available from these sources are usually high in fat and sugars while being low in fiber, fruits and vegetables (Belaski, 2001).

The “freshman fifteen” is not likely to be the product of poor dietary habits alone. A national study of college students found that approximately 40% are inadequately active, 19.6% are sedentary and display marginal fitness levels, 11.5% are below aerobic fitness standards and

10.4% are obese. These statistics also reported that 24% watched over four hours of TV each day (Suminski, 2002).

In spite of statistics that nearly all incoming freshmen from high school have received education on the importance of nutrition and physical fitness, most have received no information on the importance of sleep (Brown & Buboltz, 2002). A 2001 poll taken by the Washington D.C. National Sleep Foundation (NSF) reports that 63 percent of American adults do not receive the recommended eight hours of sleep per night necessary for good health, safety and optimum performance (NSP, 2002). Sleep deprived college students are at high risk for accidents involving unintended sleep or impaired performance. It is likely that sleep deprivation has consequences - difficulty studying, diminished productivity, tendency to make mistakes, irritability, and fatigue (Pilcher & Walters, 1997).

Incoming college freshmen are identified as a particularly vulnerable group when it comes to risk behaviors. These new students are experiencing freedom for the first time. They are engaging in experiences with new intellectual standards, new social relationships, and new responsibilities (University programs: Freshman programs, n.d.). Their agendas are no longer dictated by set schedules determined by full days of high school classes, after school sport activities, and family mealtime rituals. In contrast, as a college freshman, their organized lives are replaced by unlimited options such as access to ready availability of mood altering substances, a myriad of food at almost all hours, and new experiences which would have been otherwise monitored by past authority. New habits are formed early in the college career (Newton, Kim, & Newton, 2006).

For college students, the highest-risk time for alcohol-related injuries, assaults, and other consequences of heavy drinking is in the first year of college (Oster & Rosenbluth, 2005).

Furthermore, some first-year students who live on campus may be at particular risk for alcohol misuse. During the first few years following high school, the heavy drinking rates of college students surpass those of their non-college peers, and this rapid increase in heavy drinking over a relatively short period of time can contribute to difficulties with alcohol and other substance abuse (Schulenberg et al., 2001).

Environmental prevention approaches to alcohol-related problems have been shown to be effective in community settings and researchers have begun to study and adapt such approaches for use on college campuses (Brower et al., 2003; HSPH, 2003). The environmental influences are supported through results from the Harvard School of Public Health College Alcohol Study. It reveals that “college freshmen learn more from an environment that promotes binge drinking, than from lectures, workshops, or educational materials on alcohol” (2003).

In response, universities and colleges have developed learning communities (LCs) in which students would feel empowered to avoid risk behaviors (Pike, Schroder, & Berry, 1997). For the purposes of this study, a LC is defined as a community that enables students to live and learn together in a more inclusive and supportive atmosphere that addresses the academic and personal needs of each individual student (Pike et al., 1997). A LC is a type of theme housing in which the students choose to reside because they are given the opportunity to learn and interact with others that have the same values and interests. This study will focus on a LC that adheres to healthier lifestyles and minimizes exposure to risk behaviors and on traditional housing, which has no theme.

A study done by the NIAAA concluded that risk behaviors are affected negatively by certain types of living arrangements (2002). Drinking rates is most prevalent in fraternities and sororities followed by on-campus housing (e.g., dormitories, residence halls) (Presley et al

1999). Students who live independently off-site (e.g., in apartments) drink less, while commuting students who live with their families drink the least” (Weshcler et al., 2002). Despite this claim, the NIAA also reports that LCs, in general, are proven to be effective in preventing campus alcohol abuse because they commonly use “multi-focus strategies combining alcohol education, behavioral skills training, and motivational enhancement” while enforcing minimum-age drinking laws (2002). These findings demonstrate that environment plays a key role in determining the severity of risk behaviors.

As it is noted that environmental manipulation (e.g.; providing a place where nutritional risk behaviors are lower due to lack of snack machines) is important, it is also imperative to understand that methods of behavioral control are not as effective alone. For example, since social norms marketing focuses on perceived peer norms to influence healthy behavior, it does not directly change the environment, but assists by reducing misconceptions of the environment. “In contrast, residential LCs shape student behaviors by providing a different environment” (Brower & Dettinger, 1998). While both approaches (social norms marketing and LCs) rely on peer norms to shape behavior, well designed LCs create an environment where healthy behavior can flourish and be continually supported (Brower, Golde & Allen, 2003).

However, to the researcher’s knowledge, a comparison of incoming freshmen residing in two different college living environments and their respective participation in all the risk behaviors discussed (injury, drugs and alcohol, nutrition, physical activity, sexual behaviors and sleep) has not been conducted. When investigating risk behaviors and their prevalence on college campuses, it would be reasonable to look not only at risk behaviors, but also at the incoming freshmen and the communities in which they live. There is a lack of literature comparing

freshmen that live in traditional residential housing and in LC based housing and whether these living arrangements reflect a difference in risk behaviors.

### Purpose of Study

The purpose of this study is to examine health risk behaviors in college freshmen. Specifically, it explores differences in risk behaviors between incoming freshmen that reside in a LC that minimizes exposure to risk behaviors (the W.E.L.L) and incoming freshmen that reside in traditional residence halls.

For purposes of this study, risk behaviors were identified as injury related behaviors, substance abuse behaviors, sexual behaviors, dietary behaviors, physical activity and sleep behaviors.

Data was collected by administering a survey designed by the researcher that combined the Center for Disease Control's National College Health Risk Behavior Survey (NCHRBS) (CDC, 1997) and the Epworth Sleep Scale (Johns, 1991). The survey was administered to 123 WELL and 577 Traditional residents in the beginning of the fall semester and again at the end of the spring semester. In the fall 98 freshmen from the WELL and 166 freshmen from traditional housing participated in the study. In the spring, 43 freshmen from the WELL and 172 freshmen from traditional housing participated. All groups consisted of the same large university in a mid-Atlantic state.

### Research Questions

This study was designed to answer the following research questions:

- What are the risk behaviors of freshmen college students?
- What are the risk behaviors of students in the WELL LC?
- What are the risk behaviors of freshman residing in traditional housing?

- What are the differences in risk behaviors between the freshman living in the WELL LC and traditionally housed freshmen?

### Significance of the Study

This study was significant in terms of future practice, research and policy. In practice, it was beneficial for a number of constituencies on college campuses. College health administrators, college health educators, university and college administrators, and national health researchers could utilize these findings in multiple ways.

College health administrators might use the results from this study to determine what risk factors are most prevalent in freshmen on college campuses. They have the responsibility to address health problems, to attempt to determine the most effective ways of communicating health issues and information, and to deliver appropriate services. Being informed on health risk behaviors and the effects it has on college environments could allow them to allocate resources to areas they feel are in most need and would enable them to explore policy in relation to designing campus environments to enhance college health and wellness. They are responsible for informing the university and/or college administrators on the health status of the campus and general college health development.

University and college administrators have the responsibility to positively affect student behavior and to enrich the entire learning environment. One way they can do so is by either enhancing or introducing positive influences or by removing negative ones. Understanding the role of environment can allow the ability to make focused decisions on risk behavior management among college students. The data could be used to assess trends in risk behaviors and allow administrators to determine the services on campus most in need of attention. For example, the Women's Center could utilize information on sexual risk behaviors so they can use

this data to assess the types of services they offer to those who engage in or suffer consequences from such risk behaviors. More specifically Resident Life and Student Affairs administrators and professionals could use the findings to carry out and implement the plans put forth by the general administration.

College health educators can benefit from these findings because the results may inform them about health risks that are more prevalent in the college population. Wellness/lifestyle courses are growing in the academic realm and college educators can enhance the LCs by providing updated information to students. In addition to directly educating and assisting students, the results derived from this study would help enrich the body of knowledge that enables health educators to enhance the academic integrity of both themselves and the institutions they represent.

The last constituency that might find the study significant includes national researchers. These practitioners would be able to build upon this research to examine the co-occurrence of risk behaviors among freshmen college students and assess whether health risk behaviors are different in different campus environments. They could also use the data to see whether risk behaviors increase, decrease or change over the span of the inaugural year. This data can be compared to national and statewide NCHRBS that were already administered. Altogether, this study could provide information that could allow these professionals to collaborate and design the most effective LCs possible.

The findings of this study allows for other research possibilities to emerge as well. This study examines whether there was a difference between the risk behaviors of freshmen residing in a wellness-based LC to the risk behaviors of freshmen residing in traditional housing. This study could be built by factoring in time to study whether risk behaviors change during a student's

college career. Also, further research might examine whether there are differences in risk behaviors in wellness LCs in different institutions (e.g., Liberal Arts College, community college, etc.).

Finally this study provided guidance in policy development and assessment. College and university student health is managed by two groups: risk behavior management personnel and college administrators. However, university policy may not be the only policy in line for transformation. Researchers in the health field may find the results to be convincing in assessing their policies as well. These groups can use the results of this study to investigate and alter policy in risk management, curriculum and instruction within the residence halls to determine the focus directed toward various risk behaviors.

Those specializing in risk management may be able to refer to the results of this study to identify the prominent health risks of college students in order to make policy decisions related to risk behaviors. For example, if alcohol abuse among all students in a specific group is on the rise, then personnel in Student Life may want to make the consequences for underage drinking more severe in hopes of discouraging such behavior.

#### Delimitations

This study did not come without some initial delimitation. The first was related to the sample. It is possible that students choosing to live in the W.E.L.L may be predisposed to practicing healthier behaviors. If so, this may have biased the findings of the study. Also, many studies that were referred to in this document were also done in individual or small groups of institutions; therefore they may not reflect the true national norm.

A second delimitation related to the data collection method. Data was collected via a survey that asked participants to self report. It is possible that the participants of the study may not have been

truthful in their responses. Some items on the instrument were very personal in nature with references to taboo topics such as sexual acts and illegal drug behaviors that respondents may not have felt entirely comfortable answering. If participants were not candid, the results of the study might be suspect.

Finally, the instrument may have been delimitation. Not all health risks may have been addressed. Not taking all the facts into consideration would threaten the integrity of the results. Also the instrument was altered by the researcher so the instrument would be more applicable to the population tested, and so sleep deprivation could be included.

Despite these limitations, this study is still significant. It examines whether there is a difference in risk behaviors between freshmen in a wellness based LC and freshmen in traditional residential housing. This is a topic that has not been explored in the past.

#### Organization of the Study

The study is organized into five chapters. Chapter One introduces the purpose of the study, the research questions and the significance of the study. Chapter Two focuses on the literature related to the study. Chapter Three discusses the methodology including a description of the sample and the instrument used to collect data. Chapter Four describes the findings and the final chapter discusses those findings and their implications for further practice, research, and policy.

## CHAPTER 2: REVIEW OF LITERATURE

With the transition to a new environment of higher education comes a concern for the well-being of freshmen with newfound freedom. In order to study health risk behaviors of college freshmen, it was necessary to look at the literature in three bodies of work. First, it is important to identify and define the characteristics of freshmen during the time of this study, secondly, the risk behaviors common among college students are examined, and finally, college living environments and their effects on healthy living are of focus. Within these three themes, several subsections surfaced. The literature on incoming freshmen and their characteristics were reviewed to provide understanding on how this generation makes healthy or unhealthy decisions collectively. The second body of literature focuses on six factors identified as risk behaviors. The risk behaviors were determined by the adopted instruments used to conduct the research and from research. These behaviors were injury related behavior, substance use behavior, sexual behavior, dietary behavior, physical activity (CDC, 1997) and sleep deprivation (Johns, 1991). Then incoming freshmen were reviewed. The last section of the review of literature focuses on college living communities and its' relationship on healthy living.

### Research on College Freshmen

Assessing risk behaviors in young adults is imperative. Today, the health of young people - and the adults they will become - is critically linked to the health related behaviors they choose to adopt (Dinger & Waigant, 1996). Because health behaviors are ingrained at early ages and become more resistant to change over time, it is important that positive choices and habits are encouraged at early ages. College students are regarded as a population of concern because of their vulnerability to negative peer pressure and environmental influence. Therefore it helps to

examine freshmen as a population of interest to examine if there is a difference in their risk behaviors between both groups in the beginning of the semester and the end, with reference to the effectiveness of particular residential housings on health.

College is a time of great transition where one leaves a time of social interdependence from parental rules and a lifestyle that holds great familiarity. “Interdependence is not granted automatically at a certain age or certain place, but is achieved by practicing how to treat others and oneself and taking responsibility of one’s actions” (Goodman, 2004). It is through this new freedom, freshmen may feel invincible that could cause a dare-all approach to risky behaviors. Unfortunately, freshmen do not consider the high consequences related to these risk behaviors. Peer pressure and wanting to fit often manifests through activities such as promiscuous sex, drinking alcohol, (Goodman, 2004) and pulling all-nighters (Trockel, Barnes, Eggel, 2000). These kinds of behaviors are hypothesized to have a negative influence on a student’s academics, career aspirations and plans for their futures (Goodman, 2004; Trockel et al., 2000).

It was found that freshmen typically had more risky behaviors than other classes (CDC, 1997). This trend is widespread but it is unknown whether these students come to college with predisposed behaviors that prompt the practice of healthy or risky behaviors. More research needs to be conducted to explore this question to assess whether health education needs to be an area of focus in promoting college student health.

Through transition, freshmen are forced to adapt to a different culture and to acclimate without the constant support of their friends and family. Such a situation can be stressful as they try to fit in with their new peers. Sometimes freshmen make less than favorable decisions in an attempt to be well liked and accepted.

While it is college and university educators who seem to possess influence to encourage

healthy and active lifestyles among college students (Aaron & Avans, 2004), research shows that peer influence is most effective with college students in promoting behavioral habits (HSPH, 2003). Because freshmen have the power of adopting and passing along risk behaviors, they have the potential to being an effective tool in advocating the decrease in risk behaviors too. An effective tool that a health educator could use would be social norms marketing. Social norms marketing focuses on repeatedly exposing misconceptions and replacing them with positive norm-based statistics that portray the actual behaviors of peers (Lynch, Mowrey, Nesbitt, & O'Neill, 2001; Gascoigne, 2001). The result is the gravitation toward the true norm, which in turn attributes to more people making healthy choices (Gascoigne, 2001). Social norms marketing techniques are valuable because many students make decisions to fit in with their peers rather than for their health. It is also found to be one of the most effective methods, along with law enforcement, in influencing risk behaviors within the college population (Chapman, 2004). In order to assess how certain interference would operate best, it is necessary to explore the risk behaviors of freshmen.

Not only is it known that college freshmen are vulnerable, but they are also found to have distinct generational characteristics. The incoming freshmen of the new century are identified as the millennials. The millennials were those born between 1982 and 2003 (Howe & Strauss, 2000; 2003) and share seven core traits.

These traits are special, sheltered, confident, team-oriented, conventional, pressured and achieving (Howe & Strauss, 2000; 2003). These traits are descriptive of the millennials needs and wants. For college health professional, there would be an advantage to being knowledgeable about this population in order to develop and implement programs that would influence healthy habits.

In general, millennials maintain constant communication with their helicopter parents. They see the world as a risky place and look to adults and institutions to be kept safe. Despite their cautiousness and their ability to analyze problems instead of making snap decisions, this population is positive and possesses tremendous resilience. They have a strong team instinct and tight peer bonds and are constantly adapting to new technologies to stay interconnected. Peer pressure influences their decision making. Millennials value rules, readily accept their parents' values, like tradition and rituals, and hold a high level of respect for institutions and high expectations. They are very conscious of their behavior. Because they value stability and security, they feel pressured to excel academically and rely on planning to ensure they are meeting their goals (Howe & Strauss, 2003).

Due to these characteristics, it is an excellent time for college health professionals to utilize many avenues for impacting health risk behaviors. They can encourage changing the campus culture from one that is traditionally accepts, even heralds, risky behaviors (such as binge drinking or physical activity) to one that celebrates healthier habits. One tactic colleges and universities can use to reach this population is to utilize the parents. They can notify them of campus health issues and ask them to participate in protecting their children in college by discussing campus goals and services with their children in promoting a safe and productive environment. With social norm marketing, there are more possibilities. Social norms marketing and responsibility-focused messages may be effective with millennials due to peer pressure being a strong motivator. Also, this population is drawn to advertising that encourages them to be role models. Messages that are more responsibility centered, rather than fear focused, is a better route for millennials. For example, "Your little brother is watching" vs. "This is your brain on drugs" sends a positive message to this positive group. Also, because they are seeking stability, security

and balance, they may respond to positive messages on why practicing good behaviors could help them ensure their futures. Millennials do value rules, dislike stand-out behaviors and are conscious of their actions. The institution can appeal to them by playing the part of *in loco parentis* and set expectations to guide them on healthy paths. Knowing these characteristics can be helpful to aiding college professional services to best fit the overall student body's needs and expectations. It would be ideal to appeal to the students through their most used sources of communication, technology.

Overall, results from several studies indicate that many students develop behaviors that increase the likelihood of adverse health outcomes later in life (Douglas et al., 1997). Providing that freshmen are targeted and encouraged to lead healthier lifestyles, it would be reasonable that they can expect to be an example of health to the general student population in their future careers. If colleges have the opportunity and authority to manipulate facets of student health, especially in their controlled environments, such as residential housing, it would make sense to examine whether there is a difference in risk behavior between the freshmen residing in a community built around healthy lifestyle habits and freshmen in traditional housing. Although much in the literature concern risk factors in general populations, (CDC, 1997) little focuses on the effects of different resident housing types on health risk behaviors.

#### Research on Risk Behaviors

As many incoming freshmen enter into transition, it is the first step away from a parentally controlled environment. This first year can provide an opportunity for the establishment of healthful lifestyle behaviors or it can lead to the practice of harmful health habits that could last throughout the remainder of their adulthood (Dinger & Waigandt, 1997). Data from the 1995 National College Health Risk Behavior Survey (NCHRBS) indicates that

many college students engage in lifestyle behaviors that place them at risk for developing serious health problems (CDC, 1997). One risk behavior that is not covered in the NCHRBS, but is indicated to be just as serious, is sleep deprivation.

The literature reviewed on college risk behaviors mimicked the six risk behaviors that were of focus in the study's instrument. Therefore, this part of the review of literature is grouped into the six respective categories of risk behaviors: Injury-related behavior, substance use behavior, sexual behavior, dietary behavior, physical activity, and sleep. However, it is important to note that many of the risk behaviors overlap (Davis & DeBarros, 2006). Those who engage in one risk behavior are likely to engage in another. For example, a student who partakes in heavy alcohol use also may not make safe decisions regarding sexual practices due to intoxication during an intimate encounter. Nonetheless, reviewing the literature on the six types of risk behaviors independently is necessary in formulating the present study.

#### *Injury Related Behaviors*

Because some college students engage in behaviors that are considered risky, the likelihood of injury is a common threat (Douglas et al., 1997). The CDC (1997) inquired about the prevalence of the following injury related behaviors: Violence (engaging in physical fights, carrying a weapon, and suicide ideation and attempts), seat-belt use, helmet use, drunk driving, and boating or swimming while drinking.

Initial results of the first National College Health Risk Behavior Survey (NCHRBS) administered in 1995 showed that traditionally aged college students, (ages 18-24), were at greater risk of suffering from injury-related behaviors than students 25 years or older. In all cases highlighted by CDC in the NCHRBS, injury risk behavior decreases after the age of 25 (Douglas et al., 1997). From 1995 to 2002, traditionally aged college students were victims of

approximately 479,000 crimes of violence annually (Baum & Klaus, 2005), which is only a fraction of all injurious behavior. However, it has been found that campus crime is significantly underreported by victims (Sloan, Fisher, & Cullen, 1997). Sloan's study in 1997 announced that only 25% of crimes were reported from 1995 to 2002 (Sloan et al., 1997) while yet another study reported that 35% of crimes were reported from 1995 to 2002 (Baum & Klaus, 2005).

In the first, and only nationally administered NCHRBS, 24.7% report driving after consuming alcohol within 30 days prior to the survey (CDC, 1997). The number increased to 35.5% of students driving drunk during the 2001 school year while nearly a quarter (23.3%) reported riding with an impaired driver (Weschler, Lee, Nelson, & Lee, 2003). The number of college students involved in fatal alcohol related crashes in 1998 were approximately 1100 (Hingson, Heeren, Zackos, & Weschler, 2002). Meanwhile, collective studies of college students' drinking habits are limited due to most studies being limited to single or small groups of institutions (Dowdall & Weschler, 2002).

Physical altercations are a concern on college campuses. In all, freshmen are "particularly vulnerable to victimization due to their newfound freedom and lack of parental control for the first time. They may be inexperienced in self protection and boundaries, and are thrust into residence halls where living density is high and social experimentation is common" (Carr & Ward, 2006). In addition to this change, more students are entering college with severe mental health and conduct disorders that lend to violent behavior. Because psychological treatments can be disrupted or cease and these students no longer have parental and guardian supervision, the consequences can be very dangerous (Kitzrow, 2003). Also, the individual student may be too embarrassed to report violent actions against their offenders and are less likely to seek help for his/her victimization. "Students who are victimized can feel overwhelmed and may need a great

deal of support. If they do not sense that this support is there, they will be less likely to seek help” (Carr & Ward, 2006).

With physical altercations, it has been reported that within the 2003-2004 school year, 7% of students were in a physical fight and 4% were physically assaulted (ACHA, 2004). One study at a large university reported as many as 32.7% of males and 17.3% of females had at least one physical fight in the six months to their completing the questioning (Marcus, Rio, Kessler, Cutler, & Fluery, 2000). Of the entire undergraduate population, 9% report having possession of working firearms in college (Miller, Hemenway, & Weschler, 2002) and firearms were present in 9% of all violent crimes reported (Carr & Ward, 2006). In 34% of violent college student crimes, weapons were involved (Carr & Ward, 2006).

College students are also a group vulnerable to suicide or self harm. Over the last 60 years, the suicide rate among adolescents has tripled, making it the second leading cause of death among college-aged students (Grizzell, 2001; National Mental Health Association (NMHA) & The Jed Foundation, 2002). Students in residence halls are of significant risk as 40% of all undergraduate suicides are committed by freshmen (Davis & DeBarros, 2006).

In 2001, 9.5% of 16,000 students had seriously considered suicide. Of the 16,000, 1.5% had actually attempted suicide. Although the percentage of 1.5% may seem small, the total count for estimated deaths due to suicide is anticipated at 1,088 per year (NMHA & The Jed Foundation, 2002). Another study that took a sample of 47,202 students reported that 20% of these students had seriously considered suicide and of those, 1.3% actually reported attempting suicide (ACHA, 2004). Attempted suicide rates within college students are worse than the national norm (ACHA, 2004).

Sadness, depression, and hopelessness seem to be the main precursors to suicidal

tendencies (NMHA, 2002; Grizzell, 2001). It is common for students that perceive a lack of support coupled with troubling mental conditions to develop abusive relationships with drugs and alcohol (Kitzrow, 2003), heightened vulnerability to eating disorders, sleep disturbances as well as other problems (Grizzell, 2001).

Most literature reviewing injury-related behavior displays a strong correlation with alcohol and substance abuse. Instead of focusing on injury risk behaviors alone, researchers portray injurious risk behaviors as a byproduct of alcohol and substance abuse (HSPH, 2003).

In the initial NCHRBBS in 1995, 24.7% had driven a car after consuming alcohol within 30 days prior to the survey (CDC, 1997). Since then an increase continued with students driving after alcohol use. From 1998 to 2001, students who reported driving under the influence went from 26.7% or 2.3 million to 31.4% or 2.8 million (Hingson, Heeren, Winter, & Weschler, 2005). In 2004, 2.8 million students continued to partake in drinking and driving (Wake Forest Baptist Medical Center, 2005). It is not surprising that students who consume alcohol to intoxication at least once a week be more susceptible to being in an automobile accident due to someone else's or their own drinking (Wake Forest Baptist Medical Center, 2005).

### *Substance Use Behaviors*

Some college students experiment with mind altering substances. The substances the researcher identified that are of main focus with college freshmen are alcohol, tobacco, and marijuana.

#### *Alcohol*

While incoming freshmen are likely to enter college with established risk behaviors in terms of substance and alcohol use, (Wiley et al., 1997; Weitzman, Weschler, & Nelson, 2003) they tend to engage in these behaviors more frequently while at college (Wiley et al., 1997). The

main risk behavior reported is alcohol abuse and alcohol consumption is a public health problem among college students (Slutske, 2005).

Binge drinking behavior is defined as the consumption of five or more drinks in a row for men and four or more drinks in a row for women (HSPH, 2003; Wake Forest Baptist Medical Center, 2005). In 2002, the Harvard School of Public Health College Alcohol Study found that nearly half of all college students have put themselves and others at risk from binge drinking. Little has changed with college binge drinking rates. In 1993 and 1994, the percentage of students who binged on alcohol was at 40% (HSPH, 2003). In 2007, 44% of the college population reported binge drinking (Associated Press, 2007).

Because binge drinking is more prevalent among college students than among their peers of the same age who do not attend college (Wechsler, Dowdall, Davenport, Moeykens, & Castillo, 1994), the impact of this behavior easily provides repercussions on or around campuses. Some of the identified reasons are: a culture which encourages and supports the behavior and new students seem to behave as expected. While approximately 1,400 students die from alcohol-related deaths and 150,000 develop an alcohol related problem annually (NIAAA, 2003), non drinking peers suffer as well. These indirect factors include complaints of loss of sleep, interference with studies, property damage, verbal abuse, physical assault, sexual assault, and having to care for a drunken student (HSPH, 2003). Alcohol is the main factor in unintentional injuries and deaths, physical fights (CDC, 1997), promiscuous sexual activities (Cooper, 2002) and violent sexual actions (Presley et al., 1997). In 1998 and 2001 more than 500,000 students were unintentionally injured as a direct result of drinking and 100,000 were assaulted by a student that had been drinking (Hingson et al., 2005). More statistics show that binge drinkers are twice as likely to fall from heights and 75% more likely to be sexually victimized and

nondrinkers in the presence of a drinker is twice as likely to be sexually victimized (Wake Forest Baptist Medical Center, 2005).

First year students are identified as the population most at risk for abusive alcohol behavior (HSPH, 2000a; CDC, 1997). The NCHRBS report of its 1995 study informs that 41.5% of undergraduates ages 18-24 report engaging in episodic heavy drinking (they had consumed five or more drinks on at least one occasion on one or more days ( of the month preceding the survey), whereas 22% of undergraduates 25 or older report heavy drinking behavior (Douglas et al., 1995). Because it is found that the first year, possibly even the first month and half is the most vulnerable time for freshman binge drinking (Oster & Rosenbluth, 2005), some first year students that live on campus may be at a higher risk for prolonged collegiate alcohol abuse as well as contribute to difficulties with college transition and post collegiate alcohol abuse.

### *Tobacco*

Using tobacco almost always begins at an early age, greatly increasing the risk of habitual smoking in adult years (Willard & Schoenborn, 1995; Youth Tobacco Cessation Collaborative, 2000). Despite the fact that cigarette smoking has decreased over the last several decades due to increased knowledge of the dangers of tobacco use, smoking among adolescents and young adults seem to be on the rise (Mauney, 2000). Following the release of the Surgeon General's report on the dangers of smoking in 1964, smoking among college freshmen steadily declined reaching its lowest point in 1987. But since that time, the percentage of college freshmen who report frequent cigarette use has been increasing (Sax, 1997). Nearly half of college students reported tobacco use during the year 2000 (Rigotti & Weschler, 2000). If this growth continues, the declining use of tobacco will no longer be a reality (Youth Tobacco

Cessation Collaborative, 2000). Tobacco use undergoes transition for experimental smoking as a younger adolescence to that of more established use (Johnston et al., 2001; CDC, 2003) and it may be that during the collegiate years is when the development of long term smoking habits are solidified (Patterson, Lerman, Kaufmann, Neuner, & Audrain-McGovern, 2004).

Research has found that tobacco use correlates with certain pitfalls in college. Collegiate smokers have lower grades, rate parties as important and spend more time socializing with friends. They are also more likely to have more sexual partners, binge drink and smoke marijuana (Rigotti & Weschler, 2000). Social smoking is a phenomenon among college students. Students have repeatedly demonstrated in studies that their smoking habits are strongly associated with attending social events (Rigotti & Weschler, 2000; Emmons et al., 1998). In one study, 51% of college smokers reported that they smoked mainly with other people (Moran et al., 2004).

The prevalence of social smoking is especially dangerous to incoming freshmen who are eager to fit in. Freshmen are the most likely group to take up smoking (Hancock, 2003) and smoking prevalence is higher in freshmen than any other class (Halperin & Eytan, 2001).

Environmental factors play a part in tobacco use within the college population. If approximately half of student smokers smoke in social situations, then removing tobacco from these settings would make a tremendous impact (Moran et al., 2004). It is furthermore found that having smoke-free residence halls is effective in preventing the uptake of smoking in incoming freshmen that do not have a history of smoking (Weschler & Rigotti, 2001). Even though freshmen are the highest at-risk group for tobacco use, they are the most accessible population for disseminating information to: It can easily be done through orientation events, resident and new student information announcements, bulletin notices, and through freshmen introductory

curriculum. Their living environments can be controlled through smoke-free housing and campuses.

### *Marijuana*

Marijuana use among college students is of concern for several reasons. Marijuana is the most frequently used illicit drug in the United States and is regarded as the primary “gateway” drug. Almost all students that use other illegal drugs have reported experimenting with marijuana previously (Mackesy-Amiti, Fendrich, and Goldstein, 1997).

Marijuana use amongst college students has increased 10% from 1990 to 2002. In 1990, almost 25% of college students reported using marijuana (Bell, Weschler, & Johnson, 1990) followed by an increase of 34% of college students reporting marijuana use in 2002 (Core Institute, 2002). Like tobacco, marijuana users typically spend more time at parties and socializing with friends than studying are also more likely to indulge in other risk behaviors, such as binge drinking, smoking, and having multiple sex partners (Bell et al., 1997).

On the whole, substance abuse also is related to unsafe sexual behavior, violent behavior, injury and academic problems. Reports have shown that substance abuse has the most influence over in performing other risky behaviors in college students. Drug use in this population demonstrates the role that social interaction and peer pressure is the main factor (Bell et al., 1997).

### *Sexual Behavior*

The majority of college students engage in regular sexual activity (Flannery & Ellingson, 2003). Risky sexual behaviors are identified as behaviors that contribute to unintended pregnancy and STDs (Lynch et al., 2004). Because of the concern of pregnancy (Van den Bossche & Robinson, 1998) and rising incidences of sexually transmitted diseases (CDC, 2000a;

2000b; 2003) college students have become of focus. Another view of why sexual risk behaviors is of great concern is due to the amount of misconceptions put forth by college students (Lynch et al., 2004), particularly freshmen (Flannery & Ellingson, 2003).

