A STUDY OF THE KNOWLEDGE, ATTITUDES AND PRACTICES OF FIRST YEAR STUDENTS AT CORK UNIVERSITY REGARDING PARENTAL AND PERSONAL ALCOHOL USE

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A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree

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DECLARATION

I, Jacqueline Grace Mathilda Glisson declare that this research report is my own work. It is being submitted for the degree of Master of Family Medicine in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

-----, 2004.

In memory of my father Victor Glisson 1930-1992

ABSTRACT

AIM: - To study the knowledge, attitudes and practices of first year students at UCC regarding parental and person alcohol use. OBJECTIVES: -To obtain demographic data on the students and to compare the children of alcoholics with the children of non-alcoholics to determine if any differences existed between the two groups.

METHOD: - A questionnaire administered at the start of a lecture. RESULTS: -The students had a good knowledge of alcohol abuse and its causes. The majority was drinking within safe limits, had started drinking while still at school and obtained most of their knowledge about alcohol from their peers. The children of alcoholics felt more at risk of developing a drinking problem and chose careers in arts and food science in preference to others.

RECOMMENDATIONS: - Education should take place at school with parental involvement. Special attention should be paid to the children of alcoholics, as they are high-risk.

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NOMENCLATURE

- 1. COA:- Children of alcoholic
- 2. NCOA :- Children of non-alcoholics
- 3. UCC:- University College Cork
- 4. AA:- Alcoholics anonymous

Chapter 1

Introduction

Alcohol abuse is an important problem to study both because of the frequency with which it is encountered in family practice and because of the impact it has on the lives of the drinker and their families. This study originated while the researcher was a general practitioner in South Africa. The researchers' practice was situated in rural Kwa-Zulu Natal where a significant part of the weekends on call were spent dealing with the aftermath of alcohol excess. While preparing the protocol the researcher relocated to Ireland and is now in rural practice in West Cork. Monday mornings here too are often spent handing out the morning after pill to teenagers who can't remember if they had sex or not and treating the after effects of some alcohol induced brawl or road traffic accident. The researchers practice is not unique in dealing with the fall-out from the weekends drinking. The impact of excessive drinking is evident most weekends in every city and town across Ireland where the sight of inebriated teenagers on the streets on Friday and Saturday nights is commonplace.¹ The move overseas brought home the reality of how universal the problem of alcohol abuse is. The two cultures could not be more different and yet both are reeling from the impact of excess alcohol abuse. This study therefore has roots both in South Africa and in Ireland. Like the researcher, other family physicians

are often the first port of call in dealing with the impact of excessive drinking on the individual and their families. They are ideally situated to deal with the after effects of the drinking and to implement appropriate interventions. The family physician has an advantage over the Accident and Emergency Department doctors in that they have prior knowledge of their patients.² They know their families, their background and other issues with which the alcohol abuser may be dealing. Being able to see the patient in context gives an added understanding and sensitivity to management of the alcohol abuse. Family physicians are aware of the high-risk drinkers in their practice. They know who are the children of alcoholic parents and are thus in an ideal situation to use these opportunities for prevention and health education.

In recent years, increased affluence and the relative decline in alcohol taxes has resulted in a large increase of the per capita alcohol consumption in Ireland. In fact, within the EU, Ireland ranks second only to Luxembourg in per capita consumption of alcohol. ³ The WHO reported that alcohol use has increased significantly in most European countries. Globally 140 million people are currently alcohol dependent. Denmark had the highest reported frequency of alcohol consumption amongst students in European schools. Students in Finland, Ireland and the United Kingdom reported the next highest rates of drunkenness. ⁴ Teenagers cause particular concern. There has been a 370% increase in "intoxication in public places" among teenagers in Ireland since 1996. ⁵ Students too are a particularly important group to study in Ireland as the 18-24 year olds are more likely to drink to excess and engage in binge drinking than the older age groups.⁶ They are also the drinkers in whom interventions will have the most impact.⁷