Approximately three million cases of sexually transmitted diseases (STDs) occur annually in young adults (CDC, 2000b.). Nearly two-thirds of high school graduates come to college with established sexual histories and habits (Eschbacher, 2002) and one study reported that 71% of college freshmen have engaged in intercourse (Flannery & Ellingson, 2003). Of this group, they had reported a mean of 3.5 lifetime partners, 60% of females and 64% of males used a condom during their last intercourse and 31% of females and 42% of males used drugs or alcohol the last time they had sex (Flannery & Ellingson, 2003). Flannery and Ellingson's study was reflective of other studies in the sexual behaviors of college freshman (Reinisch, Hill, Sanders, & Davis, 1992; 1995).

Despite the fact that STD infection among college freshmen may seem low (Flannery & Ellingson, 2003), there are recent studies reporting that STDs are on a staggering rise. For example, Dr. Adelbert James of Emory University School of Medicine reports that college freshmen are at high risk for chlamydia infection (Emory University Health Sciences Center, 2006). In his study involving ten colleges in Alabama, Georgia and Mississippi, it was found that chlamydia infection was present in 13% of freshmen tested (Emory University Health Sciences Center, 2006).

When college students are compared to non-college students, it is found that the college population exhibit more sexual risk behaviors. They have multiple sex partners, use drugs and alcohol prior to sexual activity and report lower incidence of condom use and communication regarding safer sex practices (Lewis & Malow, 1997). However, this generation of students is

more sexually experienced and knowledgeable about safe sexual practices than any generation before then (Peterson, 1999; Synovitz, Herbert, Kelley, & Carlson, 2002). This provides an interesting dichotomy.

Researchers who attempted to explain this phenomenon have hypothesized that it is due to misconceptions of their peers' sexual activity and safe sex practices (Cross & Morgan, 2003; Flannery & Ellingson, 2003; Lynch et al., 2004). Students are overestimating the frequency of risky behaviors and because they do so, they are likely to practice sexually risky behaviors to confine themselves to the "norm" (Lynch et al., 2004). For example, they underestimate how often students "never" use condoms. This suggests that "the perception of safer sexual behaviors among peers is much greater than the actual behaviors among peers being exhibited. This, in turn may lead to college students to have an exaggerated view of the safer sexual practices of potential partners, inadvertently exposing them to increased risk" (Lynch et al., 2004).

### *Dietary Behavior*

Dietary behaviors are of concern with college students because of poor food choices and eating habits (Georgiou, Betts, Hoerr, Keim, Peters, Stewart et al., 1997). Most students fail to meet the minimum of the recommended daily guidelines (Belaski, 2001) while exceeding their daily allowances for fats, sugar and sodium (Anding, Suminski, & Boss, 2001). These excesses (coupled with sedentary lifestyles) can contribute to the "freshman fifteen", which refers to the number of pounds freshmen students are rumored to gain during their first year (Lang, 2003; Rodriguez, 1999). One study done in 2004 of 471 students found that 25% of students have BMIs that placed them in the overweight category while 6% were classified as obese (Silliman, Rodas, Fortier, & Neyman, 2004). It is in close relation with the 1995 NCHRBS which reported that 35% of college students are categorized as either overweight or obese (CDC, 1997; Lowry et

al., 2000).

Because most college students repeatedly fail to meet the recommended guidelines (Anding, et al., 2001, Dinger & Waigant, 1997; Hiza & Gerrior, 2002), they are at risk for chronic disease, poor concentration and low energy levels (Grace, 1997). While researchers Hiza and Gerrior report that only a small percentage are consuming the recommended intake for fruits and vegetables and dairy (2002) another study of 2,600 college students found that 40% had not eaten any fruit in the last 24 hours and 55% had not eaten any green salad or cooked vegetables (Dinger & Waigant, 1997). The first NCHRBS in 1995 found that 74% of students did not eat the suggested amounts of fruits and vegetables (CDC, 1997); however, 78.2% reported eating two or more servings of foods typically high in fat content (e.g. hamburgers, donuts, potato chips, etc.) (CDC, 1997).

College students also adopt erratic eating patterns that coincide with their erratic lifestyles (Sneed & Holdt, 1991). College students' inadequate dietary intake is not surprising when students are eating meals at fast food restaurants six to eight times weekly (Diskall, Kim, & Goebel, 2005). They often skip meals, deal with daily lifestyle and schedule changes and peer pressure, have little finances or food preparation areas and have constant access to unhealthy food choices.

Some of these dietary behaviors come with the incoming student. Millennials have often grown up in a family that don't often eat together, and with so many extracurricular activities and jobs, they grown up eating on the run (Belaski, 2001). They have been bought up in a time where multiple portions are normal and "supersize" is what is the norm. Because they are always on the go, they may have a tendency to skip breakfast, which puts them at risk for eating poor choices and greater quantities of later in the day food (Belaski, 2001; DeBate, Topping, Sargent,

2001; Georgiou et al., 1997).

With these results, it is no surprise that the “Freshman 15” is not always a myth. First year students are most vulnerable to adopting unhealthy eating habits that lead to weight gain (Anderson, Shapiro, & Lundgren, 2003). Although one in five college students are overweight according to BMI Research on measurements (CDC, 1997), 41% of college students believe they are overweight. In attempts to control weight, approximately a third of students report dieting to avoid gaining or to lose weight, about half used exercise, 2.6% have used laxatives and/or purged and 4.6% have used diet pills (CDC, 1997).

Weight loss tactics are another nutritional trend among college students. College students are of particular concern for several reasons. College students are particularly vulnerable to mainstream notions of perfection as they try to fit into new adult molds. Popular media promotes an image that equates everything with an ideal. Also, as the freshman year progresses, worsened disordered eating was associated with “increasingly dysmorphic feelings about weight, decreased feeling of attractiveness, heightened stress and weight dissatisfaction” (Streigel-Moore, Silberstein, Frensch, & Rodin, 1989).

On the other hand, if their self-confidence crumbles, students may use food to deal with emotions (Tribole & Resch, 2003). This can lead to bingeing and/or the binge/purge cycle most commonly known as bulimia (Tribole & Resch, 2003). This behavior is more prevalent in college females for the hypothesized reason that body image seems to be of greater concern to them (Streigel-Moore et al., 1989).

### *Physical Activity*

Whereas dietary factors lead to unhealthy BMIs and negative health implications, so does lack of physical activity (Butler, Black, Blue, & Gretebeck, 2004). Physical activity is defined by

the CDC as exercise that makes individuals “sweat and breathe hard for at least 20 minutes or greater than or equal to three of seven days (1997). Physical activity also includes stretching exercises, strengthening exercises and participation in P.E. classes and/or sports teams (CDC, 1997). Adults should either participate in moderately intense physical activity for at least 30 minutes on five or more days a week for 20 or more minutes. Moderate intensity exercise is when one experiences some increase in breathing or heart rate and vigorous exercise is when one has large increases in breathing or heart rate (CDC, 2006).

It is during the transition between adolescence and adulthood when the steepest decline of physical activity occurs (Allison, Dwyer, & Makin, 1999; Grace, 1997; Leslie et al., 1995). However, freshmen are at a point in their lives where the time and place can be conducive to adopting healthy exercise habits (National Institute of Health [NIH], 1998; Silliman et al., 2004). One study found that 47% of its sample college students failed to meet national guidelines for vigorous physical activity, which is consistent with population data (Dinger & Waigant, 1997; Gyurcsik, Bray, & Brittan, 2004; Pinto & Marcus, 1995). This is supported by noting that 35% of college students regularly participate in exercise (Pinto, Cherico, Szymanski, & Marcus, 1998).

Silliman et al. identified that there were barriers that exist that students claim keep them from exercise (2004). The number one reason was lack of time, followed by lack of motivation, lack of willpower and lack of energy (Silliman et al., 2004). Another barrier that exists is the availability and locations of exercise facilities (Reed & Phillips, 2005). If there are not facilities available, that limits students’ access to exercise. Additionally, if the facility has limited equipment or is overcrowded, students may avoid going. However, underclassmen tend to frequent on-campus facilities more than upperclassmen. This suggests that closer proximity of

the facility promotes exercise (Reed & Phillips, 2005).

### *Sleep Deprivation*

Sleep deprivation is a serious and common contributor to poor health and academic achievement on college campuses (ACHA, 2002; Edens, 2006; Hamilton & McGee, 2006). It ranks as one of the top three impediments in their academic performance (Edens, 2006) as the others are stress and cold/flu/sore throat (ACHA, 2002). Lack of sleep is associated with the top two impediments, either as a symptomatic or a causal factor (NSF, 2005). Other impediments that seem to correlate with students who are sleep deprived are other illnesses, alcohol and drug use, depression, sexual assaults and problematic relationships (ACHA, 2002; NSF, 2005). Insufficient sleep may contribute to negative moods and inability to control emotionally driven behaviors (Dahl, 1999).

College students sleep less than ever before (Armitage, 2004; Edens, 2006; Jenson, 2003, Markel, 2005). In the 1980s, college students reported getting in an average of 7.5 hours of sleep night (Jenson, 2003) and in 2002, students reported getting 6 to 6.9 hours of sleep (Armitage, 2004). In result of this decrease in sleep, 71% of students in 2000 had sleep complaints, a rise from the 24% had complaints in 1978 (Hamilton & McGee, 2006). One study of almost 400 students reported that 42% experienced EDS, or excessive daytime sleepiness (Edens, 2006). These results are supported by a larger survey done by the National Sleep Foundation (NSF, 2002) that 55% suffered from EDS. On college campuses, it is common to see approximately 85% of students napping during the day and over half (54%) falling asleep in class, having difficulties staying awake while eating, driving or socializing with friends (Hamilton & McGee, 2006).

It's not surprising that today's students get less sleep. "As a causal factor rather than a

symptom of other underlying health issues, ‘not getting enough sleep’ may simply be a symptom of a hectic lifestyle” (Edens, 2006). The society we live in is accessible and available at all hours. In addition to social activities and studying that used to keep a student awake, there now is a technological world that creates distractions that never existed before. Students have non-stop access to cable television, the internet, video games, cell phones and more (Hamilton & McGee, 2006). In addition to student activities and electronic distractions that defer them from sleep, they may already be coming to college with sleeping problems (Carskadon, 1999; Hansem et al., 2005).

Insufficient sleep often begins in young adolescents (Millman, 2005) where the pattern of sleeping less occurs naturally due to behavioral, psychosocial and biological processes take place (Carskadon, 1999). However, some young adults still need nine to ten hours of sleep nightly (Markel, 2005). But, since the 1980’s, the average amount of sleep for college students average six to seven hours nightly (Hansem et al., 2005).

#### *Research on College Living Communities and its’ Effect on Risk Behaviors*

Because the most critical time for college students to develop healthy behavior is the first two to six weeks of their freshman fall semester (Levitz & Noel, 1989), colleges and universities should have programs and services that would influence student’s good decision making early (Evans, Forney & Guido-DiBrito, 1998). A favorable place to focus these efforts are in all types of residential housing due to the millennial’s characteristics. This generation of students respond heavily to peer pressure (Howe & Strauss, 2000; 2003), making it an appropriate to implement social norms marketing techniques in residential housing communities (Gomberg, Schneider, & DeJong, 2001; Perkins, 1995; Perkins, Meilman, Leichtlier, Cashin, & Presley, 1999). It is suggested that the campus living environment is influential on creating new social norms

(Brower et al., 2003). These social norms, or peer expectations about acceptable behavior, positively effect a large problem on college campuses, such as binge drinking and its' associated problems (Brower, et al., 2003) such as injuries and unsafe sexual practices (National Social Norm Resource Center, b).

Education has little effect on health risk behaviors (Hingson, Berson, & Dowley, 1995; HSPH, 2003; Weschler, Kelley, Weitzman, SanGiovanni, & Siebring, 2000) but LC's provide a different environment in which students reshape their behaviors (Brower & Dettinger, 1998). With this knowledge it would be appropriate to concentrate health promotion efforts in campus housing facilities. However, it was conversely reported in a press release that stemmed from Harvard School of Public Health's College Alcohol Study (2003) that "college freshmen learn more from an environment that promotes binge drinking, than from lectures, workshops, or educational materials on alcohol" (HSPH, 2003). This suggests that colleges and universities take a more environmentally oriented approach that brings primary focus to supply and access and substance free housing rather than education alone.

Research have reported that LCs have a positive effect on health risk behaviors. Most of the limited findings are focused on LCs as being preventative to curbing binge drinking. Other studies find positive correlations with physical activity (Reed & Phillips, 2005), smoking (Weschler & Rigotti, 2001), and illicit drug use (Weitzman, Weschler, & Nelson, 2003). However, there are overall findings that campus living promotes poor nutritional habits (Driskall, Meckna, & Scales, 2006; Levitsky, Halbmaier, & Mrdjenovic, 2004) and that a high incidence of binge drinking (Weitzman et al., 2003) is prevalent in traditional residential housing.

Still, the comparison of behaviors between traditional housing and LCs are vast. Binge drinking is the main behavior of focus in the literature. It is clear that students residing in

housing where there are other binge drinkers (Weitzman et al., 2003) and/or in campus apartments around or with upperclassmen (Brower et al., 2003) are of those with the highest drinking rates on campus (Brower et al., 2003; Fenzel, 2001). The binge drinking culture is a rampant problem on campus due to it's being a prominent precursor to almost all negative student behavior, interpersonal violence, poor academic performance, negative health outcomes and even death. (Malloy, 1994; Weschler et al., 1994; Weschler et al., 1998). However, those who live in LCs develop a peer culture with significantly reduced alcohol use and the negative consequences from themselves and others. LC cultures have a protective effect (Brower et al., 2003; Weitzman et al., 2003).

Residence halls that outwardly forbid alcohol, illicit drug use and smoking are for the most part successful if they enforce the rules consistently. Law enforcement in the residence halls is a straightforward and effective way to prosecute both drug and alcohol offenders and reduces overall occurrences (Waganaar, Toomy, Murray, Short, Wolfson, & Jones-Webb, 1996). Having substance free dorms is also a protective factor (Weitzman et al., 2003) like non-smokers entering college are 40% less likely to take up smoking in a smoke-free dorm (Weschler & Rigotti, 2001).

With other health risk behaviors, such as injury related behaviors, sexual behaviors, nutrition, physical activity, and sleep, there is little research. Only one has been reported to be influenced positively by all campus housing, physical activity. However, Reed and Phillips (2005) assessed this relationship by making the correlation between those who live in any housing within close proximity to exercise equipment and/or facilities are more likely to exercise than those who did not. It does not necessarily indicate the location of residence as the defining factor, but gym availability.

With injury related behavior and sexual behaviors, it is hypothesized that the behaviors would be worse in traditional housing with there being byproducts to higher incidences of binge drinking (Brower, et al., 2003). However, no differences were found in the literature with nutritional or sleep behaviors. Of the two behaviors, there appears to be tremendous concern with the rise of obesity related to poor nutritional habits (Driskall, 2006; Levitsky et al., 2004; Silliman et al., 2004,). Significant weight gain during the freshman year can be attributed to “tangible environmental stimuli” for students now have access to all-you-can eat dining halls (Levitsky et al., 2004).

#### Conclusion of Review of Literature

Although there is a great deal in the literature concerning risk factors in the freshman college population, it is unclear, and at times, confusing to answer the question of how to alleviate risk behaviors. There remains strong evidence that environmental influence is paramount in terms of peer influence, but no studies have been conducted to assess if there is a difference between the risk behaviors of freshmen that reside in a wellness-based community as opposed to freshmen in traditional residential housing. The reason this study is important is because if there is a difference in risk behaviors, it may provide initiative for colleges and universities to contemplate taking initiative to provide a more wholesome living community that can counteract the health crises of proportions that is epidemic prevalent among college students today.

## CHAPTER 3: METHODOLOGY

The purpose of this study was to examine risk behaviors among college freshmen in traditional housing and in wellness-themed housing. Risk behaviors were defined as injury-related behaviors, substance-use behaviors, sexual behaviors, dietary behaviors, physical activity and sleep deprivation. Freshmen in traditional housing were those who resided in residence halls void of themes or learning communities. The freshmen in the wellness community had to reside in the wellness LC, known as the WELL

Data was collected from a modified survey designed by the researcher that combined National College Health Risk Behavior Surveillance Survey (NCHRBS) (CDC, 1995) and the Epworth Sleepiness Scale (Johns, 1991). This survey was distributed to a sample of traditionally housed freshmen and the majority of freshmen who dwelled in the WELL. The subjects attended a large university in a mid-Atlantic state.

### Research Questions

Specifically, this study was designed to answer the following research questions:

- What are the risk behaviors of freshmen college students?
- What are the risk behaviors of students in the WELL LC?
- What are the risk behaviors of freshman residing in traditional housing?
- What are the differences in risk behaviors between the freshmen living in the WELL LC and traditionally housed freshmen?

### Sample Selection

There were two samples needed for this study. The first sample consisted of 577 incoming freshmen in traditional housing. The second sample consisted of all 123 incoming freshman in the WELL.

For purposes of this study it was necessary to identify WELL residents and traditional housing residents. For this study, the WELL residents were incoming freshmen that resided in the designated WELL housing on campus. The WELL is an acronym for the Wellness Environment for Living and Learning. The WELL community is based on the SPICES model, which is fostered under the assumption that to be well rounded person and live a healthy lifestyle socially, physically, intellectually, career-wise, emotionally, and spiritually” (Student Programs, 2007). Some other components of the WELL include a two-credit optional Healthy Living Course offered only to WELL residents that helps WELL students in developing a wellness based lifestyle and to foster valuable connections with faculty and staff and has a self run governing body that determines the guidelines for the WELL community which leads to leadership training. The WELL is also known for historically being a residence community where students earn higher grade point averages and embrace diversity.

The WELL is a substance-free community where residents and their guests are prohibited from using alcohol and drugs in the living area. The WELL Students who fail to comply with the standards may be reassigned to another room on campus. To ensure this expectation, the residents are required to sign a contract agreeing that they would abstain from alcohol and drugs (Appendix B) in the WELL residence hall.

Prior to living in the WELL, the student has to apply to be accepted into the WELL. The WELL houses 295 under and upperclassmen each year and not everyone is accepted. The prospective freshman can put in an application to reside in the WELL with their college application.

The traditionally housed residents were incoming freshmen that lived in any non-themed campus housing. Both populations were not to have resided in any other location during their

college career other than their initial WELL or traditional dormitories for the entire academic year. All participants were required to be true freshmen directly from high school graduation in the past six months.

The population had to meet the certain criteria set in order for the researcher to accurately explore the relationships between the two groups. For example, restricting the study only to students who remained in their initial housing assignments for the entirety of the academic year would minimize outside domestic influences. It was also important to restrict the study to only freshmen directly from high school so their transition to university was as similar as possible. Before the research could be conducted, the researcher submitted a proposal for IRB approval and was granted.

Under the IRB guidelines, the students were selected prior to the survey administration to ensure that they met the criteria set forth by the researcher. The researcher requested and was granted permission for access to both populations through the Director of Residence Life. The Director contacted the Housing Manager for a list of incoming freshmen in traditional residences and asked the Coordinator of Theme Housing Programs for a list of all incoming freshmen that planned to reside in the WELL. There were 577 traditional and 123 WELL freshmen residents that met the criteria. The 577 traditional freshmen were randomly selected from separate residence halls throughout campus and all qualifying WELL freshmen were targeted. The researcher attempted to get a larger sample of traditional freshmen due to the impression that it would be more difficult to retrieve the surveys back from this population. The barriers that existed which could result in a low return rates in the Traditional population was that the population was spread over 21 dormitories with many R.A.s having to scatter and collect the surveys. The WELL consisted of a single residence hall, with five R.A.s, who administered the

surveys to all WELL residents meeting the criteria for the study. A high return rate was expected in the WELL community. Therefore, it was hoped that there would be an approximate 20% (of the 557 total targeted Traditional students) return rate within the Traditional population to closely match the proposed high return rate of possibly 123 students from the WELL. Ultimately, the researcher was given a list for the WELL and traditional residents that included the resident's name, residence hall and room number and gender.

The two samples, the WELL and traditionally housed freshmen, were tested during the first two weeks of the fall semester. The researcher administered the test again at the end of the spring semester. 577 surveys were administered to traditionally housed freshmen and 123 surveys were assigned for completion in the WELL.

Because the researcher wanted to ensure maximal return rate with the surveys, it was arranged to have the surveys distributed through the Residential Advisors (R.A.s) of the halls on which all subjects lived. The Director of Resident Life suggested that the researcher meet with the R.A.s to explain the study they were going to be asked to assist with.

The Director of Resident Life provided the researcher with times during which the R.A.s of traditional housing could meet. The Coordinator of Theme Housing provided the researcher with times during which the WELL R.A.s could meet. The appointments were throughout the first two weeks of the fall semester. The researcher compiled the surveys for distribution and put them in packets for the designated R.A.s. The entire packet included the allotted number of surveys, a list of all the students qualified for the study that would be asked to take the survey, detailed instructions on how to correctly administer the survey, and the researcher's name and contact information.

The R.A. meetings served two main purposes; to explain the study and to enlist the support of the R.A.s for prime return rate of the surveys. The Director attended the R.A. meetings with the researcher to provide support to the researcher to help build credibility and to sell the importance of the study. The meetings lasted approximately 15 minutes during which the researcher explained the purpose of the study, the benefits of the study, the proper way to administer the surveys and the reasons why the R.A.s were asked to assist in the administration of the surveys. The R.A.s was instructed to distribute the surveys to the selected students, whose names were included in their packets, prior to the completion of their next mandatory resident hall meeting. The researcher asked the R.A.s to contact her prior to their hall meetings at which they planned administer the surveys, in hopes she could attend. The researcher was able to come to 11 of the 19 hall meetings. At the meetings at which the researcher was unable to attend, the R.A.s were instructed on how to give the survey and how to provide the residents with a brief explanation of the study and its' benefits. All students were notified of full confidentiality, permission to withdraw from the study at any time without penalty and were to be made aware that the researcher hoped that the student retake the survey at the close of the academic year in the spring. Also, the R.A.s asked the students to read and sign the consent forms prior to taking the survey, as well as to enter their ID numbers in the space provided for the purpose. The ID numbers were codes that the student was instructed to enter the first letter of their mother's maiden name and the last four digits of their student ID number. This was done in hopes that the researcher may get the same students that had taken the test in the fall as the spring. Lastly, the R.A.s prompted the subjects to answer the questions honestly. This is the protocol the researcher adhered to.

When the students took the survey, the researcher and/or R.A. remained with them to minimize discussion and interaction to ensure that their answers were uninfluenced as possible by their peers. The students then returned the survey to an envelope provided by the researcher or R.A. The researcher and R.A.s were strictly prohibited from reviewing any of the returned surveys before they were put into the envelope and answered any questions to the best of their abilities. After all surveys were collected in the envelope, the researcher or R.A. sealed the envelope. If the researcher was not present at the administration of the survey, the R.A.s returned them to the Office of Student Affairs in a mailbox designated for the researcher by the Director of Residence Life.

For purposes of this study, the target sample consisted of 577 students from traditional residence halls and all 123 from the WELL community.

The institution chosen for this study was a large, public, land grant, research university in the Mid-Atlantic United States. Approximately 21,000 undergraduate students were enrolled at the time of the study and approximately 4,800 total freshmen resided on the campus.

#### Instrumentation

The instrument was designed by the researcher. The National College Health Risk Behavior Survey (NCHRBS) (CDC, 1997) was adjusted and combined with the Epworth Sleepiness Scale (2004) (Appendix A). The deleted items in the NCHRBS were in the demographic section of the instrument with such questions such as “What academic year are you?” The questions that were slightly altered were done to conform to the applicability of the study and to match the fluidity of all other questions. The questions on the Epworth Sleepiness Scale (Johns, 1991) remained the same and the researcher slightly changed the answers from a

four point Likert scale to a five point scale that coincided with the Likert scale administered in the NCHRBS.

The new survey designed by the researcher consisted of six risk behaviors. Five were from the NCHRBS (injury related behaviors, substance abuse, sexual activities, nutrition and physical activity) and one was from the Epworth Sleep Survey (sleep). The reason the researcher chose to combine these two instruments is best understood through the direct content of the two surveys.

The NCHRBS survey has been administered annually by many different institutions since its' initial national administration in 1995 by the Center for Disease Control (CDC, 2004). The NCHRBS identified five categories of risk behaviors of concern to the college population. The behaviors were injury-related behaviors, substance-use (tobacco, alcohol and drug) behaviors, sexual behaviors, dietary behaviors and physical activity. The researcher selected this instrument because the existing literature regarding risk behaviors in the college population supports the content of the NCHRBS.

The NCHRBS consists of 96 multiple-choice questions that fell into one of seven sections. The first section requests the student to provide demographic information. This was age, sex, race, class standing, sorority or fraternity affiliation, marital status, and working status. The questions removed were those that asked of class standing, how many years in college, student status (full-time/part-time), with whom do they reside with, location of resident, working status and type of institution attending. These questions were irrelevant due to the researcher's criteria of the populations selected.

The remaining six sections focused on risk behaviors. These categories were (1) injury-related (behaviors that contribute to unintentional injury and intentional injury) (18 questions),

(2) substance abuse (24 questions), (3) sexual behaviors (15 questions), (4) dietary behaviors (15 questions) and (5) physical activity (8 questions) and sleep (9 questions). At the end of the survey, there were three questions that asked about AIDS and health education. The researcher did not include these questions in the study. Major questions guided the inquiry of each area. There were not a fixed number of questions.

The first section focused on intentional and unintentional injury behaviors. Unintentional injuries were safety belt use, motorcycle use, motorcycle helmet use, driving while drunk, driving with someone who was drunk, and boating or swimming while drunk. Intentional injuries were violence based and inquired on gun, knife, or club possession and use, physical fighting, rape, and suicide.

The second and third sections were on tobacco, alcohol and other illicit drug use. The questions asked about frequency of use, age at which use had started and type of tobacco, alcohol and drug(s) used. Specifically with alcohol, students were asked whether they participated in episodic heavy drinking (consuming five or more drinks on at least one occasion for males, four or more for females).

The fourth section addressed sexual behaviors. These questions concerned sexual history, orientation, intercourse frequency, contraception use and condom use.

The fifth section regarded dietary behaviors. It included inquiries of body mass index (BMI), weight loss and gain, dieting, use of laxatives and/or diet pills, and history of bingeing and/or purging. Subjects were also asked to provide information about their dietary intake of fruits and vegetables and fatty foods, such as pastries or hamburgers.

Section six focused on physical activity. This section asked about frequency of exercise and the approximate vigorousness of selected exercises.

Because sleep deprivation is a risk behavior unrecognized by the NCHRBS, the researcher chose the Epworth Sleepiness Scale to explore college sleep risk behaviors. The Epworth Sleepiness Scale was developed at the Sleep Disorders Unit at Epworth Hospital in Melbourne, Australia. The survey is the most prevalent of all on-line sleep assessments. It consists of eight questions that ask “how likely are you to fall asleep in the following situations?” Eight different situations are exhibited and the answers provided in a five point Likert scale style from “Would never doze” to “Definitely would doze”.

The survey was administered twice, once in the beginning of the fall semester and again three weeks prior to the start of spring semester final exams. The two surveys were identical except for few changes. The only difference in the spring survey that the researcher considered was if the student had joined any athletic teams within the duration of their freshman year.

#### Validity/Reliability of Instrumentation

The instrument used for this research, The Modified Freshman Health Risk Behavior Survey was proven valid due to it being a survey that combined two other widely used tools, the National College Health Risk Behavior Survey (CDC, 1997) and Epworth’s Sleep Survey (Johns, 1991).

However, internal validity was of special concern. “Two major theoretical perspectives have been advanced to explain the source of validity problems that may emerge with some self reported data. The cognitive perspective focuses on the mental processes arising from comprehension, recall, and cognitive operations. The situational perspective focuses on validity and problems that arise from factors related to social desirability and interviewing conditions” (Brener, Billy & Grady, 2003). There are inquiries of private and or illegal activity that one might fear disclosing information on in fear of being identified. To help this concern, the

researcher developed an identification “code” for the subjects to ensure that only the researcher and the subject would be able to identify the subject’s survey.

#### Collection of Data

After being granted access to the populations, the researcher met with the R.A.s to ask them to assist in administering the surveys to the students that met the research criteria. The researcher anticipated almost a 100 percent return rate from the WELL residents so therefore aimed to test approximately 500 traditionally housed freshmen with the expectation of an approximate 20% return rate in attempt to achieve equal representation.

The R.A.s received the surveys with detailed instructions on how to administer the surveys at their mandatory hall meetings with their residents, in case the researcher was unable to attend the meetings. The completed surveys were put in an envelope provided by the researcher and if the researcher was not present, the sealed envelope was returned to a designated mailbox in the Office of Student Programs.

The surveys were redistributed in the same fashion late in the spring semester from the researcher and the same R.A.s and to the same designated residents as in the fall.

#### Method of Analysis

The primary comparison that was of focus was the differences between risk behaviors in WELL freshmen and traditionally housed freshmen. The statistical analysis would be mostly of descriptive nature. As the data was collected, it was entered into the Statistical Package for Social Sciences (SPSS) (Kellough, 1985) to be analyzed. For each individual question, the chi-squared test was used to detect any differences in responses between students in the WELL and the Traditional housing. For any question that reached statistical significance at an alpha level of .05, the major differences in individual responses (e.g. never smoked a cigarette) were described

qualitatively. Percentages were reported unless there were so small, that the population would be best represented by counts. First, analyses for the fall samples from the WELL and Traditional groups were run separately. The same analyses were repeated for the spring data to determine if there was a difference between the two at the end of the first academic year.

Because there was inconsistency in the coding from the residents from both populations in the fall and spring, the researcher was unable to track the subjects over the course of the academic year.

### Chapter Summary

This data was collected to examine risk behaviors in freshmen residents of the WELL community and freshmen in traditional housing. The data provided answers to the research questions as it identified the risk behaviors of WELL students, the risk behaviors of traditionally housed students, and the difference between the two. Using the pre-established NCHRBS and the Epworth Sleepiness Scale provided reliability and validity and deemed effective in addressing the research questions posed in the study.

## CHAPTER 4: RESULTS

The analysis for this study is organized by the risk behaviors presented in the surveys with the questions in the same order. The fall and spring results are presented collectively according to risk behavior. For purposes of this analyses, significant differences are noted as  $<.01$ . Most information that meets the criteria for comparison (those that calculate as being significantly different) is highlighted on graphs and/or tables in Appendix E, unless noted otherwise.

### Demographics

In both the fall and the spring of the academic year of 2004 to 2005, 123 surveys went to the WELL and 577 surveys went to traditionally housed freshmen. In the fall, there were 98 respondents in the WELL community and 166 respondents in traditional housing. In the spring there were 43 WELL respondents and 172 traditional respondents.

The fall survey had a 79.9% return rate from the WELL and a 28.8% return rate from traditional. In the spring, the return rate for the WELL was 35% while the traditional return rate was 29.8%. The return rates for the fall and spring could suggest variability within the traditional population due to a larger number of surveys that went out to multiple dormitories. With the return rate being 28.8% in the fall and 29.8% in the spring, the likelihood of the same subjects responding in both assessments is lower than the WELL's higher initial return rates of 79% in the fall, followed by the 35% response in the spring. The likelihood of the individual residents in the WELL taking the test twice is higher.

However, there were no significant differences in the demographics of the two populations in both the fall and spring (Appendix E, Figure 4.1). This can indicate that the two populations were of similar nature for general comparison.

## Injury Related Behaviors

The behaviors of focus in the injury related behavior analysis was assessed by the questions that the NCHRBS put forth. The topics of inquiry were seat belt use, motorcycle and bicycle use, boating and swimming and riding with drunk drivers. More violent behaviors included weapon and gun possession, physical fights, and suicide. It was found that there was a difference between the WELL and Traditional in the following areas: Seatbelt use as a passenger and driver (Appendix E, Figure 4.2, 4.3), motorcycle use (Appendix E, Figure 4.4), bicycle and bicycle helmet use (Appendix E, Figure 4.5), riding with someone who had been drinking alcohol (Appendix E, Figure 4.6), boating and swimming after consuming alcohol Appendix E, (Figure 4.7) and the frequency of weapons carried on campus (Appendix E, Figure 4.8).

The students in the WELL were more likely to always wear seatbelts when riding as a passenger in a car. This is consistent in the fall and the spring (Appendix E, Figure 4.2). The trend remains the same when the residents were asked how often they wore a seatbelt while driving a vehicle. Again, the WELL residents reported that they were more likely than the traditional residents to always wear seatbelts when driving (Appendix E, Figure 4.3). However, the Traditional residents were approximately 20% more likely to always wear a seatbelt when they were driving as opposed to riding as a passenger. In both cases, as riders and drivers, the majority of the WELL and Traditional freshmen wore seatbelts always or most of the time.

With motorcycle use within the past 12 months of the fall, more traditional residents rode motorcycles (18.1%) than in the WELL (15.3%) (Appendix E, Figure 4.4). However, in the spring, results show that more WELL used motorcycles than Traditional residents (Appendix E, Figure 4.4). Within the past six months prior to the spring survey 5.8% of Traditional freshmen rode motorcycles and 16.3% of the WELL rode motorcycles at least one time.

Statistics on helmet use among motorcycle users was underpowered due to the small numbers of students who ride motorcycles in both the fall ( $W_n=16$ ,  $T=30$ ) and the spring ( $W_n=7$ ,  $T_n=10$ ). (This determination is based on the general rule that you need at least five observations per cell for a chi-square analysis). However, the number of helmet users were  $W_n=12/16$  and  $T=28/30$  for the fall and  $W_n=7/7$  and  $T=6/10$  for the spring.

The WELL residents reported using bicycles more than the traditional population before entering school (Appendix E, Figure 4.5). Within the populations in the W.E.L.L and Traditional who rode bicycles, the prevalence of the WELL residents using helmets (sometimes, most of the times or always) were approximately double of those who wore helmets in the Traditional population. (Appendix E, Figure 4.6).

Despite there being no significant difference between the residents in the WELL and Traditional when they reported the number of time they had boated or went swimming the past 12 months prior to taking the fall survey, there was a difference in whether they consumed alcohol when boating and swimming (Appendix E, Figure 4.7). Of the 93.6% WELL and Traditional boaters and/or swimmers, 24.4% went 40 or more times, 16.6% went 21 to 39 times, 19.9% went 11 to 20 times, and 32.8% went one to ten times. Of those who did go boating and/or swimming, 94.6% of the WELL population never consumed alcohol while 68.6% of Traditional reported never consuming alcohol. It is further reported that an equal percentage of both WELL and Traditional residents who consumed alcohol while boating and/or swimming (3.3%) did so most of the time or always (Appendix E, Figure 4.7).

In both the fall and the spring, the traditionally housed freshmen were more likely than the WELL residents to ride in a car with someone who had consumed alcohol (Appendix E, Figure 4.8). In the fall 34% of Traditional and 10.2% of WELL residents rode with someone who

had been drinking alcohol. In the spring, 33.7% of Traditional and 11.6% of the WELL rode with someone who had been drinking (Appendix E, Figure 4.8).

With more violent behaviors, such as weapon possession, physical fighting, and suicide, there were no significant differences between the WELL and Traditional residents' behaviors, which showed low incidences of violent activity. The data from the WELL and Traditional were consolidated for a general description of the University (Appendix E, Figure 4.9).

There were statistically no differences between the WELL and Traditional with respect to whether or not they had carried a weapon in the past 30 days ( $\chi^2=3.058$ ,  $p=.548$ ). In Figure 4.9, the data from the WELL and Traditional housing were consolidated for a general description of the freshmen. Qualitatively, Fall and Spring results were similar with five to six percent of the students carrying weapons regularly (6+ times per week). More specifically, in Fall 2004, 3/96 students in the WELL carried a gun within the past 30 days and 3/166 students in traditional housing carried a gun within the past 30 days ( $\chi^2=4.006$ ,  $p=.405$ ). In Spring 2005 2/41 students in the WELL carried a gun within the past 30 days and 5/167 students in traditional housing carried a gun within the past 30 days ( $\chi^2=1.969$ ,  $p=.579$ ).

In the Fall, the majority of students had not fought in the 12 months prior to the survey (WELL, 89.9%; Traditional 86.1%). There were 10 people who fought in the WELL in the fall, and six reported fighting with family members. Of the 23 people who had fought in the Traditional sample, nine report fighting with a friend or someone they knew. In the spring, no one in the WELL fought in the six months prior to taking the survey and 7% (12 individuals) of the traditionally housed freshmen fought. Like the fall, the traditional fighters fought mostly with a friend or someone they knew over other populations. Three people from the WELL fall survey

received medical attention for fighting injuries. No one in the either of the Traditional populations in the Fall or the Spring received medical care for injuries sustained in the fights.

With both populations, there is a low rate of suicidal ideation. In the fall, no one in the WELL considered suicide. In the Traditional population, three people planned suicide within the 12 months prior to the survey and all three attempted suicide. However, none of them succeeded nor received medical attention for any injuries that may have resulted from their attempts. In the spring, one person in the WELL considered and planned suicide while four students in Traditional planned suicide. Of the WELL and Traditional freshmen, no one attempted suicide.

### Substance Abuse Behaviors

Within substance abuse behaviors, the research looked at (tobacco) smoking, alcohol consumption and marijuana and illicit drug use.

#### Tobacco

The smoking inquiries of focus gave the percentage of those who tried smoking (Appendix E, Figure 4.10), age of first whole cigarette (Appendix E, Figure 4.11), how many cigarettes were smoked in the past 30 days (Appendix E, Figure 4.12), and if they were regular smokers (Appendix E, Figure 4.13). With smoking, the WELL and traditional freshmen proved to be different with the traditional population having a higher percentage of smokers in both the fall and spring.

Overall, about 20% of the WELL had ever tried smoking and approximately 50% of traditionally housed freshmen have ever smoked. This indicates that there are more people who smoke or have experimented with tobacco in traditional housing (Appendix E, Figure 4.10). In the WELL and Traditional, the percentage of people who tried smoking stayed close in the fall

and the spring, with about 18% of the WELL and 52% of Traditional trying smoking (Appendix E, Figure 4.10).

Despite there being fewer WELL smokers, they had more smokers experimenting with smoking a whole cigarette at younger ages (Appendix E, Figure 4.11). From the results of the Fall 2004 survey, it appears that there is an even distribution with the age of first cigarette use in both the WELL and Traditional smokers. According to this data, this distribution displays a steady onset of smoking from 13 to 18 years (Appendix E, Figure 4.11). There were an insufficient number of smokers in the WELL for the Chi-Square test.

Of the smokers in the WELL, only three residents in the spring and two in the fall reported ever regularly smoking (smoking one cigarette/day for 30 days in a row). Of the smokers in Traditional, 22 ever smoked regularly prior to the fall survey and 20 ever smoked regularly (during their lifetime) in the spring. In addition, of people who have smoked, 40% (6/15) of the WELL and 27.6% (24/87) of traditional smokers have attempted to quit smoking prior to taking the fall survey ( $\chi^2=18.1$ ,  $p<.05$ ). In the spring survey, 5.9% (1/17) of the WELL and 23.1% (21/91) of traditional smokers have attempted to quit smoking prior to taking the fall survey ( $\chi^2=39.6$ ,  $p<.05$ ).

In the 30 days prior to the survey, no one in the fall WELL population reported being a regular smoker (having one or more cigarette per day for 30 consecutive days) (Appendix E, Figure 4.12). With the traditional fall smokers, 21 of the 70 smokers reported being regular smokers.

## Alcohol

A higher percentage of students in traditional housing consume or have consumed alcohol (Appendix E, Figure 4.13). Also, more students in the WELL have never had a drink of

alcohol. Of students in Traditional housing, the majority had their first drink of alcohol at the age of 15 or 16 years old (Appendix E, Figure 4.13). In the fall, a total of 37.8% of the WELL and 86.1% of Traditional have consumed an entire alcoholic drink in their lifetime. In the spring, that percentage is 55.8% of the WELL and 86% of Traditional.

Based on the Fall 2004 and Spring 2005 surveys, of the students that did have alcohol, more students in the WELL have not had a drink of alcohol within the past 30 days (Appendix E, Figure 4.14). The majority of Traditional consume alcohol in a distributed pattern from three to 19 alcoholic beverages in the 30 days prior to taking the respective surveys (Appendix E, Figure 4.14). Also, of the students who have had alcohol, fewer students in the WELL reported binge drinking, or consuming more than five alcoholic beverages in a row (Appendix E, Figure 4.15).

#### Marijuana

Traditional residents use or have used marijuana more than WELL residents (Appendix E, Figure 4.16). The majority of the WELL residents who have smoked marijuana have only used marijuana one or two times (Appendix E, Figure 4.16). Also, based on the 2004 and 2005 surveys no one in the WELL used marijuana 30 days prior to the fall survey and two used 30 days prior to the spring survey. With Traditional, 29 out of 74 residents reported using marijuana 30 days prior to the fall survey and 23 out of 66 reported using marijuana 30 days prior to the spring survey (Appendix E, Figure 4.17).

#### Sexual Risk Behaviors

Within sexual behaviors, there were significant differences between the WELL and Traditional with the age of first intercourse (Appendix E, Figure 4.18), the number of sex partners (Appendix E, Figure 4.19), and the number of times they frequently participated in sexual intercourse (on the 30 days prior to the survey) (Appendix E, Figure 4.20). Counts were

tabulated for condom use and sex after drugs and alcohol consumption (Appendix E, Figure 4.21).

In both the fall and spring, most of the WELL residents had never had sexual intercourse while approximately 40% of the traditional population had never experienced intercourse. The fall survey reported that of 98 WELL residents, 17 residents reported have had sexual intercourse and of 166 Traditional, 99 residents reported have had intercourse. The spring survey reported that of the 43 WELL residents, 12 have had intercourse and of 172 Traditional, 103 have had intercourse. Of those who did have intercourse, most experienced their first sexual intercourse when they were 17 or 18 years old (Appendix E, Figure 4.18). The percentage of the WELL residents having sex was greater in the spring than the fall, however there was not as much of an increase in percentage from the fall to spring in Traditional.

Of all the students that have had sexual intercourse, more WELL residents have had one sexual partner in both the fall and spring surveys. Traditional residents reported that approximately 45% had one sexual partner in their life, but there were more traditional students (than WELL) reporting having multiple sexual partners in their lifetime (Appendix E, Figure 4.19).

However, those who have had intercourse in the past, not everyone has had intercourse in the last 30 days prior to taking either survey. The WELL residents were more likely to have not engaged in sexual intercourse than Traditional overall, but within the traditional population, the largest group of sexually active residents reported not having sex in the last 30 days (32%) (Appendix E, Figure 4.20).

Of students that were sexually active in the past 30 days to the surveys (Fall 2004: Wellness n=8, Traditional n=68, Spring 2005: Wellness n=7, Traditional n=70), condom use was

not a behavior that was consistently practiced with all populations (Appendix E, Figure 4.21). Of all the groups, the fall WELL respondents reported that 75% always used condoms where 43 to 45% of the other populations always wore condoms.

On the fall survey, when asked if they used a condom during their last intercourse, ten out of 16 of the WELL residents did while 31 of 99 of the Traditional residents did. In the spring, 8 of 12 of the WELL residents and 69 of 103 of the Traditional residents wore condoms during their last intercourse (Appendix E, Figure 4.21).

Inconsistent condom use seems to correlate with the number of students that have sex under the influence of drugs and/or alcohol. In the fall, no one in the WELL reported using drugs or alcohol the last time they had sexual intercourse and almost a third (31/99) in Traditional had. In the spring, however, a quarter of the WELL and almost a third of Traditional had consumed drugs and or alcohol prior to their last intercourse (Appendix E, Figure 4.21). From the fall to the spring, it looks like the WELL and Traditional are becoming more similar with respect to combining sex with drug or alcohol use.

### Dietary Behaviors

With dietary risk behaviors, the results show no significant differences between the WELL and Traditional except for their vegetable and salad consumption. All populations fell into a bell curve formation with their self weight description with the largest group of students feeling they were just the right weight (Appendix E, Figure 22, Figure 23). The distribution followed each way with slightly over and underweight and on the outskirts were very under and overweight. In spite of the residents feeling as if they were of appropriate weight, the collective majority of them were trying to control their weight in one of three ways; lose, gain, or maintain. Fewer than 20% of the residents were doing nothing about their weight.

More residents reported not dieting in the last 30 days. In the fall, 20% of the WELL and 25% of Traditional dieted. The percentage for the WELL was similar in the spring, with 21% dieting, whereas 36% of the Traditional population dieted in the spring, making for more traditional dieters. Less people in the WELL used purging techniques, such as self induced vomiting or using laxatives or diet pills. Based on the fall results, one person used diet pills and one other vomited or used laxatives in the WELL. Within the fall Traditional population, the trend mimicked the WELL, with there being eight people in each category of diet pills and vomiting or laxative use. The spring results were, WELL, diet pills n=1, vomiting/laxatives n=2 and Traditional, diet pills n=5, vomiting/laxatives n=6. The residents' BMIs were for the most part, in the normal range (18.5 - 24.5) (Appendix E, Figure 22, Figure 23).

In regards to how often all the respondents ate, no significant difference was calculated. The results show that the largest group of residents ate three or more times a day followed by twice a day. Fewer people ate once a day (Fall n=4, Spring n=6). One WELL respondent in the fall did not eat the day prior to the survey.

About half of all students did not drink fruit juice the day prior to the fall or spring surveys. Of those who did, there was a steady decline in the percentage in those who consumed one drink of fruit juice to those who consumed three or more drinks.

With hamburgers, hotdogs, sausages and fries and/or chips, another pattern emerged with all participating residents. The largest group of students reported not eating either of these food groups (hamburgers to sausages or fries and/or chips) on the days prior to the surveys. The percentages of students eating these foods decreased as the frequency of consumption went from one feeding a day to three or more times a day.

With cookies, doughnuts, pie, and cake, the largest percentage of people in the WELL (fall=51%, spring=48.8%) ate baked goods once a day while the largest percentage of Traditional did not eat any baked goods (fall=49.4%, spring=56.4%) the day prior to the surveys.

Except for the WELL residents in the fall (61.4%) (Appendix E, Figure 4.23), over half of the students did not eat green salad the day prior to the survey. The next largest group is those who ate salad once and then those who ate salad twice. Only one person from fall and spring ate salad three or more times (Appendix E, Figure 4.24). This same trend follows for cooked vegetables as well (Appendix E, Figure 4.25).

### Physical Activity

Physical activity related behaviors were of no significant difference between the WELL and Traditional in the fall or spring. With aerobic exercise (20 minutes or more of heavy breathing such as jogging, etc), the majority of the students did not make the CDC's (2006) exercise requirements of partaking in vigorous physical activity at least three times a week. The largest percentages did not stretch or strength train on any days of the week prior to the surveys. In both the fall and spring, the Traditional residents reported that approximately 25% did not walk or bike for a total of 30 minutes at a time in the week prior to the respective survey. However, the WELL residents reported that 35.7% (fall) and 25.6% did walk or bike 30 minutes consecutively the week prior to taking the survey.

The majority of all residents were not involved in physical education classes (95.3 to 99%). According to the Spring 2005 data, more WELL students opted to play on sports teams (Appendix E, Figure 4.26) with 18.6% playing on three or more teams.

## Sleep Deprivation

The highest percentage of residents reports sleeping an average of six to seven hours a night. The largest group of respondents would not doze if talking with someone or sitting in a car in traffic. They might doze if they were reading, watching T.V., riding in a car as a passenger, or after lunch with alcohol consumption, and they definitely would doze if they would lie down for the afternoon.

According to the Spring 2005 data, the WELL residents are more likely than Traditional to definitely or very likely doze while sitting in a public place such as a theater, meeting or class (Appendix E, Figure 4.27).

## CHAPTER 5: DISCUSSION

The purpose of this study was to examine health risk behaviors of college freshmen that lived in either traditional housing or in wellness themed housing. The risk behaviors examined were injury related behaviors, substance abuse behaviors, sexual behaviors, dietary behaviors, physical activity and sleep.

More specifically, the study was designed to answer the following research questions:

- What are the risk behaviors of freshman college students?
- What are the risk behaviors in the WELL L.C.?
- What are the risk behaviors in traditional housing?
- What are the differences in risk behaviors between freshmen living in the WELL L.C. and traditional housing?

The study was successful in answering those inquiries and presented implications for further research.

### Results

Despite the limitation that the researcher was unable to obtain the same samples or same number of participants per sample from the fall and spring, there were no significant differences in demographic information. This provides indication that the groups were similar in both the fall 2004 and spring 2005 surveys and assists with the credibility of comparison.

Within this study, it was rare that a group exhibited no representative(s) in their sample that did not partake in any of a given risk behavior. Most risk behaviors, from injury related behavior to sleep behavior was displayed in varying degrees. A pattern did emerge that traditionally housed freshmen exhibited riskier tendencies than WELL freshmen in the areas of non-violent injury related behaviors, substance abuse, and sexual behaviors. In contrast the

WELL and Traditional were similar in the areas of violent injury-related behavior, dietary habits, physical activity and sleep.

In regards to other differences in risk behaviors between the WELL and Traditional, the traditional population reported being less likely to always wear their seatbelt as passengers and drivers, more likely to ride motorcycles prior to the fall survey, and less likely to wear bicycle helmets while riding bikes.

#### Relationship of Findings to Prior Research

It would be reasonable to ponder the relationship between high rates of substance abuse rates and high rates of injury and sexual behaviors. Research indicates that alcohol use in college students is linked heavily with using other drugs, injuries and risky sexual decision making (HSPH, 2003; Cooper, 2002). The residents in traditional housing were more likely than their WELL peers to consume alcohol and to binge drink.

The following relationships between alcohol and injury behaviors in fall 2004 and spring 2005 were not unusual. With the Traditional's higher incidence of alcohol use, they also consumed alcohol more frequently when boating and/or swimming and were more likely to ride with a driver who had been drinking than those in the WELL

Alcohol consumption is deemed a social function, much like cigarette smoking on college campuses (Rigotti & Weschler, 2000). When under the influence of alcohol, college students have impaired judgment and may exhibit behaviors that prompt them to use other illegal substances, such as marijuana and cocaine. It is reflected in the literature that alcohol use correlates with higher incidences of other substance abuse. Not only are there more drinkers in traditional housing than the WELL, there are more smokers and individuals that use marijuana and/or cocaine.

Other studies (Cooper, 2000) support the relationship between alcohol consumption and sexual activity. The most obvious reflection of that relationship is that according to the fall 2004 results, no one in the WELL had consumed alcohol (or drugs) the last time they had intercourse, whereas a third of the traditional population had consumed alcohol or drugs. In the spring 2005 survey, alcohol consumption was higher in this group of WELL residents and a quarter of the sexually active WELL residents (n=12) reported being under the influence of drugs and/or alcohol during their last intercourse.

Because of the known relationship between alcohol consumption and sexual activity, it was further noticed there was a possible correlation with the age of the first drink of alcohol and age of first incidence of sexual intercourse. The age that most of the traditional residents consumed their first drink of alcohol is 15 to 16 years old and their first sexual intercourse appears to have had precedence a year later, at 17 or 18 years old. The WELL showed that there were less residents that ever consumed alcohol (62.2%) and more sexual abstiners (82.7%) in the fall. However, in the spring, 44.2% of the WELL reported never having a drink of alcohol and also reported a lower percentage of sexual abstinence when compared to the fall at 72.1%. Of those who have had intercourse, the traditional residents had more sexual partners, participated in sex more frequently, and were less likely to use condoms consistently as those in the WELL. Despite lower number of sexually abstained WELL freshmen in the spring, overall, the WELL residents are less sexually active and more sexually responsible.

It is critical to note that the only concrete difference between the WELL and Traditional housing on this campus is the WELL residents were required to sign a contract of agreement that stated they would abstain from alcohol, drugs, and sexual activity in order to reside within the dormitory. This is a no tolerance policy, and, if violated, the resident will be asked to leave. In

traditional dorms, alcohol consumption and illegal drug use call for appropriate legal action, but the resident may not be ejected. The significant differences between the traditionally housed freshmen and the WELL freshmen are centered on alcohol, injury related behaviors (especially those that involve alcohol) and sexual behaviors. This could indicate that either they were predisposed to abstaining from these behaviors prior to coming to college or they remained under the influence of a living environment where these behaviors were not to be socially acceptable by definition of the mission of the community. Either way, it would be natural to assume that living environments would play a part in students' risk behaviors.

Even though the living environments may differ within their dormitories, the similarities that evolve around non-violent injury related behaviors, dietary behaviors, physical activity, and sleep are an equally significant piece to indicating the power of the campus' environmental influence outside the dormitory halls. This is evident in the similarity of the findings within violent based injury behaviors, nutrition and dietary behaviors.

The violent injury risk behaviors included weapon possession, physical fighting and suicide. In all populations, the rates for these behaviors were minimal. The results showed that 11.1% of the WELL and 13.9% of traditional freshmen entered college with a physical fighting history. Research reports that 7% of students fought while in college (ACHA, 2004). With this institution, in the spring, no one in the WELL and less traditional residents fought during the academic year after the time the fall survey was administered. Also, in the fall, no one in the WELL and three people in traditional contemplated suicide in the 12 months prior to college, but in the spring, there was a very small rise in the number of people, with one in WELL and four in Traditional. This may indicate that campus is generally a safe and harmonious place but more

attention may be worth focusing on personal mental health for college freshmen (Grizzell, 2001), especially those who may not reside in themed housing (ACHA, 2002).

With regards to body weight and weight control, the results show the highest number of the respondents being in the normal BMI range (18-24.5). Although the majority of them were actively attempting to lose, gain or maintain their weight, their perception of their weight centralized heavily around “just right”. More students reported not dieting in the 30 days prior to either survey and a trace amount of residents resorted to serious measures for weight control (eight people in the fall, six in the spring for all populations).

However, their dietary choices and portion sizes are of more concern. Even though the largest number of residents ate three or more times a day, some dieticians and nutritionists may say that this is not enough. Additionally, it is a general recommendation that healthy adults should consume 2-3 servings of fruit and 3-4 servings of vegetables daily while limiting foods high in saturated fats, oils and sweets. Although the largest number of students reported not eating fatty meats, fries or chips, and/or sweet baked goods the day prior to taking their respective surveys, the reader must recognize that the majority of the respondents may be indulging in at least one of these items that are recognized unhealthy choices daily. Also, about half of the respondents reported not drinking fruit juice at all on the day prior and the largest count of respondents report not eating salad (Figure 4.22) or cooked vegetables (Figure 4.23), except for the fall 2004 WELL group. The fall WELL group showed the only disparity in the dietary behavior with the largest number of residents reporting that they ate vegetables at least once the day prior to taking their survey. In all, the results of this study are not totally conclusive in whether the students eat a healthy diet, but do indicate that some unhealthy habits exist.

The students are far from exhibiting the recommendation for 30 minutes of exercise daily. Despite there being a significant difference between the WELL and Traditional in the spring with regard to the number of sport teams they participated on, the focus for this result section will be on those who opted not to play on a sports team. The most significant difference is that the WELL had a higher percentage of individuals who played on three teams or more (18.6%, opposed to Traditional's 3.5%). However, the percentage of individuals who did not play on sports teams was much higher for both Traditional (64.5%) and the WELL (55.8%).

With sleep behaviors, the trend remains the same as dietary and nutrition. The largest percentage of respondents sleeps on average of six or seven hours a night, in spite of the recommended amount being eight to nine. The majority of these students go through their daily lives in some state of sleepiness (Edens, 2006). There was question that showed a difference between the WELL and Traditional in the spring with traditional students being less likely to doze in a public place such as a theater, meeting or class.

While some survey questions related to health risk behaviors showed statistically significant differences, such as vegetable consumption, team activity participation, and public sleepiness, as a whole these two populations did not differ significantly with respect to their nutritional, physical activity or sleep habits.

#### Implications for Further Practice and Research

The results of this study have several implications for future professional practice. These results can assist college and university administrators, college health administrators, college health educators and researchers.

First, college health administrators would be familiar with what health risk behaviors are most prevalent and of urgency in on-coming freshmen on campus. They can attend to their

responsibility of addressing identified health issues to university administrators and determine the most effective ways to communicate interceptive information to students that may knowingly or unknowingly need assistance with their health.

In addition to knowing current health issues on campus, it is important for college health administrators to be familiar with the current generation of students. At the time of this study, the students are referred to as the millennials (Howe & Strauss, 2000). They respond heavily to peer pressure and to technological communication while expecting their institutions to act *loco parentis*. For example, a college health administrator who knows that millennials prefer electronic communication and that exercise frequency is influenced by facility availability in close proximity (Reed & Phillips, 2005), then they may advise that email announcements advertising the opening of a new facility to on campus residents would be a great method to motivate students to meet their exercise quotas.

As indicated, the study allows college health administrators to analyze the findings and deliver appropriate services to fit the millennial population. In turn, they are to make informed decisions on staffing and supplying suggestions for materials and resources in areas that they see is in most need. Overall, their goal is to provide a healthier campus and to create healthier campus norms. Furthermore, it would be a college health administrator's responsibility to place together the most updated information to relay to university administrators and to health educators.

University and college administrators have the responsibility to positively affect student behavior and to enrich the entire learning environment. From the information they may receive from this study, and from their college health administrators, they can benefit from this by

promoting good role models (including themselves) and by assisting in the allocation of services and recognition of the needs for modifications to promote a healthy campus.

By promoting a healthy environment, the university can appeal to both prospective students and parents as a safe and desirable place to succeed. Also, by providing the student with positive role models and by highlighting groups of current students making healthy choices may appeal to the millennial mentality. College and university administrators can also use this research to determine where allocation of funds and personnel need to be focused.

Third, this study can assist college health educators. Health educators address specific health issues and attempt to educate the students on health topics, such as alcohol, sex education, nutrition or more. These results may inform them of what topics need more attention for preventative health.

Finally, national researchers can better see the discrepancies in this study and perhaps become motivated to discover more about college freshmen and specific risk behaviors or effective methods of mass behavior modification. Also, these results can provide additional information for comparison to similar studies done at other institutions that may measure the health risk behaviors of their students for a more collective view on the behavior of today's college students.

Overall, this study serves as a springboard to more research on college freshman, freshmen health risk behaviors and collegiate living environments. Because one of the goals of this study was to determine the health risk behaviors of college freshmen, it would be reasonable to compare freshmen with other classes. Comparing freshmen with upperclassmen would give a stronger indication of what risk behaviors are more prevalent in incoming freshmen. Another way to observe freshmen health risk behaviors would be to conduct a longitudinal study among

incoming college students. Tracking freshmen health risk behaviors to their completion of college would give the researcher an indication if riskier behavior is perhaps really more relevant in their first year of college.

Because this study covered six risk behaviors, one may want to concentrate more on freshmen and one of these risk behaviors for a more comprehensive approach.

Another question that rose from the research was whether the collegiate environments play a role in freshmen health risk behaviors and if so, to what extent. To examine this it is recommended further research to be done to compare different types of institutions, such as a Historically Black College or University to a small private institution. Another avenue for examination were to be to compare freshmen within one institution, but include other learning communities (L.C.s), similar to this study done with the WELL and traditional housing.

#### Limitations of the Study

This research was not done without limitations. First, there were limitations with the sample. The responses from the WELL and Traditional were not of the same numbers in the fall ( $W_n=98$ ,  $T_n=166$ ) nor the spring ( $W_n=43$ ,  $T_n=172$ ). This may have for less than prime perception of the report of percentages. Also, because the researcher attempted to reach 577 Traditional residents to take the test in both the fall and the spring, the likelihood of having repeat subjects is questionable. Lastly, this study may not be representative of the national norm in college freshmen health risk behaviors.

With the instruments, the researcher was unable to get consistency in the coding, therefore being unable to track the subjects over the course of the academic year as planned. Also, there were many risk behaviors covered, making it difficult to concentrate on any one given risk behavior.

Another limitation was that the study did not examine other environmental factors such as religious affiliations and parental influences. The researcher came to discover through informal focus groups that members of the WELL alluded to feeling comfortable in a residential hall where alcohol and drugs were not acceptable in accordance with their religious values. Other WELL residents stated that they felt pressured by their parents to live there to achieve higher grades and to abstain from alcohol and drugs. The researcher did not have discussions that repeated these reports from any traditional residents.

### Conclusions

The findings and relationships are of importance to probe the influence of the collegiate environment and its' effect on freshmen risk behavior. The significant differences between the traditionally housed freshmen and the WELL freshmen are centered on alcohol, injury related behaviors (especially those that involve alcohol) and sexual behaviors. This could indicate that either they were predisposed to wanting to abstain to these behaviors prior to coming to college or they remained under the influence of a L.C. where these behaviors were not to be socially acceptable by definition by the mission of the community. Either way, L.C.s could influence or reinforce healthy behavior.

Even though the living environments may differ within their dormitories, the similarities that evolve around non-violent injury related behaviors, dietary behaviors, physical activity, and sleep are an equally significant piece to indicating the power of the campus' environmental influence outside the dormitory halls.

The WELL community does have initiatives to encourage healthier living, such as their exclusive Healthy Living course only offered to WELL residents, but only actively enforces alcohol and drugs. All campus residents, not just the individuals involved in this study, are

required to follow the same policies and laws put forth by the community and university (e.g., non-smoking areas, physical assault, underage drinking, bike paths, etc.), share the same campus grounds, and are exposed to the same opportunities.

More specifically, these participants, when not in their dormitories, but on campus, are in the same environment. All freshmen that reside on campus are likely to lead similar daily regimens with class schedules, meal times at the dining halls, and within a familiar campus layout. They have same rights to security on campus grounds, the dining halls are not exclusive or have choices that are limited to certain populations, and all students have access to several large exercise facilities within walking distance from any area on central campus. The students share similar schedules, with classes being held from Mondays through Fridays from the morning to evenings and freshmen academic regimens are likely similar due to the majority of course work being of introductory level. They are also exposed to the same opportunities from freshman orientations and from multiple sources throughout campus such as advertisements, student organizations or word of mouth. These opportunities can lead to joining a club or athletic team, or to participating in social events taking place at local bars or house parties. Advertisements cajole students to fast food restaurants on or off campus. With this information, it would be natural to assume that living environments could play a part in students' risk behaviors.