Not only is alcohol abuse common but numerous studies have demonstrated the negative impact of this abuse on the drinker, their families and peers. Intoxication with alcohol is associated with an increased mortality and morbidity associated with

intentional and non-intentional injuries. In Ireland, alcohol was a factor in 25% of those attending the Accident and Emergency departments. Alcohol induced hospital admissions have increased by 80 % in the period 1997-2001.8 In South Africa 39% of trauma unit patients had breath alcohol concentrations greater than or equal to 0.05g/100ml⁹. An association between per capita alcohol consumption and suicide rates has been demonstrated in numerous studies. ¹⁰ Ireland has been no exception and there has been a sharp increase in male suicide. This increase in suicide rate mirrors the increase in per capita alcohol consumption over the same time period.¹¹ Alcohol is also an influential factor in violent assault. It is a risk factor for being a victim of assault as well as a risk factor in committing an assault. In Ireland the Garda (Police) Research Unit has shown in a nationwide survey that in 88% of public order offenses, alcohol played a role. In 48% of offenses against the person alcohol was a factor.¹² In South Africa one-third to a half of people arrested for domestic violence were under the influence of alcohol when they committed the offence¹³. Acute alcohol intoxication is also associated with unsafe sexual practices, which in the South African environment can have life threatening implications. In Cape Town problem drinking was associated with a higher number of sexual partners, higher rates of unprotected sexual intercourse and more condom failures. ¹⁴Alcohol increases the risk both of being a victim and a perpetrator of sexual abuse. In Ireland 50 % of perpetrators and 50 % of the victims of sexual abuse were drinking at the time of the sexual assault. ¹⁵ Figures from the Rotanda Hospital show that alcohol is the most common "date-rape" drug in Ireland today.¹⁶

In the UK alcohol consumption has been associated with 80% of suicides, 50% of murders, 80% of deaths by fire, 40% of road traffic accidents and 15 % of death by drowning.¹⁷

So in summary the social consequences of acute alcohol intoxication include an increased risk of sustaining physical injury, engaging in unsafe sexual practices and an increased risk of committing a crime.

This study was done on first year college students. They are an important group to study because research shows that their drinking at college exceeds that of their peers in the general population.¹⁸ In a study done on 14 000 students in the U.S. 31% of students filled the criteria for alcohol abuse and 6% for alcohol dependence. ¹⁹ Not only do they drink more than their peers but while inebriated college students engage in more risk taking behavior than their peers do when inebriated. In a California study 34.2% of full-time college students and 32.8% of part-time students drove after drinking compared to only 27.9% of non college students in the same age-group. Although college students were more likely than other young adults to drive while drunk, they were also more likely to wear a seatbelt as a driver or passenger. ²⁰

Sexual assault is common and a woman has a one in four to one in five chance of being raped while in college. In an U.S. study 72% of these rapes took place while the women were intoxicated and unable to protect themselves. Those most at risk of being raped were under 21, white, resided in sorority houses, used illicit drugs, drank heavily in high school and attended colleges with high rates of heavy episodic drinking.²¹ In the researcher's opinion, the family physician is the ideal person to identify high-risk individuals. The family physician will in all likelihood be the person to whom the student turns for advice on sexual matters both before and during college. They are in a unique position to guide and educate their patients. The first visit or repeat visit for the pill is the ideal opportunity to educate women about risky situations and the dangers of alcohol intoxication.

The amount of alcohol abuse in Ireland is causing great concern within the country. New laws are being proposed to put pressure on the publicans not to serve people who are drunk. Questions are being asked about the abuse of alcohol in the country.

One of the questions is whether this a cultural phenomenon or whether the Irish are genetically unable to tolerate their alcohol? The question about the relative influence of environment as opposed to genetics is not a new one. Cross culturally man has noted that alcoholism runs in families. In Africa one of the researchers' Zulu patients said, "I drink because my fathers' spirit is in me. I will never be able to stop drinking because he could not". In Europe, Dr Hibell noted that teenagers follow parental drinking patterns.²² Studies document that alcoholism does indeed run in families but is this because a child learns to become an alcoholic from parents and the home environment, or because a child inherits genes that create an underlying predisposition for alcoholism. Adoption studies attempted to answer this question by following up the children of alcoholics adopted into non-drinking and drinking homes. They showed that the children of alcoholics have a 3-4 times greater risk of developing the disease irrespective of environment²³. A recent study by Kendler et al found alcoholism and drugs abuse heritability amongst male twins to be as high as 60-80 %. ²⁴ Once the definite influence of genetics on alcoholism via numerous population and family studies had been determined it became a natural step to start looking for a specific gene for alcoholism. It is known that more than one gene is likely to be responsible for development of the disease. Studies are now underway trying to pinpoint the specific genes involved and to try and determine how genes and the environment interact to influence vulnerability to alcoholism²⁵. Based on our current understanding, it is probable that environmental influences will be at least as important, and possibly more important, than genetic influences. Success in uncovering the genes involved in a vulnerability to alcoholism will help doctors to recognize the potential for alcoholism in high-risk individuals and to intervene at an early stage. Brief interventions have been shown to be effective in reducing drinking by alcohol abusers²⁶. Education of high-risk children before they start drinking

should be just as if not more effective in preventing the disease. Family physicians are in the ideal situation to educate and counsel their high-risk families.

Therefore children of alcoholics (COA) are an important subgroup to study, as they are at high risk for developing alcohol use disorders. They are two to ten times more likely to develop alcoholism than children of from a non-alcoholic background.²⁷ College is an important time to study the children of alcoholics because they are more at risk of stress related illnesses while at college than their peers are.²⁸ They are also at risk of a number of physical, emotional and behavioral problems.²⁹The extent of the problem is not insignificant. In fact, at college in the USA, about 10% of students have problem- drinking parents. Approximately 23 % of these students meet the criteria for alcohol abuse problems themselves. Males are more likely than females to engage in heavy binge drinking and those who had an alcoholic mother are at greater risk of developing alcohol related problems. ³⁰ Not only are the children of alcoholics more at risk of developing drinking problems but they are also more likely to have academic difficulties. They are more likely to repeat a course, have low academic performance, skip days and drop out. ³¹ Family physicians need to be aware of this and offer support and interventions when appropriate. This relatively poor academic performance is bound to influence the children of alcoholics' choice of career and future prospects. There is also good evidence that children of parents with alcohol problems have more drug involvement, plus related mental health and behavioral problems.³² They are a high-risk population at college and in need of extra care and attention.

So in summary, alcohol abuse is an important topic for family physicians to study because of the frequency with which they encounter it and its consequences. It is useful to know what the current situation is at Cork University College in order to determine what interventions would be the most appropriate. College students are a

high-risk population and one in which interventions are effective and cost-effective. Brief interventions can have long lasting effects and educating students about the dangers of alcohol early on in their drinking careers can protect them in the long term from the numerous negative consequences of alcohol abuse. Education by the "trusted" family physician to whom they have turned throughout their lives for advice should have some positive influence. The children of alcoholics are a particularly vulnerable population and one, which would be easily identified by their family physicians. The family physician should be alert to possible problems in college and be aware that this is a population who would need more guidance and understanding than the other college students on their list are. They would be ideally placed to offer a listening ear and gentle advice on avoiding the dangers of alcohol abuse in college.

1.1 Aim

This study investigated the knowledge, attitude and practices of first year students at Cork University regarding parental and personal alcohol use.

1.2 Objectives of the study

The objectives of the study were to:

a). Obtain demographic data of the study population with respect to ages, gender, year of study, degree for which they are studying and home county/country.

b). Explore their knowledge of alcohol and alcoholism with respect to the seriousness of the disease, the risk factors for developing the disease, and sources of information about the disease.

c). Explore their attitudes to alcohol with respect to whether they felt at risk of developing the disease, at what stage would they worry about their drinking and their reasons for abstaining from alcohol?

d). Assess the students' current drinking practices with respect to how much they were currently drinking, attendance AA or AI Anon meetings and the impact the drinking was having on them by rating them on the CAGE questionnaire?
e). Determine the presence of parental alcoholism as defined by a score or three or more on the CAST-6 screening test and to determine whether a relationship exists between parental alcohol use and students' knowledge, attitudes and drinking practices.

1.3 Preview of study

The next few chapters are devoted to an explanation of the methods and materials used, the results, discussion of findings, recommendations and finally conclusions.

• The methods and materials used.

This will include a discussion on study design, a description of the site of the study and the study population. It will include a description of the sample size, methods of sampling and data collection. There will be a justification of the selection of measuring tool and a description of the pilot study. Ethical clearance will also be discussed.