Also, it is important to remember the characteristics of this population, the millennials. They respond heavily to peer pressure and to technological communication while expecting their institution to act loco parentis. They demand care and responses almost immediately.

College health administrators, university administrators, college health educators and national researchers could use the findings of this study along with the review of literature to

enhance and encourage the growth of health risk behavior advocacy on their campus or nationwide.

It is encouraged that professionals involved with college student health development to closely regard the ongoing trend between alcohol consumption with injury and sexual behaviors. It is evident that there is a difference between the two populations due to their direct living arrangements (dormitory assignments). Despite it being questionable whether the WELL residents were predisposed prior to their arrival on campus, the message that was given in the WELL, according to Social Norms Marketing theory, was effective. That message was that sexual intercourse and drug and alcohol consumption was neither acceptable nor heralded behaviors with their peers.

However, the risk behaviors that colleges and universities should address to all freshmen are dietary risk behaviors and physical activity. Unlike alcohol, drug and sexual activities, these behaviors are done less privately in the dining halls, on campus grounds, and in the exercise facilities available to students and can be positive behaviors that encourage interaction and bodily nourishment and health if done properly. University administrators can make a push for healthier campus dining options, elimination of fast food outlets on campus and an expansion or additional exercise facility or grounds. These behaviors are strongly impacted by the availability of healthier options. Overall, according to the literature and the findings of this study that colleges and universities understand the depths of college student health risk behaviors and the characteristics of their student bodies in order to effectively influence a path to a healthier campus.

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Appendix A:

Instruments

## Fall 2004: Modified Freshman Health Risk Behavior Survey

**IMPORTANT:**

- Read each question carefully.
- Use a #2 pencil only.
- Make dark marks.
- Example:
- Erase completely to change your answer.

**CODE INSTRUCTIONS:**

Write the first three letters of your mother's maiden name. Then match the letters to the numbers like on a telephone keypad. For example, if the maiden name is Lewis, then the code would be LEW539.

**Numeric Guide:**

ABC=2, DEF=3, GHI=4,  
JKL=5, MNO=6, PQRS=7  
TUV=8, WXYZ=9

1. How old are you?

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

2. What is your sex?

- Male
- Female

3. How do you describe yourself?

- White – not Hispanic
- Black – not Hispanic
- Hispanic or Latino
- Asian or Pacific Islander
- American Indian or Alaskan Native
- Other (specify): \_\_\_\_\_

4. Where do you currently live?

- In the WELL
- Traditional housing (specify dorm): \_\_\_\_\_

5. Do you have any kind of health care coverage, including health insurance or prepaid plans such as HMOs (health maintenance organizations)?

- Yes
- No
- Not sure

6. How much education does your mother have?

- She did not finish high school
- She graduated from high school or attained a GED
- She had some education after high school
- She graduated from college
- Not sure

7. How much education does your father have?

- He did not finish high school
- He graduated from high school or attained a GED
- He had some education after high school
- He graduated from college
- Not sure

**The next 18 questions ask about safety and violence.**

8. How often do you wear a seat belt when riding in a car driven by someone else?

- Never
- Rarely
- Sometimes
- Most of the time
- Always

9. How often do you wear a seat belt when driving a car?

- Never
- Rarely
- Sometimes
- Most of the time
- Always

**Fall 2004: Modified Freshman Health Risk Behavior Survey**

10. During the past 12 months, how many times did you ride a motorcycle?
- 0 times
  - 1 to 10 times
  - 11 to 20 times
  - 21 to 39 times
  - 40 or more times
11. When you rode a motorcycle during the past 12 months, how often did you wear a helmet?
- I did not ride a motorcycle during the past 12 months
  - Never wore a helmet
  - Rarely wore a helmet
  - Sometimes wore a helmet
  - Most of the time wore a helmet
  - Always wore a helmet
12. . During the past 12 months, how many times did you ride a bicycle?
- 0 times
  - 1 to 10 times
  - 11 to 20 times
  - 21 to 39 times
  - 40 or more times
13. When you rode a bicycle during the past 12 months, how often did you wear a helmet?
- I did not ride a bicycle during the past 12 months
  - Never wore a helmet
  - Rarely wore a helmet
  - Sometimes wore a helmet
  - Most of the time wore a helmet
  - Always wore a helmet
14. During the past 12 months, how many times did you go boating or swimming?
- 0 times
  - 1 to 10 times
  - 11 to 20 times
  - 21 to 39 times
  - 40 or more times
15. When you went boating or swimming during the past 12 months, how often did you drink alcohol?
- Did not go swimming or boating during the past 12 months
  - Never drank alcohol
  - Rarely drank alcohol
  - Sometimes drank alcohol
  - Most of the time drank alcohol
  - Always drank alcohol
16. In the past 30 days, how many times did you ride in a car or other vehicle driven by someone who had been drinking alcohol?
- 0 times
  - 1 time
  - 2 or 3 times
  - 4 or 5 times
  - 6 or more times
17. During the past 30 days, on how many did you carry a weapon such as a gun, knife, or club? Do not count carrying a weapon as part of your job.
- 0 days
  - 1 days
  - 2 or 3 days
  - 4 or 5 days
  - 6 or more days
18. During the past 30 days, on how many days did you carry a gun? Do not count carrying a gun as part of your job.
- 0 days
  - 1 days
  - 2 or 3 days
  - 4 or 5 days
  - 6 or more days
19. During the past 12 months, how many times were you in a physical fight?
- 0 times – SKIP TO QUESTION 21
  - 1 time
  - 2 or 3 times
  - 4 or 5 times
  - 6 or 7 times
  - 8 or 9 times
  - 10 or 11 times
  - 12 or more times
20. During the past 12 months, with whom did you fight? (Select all that apply.)
- A total stranger
  - A friend or someone I know
  - A boyfriend, girlfriend, or date
  - My spouse or domestic partner
  - A parent, brother, sister, or other family member
  - Other

**Fall 2004: Modified Freshman Health Risk Behavior Survey**

21. During the past 12 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?

- 0 times
- 1 time
- 2 or 3 times
- 4 or 5 times
- 6 or more times

**Sometimes people feel so depressed and hopeless about the future that they may consider attempting suicide, that is, taking some action to end their own life. The next four questions ask about suicide.**

22. During the past 12 months, did you ever seriously consider suicide?

- Yes
- No

23. During the past 12 months, did you make a plan about how you would attempt suicide?

- Yes
- No

24. During the past 12 months, how many times did you attempt suicide?

- 0 times
- 1 time
- 2 or 3 times
- 4 or 5 times
- 6 or more times

25. If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor, nurse or medical professional?

- I did not attempt suicide during the past 12 months
- Yes
- No

**The next 8 questions ask about tobacco use.**

26. Have you ever tried cigarette smoking, even one or two puffs?

- Yes
- No – SKIP TO QUESTION 33

27. How old were you when you smoked a whole cigarette for the first time?

- I have never smoked a whole cigarette
- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

28. During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day?

- I did not smoke cigarettes during the past 30 days
- Less than 1 time per day
- 1 cigarette per day
- 2 to 5 cigarettes per day
- 6 to 10 cigarettes per day
- 11 to 20 cigarettes per day
- More than 20 cigarettes per day

29. Have you ever smoked cigarettes regularly, that is, at least one cigarette every day for 30 days?

- Yes
- No

30. How old were you when you first started smoking cigarettes regularly (at least one cigarette every day for 30 days)?

- I have never smoked cigarettes regularly
- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

31. Have you ever tried to quit smoking cigarettes?

- Yes
- No

**Fall 2004: Modified Freshman Health Risk Behavior Survey**

32. During the past 30 days, on how many days did you use the chewing tobacco or snuff, such as Redman, Levi Garrett, Beechnut, Skoal Bandits, or Copenhagen?

- 0 days
- 1 or 2 days
- 3 to 5 days
- 6 to 9 days
- 10 to 19 days
- 20 to 29 days
- All 30 days

**The next three questions are about drinking alcohol. This includes drinking beer, wine, wine coolers, and liquor such as rum, gin, vodka, or whiskey. For these questions, drinking alcohol does not include drinking a few sips of wine for religious purposes.**

33. How old were you when you have your first drink of alcohol other than a few sips?

- I have never had a drink of alcohol other than a few sips – SKIP TO QUESTION 36
- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

34. During the past 30 days, on how many days did you have at least one drink of alcohol?

- 0 days
- 1 or 2 days
- 3 to 5 days
- 6 to 9 days
- 10 to 19 days
- 20 to 29 days
- All 30 days

35. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?

- 0 days
- 1 day
- 2 days
- 3 to 5 days
- 6 to 9 days
- 10 to 19 days
- 20 or more days

**The next three questions ask about marijuana use.**

36. During your life, how many times have you used marijuana?

- 0 times – SKIP TO QUESTION 39
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

37. How old were you when you tried marijuana for the first time?

- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

38. During the past 30 days, how many times did you use marijuana?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 or more times

**The next 10 questions ask about cocaine and other drug use.**

39. During your life, how many times have you used any form of cocaine including powder, crack, or freebase?

- 0 times – SKIP TO QUESTION 48
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

40. How old were you when you tried any form of cocaine including powder, crack, or freebase, for the first time?

- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

**Fall 2004: Modified Freshman Health Risk Behavior Survey**

41. During the past 30 days, how many times did you use any form of cocaine, including powder, crack, or freebase?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 or more times

42. During your life, how many times have you used the crack or freebase forms of cocaine?

- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

43. During your life, how many times have you sniffed glue, or breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

44. During your life, how many times have you taken steroid pills or shots without a doctor's prescription?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

45. During your life, how many times have you used any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, or heroin?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

46. During the past 30 days, how many times have you used any illegal drug in combination with drinking alcohol?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 or more times

47. During your life, how many times have you used a needle to inject any illegal drug into your body?

- 0 times
- 1 time
- 2 or more times

**The next 15 questions ask about sexual behavior. For the purpose of this study, sexual behavior is defined as vaginal intercourse, anal intercourse, or oral/genital sex.**

48. How old were you when you had sexual intercourse for the first time?

- I have never had sexual intercourse – SKIP TO QUESTION 60
- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

49. During your life, with how many females have you had sexual intercourse?

- I have never had sexual intercourse with a female
- 1 female
- 2 females
- 3 females
- 4 females
- 5 females
- 6 or more females

**Fall 2004: Modified Freshman Health Risk Behavior Survey**

50. During your life, with how many males have you had sexual intercourse?
- I have never had sexual intercourse with a male
  - 1 male
  - 2 males
  - 3 males
  - 4 males
  - 5 males
  - 6 or more males
51. During the past 30 days, how many times did you have sexual intercourse?
- 0 times
  - 1 time
  - 2 or 3 times
  - 4 to 9 times
  - 10 to 10 times
  - 20 or more times
52. During the past 30 days, how often did you or your partner use a condom?
- I have not had sexual intercourse during the past 30 days
  - Never used a condom
  - Rarely used a condom
  - Sometimes used a condom
  - Most of the time used a condom
  - Always used a condom
53. The last time you had sexual intercourse; did you or your partner use a condom?
- Yes
  - No
54. Did you drink alcohol or use drugs before you had sexual intercourse the last time?
- Yes
  - No
55. The last time you had sexual intercourse, what method did you or your partner use to prevent pregnancy? (Select all that apply.)
- No method was used to prevent pregnancy
  - Birth control pills
  - Condoms
  - Withdrawl
  - Some other method
  - Not sure
56. How many times have you been pregnant or gotten someone pregnant?
- 0 times
  - 1 time
  - 2 or more times
  - Not sure
57. During your life, have you ever been forced to have sexual intercourse against your will?
- Yes
  - No – SKIP TO QUESTION 59
58. How old were you the first time you were forced to have sexual intercourse against your will?
- 4 years or younger
  - 5 to 12 years old
  - 13 or 14 years old
  - 15 or 16 years old
  - 17 or 18 years old
  - 19 or 20 years old
  - 21 to 24 years old
  - 25 years old or older
59. Have you ever had your blood tested for the AIDS virus/HIV infection?
- Yes
  - No
  - Not sure
- The next eight questions ask about body weight.**
60. How do you describe your weight?
- Very underweight
  - Slightly underweight
  - About the right weight
  - Slightly overweight
  - Very overweight
61. Which of the following are you trying to do about your weight?
- Lose weight
  - Gain weight
  - Stay at the same weight
  - I am not trying to do anything with my weight
62. During the last 30 days, did you diet to lose weight or to keep from gaining weight?
- Yes
  - No

**Fall 2004: Modified Freshman Health Risk Behavior Survey**

63. During the past 30 days, did you vomit or take laxatives to lose weight or to keep from gaining weight?

- Yes
- No

64. During the past 30 days did you take diet pills to lose weight or to keep from gaining weight?

- Yes
- No

65. What is your height?

HEIGHT		
FT.	IN.	
<input type="radio"/> 0	<input type="radio"/> 0	<input type="radio"/> 0
<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
<input type="radio"/> 2	<input type="radio"/> 2	
<input type="radio"/> 3	<input type="radio"/> 3	
<input type="radio"/> 4	<input type="radio"/> 4	
<input type="radio"/> 5	<input type="radio"/> 5	
<input type="radio"/> 6	<input type="radio"/> 6	
<input type="radio"/> 7	<input type="radio"/> 7	
<input type="radio"/> 8	<input type="radio"/> 8	
<input type="radio"/> 9	<input type="radio"/> 9	

66. What is your weight?

POUNDS		
<input type="radio"/> 0	<input type="radio"/> 0	<input type="radio"/> 0
<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
<input type="radio"/> 2	<input type="radio"/> 2	<input type="radio"/> 2
<input type="radio"/> 3	<input type="radio"/> 3	<input type="radio"/> 3
<input type="radio"/> 4	<input type="radio"/> 4	<input type="radio"/> 4
<input type="radio"/> 5	<input type="radio"/> 5	<input type="radio"/> 5
<input type="radio"/> 6	<input type="radio"/> 6	<input type="radio"/> 6
<input type="radio"/> 7	<input type="radio"/> 7	<input type="radio"/> 7
<input type="radio"/> 8	<input type="radio"/> 8	<input type="radio"/> 8
<input type="radio"/> 9	<input type="radio"/> 9	<input type="radio"/> 9

**The next seven questions ask about food you ate yesterday. Think about all meals and snacks you ate yesterday from the time you got up until you went to bed. Be sure to include food you ate at home, on campus, at restaurants, or anywhere else.**

67. Yesterday, how many times did you eat or drink?

- 0 times
- 1 time
- 2 times
- 3 or more times

68. Yesterday, how many times did you drink fruit juice?

- 0 times
- 1 time
- 2 times
- 3 or more times

69. Yesterday, how many times did you eat green salad?

- 0 times
- 1 time
- 2 times
- 3 or more times

70. Yesterday, how many times did you eat cooked vegetables?

- 0 times
- 1 time
- 2 times
- 3 or more times

71. Yesterday, how many times did you eat hamburger, hot dog, or sausage?

- 0 times
- 1 time
- 2 times
- 3 or more times

72. Yesterday, how many times did you eat french fries or potato chips?

- 0 times
- 1 time
- 2 times
- 3 or more times

73. . Yesterday, how many times did you eat cookies, doughnuts, pie, or cake?

- 0 times
- 1 time
- 2 times
- 3 or more times

**Fall 2004: Modified Freshman Health Risk Behavior Survey****The next six questions ask about physical activity.**

74. On how many of the past 7 days did you exercise or participate in sports activities for at least 20 minutes that made you sweat and breathe hard, such as basketball, jogging, swimming laps, tennis, fast bicycling, or similar aerobic activities?

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

75. On how many of the past 7 days did you do stretching exercises, such as toe touching, knee bending, or leg stretching?

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

76. On how many of the past 7 days did you do exercises to strengthen or tone your muscles, such as push-ups, sit-ups, or weight lifting?

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

77. On how many of the past 7 days did you walk or bicycle for at least 30 minutes at a time? (Include walking or bicycling to or from class or work.)

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

78. Are you enrolled in a physical education class for this semester?

- Yes
- No

79. During this school year, on how many college sports teams (intramural or extramural) will you participate?

- 0 teams
- 1 team
- 2 teams
- 3 or more teams

**The next nine questions ask about sleep deprivation.**

80. How likely are you to fall asleep while sitting and reading?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

81. How likely are you to fall asleep while watching television?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

82. How likely are you to fall asleep while sitting inactive in a public place such as a theater, meeting, or class?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

83. How likely are you to fall asleep as a passenger in a car for an hour without a break?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

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84. How likely are you to fall asleep if you lie down to rest in the afternoon?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

85. How likely are you to fall asleep if you were sitting and talking to someone?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

86. How likely are you to fall asleep sitting quietly after lunch (when you've had no alcohol)?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

87. How likely are you to fall asleep in a car, while stopped in traffic?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

88. In the past 30 days, how many hours of sleep did you average a night?

- Three hours or less
- Four to five hours
- Six to seven hours
- Eight to nine hours
- Nine or more hours

**The next three questions ask about AIDS education and health information.**

90. Have you ever been taught about AIDS or HIV infection in your college classes?

- Yes
- No
- Not sure

91. During this school year, where on your college campus did you receive information about avoiding AIDS or HIV infection? (Select all that apply.)

- College classes
- Residence hall or other campus housing
- Student clubs or organizations
- Student health center
- Health fair
- Pamphlets, brochures, or newsletters
- College newspapers
- Informal discussion with friends
- Other
- I was not provided with any information

92. On which of the following health topics have you ever received information from your University? (Select all that apply.)

- Tobacco use prevention
- Alcohol and other drug use prevention
- Violence prevention
- Injury prevention
- Sexually transmitted disease (STD) prevention.
- AIDS or HIV infection prevention
- Dietary behaviors and nutrition
- Physical activity and fitness

***Thank you for your help!!***

**Spring 2005: Modified Freshman Health Risk Behavior Survey**

**IMPORTANT:**

- Read each question carefully.
- Use a #2 pencil only.
- Make dark marks.
- Example:
- Erase completely to change your answer.

**CODE INSTRUCTIONS:**

Write the first three letters of your mother's maiden name. Then match the letters to the numbers like on a telephone keypad. For example, if the maiden name is Lewis, then the code would be LEW539.

**Numeric Guide:**

ABC=2, DEF=3, GHI=4,  
JKL=5, MNO=6, PQRS=7  
TUV=8, WXYZ=9

1. How old are you?

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

2. What is your sex?

- Male
- Female

3. How do you describe yourself?

- White – not Hispanic
- Black – not Hispanic
- Hispanic or Latino
- Asian or Pacific Islander
- American Indian or Alaskan Native
- Other (specify): \_\_\_\_\_

4. Where do you currently live?

- In the WELL
- Traditional housing (specify dorm): \_\_\_\_\_

5. Did you once live in traditional, non themed housing (if in WELL housing now)?

- Yes
- No

6. Are you a member of a social sorority or fraternity?

- Yes
- No

7. Do you have any kind of health care coverage, including health insurance or prepaid plans such as HMOs (health maintenance organizations)?

- Yes
- No
- Not sure

8. How much education does your mother have?

- She did not finish high school
- She graduated from high school or attained a GED
- She had some education after high school
- She graduated from college
- Not sure

9. How much education does your father have?

- He did not finish high school
- He graduated from high school or attained a GED
- He had some education after high school
- He graduated from college
- Not sure

**The next 15 questions ask about safety and violence.**

10. How often do you wear a seat belt when riding in a car driven by someone else?

- Never
- Rarely
- Sometimes
- Most of the time
- Always

11. How often do you wear a seat belt when driving a car?

- Never
- Rarely
- Sometimes
- Most of the time
- Always

**Spring 2005: Modified Freshman Health Risk Behavior Survey**

12. During the past 6 months, how many times did you ride a motorcycle?
- 0 times
  - 1 to 10 times
  - 11 to 20 times
  - 21 to 39 times
  - 40 or more times
13. When you rode a motorcycle during the past 6 months, how often did you wear a helmet?
- I did not ride a motorcycle during the past 12 months
  - Never wore a helmet
  - Rarely wore a helmet
  - Sometimes wore a helmet
  - Most of the time wore a helmet
  - Always wore a helmet
14. During the past 6 months, how many times did you ride a bicycle?
- 0 times
  - 1 to 10 times
  - 11 to 20 times
  - 21 to 39 times
  - 40 or more times
15. When you rode a bicycle during the past 6 months, how often did you wear a helmet?
- I did not ride a bicycle during the past 12 months
  - Never wore a helmet
  - Rarely wore a helmet
  - Sometimes wore a helmet
  - Most of the time wore a helmet
  - Always wore a helmet
16. During the past 6 months, how many times did you go boating or swimming?
- 0 times
  - 1 to 10 times
  - 11 to 20 times
  - 21 to 39 times
  - 40 or more times
17. When you went boating or swimming during the past 6 months, how often did you drink alcohol?
- Did not go swimming or boating during the past 12 months
  - Never drank alcohol
  - Rarely drank alcohol
  - Sometimes drank alcohol
  - Most of the time drank alcohol
  - Always drank alcohol
18. In the past 30 days, how many times did you ride in a car or other vehicle driven by someone who had been drinking alcohol?
- 0 times
  - 1 time
  - 2 or 3 times
  - 4 or 5 times
  - 6 or more times
19. During the past 30 days, on how many did you carry a weapon such as a gun, knife, or club? Do not count carrying a weapon as part of your job.
- 0 days
  - 1 days
  - 2 or 3 days
  - 4 or 5 days
  - 6 or more days
20. During the past 30 days, on how many days did you carry a gun? Do not count carrying a gun as part of your job.
- 0 days
  - 1 days
  - 2 or 3 days
  - 4 or 5 days
  - 6 or more days
21. During the past 6 months, how many times were you in a physical fight?
- 0 times – SKIP TO QUESTION 24
  - 1 time
  - 2 or 3 times
  - 4 or 5 times
  - 6 or 7 times
  - 8 or 9 times
  - 10 or 11 times
  - 12 or more times
22. During the past 6 months, with whom did you fight? (Select all that apply.)
- A total stranger
  - A friend or someone I know
  - A boyfriend, girlfriend, or date
  - My spouse or domestic partner
  - A parent, brother, sister, or other family member
  - Other

**Spring 2005: Modified Freshman Health Risk Behavior Survey**

23. During the past 6 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?

- 0 times
- 1 time
- 2 or 3 times
- 4 or 5 times
- 6 or more times

**Sometimes people feel so depressed and hopeless about the future that they may consider attempting suicide, that is, taking some action to end their own life. The next four questions ask about suicide.**

24. During the past 6 months, did you ever seriously consider suicide?

- Yes
- No

25. During the past 6 months, did you make a plan about how you would attempt suicide?

- Yes
- No

26. During the past 6 months, how many times did you attempt suicide?

- 0 times
- 1 time
- 2 or 3 times
- 4 or 5 times
- 6 or more times

27. If you attempted suicide during the past 6 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor, nurse or medical professional?

- I did not attempt suicide during the past 12 months
- Yes
- No

**The next 8 questions ask about tobacco use.**

28. Have you ever tried cigarette smoking, even one or two puffs?

- Yes
- No – SKIP TO QUESTION 35

29. How old were you when you smoked a whole cigarette for the first time?

- I have never smoked a whole cigarette
- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

30. During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day?

- I did not smoke cigarettes during the past 30 days
- Less than 1 time per day
- 1 cigarette per day
- 2 to 5 cigarettes per day
- 6 to 10 cigarettes per day
- 11 to 20 cigarettes per day
- More than 20 cigarettes per day

31. Have you ever smoked cigarettes regularly, that is, at least one cigarette every day for 30 days?

- Yes
- No

32. How old were you when you first started smoking cigarettes regularly (at least one cigarette every day for 30 days)?

- I have never smoked cigarettes regularly
- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

33. Have you ever tried to quit smoking cigarettes?

- Yes
- No

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34. During the past 30 days, on how many days did you use the chewing tobacco or snuff, such as Redman, Levi Garrett, Beechnut, Skoal Bandits, or Copenhagen?

- 0 days
- 1 or 2 days
- 3 to 5 days
- 6 to 9 days
- 10 to 19 days
- 20 to 29 days
- All 30 days

**The next three questions are about drinking alcohol. This includes drinking beer, wine, wine coolers, and liquor such as rum, gin, vodka, or whiskey. For these questions, drinking alcohol does not include drinking a few sips of wine for religious purposes.**

35. How old were you when you have your first drink of alcohol other than a few sips?

- I have never had a drink of alcohol other than a few sips – SKIP TO QUESTION 38
- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

36. During the past 30 days, on how many days did you have at least one drink of alcohol?

- 0 days
- 1 or 2 days
- 3 to 5 days
- 6 to 9 days
- 10 to 19 days
- 20 to 29 days
- All 30 days

37. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?

- 0 days
- 1 day
- 2 days
- 3 to 5 days
- 6 to 9 days
- 10 to 19 days
- 20 or more days

**The next three questions ask about marijuana use.**

38. During your life, how many times have you used marijuana?

- 0 times – SKIP TO QUESTION 41
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

39. How old were you when you tried marijuana for the first time?

- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

40. During the past 30 days, how many times did you use marijuana?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 or more times

**The next 10 questions ask about cocaine and other drug use.**

41. During your life, how many times have you used any form of cocaine including powder, crack, or freebase?

- 0 times – SKIP TO QUESTION 50
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

42. How old were you when you tried any form of cocaine including powder, crack, or freebase, for the first time?

- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

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43. During the past 30 days, how many times did you use any form of cocaine, including powder, crack, or freebase?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 or more times

44. During your life, how many times have you used the crack or freebase forms of cocaine?

- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

45. During your life, how many times have you sniffed glue, or breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

46. During your life, how many times have you taken steroid pills or shots without a doctor's prescription?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

47. During your life, how many times have you used any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, or heroin?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 to 99 times
- 100 or more times

48. During the past 30 days, how many times have you used any illegal drug in combination with drinking alcohol?

- 0 times
- 1 or 2 times
- 3 to 9 times
- 10 to 19 times
- 20 to 39 times
- 40 or more times

49. During your life, how many times have you used a needle to inject any illegal drug into your body?

- 0 times
- 1 time
- 2 or more times

**The next 15 questions ask about sexual behavior. For the purpose of this study, sexual behavior is defined as vaginal intercourse, anal intercourse, or oral/genital sex.**

50. How old were you when you had sexual intercourse for the first time?

- I have never had sexual intercourse – SKIP TO QUESTION 60
- 12 years old or younger
- 13 or 14 years old
- 15 or 16 years old
- 17 or 18 years old
- 19 or 20 years old
- 21 to 24 years old
- 25 years or older

51. During your life, with how many females have you had sexual intercourse?

- I have never had sexual intercourse with a female
- 1 female
- 2 females
- 3 females
- 4 females
- 5 females
- 6 or more females

**Spring 2005: Modified Freshman Health Risk Behavior Survey**

52. During your life, with how many males have you had sexual intercourse?
- I have never had sexual intercourse with a male
  - 1 male
  - 2 males
  - 3 males
  - 4 males
  - 5 males
  - 6 or more males
53. During the past 30 days, how many times did you have sexual intercourse?
- 0 times
  - 1 time
  - 2 or 3 times
  - 4 to 9 times
  - 10 to 10 times
  - 20 or more times
54. During the past 30 days, how often did you or your partner use a condom?
- I have not had sexual intercourse during the past 30 days
  - Never used a condom
  - Rarely used a condom
  - Sometimes used a condom
  - Most of the time used a condom
  - Always used a condom
55. The last time you had sexual intercourse; did you or your partner use a condom?
- Yes
  - No
56. Did you drink alcohol or use drugs before you had sexual intercourse the last time?
- Yes
  - No
57. The last time you had sexual intercourse, what method did you or your partner use to prevent pregnancy? (Select all that apply.)
- No method was used to prevent pregnancy
  - Birth control pills
  - Condoms
  - Withdrawl
  - Some other method
  - Not sure
58. How many times have you been pregnant or gotten someone pregnant?
- 0 times
  - 1 time
  - 2 or more times
  - Not sure
59. During your life, have you ever been forced to have sexual intercourse against your will?
- Yes
  - No – SKIP TO QUESTION 62
60. How old were you the first time you were forced to have sexual intercourse against your will?
- 4 years or younger
  - 5 to 12 years old
  - 13 or 14 years old
  - 15 or 16 years old
  - 17 or 18 years old
  - 19 or 20 years old
  - 21 to 24 years old
  - 25 years old or older
61. Have you ever had your blood tested for the AIDS virus/HIV infection?
- Yes
  - No
  - Not sure
- The next eight questions ask about body weight.**
62. How do you describe your weight?
- Very underweight
  - Slightly underweight
  - About the right weight
  - Slightly overweight
  - Very overweight
63. Which of the following are you trying to do about your weight?
- Lose weight
  - Gain weight
  - Stay at the same weight
  - I am not trying to do anything with my weight
64. During the last 30 days, did you diet to lose weight or to keep from gaining weight?
- Yes
  - No

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65. During the past 30 days, did you vomit or take laxatives to lose weight or to keep from gaining weight?

- Yes
- No

66. During the past 30 days did you take diet pills to lose weight or to keep from gaining weight?

- Yes
- No

67. What is your height?

HEIGHT		
FT.	IN.	
<input type="radio"/> 0	<input type="radio"/> 0	<input type="radio"/> 0
<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
<input type="radio"/> 2	<input type="radio"/> 2	
<input type="radio"/> 3	<input type="radio"/> 3	
<input type="radio"/> 4	<input type="radio"/> 4	
<input type="radio"/> 5	<input type="radio"/> 5	
<input type="radio"/> 6	<input type="radio"/> 6	
<input type="radio"/> 7	<input type="radio"/> 7	
<input type="radio"/> 8	<input type="radio"/> 8	
<input type="radio"/> 9	<input type="radio"/> 9	

68. What is your weight?

POUNDS		
<input type="radio"/> 0	<input type="radio"/> 0	<input type="radio"/> 0
<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
<input type="radio"/> 2	<input type="radio"/> 2	<input type="radio"/> 2
<input type="radio"/> 3	<input type="radio"/> 3	<input type="radio"/> 3
<input type="radio"/> 4	<input type="radio"/> 4	<input type="radio"/> 4
<input type="radio"/> 5	<input type="radio"/> 5	<input type="radio"/> 5
<input type="radio"/> 6	<input type="radio"/> 6	<input type="radio"/> 6
<input type="radio"/> 7	<input type="radio"/> 7	<input type="radio"/> 7
<input type="radio"/> 8	<input type="radio"/> 8	<input type="radio"/> 8
<input type="radio"/> 9	<input type="radio"/> 9	<input type="radio"/> 9

**The next seven questions ask about food you ate yesterday. Think about all meals and snacks you ate yesterday from the time you got up until you went to bed. Be sure to include food you ate at home, on campus, at restaurants, or anywhere else.**

69. Yesterday, how many times did you eat or drink?

- 0 times
- 1 time
- 2 times
- 3 or more times

70. Yesterday, how many times did you drink fruit juice?

- 0 times
- 1 time
- 2 times
- 3 or more times

71. Yesterday, how many times did you eat green salad?

- 0 times
- 1 time
- 2 times
- 3 or more times

72. Yesterday, how many times did you eat cooked vegetables?

- 0 times
- 1 time
- 2 times
- 3 or more times

73. Yesterday, how many times did you eat hamburger, hot dog, or sausage?

- 0 times
- 1 time
- 2 times
- 3 or more times

74. Yesterday, how many times did you eat french fries or potato chips?

- 0 times
- 1 time
- 2 times
- 3 or more times

75. Yesterday, how many times did you eat cookies, doughnuts, pie, or cake?

- 0 times
- 1 time
- 2 times
- 3 or more times

**Spring 2005: Modified Freshman Health Risk Behavior Survey****The next six questions ask about physical activity.**

76. On how many of the past 7 days did you exercise or participate in sports activities for at least 20 minutes that made you sweat and breathe hard, such as basketball, jogging, swimming laps, tennis, fast bicycling, or similar aerobic activities?