• The results

This chapter will display the results by means of graphs, tables and various other methods.

• A discussion of the findings

In this chapter the results will be discussed and the strengths and shortfalls of the study analyzed.

• Recommendations

In this chapter recommendations for the prevention of alcohol abuse will be made on the basis of the study findings.

Conclusions

This chapter will show the more important findings and conclusions of the study. It will sum up the research and make suggestions about further areas of study that might be needed.

Chapter 2

Literature review

2.1 The global problem of alcohol

The drinking of alcohol is an integral part of many societies throughout the world. It often plays a major role in social, cultural and sporting activities. Alcohol is however a drug, the misuse of which is one of the leading causes of morbidity and mortality worldwide.³³ The WHO reported that alcohol use has increased significantly in most European countries. Globally 140 million people are currently alcohol dependent. ³⁴ An increase in the per capita consumption of alcohol does not come without a price both to the individual and society as a whole. Allan et al set out in 2001 to establish a relationship between alcohol abuse and the other epidemic affecting the South African society, crime.³⁵They did this by means of a cross-sectional record study of criminal offences and suicide attempts in 269 admissions to an alcohol rehabilitation unit in the Western Cape. What they were able to establish was a definite relationship between intoxication and both violent crime and suicide attempts. This widespread misuse and abuse of alcohol in South African society is also likely to have a large impact on the economy. A major burden is borne by the hospital care system, in particular the cost of alcohol-related trauma. In 1996 Parry et al conducted a study to estimate cost of alcohol misuse in terms of fatal and non-fatal trauma.³⁶ They concluded that that alcohol misuse could be linked to a substantial amount of mortality and morbidity, particularly with respect to motor vehicle trauma and

interpersonal violence. Their findings correlated with mortality data in the USA and would suggest that control or even elimination of alcohol abuse would reduce a vast amount of injuries and death. In order to eliminate alcohol abuse it is important to know the extent of the problem. Only then can one determine what resources are required to combat this problem. Barry et al set out in 2002 study to determine the extent of alcohol use and abuse throughout South Africa.³⁷They did this by means of a descriptive, epidemiological study based on data gathered biannually from multiple sources, including specialist treatment centers, trauma units, mortuaries, psychiatric facilities, and surveys of school students and arrestees. The study lasted for over 4 years and confirmed that alcohol abuse is very prevalent and widespread. In 2000, 51,1% of patients in Cape Town and 77 % in Mpumalanga, reported that alcohol was their primary substance of abuse. In the trauma units a high proportion of patients tested positive for alcohol, ranging from 40.3% in Durban and 91.8% in Port Elizabeth. There was a similarly high proportion of mortality cases testing positive for alcohol. 40.3% in Durban and 67.2% in Port Elizabeth. Ireland is no different. Hearne R et al randomly selected alcohol admissions in a university teaching hospital in Ireland.³⁸ Of the 1133 patients randomly selected, 30% of the men and 8% of the women met the DSM IV criteria for alcohol abuse or dependence. These were not just trauma admissions but all admissions excluding day cases. In 1993 Murray et al found that the incidence of problem drinking in Northern Ireland was 15.8% of the men and 5.7% of the women.³⁹ In recent years, increased affluence and the relative decline in alcohol taxes has resulted in a large increase of the per capita alcohol consumption in Ireland. Within the EU, Ireland ranks second only to Luxembourg in per capita consumption of alcohol. ⁴⁰Long-standing stereotypes portray Irish people as prone to abuse alcohol. The 'problem' of Irish drinking and Irish attitudes to alcohol are not as straightforward as traditionally supposed. Analysis of combined years' data from the General Household Survey indicates first that people of Irish birth or parentage are no more likely than the British born to use alcohol at all.⁴¹

However, if they make use of alcohol at all, members of the Irish groups were more likely than the British born to consume alcohol at levels greater than 14 or 21 units per week. So across the cultures, alcohol abuse occurs commonly and results in preventable death, illness and injury. This has both social and economic implications.