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

77. On how many of the past 7 days did you do stretching exercises, such as toe touching, knee bending, or leg stretching?

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

78. On how many of the past 7 days did you do exercises to strengthen or tone your muscles, such as push-ups, sit-ups, or weight lifting?

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

79. On how many of the past 7 days did you walk or bicycle for at least 30 minutes at a time? (Include walking or bicycling to or from class or work.)

- 0 days
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 days
- 7 days

80. Are you enrolled in a physical education class for this semester?

- Yes
- No

81. During this school year, on how many college sports teams (intramural or extramural) will you participate?

- 0 teams
- 1 team
- 2 teams
- 3 or more teams

82. Are you a varsity athlete?

- Yes
- No

**The next nine questions ask about sleep deprivation.**

83. How likely are you to fall asleep while sitting and reading?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

84. How likely are you to fall asleep while watching television?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

85. How likely are you to fall asleep while sitting inactive in a public place such as a theater, meeting, or class?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

86. How likely are you to fall asleep as a passenger in a car for an hour without a break?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

**Spring 2005: Modified Freshman Health Risk Behavior Survey**

87. How likely are you to fall asleep if you lie down to rest in the afternoon?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

88. How likely are you to fall asleep if you were sitting and talking to someone?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

89. How likely are you to fall asleep sitting quietly after lunch (when you've had no alcohol)?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

90. How likely are you to fall asleep in a car, while stopped in traffic?

- Definitely would doze
- Very likely would doze
- Might doze
- Not likely to doze
- Would not doze

91. In the past 30 days, how many hours of sleep did you average a night?

- Three hours or less
- Four to five hours
- Six to seven hours
- Eight to nine hours
- Nine or more hours

**The next three questions ask about AIDS education and health information.**

92. Have you ever been taught about AIDS or HIV infection in your college classes?

- Yes
- No
- Not sure

93. During this school year, where on your college campus did you receive information about avoiding AIDS or HIV infection? (Select all that apply.)

- College classes
- Residence hall or other campus housing
- Student clubs or organizations
- Student health center
- Health fair
- Pamphlets, brochures, or newsletters
- College newspapers
- Informal discussion with friends
- Other
- I was not provided with any information

94. On which of the following health topics have you ever received information from your University? (Select all that apply.)

- Tobacco use prevention
- Alcohol and other drug use prevention
- Violence prevention
- Injury prevention
- Sexually transmitted disease (STD) prevention.
- AIDS or HIV infection prevention
- Dietary behaviors and nutrition
- Physical activity and fitness

***Thank you for your help!!***

Appendix B  
WELL Contract



**WELLNESS ENVIRONMENT  
FOR LIVING AND LEARNING  
W.E.L.L. Living Agreement**



The Wellness Environment for Living and Learning (W.E.L.L.) is a substance-free community. Beverage alcohol and tobacco (any form) are not allowed in this area. This restriction applies to residents and their guests. The residents of this program will comply with the decisions made by the Standards Committee of the Community Board and/or sanctions imposed by that group. Students who fail to comply with community standards as specified by the Standards Committee of the Community Board, the provisions of this agreement, or the Housing/Dining Contract may be reassigned to another room on campus.

This statement is furnished as a reminder of the W.E.L.L. Applications guidelines that you signed in order to attain your W.E.L.L. housing assignment for the 2005-2006 academic year. Please read this thoroughly, sign below, and return to your RA by Friday, August 25, 2006.

**Article VIII: STANDARDS** *(taken from the Standards Committee Constitution)*

**A) It is Unacceptable:**

1. For any resident of the W.E.L.L. to possess or consume any alcoholic beverages in West Ambler-Johnston (WAJ).
2. For any resident of the W.E.L.L. to be in WAJ intoxicated.
3. For any resident of the W.E.L.L. to possess or consume tobacco products in WAJ.
4. For any resident of the W.E.L.L. to possess or consume any illegal substances in WAJ.
5. For any resident of the W.E.L.L. to have guests in their room who have consumed or possess alcoholic beverages.

I understand and accept the special terms and conditions for residents of the Wellness Environment for Living and Learning (W.E.L.L.).

Name: \_\_\_\_\_ Room: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Questions regarding this agreement should be directed to your Resident Advisor, the Theme Housing Programs Graduate Assistant (1-6667), or the Coordinator for Theme Housing Programs (1-2203).**

WHITE—Office Copy

CANARY—Student Copy

Appendix C:  
Informed Consent

**Consent Form**

I have read and understand the Informed Consent and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

\_\_\_\_\_ Date \_\_\_\_\_

***Subject signature***

\_\_\_\_\_ Date \_\_\_\_\_

Witness (Optional except for certain classes of subjects)

Should I have any pertinent questions about this research or its conduct, and research subjects' rights, and whom to contact in the event of a research-related injury to the subject, I may contact:

Erin O'Neill	(540) 552-2626/ <a href="mailto:eroneill@vt.edu">eroneill@vt.edu</a>
Investigator(s)	Telephone/e-mail

Dr. Richard Stratton	(540) 231-5617 / <a href="mailto:rstratto@vt.edu">rstratto@vt.edu</a>
Faculty Advisor	Telephone/e-mail

Departmental Reviewer/Department Head	Telephone/e-mail
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<u>David M. Moore</u> Chair, Virginia Tech Institutional Review Board for the Protection of Human Subjects Office of Research Compliance – CVM Phase II (0442) Research Division	540-231-4991/ <a href="mailto:moored@vt.edu">moored@vt.edu</a> Telephone/e-mail
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This Informed Consent is valid from 8/23/2004 to 5/11/2005.

Appendix D:  
Letter to Resident Advisors

Dear Resident Advisor;

Thank you for once again for cooperating in this groundbreaking study that has the potential to impact higher education residential housing. Your support is appreciated and your leadership is greatly valued.

The purpose of this research is to examine the health risk behaviors amongst college freshmen, specifically the differences in risk behaviors between freshmen that reside in a Wellness themed on-campus housing (the W.E.L.L) and incoming freshmen residing in traditional residence halls. The benefits that may occur involve future research proposals, program design and implementation, and a growth in the body of knowledge pertains to college student health risk behaviors.

When administering this survey, it is important that you adhere to the following instructions to maintain confidentiality and to avoid bias in the research. You will have received the same number of surveys as qualified freshmen on your floor. The freshmen that are qualified for the study must be first year freshmen (having just graduated high school in the past year) and live in either the WELL Community or in traditional residential housing.

Please administer the survey to as many of the qualified freshmen as possible at one of your mandatory hall meetings or as you see best. When you hand out the survey, you are asked to inform the students that there is minimal risk associated with participation of the study, that they have the right to withdraw from the study at any time and that their confidentiality/anonymity is guaranteed. They should be aware that they were going to be asked to take the same survey once again at the end of the spring semester. Please have them thoroughly read and sign the consent form attached to the survey before they start and encourage them to answer the questions as honestly as possible.

The survey should take approximately 10 minutes. When the students take the survey, they are not to talk to one another and should be completing the survey in a position that will minimize viewing others' answers. After they are done, they are to return their survey to the envelope given to you. After all the surveys are collected, please return the sealed envelope with the completed surveys to the designated mailbox outside Dr. Gerry Kowalski's office, 107 East Eggleston.

If you have any concerns or questions, please do not hesitate to contact me at any time. My contact information is as follows:

Erin O'Neill

[eroneill@vt.edu](mailto:eroneill@vt.edu)

Home #: 540 552 2626

Cell #: 302 743 6303

Work # 1: 231 7386

Work # 2: 231 3956

Thank you again and I look forward to working with you!!

Sincerely,

Erin O'Neill

Appendix E:

Results

Figure E.1 Comparison of Demographic Characteristics of Students in Wellness and Traditional Housing during Fall 2004 and Spring 2005 Semesters.

Demographics	Category	Fall 2004		Spring 2005	
		Well	Traditional	Well	Traditional
Age (%)	16	0	.6	0	0
	17	7.1	3.6	0	1.2
	18	83.7	86.1	53.5	41.3
	19	9.2	9	37.2	54.7
	20	0	.6	7	2.9
	21	0	0	2.3	0
	<i>Mean age</i>		<b>18.0 (.41)</b>	<b>18.0 (.42)</b>	<b>18.6 (.73)</b>
Sex (%)	Male	43.9	52.4	44.2	35.5
	Female	56.1	47.6	55.8	64.5
		<i>Chi-Square: ns</i>		<i>Chi-Square: ns</i>	
Race/Ethnicity	White, non-Hispanic	88.8	88.6	90.7	86.6
	Black, non-Hispanic	2.0	3.6	0	3.5
	Hispanic or Latino	0	1.2	0	.6
	Asian or Pacific Islander	5.1	3.6	7.0	6.4
	American Indian or Alaskan Native	0	0	2.3	1.2
	Other	4.1	3.0	0	1.7
			<i>Chi-Square: ns</i>		<i>Chi-Square: ns</i>
Health Insurance Coverage	Yes	86.0	81.4	85.7	84.9
	No	2.3	4.7	6.1	3.6
	Not Sure	11.6	14.0	8.2	11.4
			<i>Chi-Square: ns</i>		<i>Chi-Square: ns</i>
Mother's Education	Did not finish High School	1.0	.6	2.3	.6
	High School or GED	8.2	9.6	16.3	11.7
	Some education after High School	24.5	24.7	14.0	21.1
	Graduated from College	66.3	65.1	67.4	66.7
			<i>Chi-Square: ns</i>		<i>Chi-Square: ns</i>
Father's Education	Did not finish High School	0	3.0	0	1.2
	High School or GED	6.1	9.1	11.6	11.2
	Some education after High School	9.2	13.4	9.3	18.8
	Graduated from College	84.7	74.4	79.1	68.8
			<i>Chi-Square: ns</i>		<i>Chi-Square: ns</i>

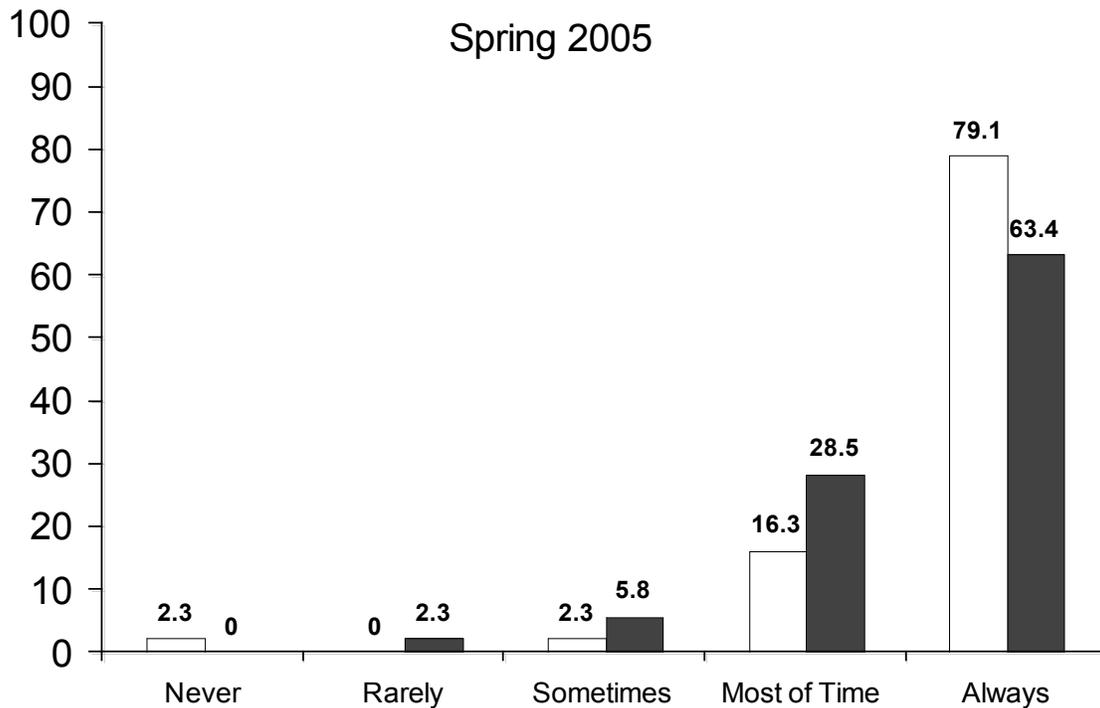
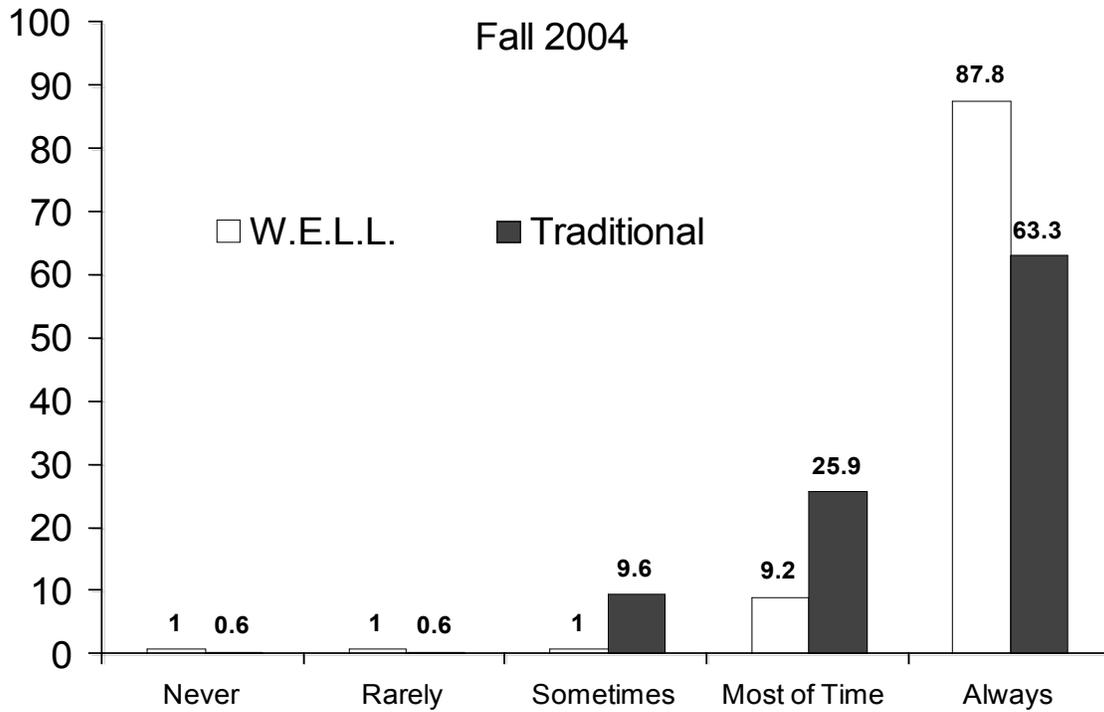


Figure E.2 Seatbelt use as passengers among students in Wellness or Traditional housing. Data are percentages from Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=21.2$ ,  $p<.001$ ; Spring  $\chi^2=9.06$ ,  $p=.06$ ).

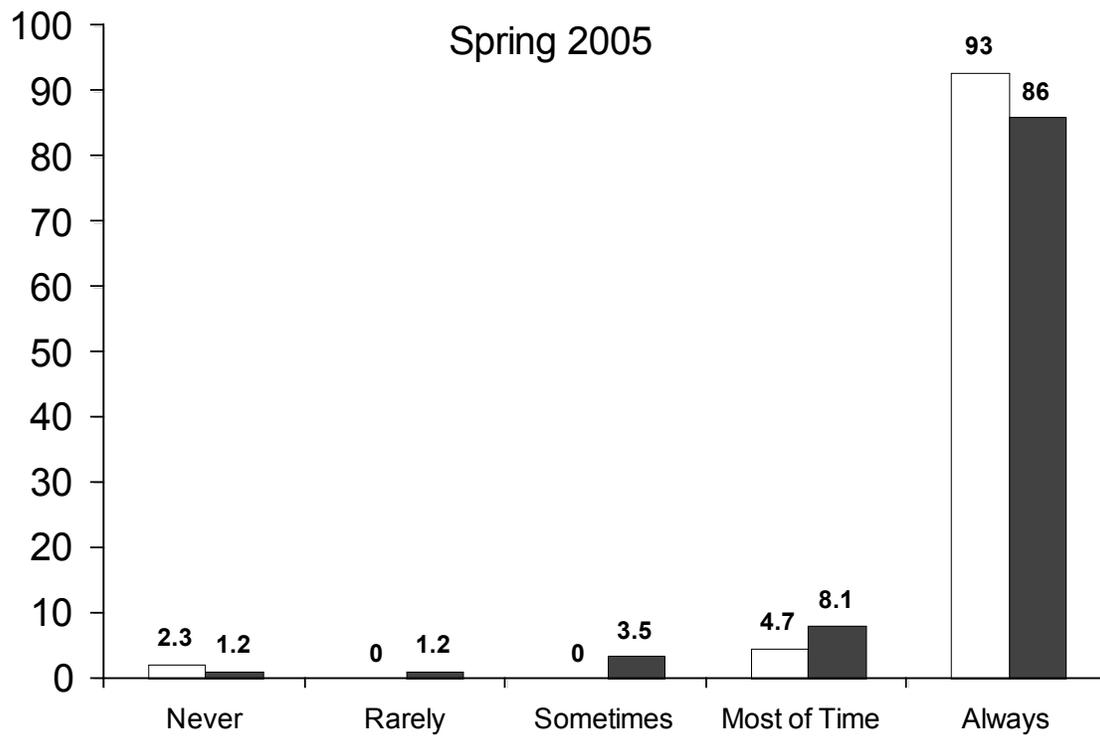
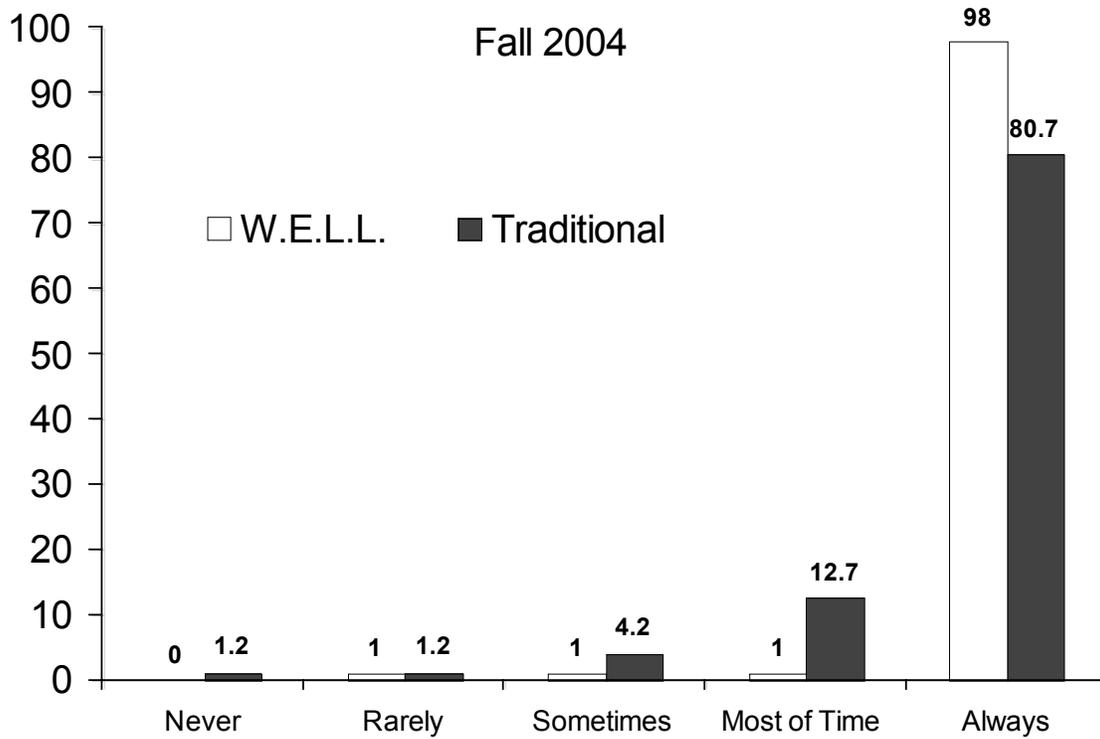


Figure E.3 Seatbelt use as drivers among students in Wellness or Traditional housing. Data are percentages from Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=16.5$ ,  $p=.002$ ; Spring  $\chi^2=3.1$ ,  $p=.08$ ).

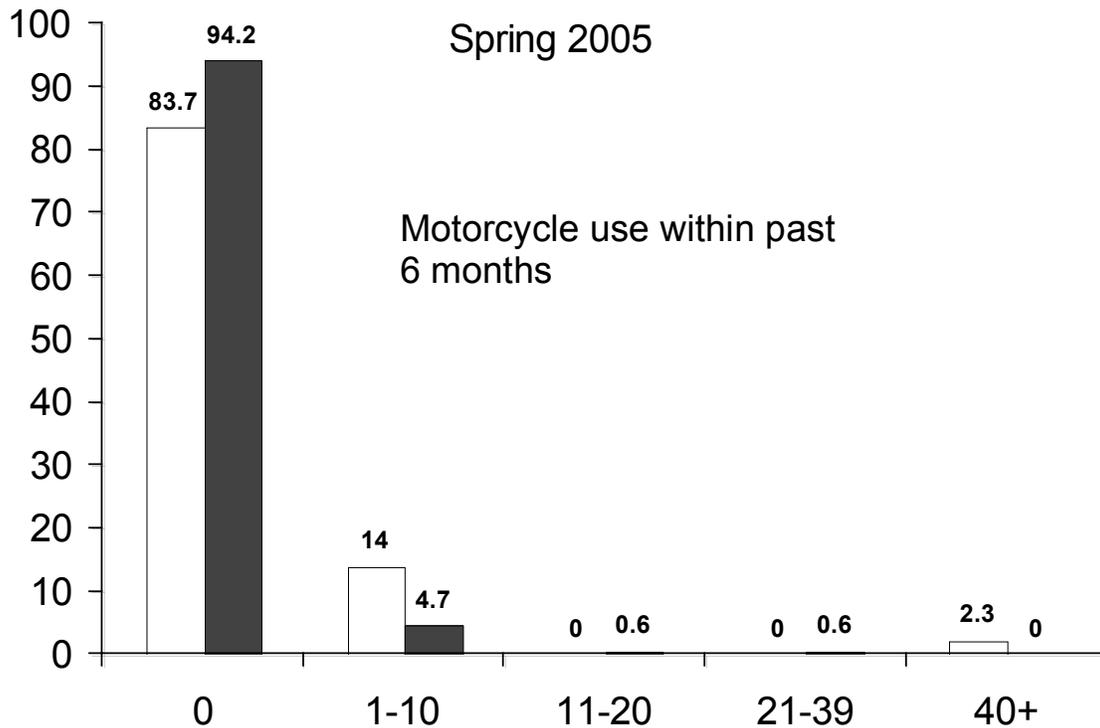
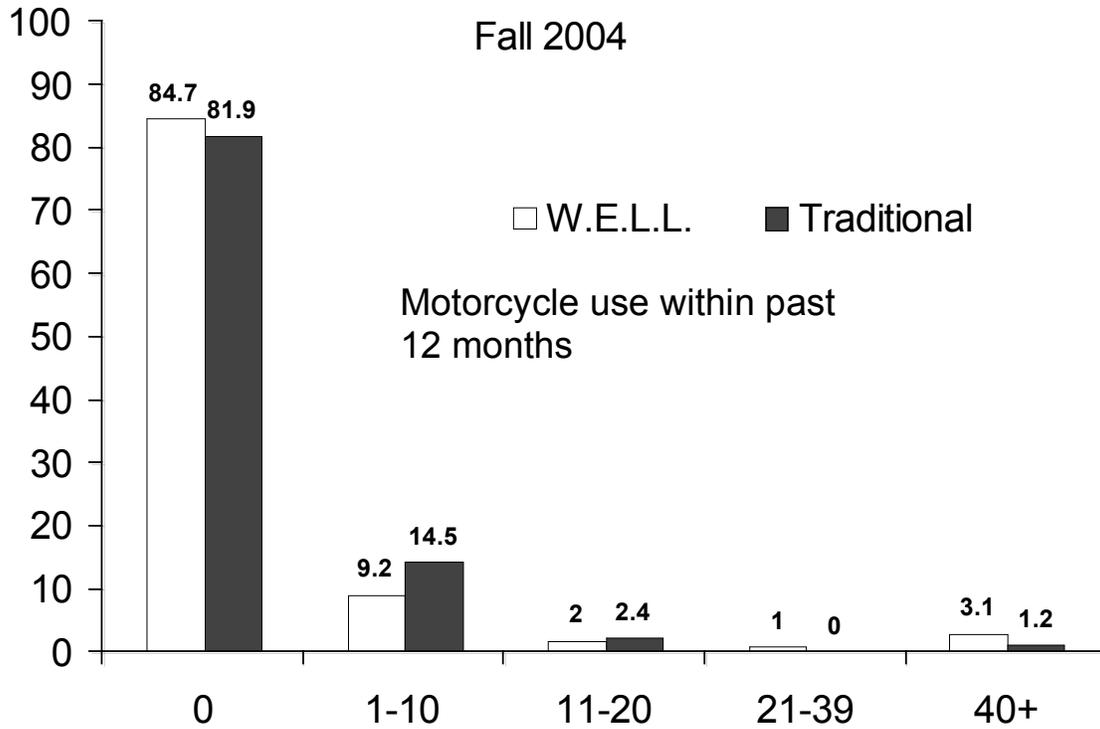


Figure E.4 Motorcycle use among students in Wellness or Traditional housing. Data are percentages from Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=4.3$ ,  $p=.37$ ; Spring  $\chi^2=9.5$ ,  $p=.05$ ).

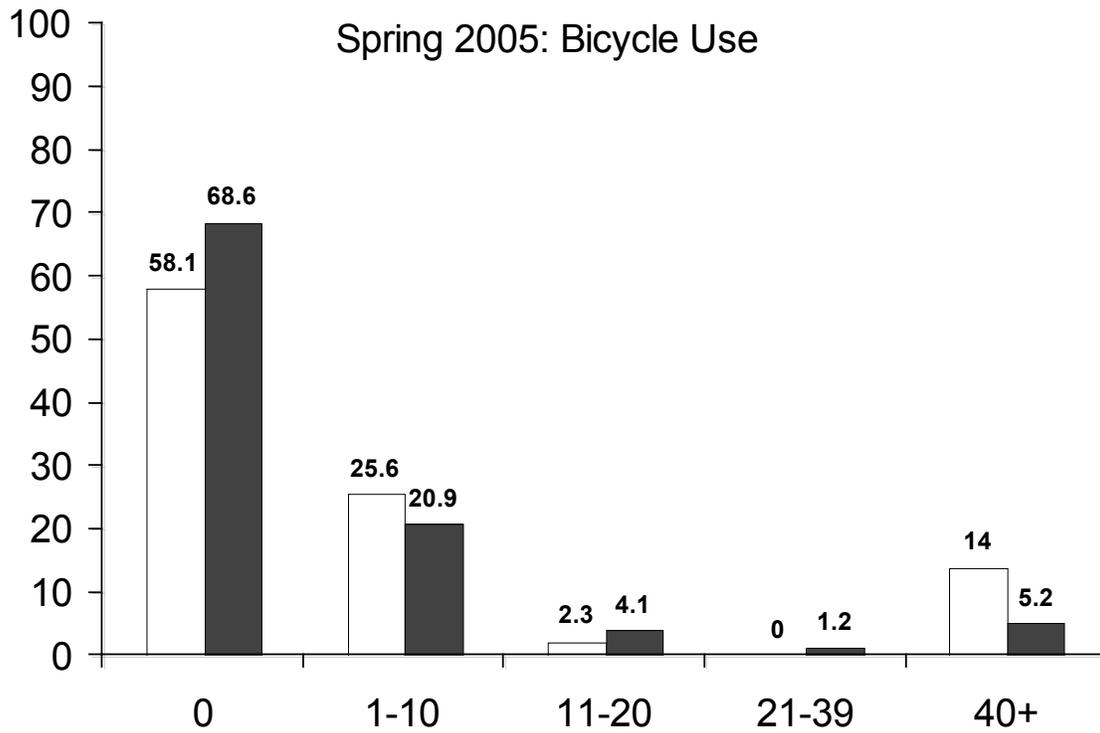
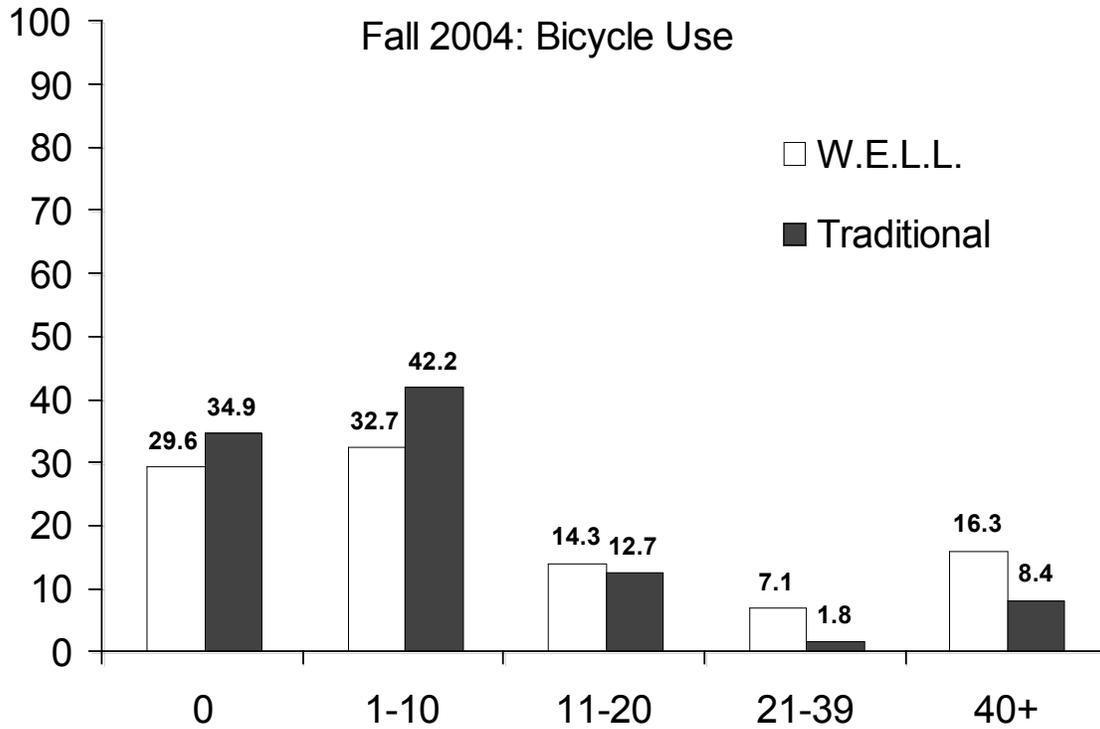


Figure E.5 Bicycle use among students in Wellness or Traditional housing. Data are percentages from Fall 2004 or Spring 2005 surveys (Fall  $\chi^2=10.1$ ,  $p=.039$ ; Spring  $\chi^2=5.4$ ,  $p=.25$ ).

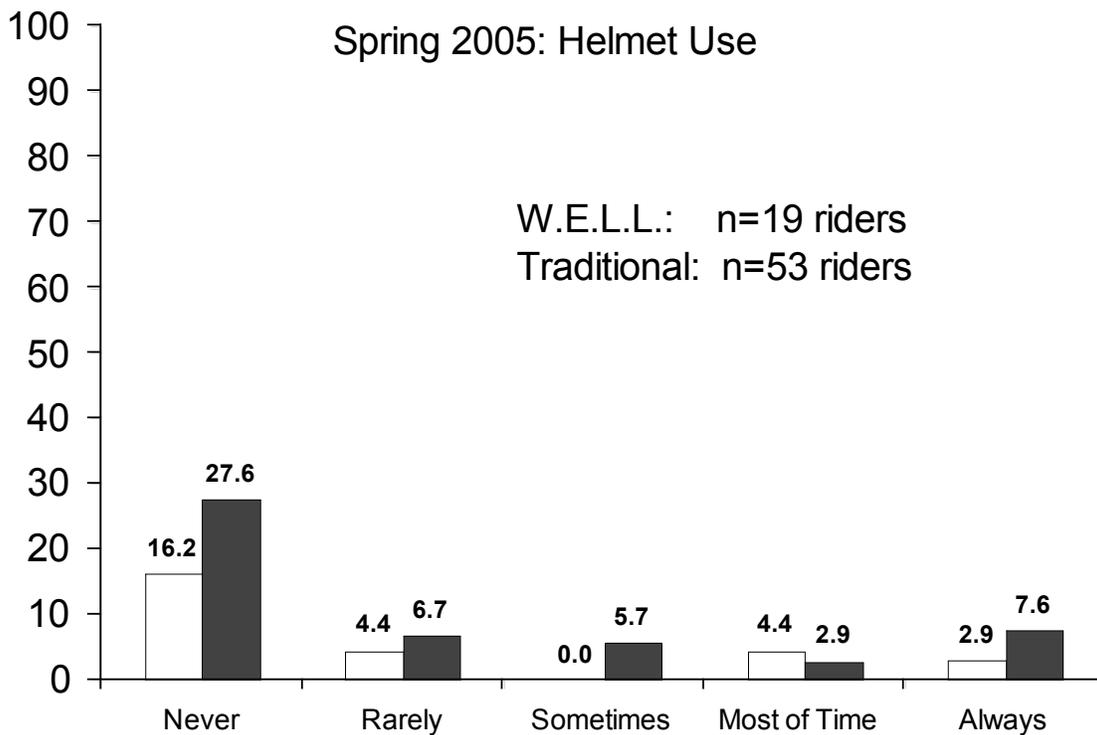
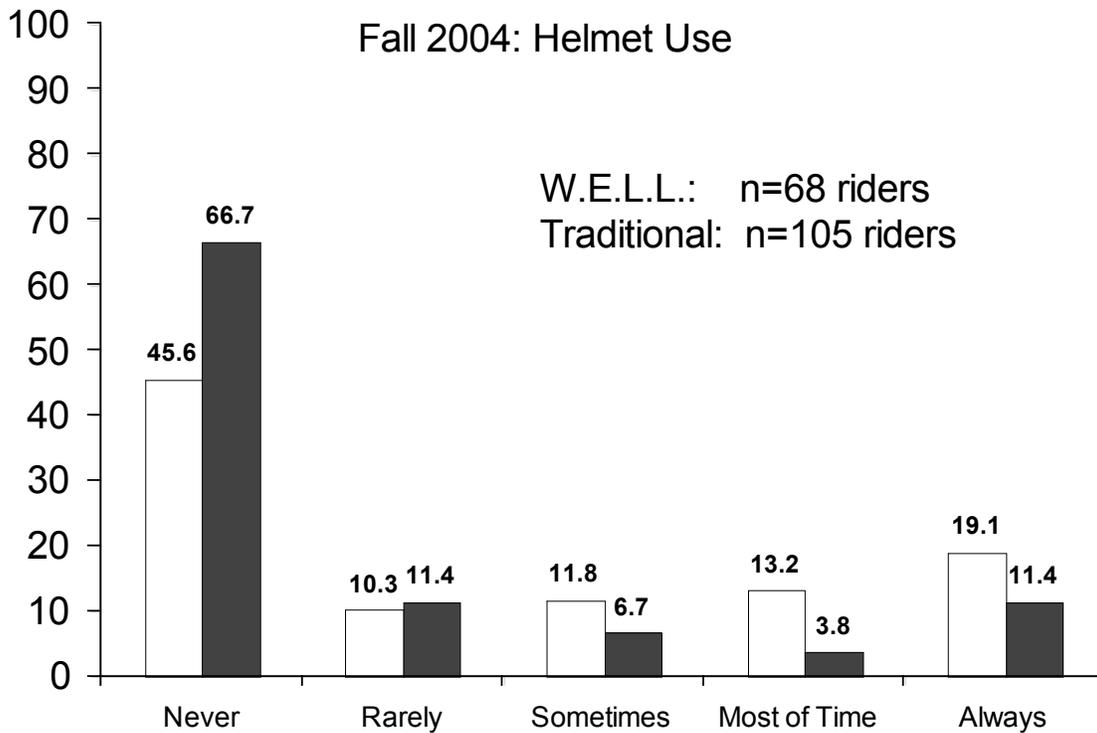


Figure E.6 Helmet use among the subsets of cyclists in Wellness or Traditional housing. Data are percentages from Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=10.9$ ,  $p=.027$ ; Spring  $\chi^2=4.18$ ,  $p=.38$ ).

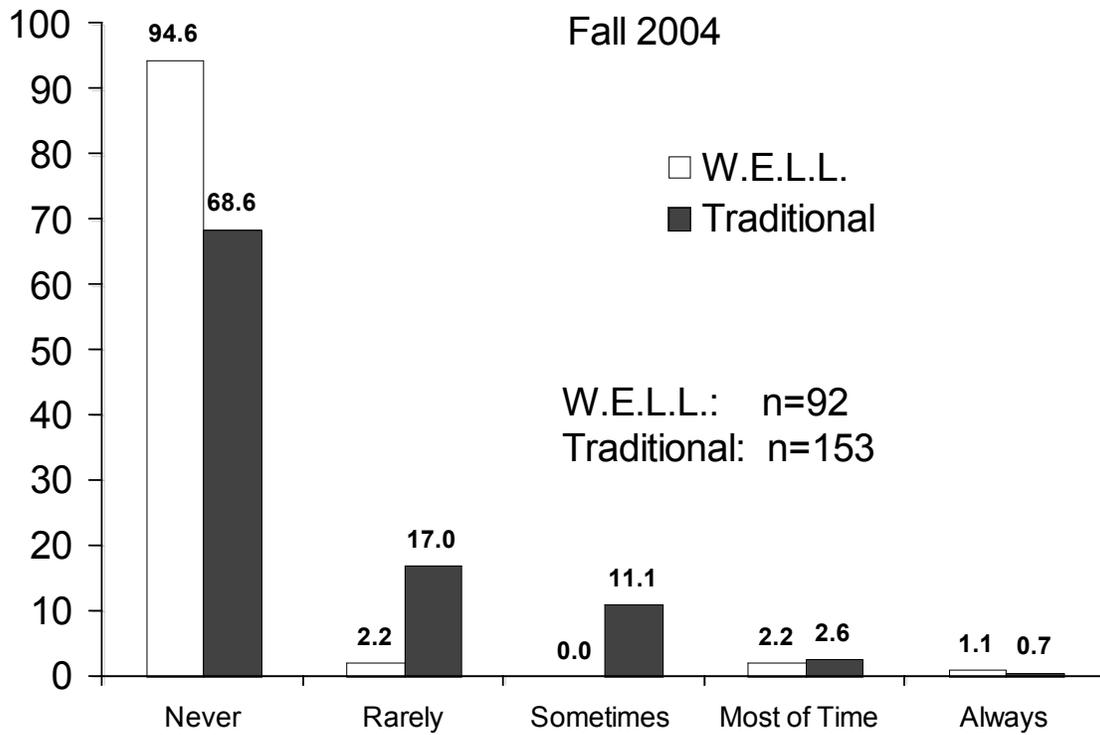


Figure E.7 Among students who went boating or swimming within the past 12 months, percentage of students who consumed alcohol while boating or swimming. Data are from Fall 2004 survey ( $\chi^2=26.4$ ,  $p<.001$ ).

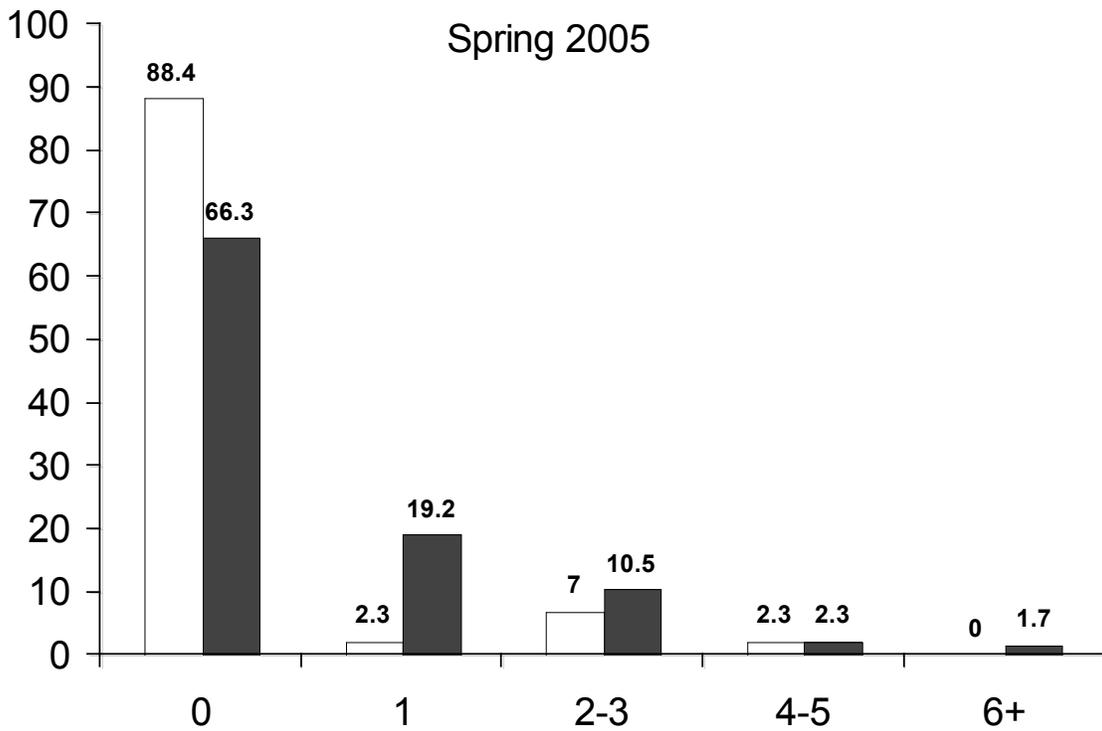
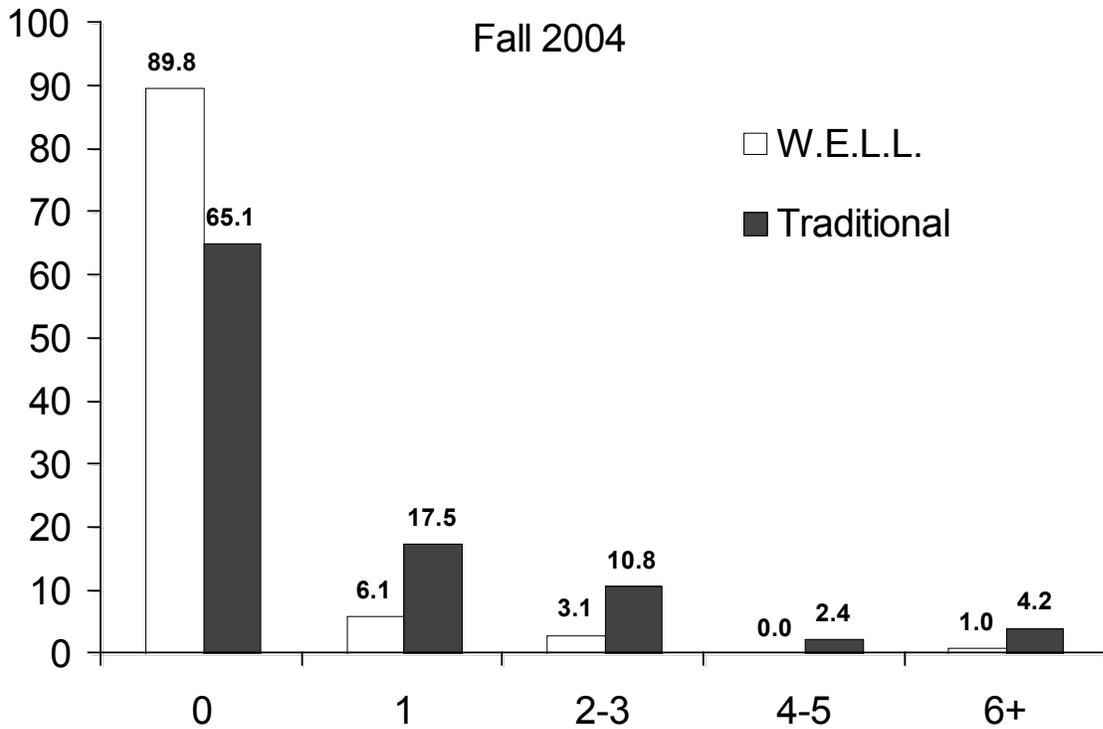


Figure E.8 In the past 30 days, how many times did you ride in a car driven by someone who had been drinking alcohol? Data are percentages from Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=20.2$ ,  $p<.001$ ; Spring  $\chi^2=9.7$ ,  $p=.045$ ).

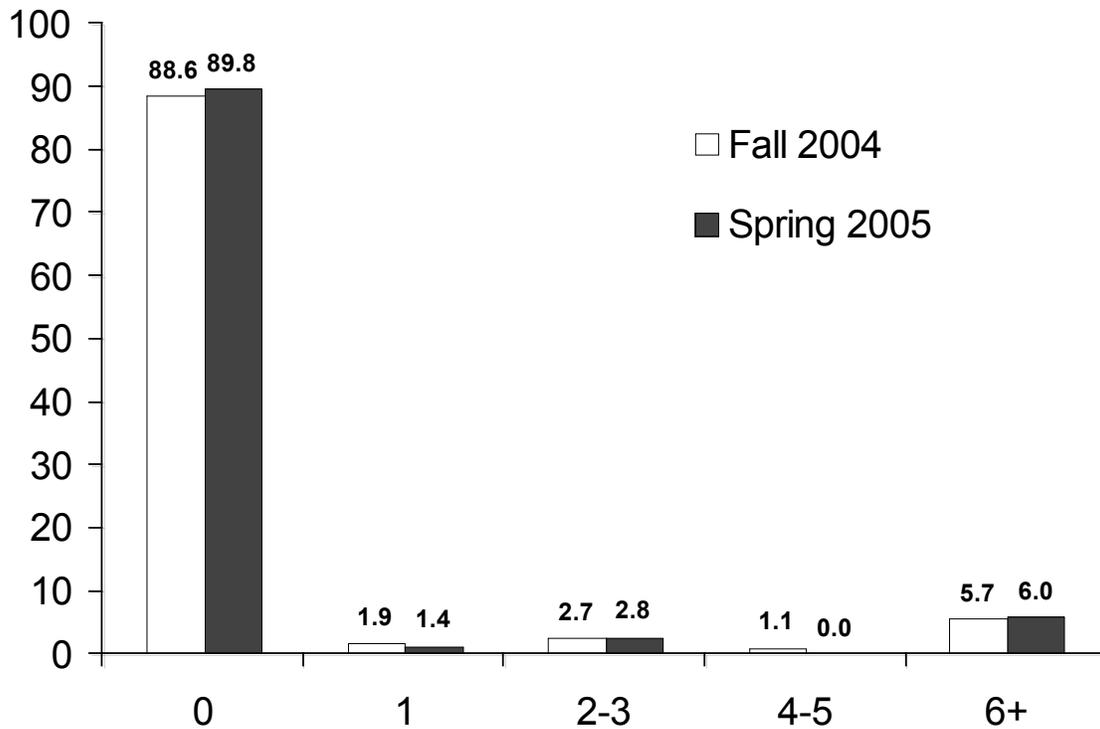


Figure E.9. Overall, there were no differences between students in Wellness housing or Traditional housing with respect to whether or not they had carried a weapon in the past 30 days ( $\chi^2=3.058$ ,  $p=.548$ ). Data from Wellness and Traditional housing were consolidated for a general description of the University.

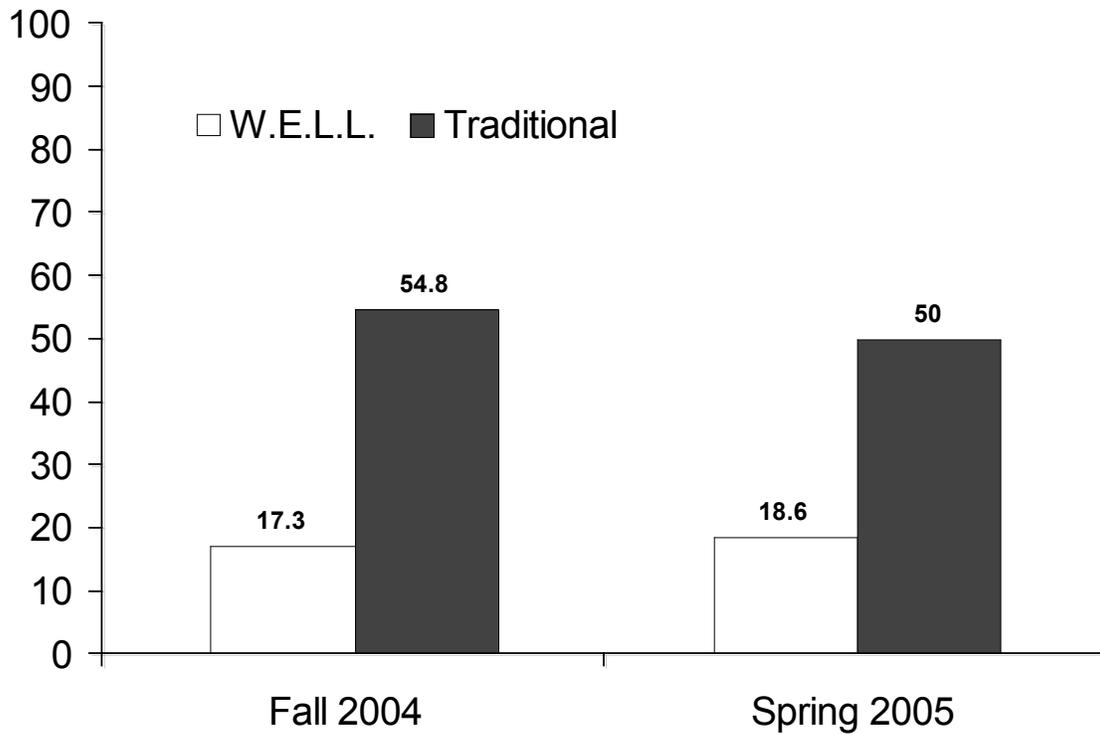


Figure E.10 Percent of students in W.E.L.L. and traditional housing who have tried smoking. Data are from Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=35.8$ ,  $p<.001$ ; Spring  $\chi^2=13.7$ ,  $p<.008$ ).

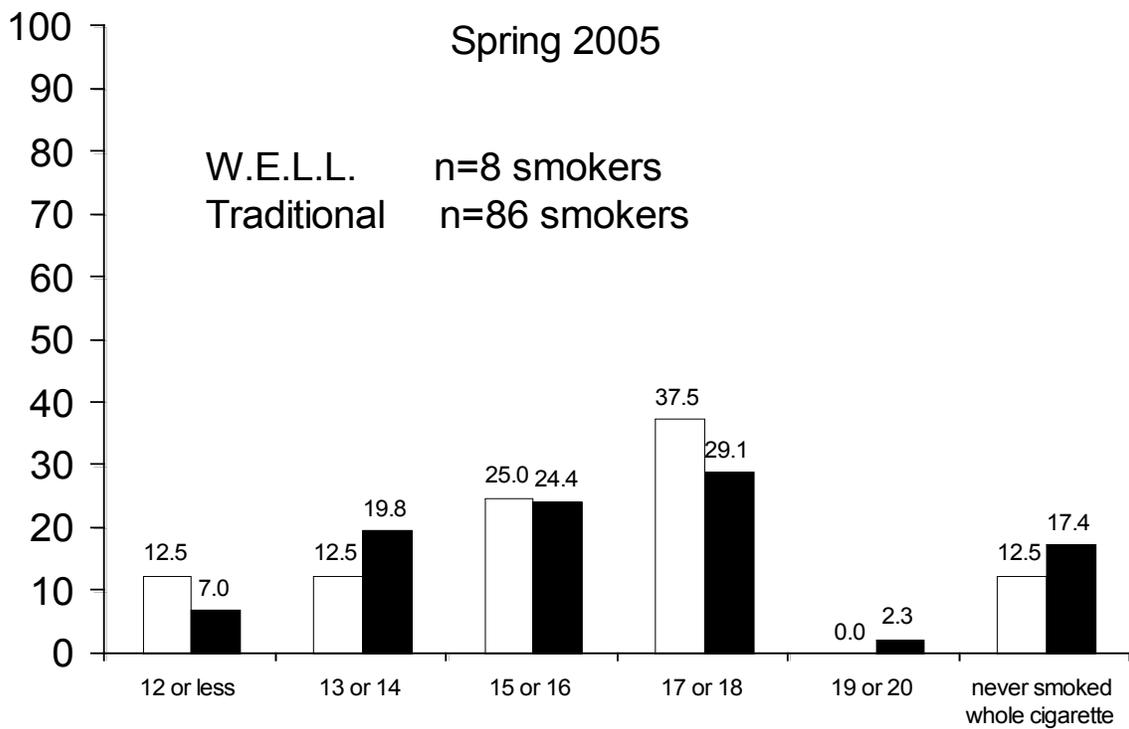
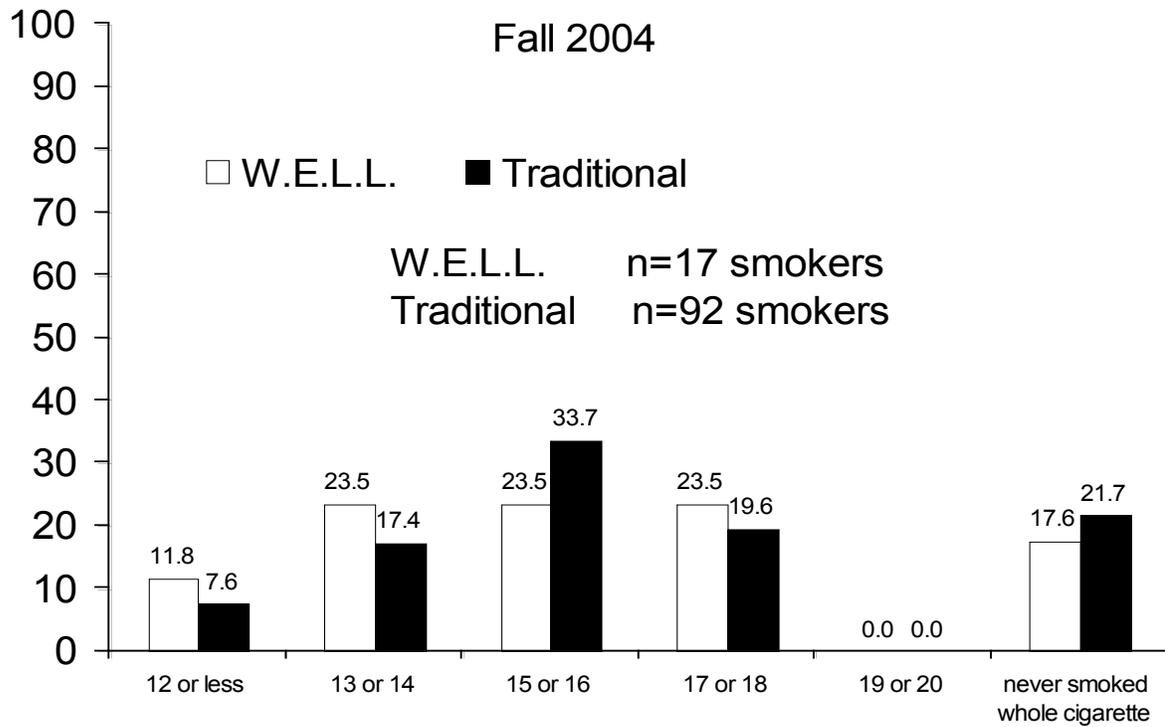


Figure E.11 Age at which students smoked a whole cigarette for the first time. Data are percentages from the Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=37.6$ ,  $p<.001$ ; Spring  $\chi^2=14.3$ ,  $p=.027$ ).

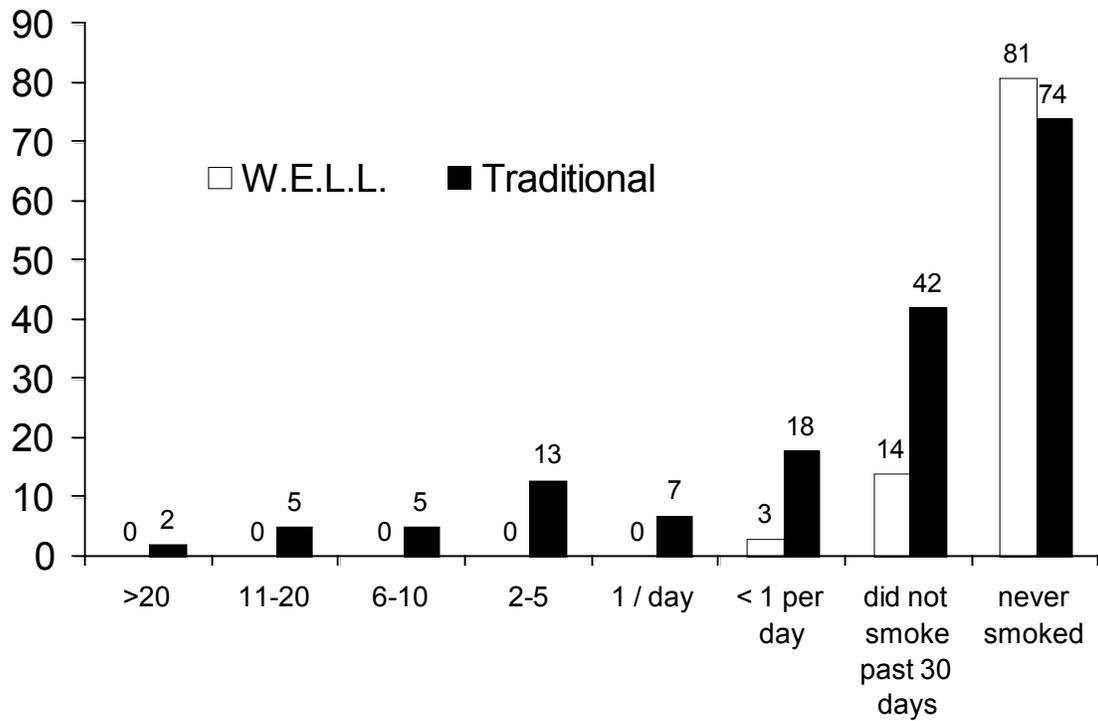


Figure E.12 Within the past 30 days, on the days that you smoked, how many cigarettes did you smoke per day? Due to lack of smokers in WELL, data are reported as counts from Fall 2004 survey. Insufficient sample of smokers in WELL were available for the Chi-square test.