2.2 Alcohol and the family practitioner

Family physicians are often the first port of call in dealing with the impact of excessive drinking on the individual and their families. They have an advantage over the Accident and Emergency Department doctors in that they have prior knowledge of their patients.⁴² They see the patient more regularly than the Accident and Emergency doctors would and therefore have more opportunity and often more time during routine consults to discuss prevention and health issues. They are also more likely to see the patient sober and receptive than the emergency physician who has to deal with the immediate consequence of the alcohol intoxication. The family physician knows the alcohol abuser, their families, their background and other issues with which they may be dealing. Being able to see the patient in context gives an added understanding and sensitivity to management of the alcohol abuse. Family physicians are aware of the high-risk drinkers in their practice. They would be able to identify those patients in whom it would be necessary to spend a little more time on brief alcohol intervention. Despite the fact that the family physician is ideally placed to do the counseling, it often doesn't happen. In fact Aira et al found in their study that family physicians were more likely to mention tobacco use in medical records than alcohol consumption.⁴³ Physicians were more comfortable in undertaking preventative measures for smoking than alcohol. Swedish researchers, Johanssen K et al, explored the attitudes and practices of general practitioners and nurses concerning early identification of, and intervention for, alcohol-related problems in an attempt to find out why the interventions didn't happen.⁴⁴ What they found was that the low level of early identification and intervention in primary care appeared to be

related more to insufficient practical skills than to attitudes. Interestingly nurses were more likely to ask about alcohol use than the doctors were in that study. ⁴⁵Aalto et al had similar findings in their study in Finland, where again the barrier to the adoption of brief intervention was a feeling of insufficient knowledge to provide competent brief intervention.⁴⁶

Perhaps there is also a perception that alcohol preventative measures are not effective and take too much time. Fleming et al looked at that particular issue. ⁴⁷ They did a randomized controlled trial in community-based primary care practices on the influence on problem drinkers of brief advice given by a family physician. The advice consisted of two, 10- to 15-minute counseling visits, delivered by physicians, using a scripted workbook that included advice, education, and contracting information. 12 months later at the follow up there was a significant decrease in seven-day alcohol consumption, a reduction in binge drinking and frequency of excessive drinking. Saitz et al had similar findings when they did an interventive study⁴⁸. In their study they found that providing physicians with patients' alcohol screening results and simple individualized recommendations increased the likelihood of the physician's having a discussion with patients about alcohol during the primary care visit. That discussion in turn led to the intervention group having fewer drinks per drinking day six months later.

So in summary family physicians are the ideal people to initiate conversations about alcohol use and abuse. These interventions are brief and cost effective. The main barrier to implementing these brief interventions in family practice was a perceived lack of skills in the area. In questioning the students about their sources of knowledge about alcohol, this study tried to determine to what extent medical professionals are involved in the education of college students about alcohol here in Cork to evaluate if there is room for improvement.

2.3 Adolescents and alcohol

This study set out to establish what the students' attitudes towards alcohol were. In Esikhaweni, South Africa, Nkonzo-Mtembu's descriptive study of adolescents' aged twelve to nineteen showed that the students had very positive attitudes to drinking alcohol. ⁴⁹ They could see nothing wrong with drinking alcohol and felt that the peer group was the natural environment for drinking. In the United States too, alcohol is the drug of choice for adolescents. According to Miller at al "jocks" were more likely to engage in problem drinking than their non-jock counterparts. ⁵⁰ The findings of Nelson et al where similar to those of Miller. ⁵¹ They too found that athletes were a particularly high-risk group at college in the United States. They were at higher risk than their peers to engage in binge-drinking, heavier alcohol use and a greater number of drinking related problems. This study set out to determine what influence sport had on Irish drinkers at UCC, (see Table 4.13.)

From the nutrition study in Cork by McElligott-Tangney P et al, the literature indicates that Irish women between fifteen and seventeen drink more than their male counterparts but we don't know what their thoughts and attitudes towards alcohol are. ⁵²This study set out to establish that. It is important to know what the attitude of teenagers is towards alcohol in Ireland because there has been a 370% increase in "intoxication in public places" among teenagers since 1996. ⁵³ Abuse of alcohol amongst students is a common problem in the EU. A WHO study showed students in Denmark, Finland, Ireland and the United Kingdom to have the highest rates of drunkenness. ⁵⁴ 59% of the Danish students reported having drunk alcohol on at least 40 occasions. Danish students also had the highest rates of drunkenness with 41% reporting that they had been drunk 20 times or more. Nearly one in four teenagers reported that they had been drunk more than 20 times. According to Mayor binge drinking which was defined, as having five or more alcoholic drinks in a session was common in Denmark, Ireland, Poland and the United Kingdom. Bjarnason et al in 2003 looked at the frequency of heavy alcohol use in adolescents