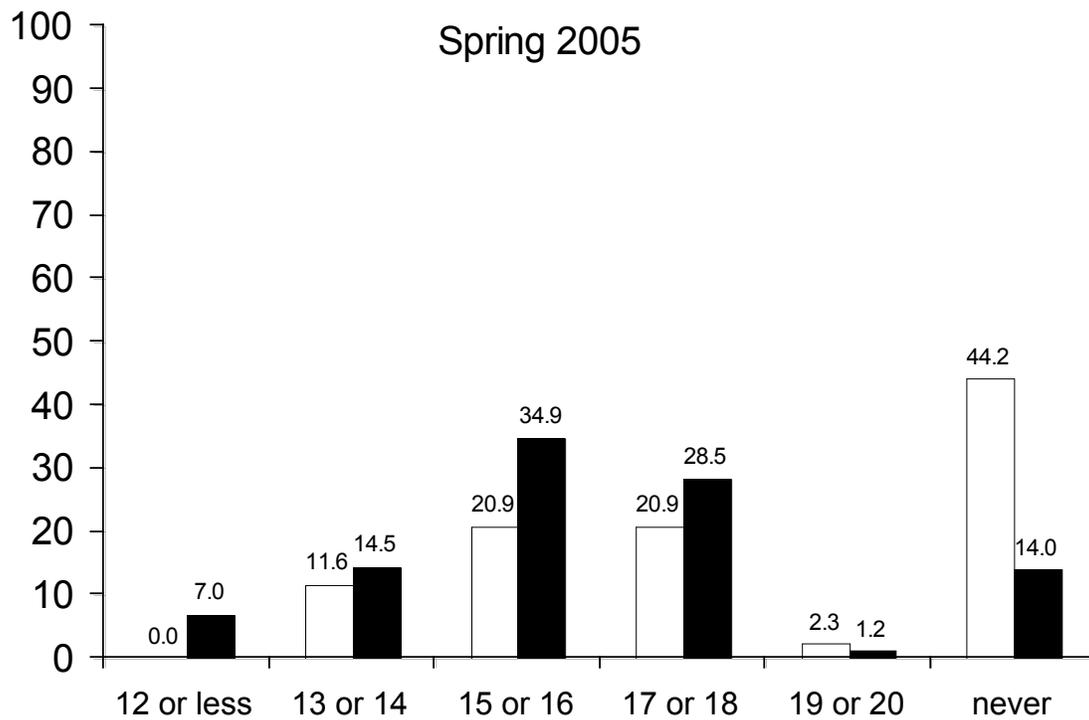
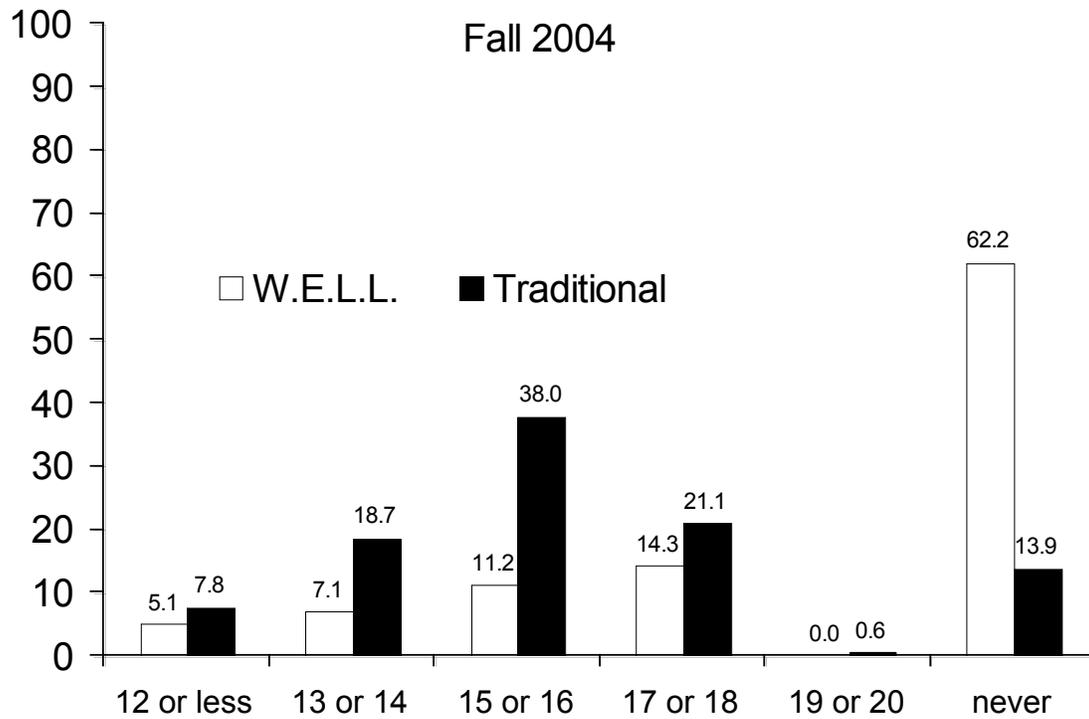


Figure E.13 Age of First drink of alcohol. Data are percentages from the Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=69$ ,  $p<.001$ ; Spring  $\chi^2=22$ ,  $p=.001$ ).

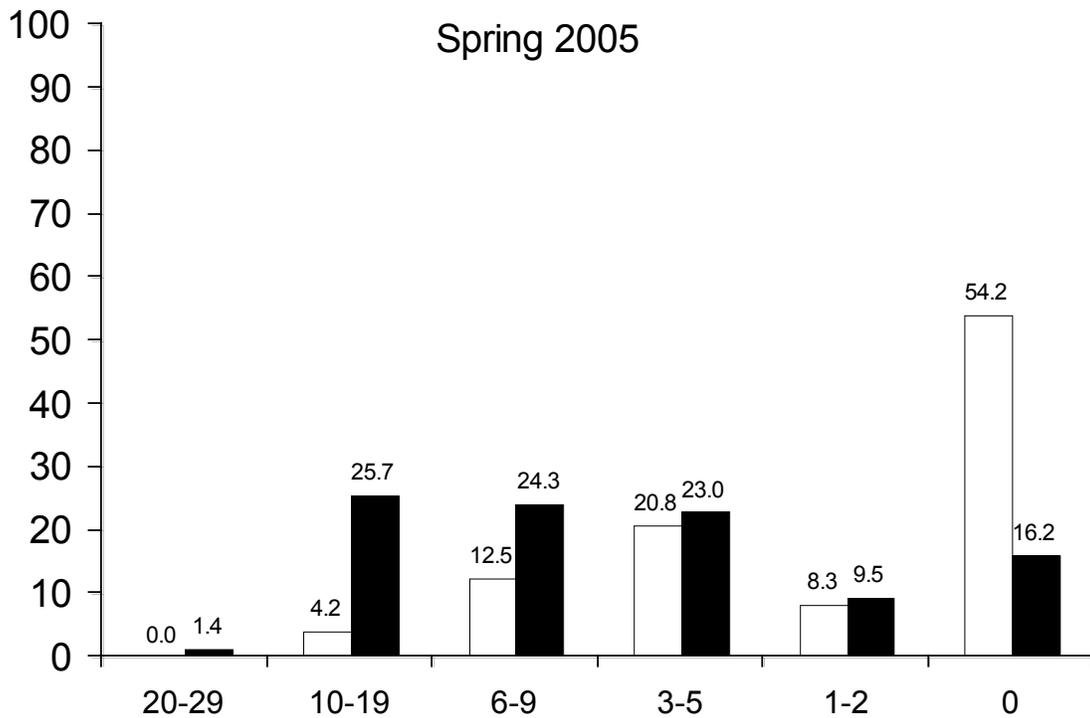
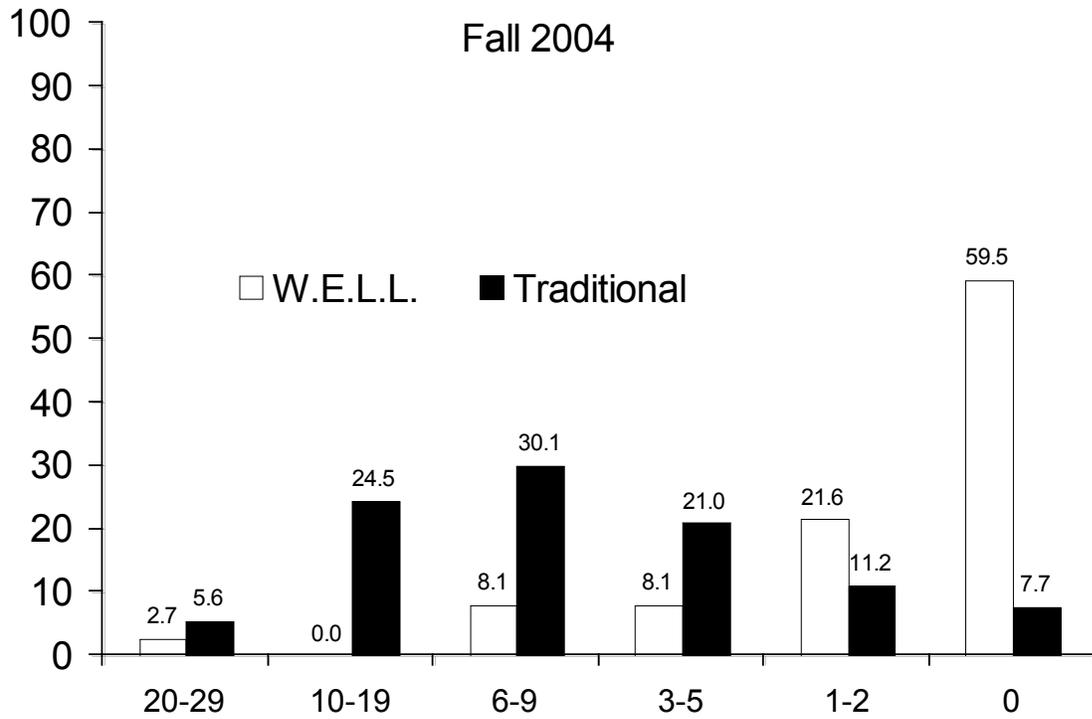


Figure E.14 Number of drinks of alcohol consumed in the 30 days prior to survey  
 Data are percentages from the Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=63$ ,  $p<.001$ ; Spring  $\chi^2=19.7$ ,  $p=.001$ ).

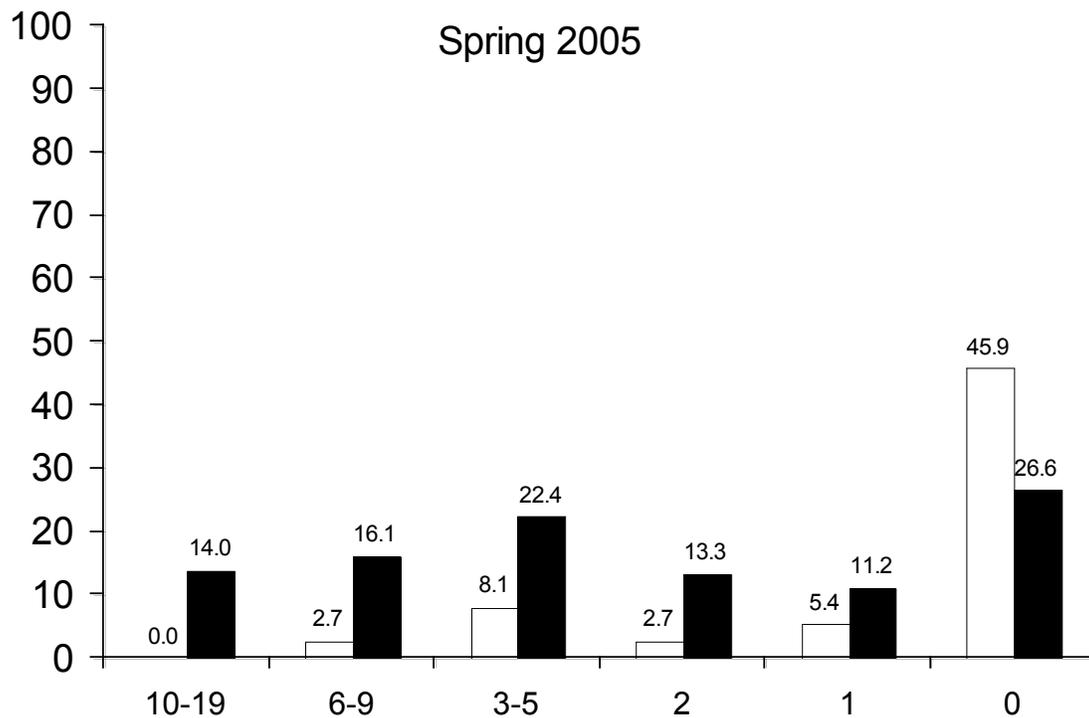
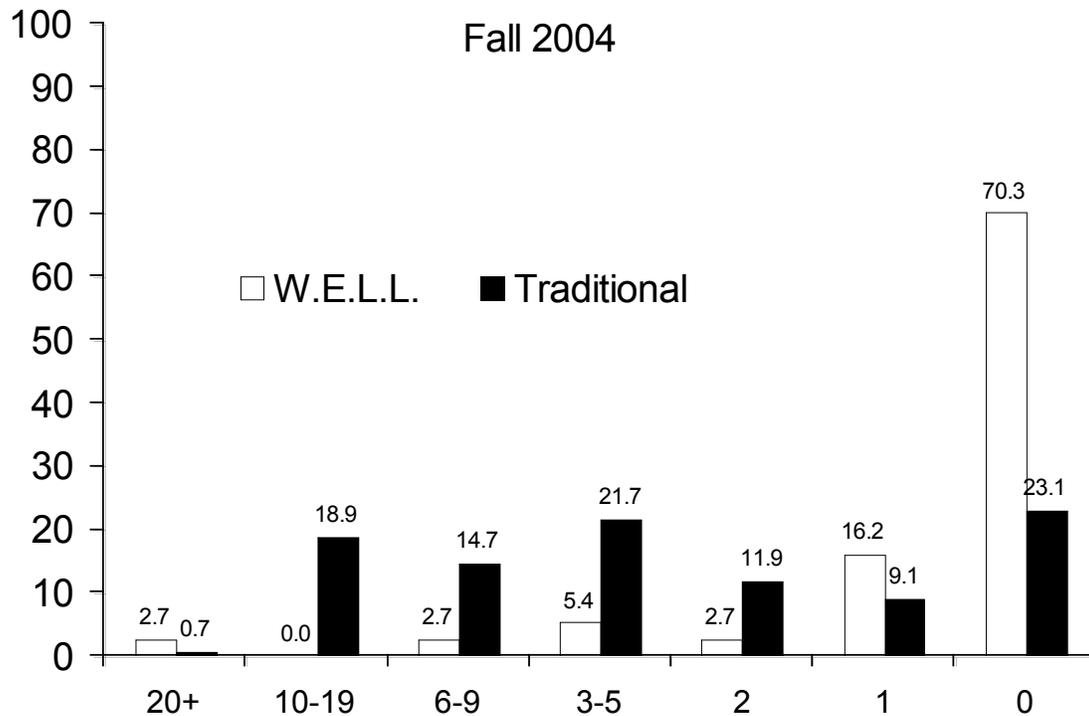


Figure E.15 Based on data from the Fall 2004 survey and the Spring 2005 survey, of the students who have had alcohol, fewer students in WELL housing reported having had more than five drinks in a row (Fall  $\chi^2=39.6$ ,  $p<.001$ ; Spring  $\chi^2=20.6$ ,  $p<.001$ ).

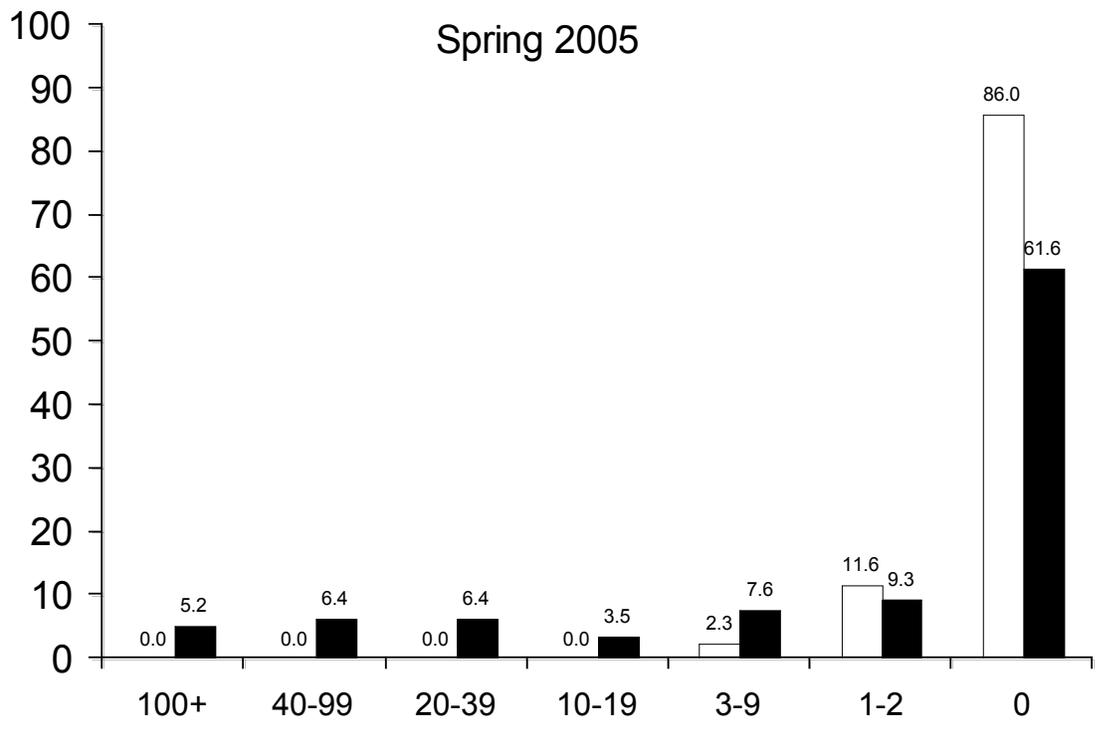
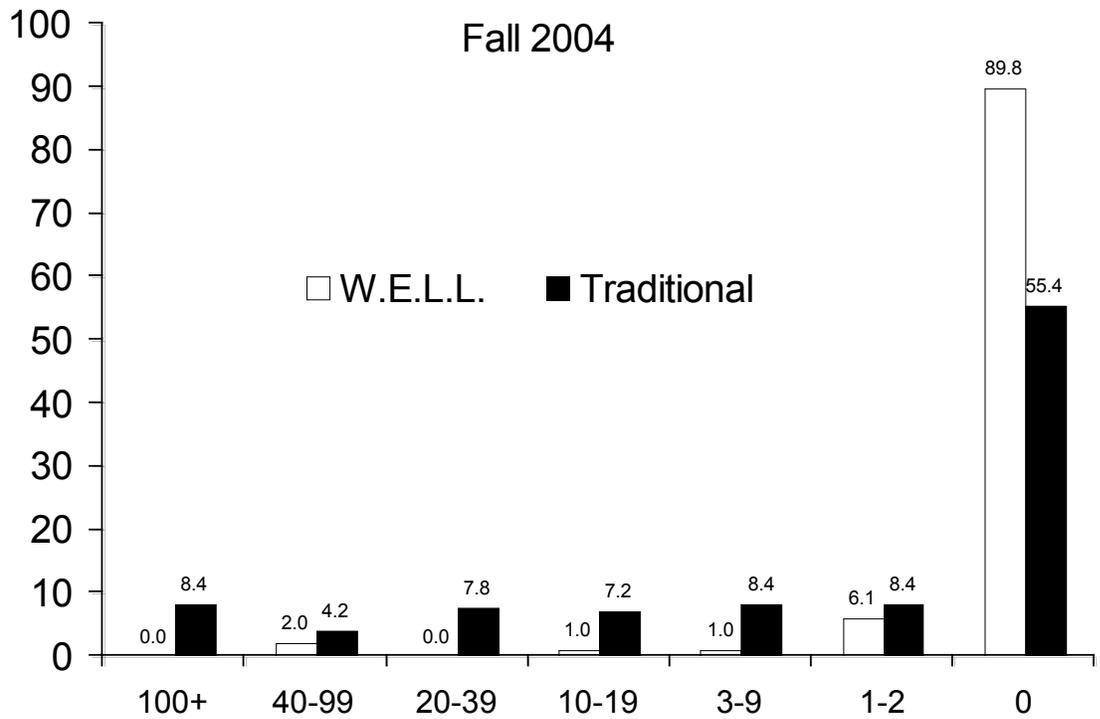


Figure E.16 During your life, how many times have you used marijuana? Data are percentages from Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=38.9$ ,  $p<.001$ ; Spring  $\chi^2= 13.9$ ,  $p=.03$ ).

Marijuana Use	Category	Fall 2004		Spring 2005	
		WELL	TRAD	WELL	TRAD
Marijuana: Age of First Use (Counts)	- 12 years	0	2	0	2
	13 or 14 years	2	13	0	6
	15 or 16 years	4	33	3	27
	17 or 18 years	3	25	3	30
	19 or 20 years	1	1	0	1
	Total	10	74	6	66
		*		*	
Marijuana: Use within past 30 days (Counts)	20-39 times	0	2	0	3
	10-19 times	0	2	0	3
	3-9 times	0	11	0	4
	1 or 2 times	0	14	2	13
	0 times	10	45	4	43
	Total	10	74	6	66
		*		*	

Figure E.17 Marijuana use by students in Wellness or Traditional housing. Data are counts from the Fall 2004 and Spring 2005 surveys. \* indicates insufficient sample to compute Chi-square statistic. Ns indicates not significant at the  $\alpha=.05$  level of significance.

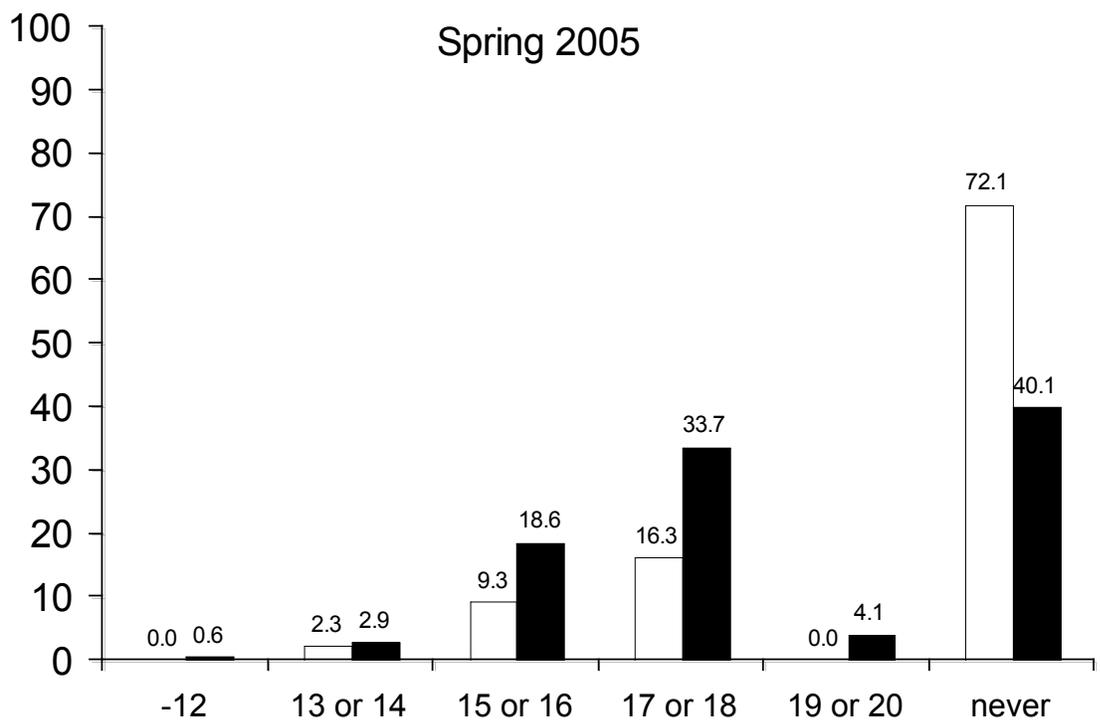
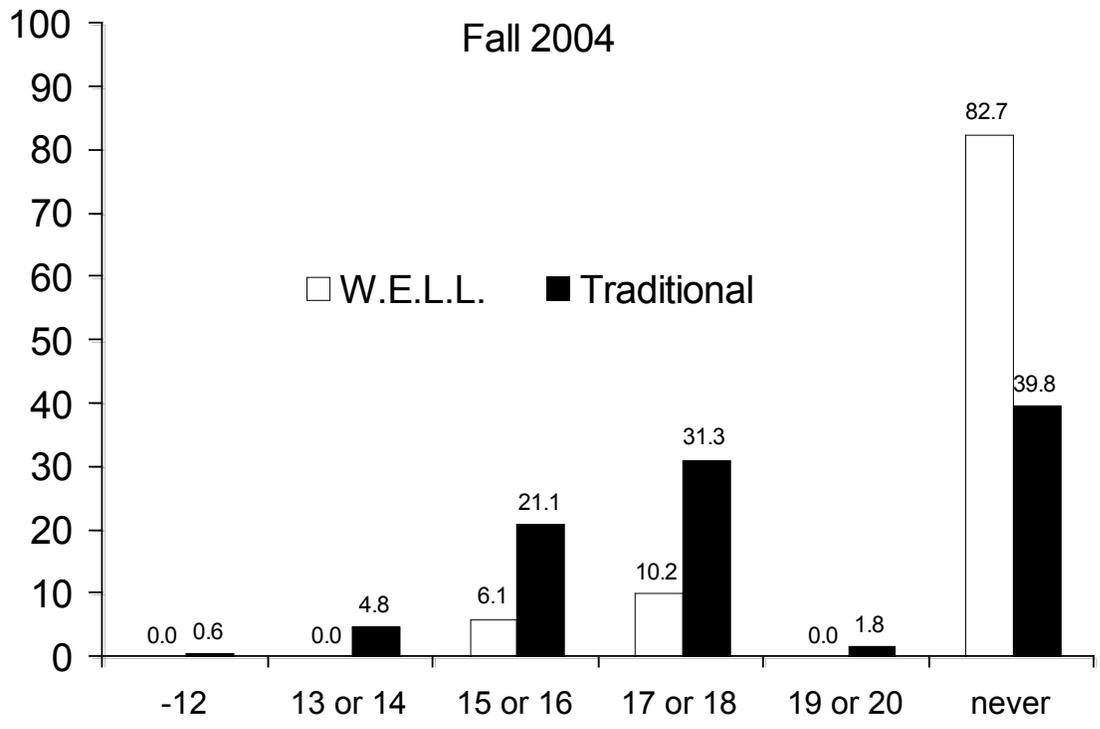


Figure E.18 Age of first sexual intercourse reported by students in WELL or Traditional housing. Data are percentages from the Fall 2004 and Spring 2005 surveys (Fall  $\chi^2=45.2$ ,  $p<.001$ ; Spring  $\chi^2=14.8$ ,  $p=.011$ ).

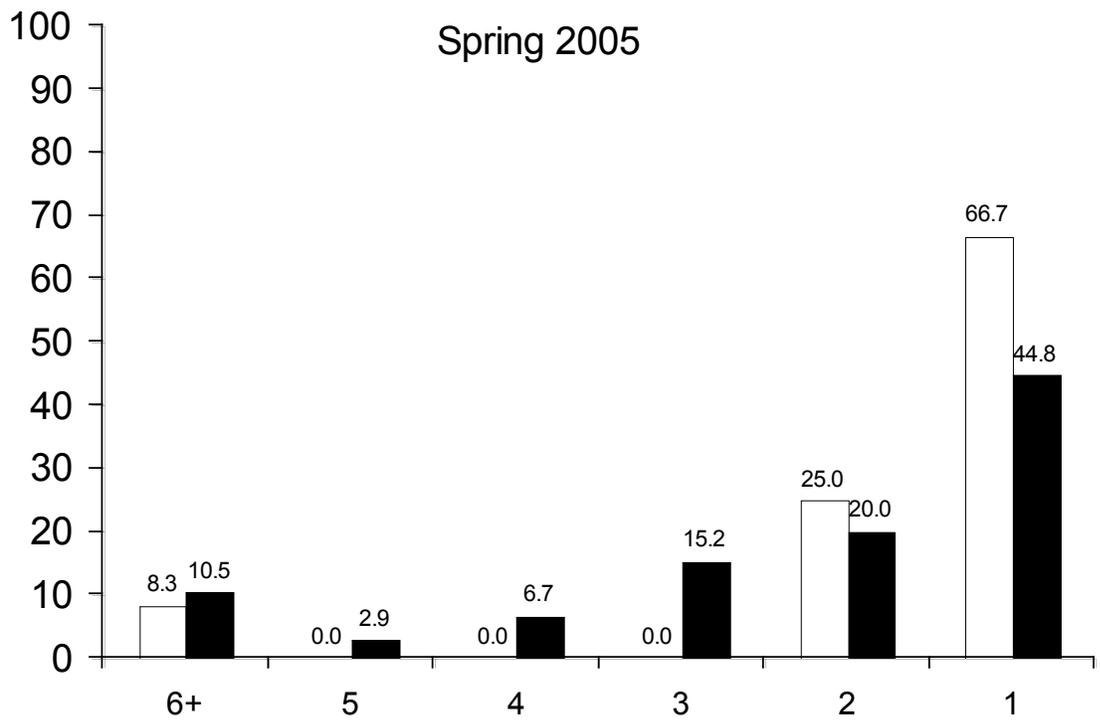
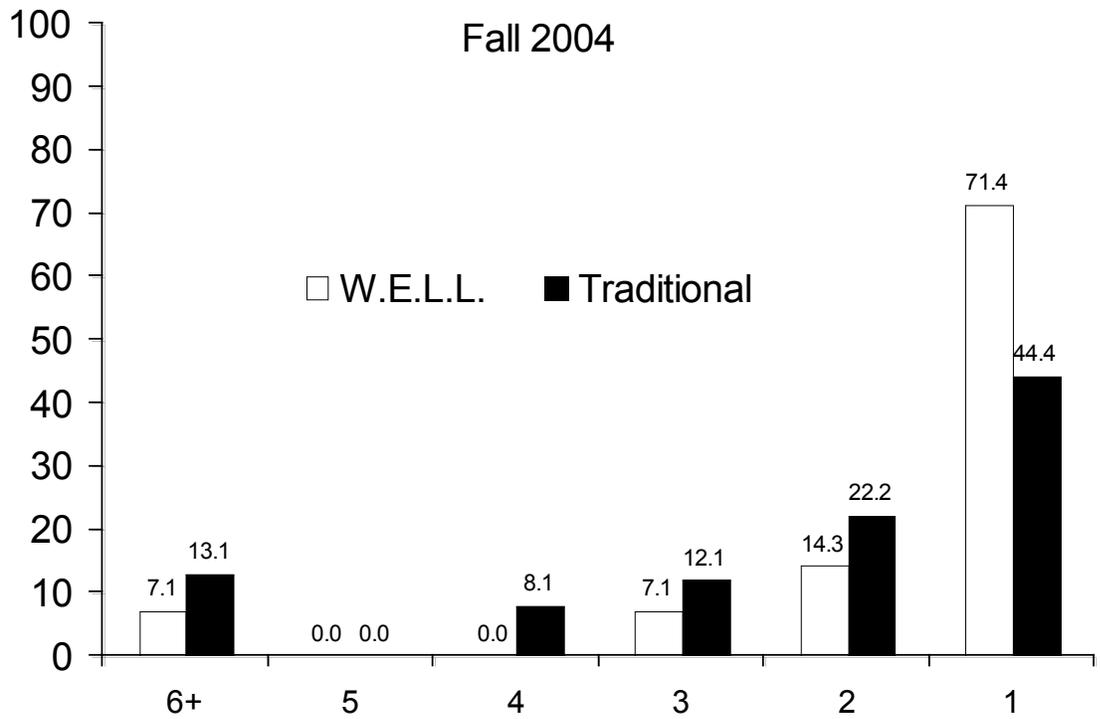


Figure E.19 Number of sex partners data. Data were consolidated across questions that were worded for male and female genders separately. Data are percentages from Fall 2004 and Spring 2005 surveys. Insufficient counts for Chi-square test. Number of sexually active respondents - Fall 2004: Wellness n=14, Traditional n=99, Spring 2005: Wellness n=12, Traditional n=105.

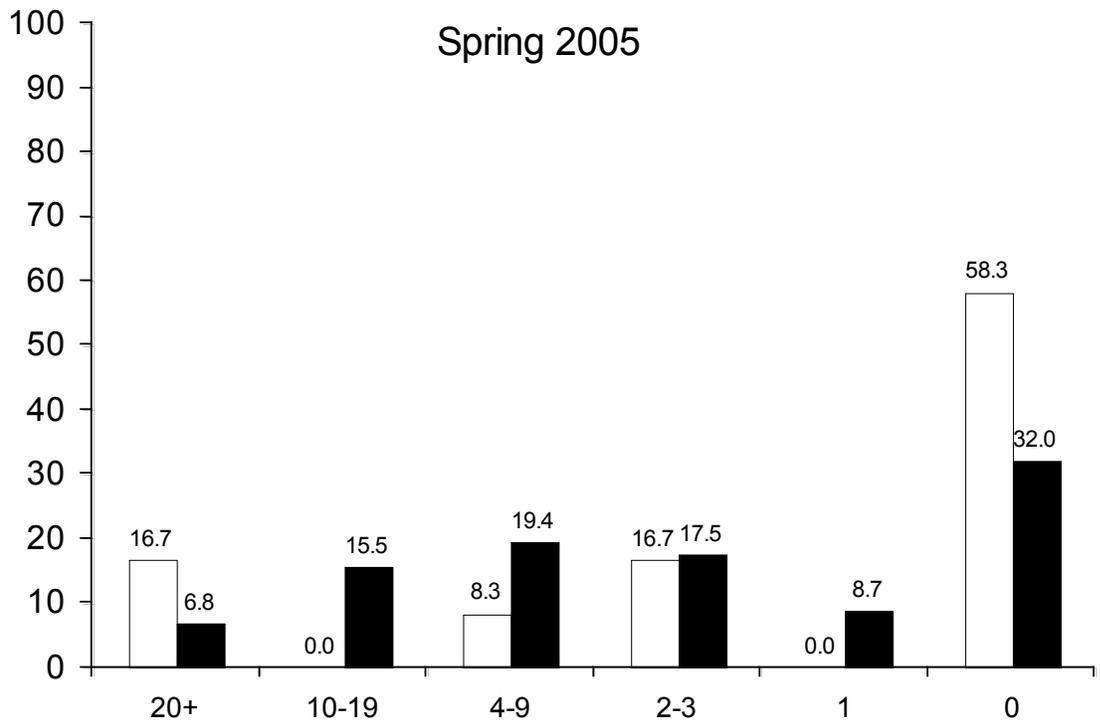
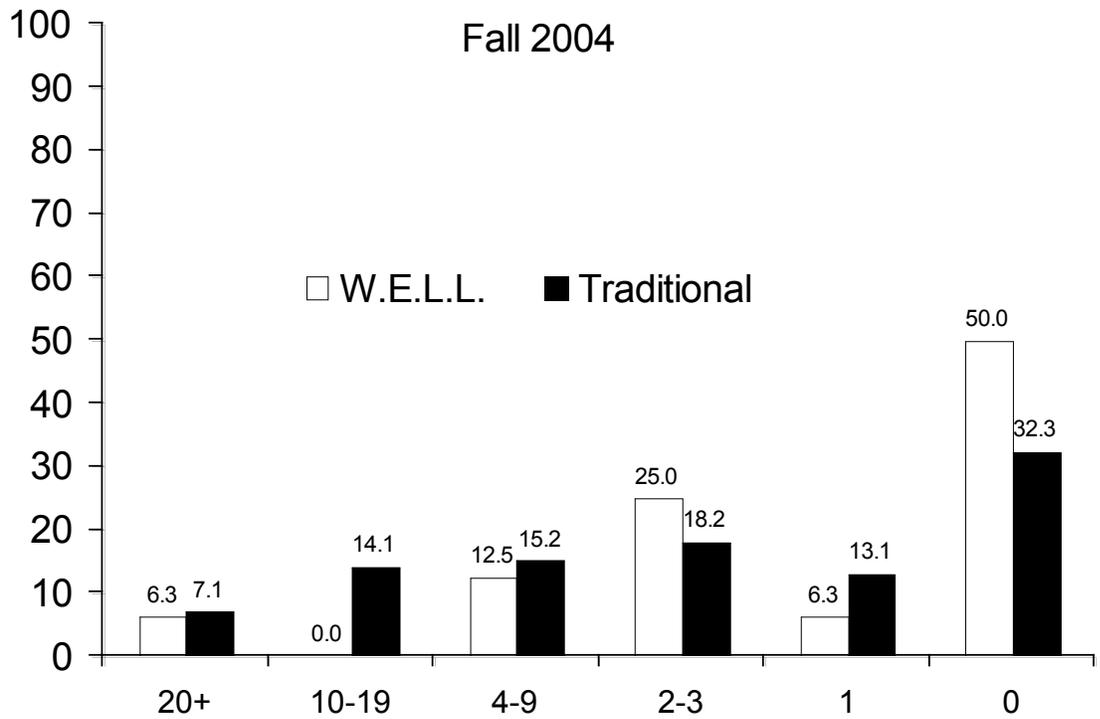


Figure E.20 During the past 30 days, how many times have you had sexual intercourse? Data are percentages within students who have had sexual intercourse at least once in their lifetime. Fall 2004: Wellness n=17, Traditional n=99, Spring 2005: Wellness n=12, Traditional n=103. Inadequate sample for Chi-square test.

Sexual Behaviors	Category	Fall 2004		Spring 2005	
		WELL	TRAD	WELL	TRAD
Condom: Use during past 30 days (counts)	Never	0	16	1	14
	Rarely	1	2	1	6
	Sometimes	0	9	0	6
	Most of Time	1	11	2	12
	Always	6	29	3	32
	<i>Total</i>	8	67	7	70
Condom: Use during last intercourse (counts / responses)	Yes	10/16	31/99	8/12	69/103
		$\chi^2=14.8, p<.05$		$\chi^2=13.2, p<.05$	
Sex with drugs or alcohol (counts / responses)	Yes	0/16	31/99	3/12	35/103
		$\chi^2=29.8, p<.05$		$\chi^2=13.6, p<.05$	

Figure E.21 Sexual behaviors of students in Wellness or Traditional housing. Data are from Fall 2004 and Spring 2005 surveys.

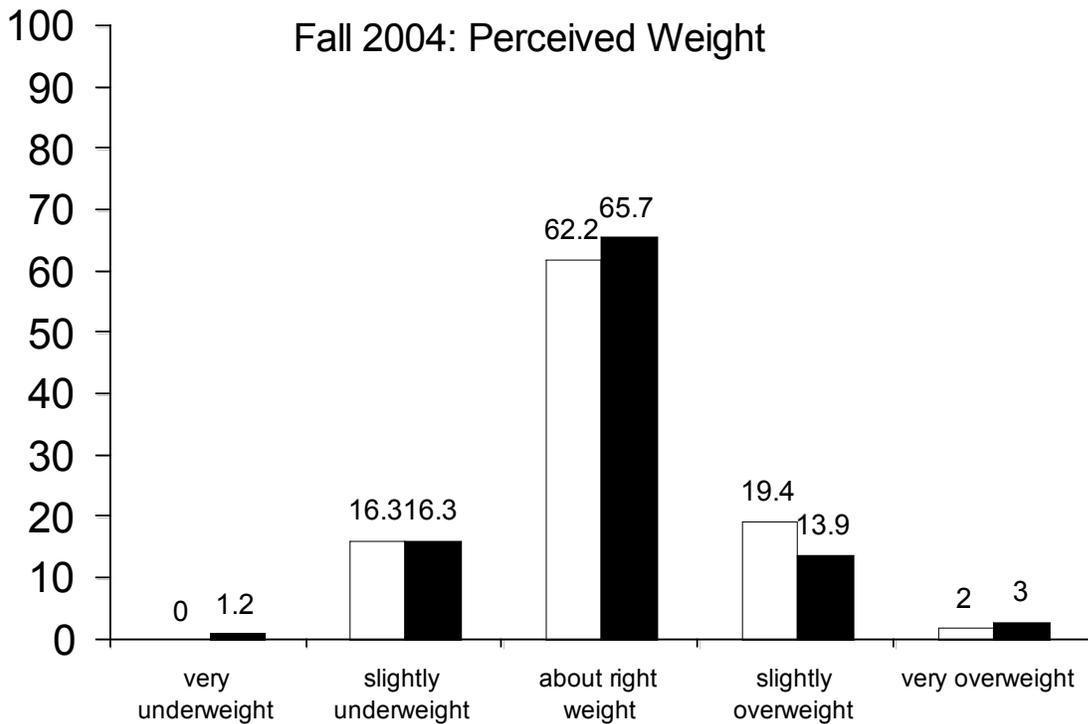
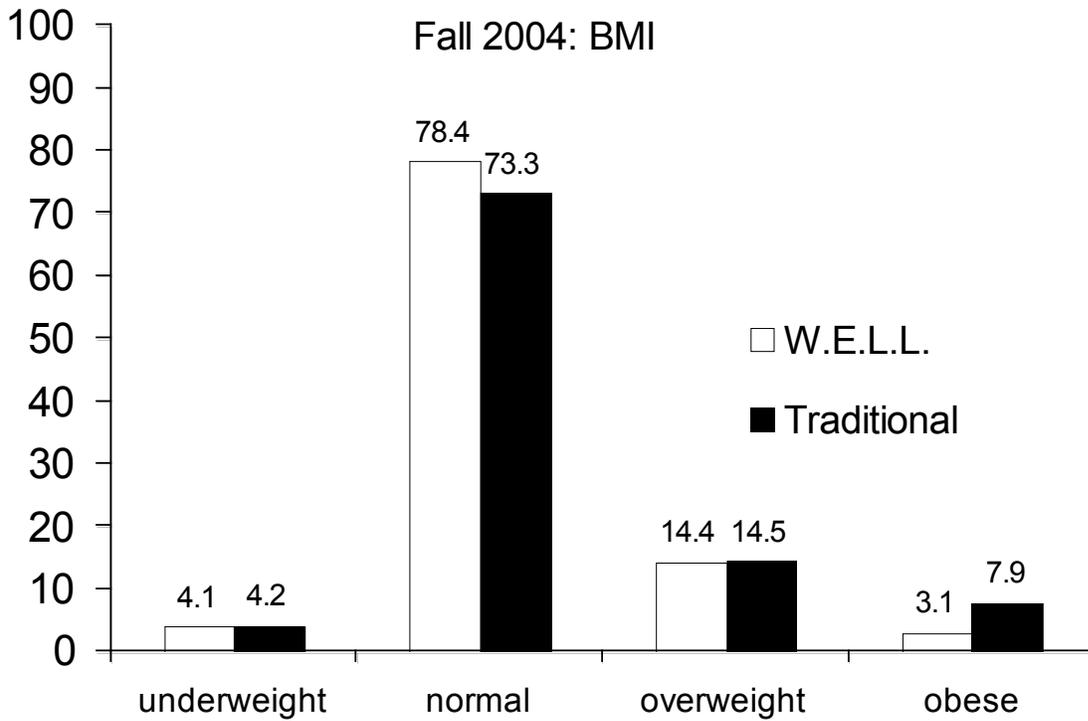


Figure E.22 BMI category and perceived body weight. Data are percentages from the Fall 2004 survey (BMI:  $\chi^2=2.5$ ,  $p=.5$ ; Perceived weight:  $\chi^2=2.7$ ,  $p=.6$ ).

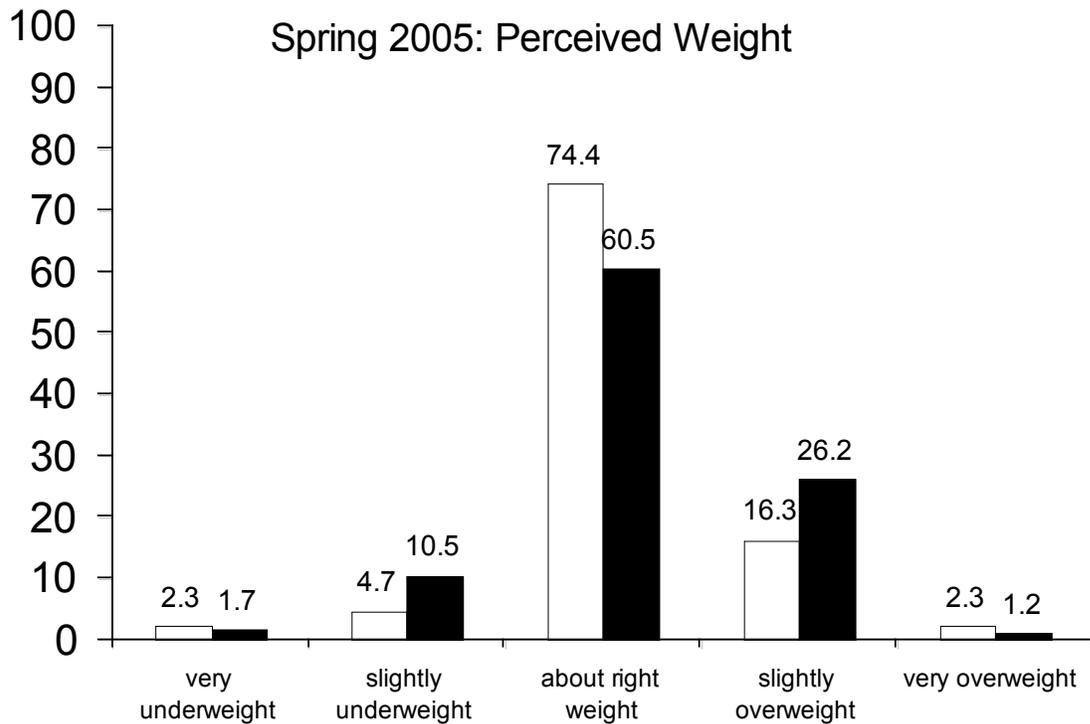
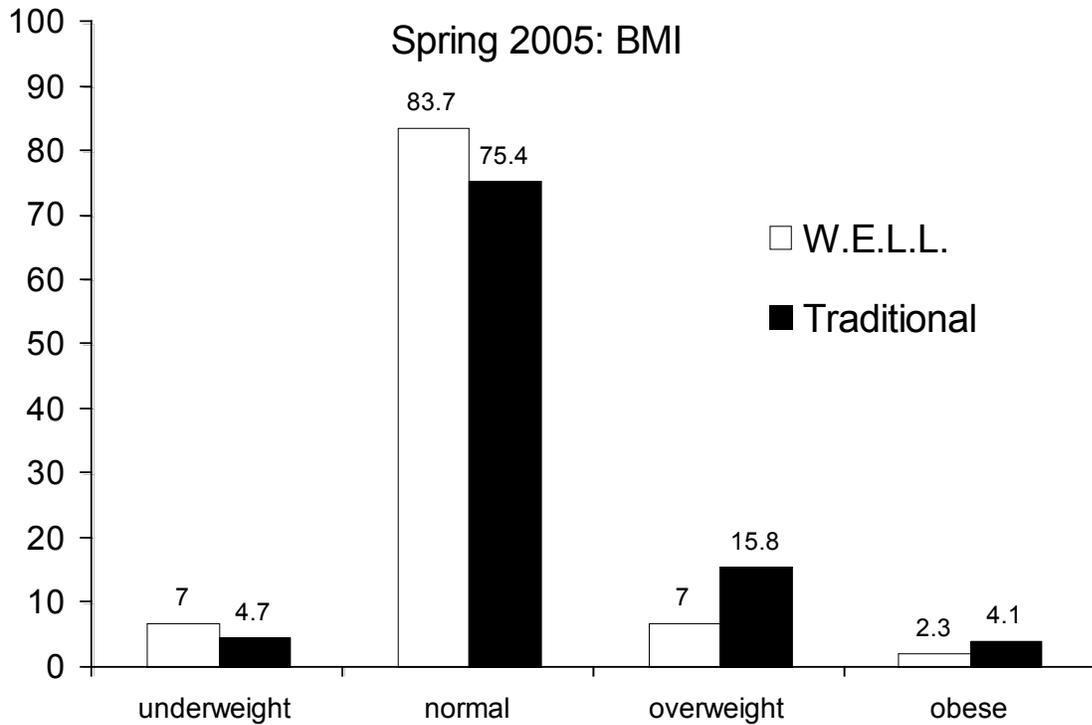


Figure E.23 BMI category and perceived body weight. Data are percentages from the Spring 2005 survey (BMI:  $\chi^2=2.8$ ,  $p=.4$ ; Perceived weight:  $\chi^2=4.1$ ,  $p=.4$ ).

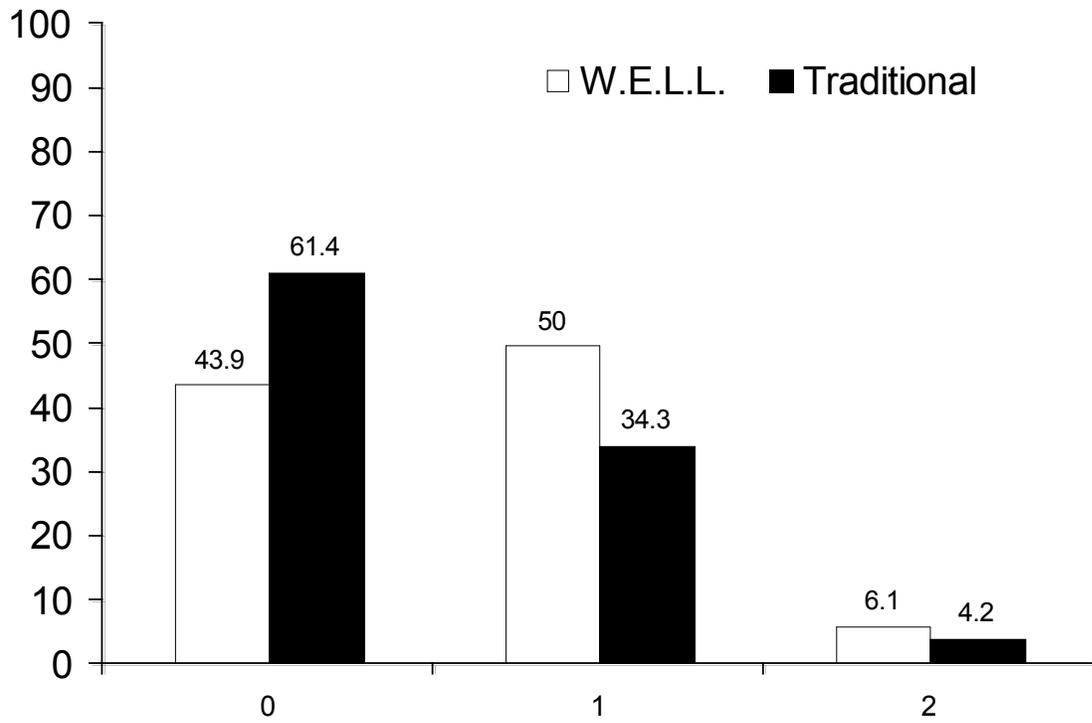


Figure E.24 Number of times students in Wellness or Traditional housing ate a salad yesterday. Data are percentages from the Fall 2004 survey ( $\chi^2=7.68$ ,  $p=.021$ ).

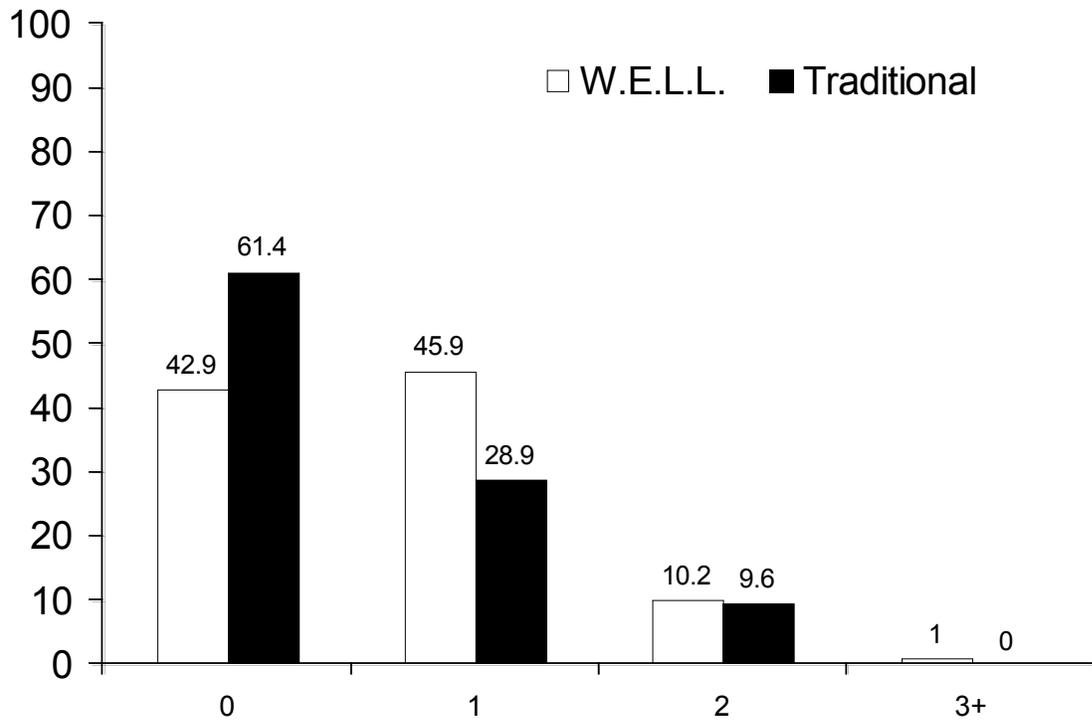


Figure E.25 Number of times students in Wellness or Traditional housing ate cooked vegetables yesterday. Data are percentages from the Fall 2004 survey ( $\chi^2=10.67$ ,  $p=.014$ ).

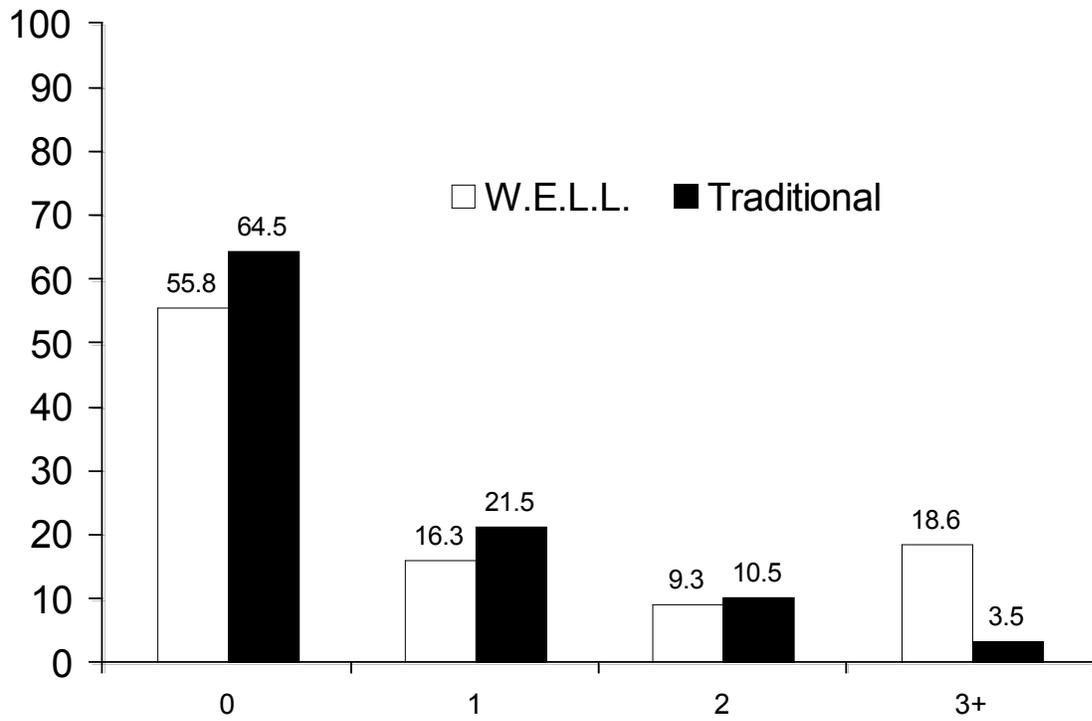


Figure E.26 Number of sports teams on which students in Wellness or Traditional housing participated. Data are percentages from the Spring 2005 survey ( $\chi^2=12.99$ ,  $p=.005$ ).

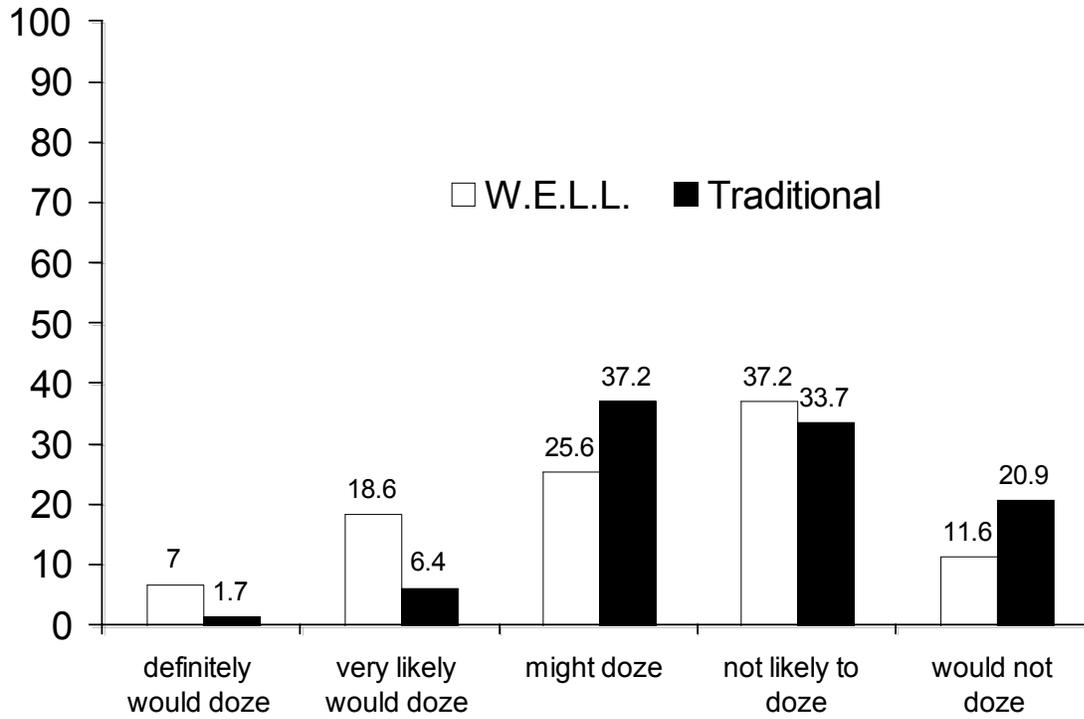


Figure E.27 Likelihood of falling asleep while sitting in a public place such as a theater, meeting or class. Data are percentages from the Spring 2005 survey ( $\chi^2=12.19$ ,  $p=.016$ ).

## ERIN K. O'NEILL

### Education

- May, 2007 **Ph.D.: Educational Curriculum and Instruction: Concentration Health Promotion**  
Virginia Tech, Blacksburg, VA  
Dissertation: The Effect of Special Interest Housing on the Health Risk Behaviors of College Freshmen  
Advisor: Richard Stratton, Ph.D.
- December, 2001 **Master of Science in Health Promotion**, Virginia Tech, Blacksburg, VA
- June, 2000 **Bachelor of Science, Exercise and Sport Sciences**, University of Delaware, Newark, DE

### Research Experience

- February 2002 –present Dissertation: The Effect of Special Interest Housing on the Health Risk Behaviors of College Freshmen
- March 2003 – 2005 Female Long Distance Running Study in conjunction with the Departments of Exercise and Sport Sciences and Physical Therapy, University of Delaware and University of Massachusetts

### Professional Experience

- September 2007 – current Assistant Professor, The American University, Washington, DC
- Design and implement health promotion, nutrition and exercise physiology curriculum to undergraduate and graduate students
  - Evaluate course and student progress
  - Lecture and advise on subject matter
  - Participate with academic coalitions and with related research
- July 2006 – August 2007 Coordinator of Special Programs, Cecil County Health Dept., Elkton, MD
- Design, coordinate and administer health promotion programs
  - Educate the public on health and wellness issues
  - Work with grant protocols and initiatives
- January 2006- current Adjunct Professor of Nutrition, Cecil Community College, Northeast, MD
- Design and implement nutrition curriculum to college students
  - Evaluate course and student progress
  - Lecture and advise on subject matter
- December 2006–current Post Physical Therapy Fitness Specialist, Leeann Nelson Physical Therapy, Elkton, MD
- Design and implement exercise programs to at risk populations
  - Advise on nutrition and healthy lifestyle choices
  - Monitor patient progress
- 2005-2006 Strength and Conditioning Specialist, University of Delaware
- Coordinate and administer varsity athletes weightlifting and conditioning programs
- 2004-2005 Assistant to Director of VT Student Life
- Advise student athletes and coordinate academic and outreach activities
- 2000-2005 Strength and Conditioning Coach, Virginia Tech Athletics
- Coordinate and administer varsity athletes weightlifting and conditioning programs
  - Five year veteran, Strength and Conditioning Coach
- 2002-2004 VT College of Liberal Arts and Human Science Ambassador Advisor
- Advised gifted students and coordinated outreach activities
  - Coordinated and edited College Newsletter and Outreach Magazine

### **Honors and Distinctions**

May 2004	Outstanding Alumni Award; Elkton High School
May 2001	University of Delaware; Alumni Delegate
December 2001	Omicron Delta Kappa
1996-2000	Six year letter winner as a collegiate athlete; soccer (four years), track (two years)
1997-2001	Professional Soccer Player, Delaware Genies
2000-present	Only female holding a degree with a Strength and Conditioning concentration in the nation

### **Presentations and Publications**

April 2007	“Stressed?! How to Eat Healthy At Work” presentations at Department of Social Services Employee Appreciation/Wellness Day
October 2006	“Differences Shown in Alcohol Consumption between Incoming Freshmen In Wellness Themed Housing and Traditional Housing”, published in NASPA NetResults and Journal
March 2005	“Training Considerations for the Disabled Athlete”; National Strength and Conditioning Association’s (NSCA) Women and Minorities Conference; Richmond, VA
May, 2002	Gave presentations on balancing nutrition, exercise and body image to a variety of campus organizations

### **Skills**

Certified Hepatitis C Educator and Counselor  
4 time marathon finisher and Boston qualifier  
Navy Seals Corporate Leadership Trainer  
Certified USA Olympic Weightlifting Coach  
CPR and First Aid Certified for ten years  
NSCA Certified Strength and Conditioning Specialist (CSCS) and Personal Trainer (CPT)  
Certified Health Education Specialist (CHES)

### **Professional Organizations**

Omicron Delta Kappa  
National Strength and Conditioning Association  
USA Weightlifting Association  
National Association of Student Personnel Administrators  
National College Health Association  
National Commission for Health Education Credentialing, Inc.

### **Community Service**

2006-present	Mentor hearing disabled youth
2006-present	Run and train for marathons to raise money for cancer research
2006-present	Participate in local Relay for Life events
2004-2005	Coordinate various community service projects for Virginia Tech athletes
August 2004	Helped coordinate Virginia Tech/Radford Blue Ridge Leadership Conference
2001-present	Volunteer for the New River Valley Conflict Transformation Center
1998-2004	Volunteer for University of Delaware Olympic Figure Skating Science Center
1997-2000	Member, Student Advisory Committee for Sports Medicine, University of Delaware
1994-1999	Coached Special Olympics