from Cyprus, France, Hungary, Iceland, Ireland, Lithuania, Malta, the Slovak Republic, Slovenia, Sweden and the United Kingdom.⁵⁵ They examined influences such as family structure, alcohol availability and drinking patterns in the adolescents' society. What they found was those adolescents living with both biological parents engaged less frequently in heavy alcohol use than those living in any other arrangements. Living with a single mother was associated with less heavy drinking than living with a single father or with neither biological parent. National beer sales figures and societal patterns of heavy adolescent alcohol use predicted more frequent heavy drinking. In South Africa the picture is no different with school surveys reflect harmful drinking patterns among students, with 53.3% and 36.5% of male students in Durban and Cape Town, respectively, reporting heavy-drinking episodes by Grade 11⁵⁶.

So in summary adolescents are increasingly abusing alcohol around the globe. Partaking in sports and living in disrupted families increases the chance that the adolescent will abuse alcohol. What is still unknown is what is happening here in Ireland. What are the local students attitudes to alcohol, what do they think puts them at risk of becoming a problem drinker? This study sets out to establish what their thoughts and attitudes towards alcohol are at UCC in Cork.

2.4 College students

College students too are a particularly important group to study in Ireland as the 18-24 year olds are more likely to drink to excess and engage in binge drinking than the older age groups.⁵⁷ Research by Gill et al in the United Kingdom, shows that drinking of college students exceeds that of their peers in the general population.⁵⁸ A review of the literature in the United States showed that the average weekly alcohol

consumption by college students was five units. $^{\rm 59}\,$ The top 17 % (those students who drank heavily and frequently) consumed 68% of all alcohol drunk by college students. This study set out to determine how much the college students at UCC were drinking. It is important to know what the students' current knowledge, attitudes and practices with regards to alcohol are in order to determine what interventions would be most beneficial. In a study done on by Knight et al on 14 000 students in the U.S., 31% of students filled the criteria for alcohol abuse and 6% for alcohol dependence. ⁶⁰ This has implications for the health and well being of the students in the short as well as long term. In the short term binge drinking at college has been associated with an increased risk of being involved in fights, driving while intoxicated, vandalism and being the victim or perpetrator of sexual violence. ⁶¹ In a California study 34.2% of full-time college students and 32.8% of part-time students drove after drinking compared to only 27.9% of non college students in the same age-group. ⁶² Although college students were more likely than other young adults to drive while drunk, they were also more likely to wear a seatbelt as a driver or passenger. Not only do college students engage in more risk-taking behavior than their peers do but they are also at risk of fatal consequences as a result of that risk taking. Hingston et al estimated in 1998 that over 1,400 college students between the ages of eighteen to twenty four died from alcohol-related unintentional injuries, including motor vehicle crashes.⁶³ According to surveys conducted in 1999, in the preceding year over two million of the eight million college students in the United States drove under the influence of alcohol and over three million rode with a drinking driver. Over 500,000 full-time college students were unintentionally injured under the influence of alcohol, and over 600,000 were hit or assaulted by another student who has been drinking.⁶⁴ Even those students who do not drink to excess are affected by alcohol at college.⁶⁵ Students residing at high drinking level colleges had a 3.6 to 1 chance of experiencing at least one problem from another students drinking. These included being assaulted; having ones property damaged or experiencing unwanted sexual

advance. Sexual assault is common and a woman has a one in four to one in five chance of being raped while in college. ⁶⁶ In Mohler-Kuo et al's study in the U.S., 72% of these rapes took place while the women were intoxicated. Those most at risk of being raped were under 21, white, resided in sorority houses, used illicit drugs, drank heavily in high school and attended colleges with high rates of heavy episodic drinking. According to Weitzman's study, college students who drink alcohol to excess are more likely to suffer from poor mental health and depression.⁶⁷ O Neill et al found that in the long-term, alcohol abuse during the college years has been found to be a significant predictor of alcohol use disorders up to ten years later.⁶⁸ In addition alcohol abuse at college by influencing overall academic achievement has been shown to influence labor market outcomes.⁶⁹

Therefore intervention in the college years is vitally important both for the immediate and long term well being of the college drinker and those non-drinking students sharing their environment. Brief intervention in first year college students has been shown to be effective so intervention at this stage may have short and long-term benefits. ⁷⁰ As is fairly obvious from this literature review there is a plethora of information on college students in the United States of America but very little work has been done on college students in Ireland. This study set out to determine if the students at UCC who are predominantly Irish Catholics are any different from their peers around the world with respect to the amount of alcohol that they drink and their risk taking behavior when inebriated. Brown et al where one of the most common issues that prompted a reduction in drinking were health related issues⁷¹. This study set out to establish why college students at UCC would abstain from alcohol.

2.5 Children of alcoholics

This study analyzed the children of alcoholics (COA) as a separate subgroup to see if there was a difference between those students at college and the students coming from non-alcoholic homes. Adoption studies have shown that the children of alcoholics have a 3-4 times greater risk of developing the disease irrespective of environment by following up the children of alcoholics adopted into non-drinking and drinking homes⁷². In addition an association has been demonstrated between family history of alcoholism and early onset of alcoholism, which makes early intervention in the college years even more important.⁷³

Children of alcoholics have been extensively studied. At school they are more likely to drop out, perform poorly, skip school days, repeat a grade and demonstrate lower intelligence.⁷⁴ They are susceptible to intellectual, cognitive and academic deficits with differences manifesting as early as the elementary school years.⁷⁵ Children of alcoholics have been shown to experience precocious drug and alcohol use.⁷⁶ They start drinking at an earlier age than their peers do making early intervention in this group even more important.⁷⁷In college they are found to suffer more from stress than their peers do.⁷⁸ They are then more likely as adults to go on to develop anxiety disorders⁷⁹. According to a literature review done by John Baer in 2002 very little research on the genetics of alcoholism has focused specifically on college students as a clinical population. What research has been done has been unable to answer the question whether children of alcoholics drink more or have more alcohol-related problems than non-children of alcoholics in college.⁸⁰ Engs reported in 1990 that children of alcoholics were indistinguishable from their peers in college with respect to rates of drinking.⁸¹ Alterman, Searles and Hall ⁸² and Havey and Dodd⁸³ had similar findings. In contrast Kushner and Sher found that the children of alcoholics had higher rates of alcohol use disorders (35 %) vs. children of non-alcoholics (16 %) during their first year of college.⁸⁴ Perkins and Berkowitz⁸⁵ as well as Pullen⁸⁶ also reported increased rates of alcohol related problems in children of alcoholics. Rodney

and Rodney reported that in the African American population male children of alcoholics at college drank more than children of non- alcoholics did.⁸⁷ So the research is confusing, contradictory and dated, the most recent study having been done by Kushner et al in 1999.⁸⁸

What this study set out to do was to discover if there was a difference between the children of alcoholics and those children from non-alcoholic homes in their first year of college at UCC. The aspects that were analyzed in the study were the knowledge, attitudes and practices of the students with respect to alcohol use. These were ascertained by achieving a number of objectives. According to Weitzman in the United States 10% of college students are children of alcoholics.⁸⁹ This study set out to establish what percentage of college students at UCC are children of alcoholics. It is important to know the extent of the problem in order to plan what recourses are necessary to address this high-risk group.

2.6 Appropriate interventions.

There are various schools of thought about what the most appropriate interventions are in adolescents and who should be doing it.⁹⁰

In 2001 Turrissi et al looked at interventions implemented by parents. ⁹¹ The parents were educated on how to convey information about drinking to their children prior to their attending college. On follow up there was a significant difference between the intervention and control groups with regards to drinking activities and drinking related consequences in their first semester. As previously discussed family physicians are also in a position to undertake preventative measures and educate their adolescents about the dangers of alcohol prior to their attendance at college. This intervention can be brief and easy to assimilate into a routine consult. ⁹² This study set out to

establish where the students got their knowledge of alcohol. Those would be the people to target when implementing changes.

Chapter 3

Methods

3.1 Introduction

The aim of this chapter is to describe the methods used in the collection of the data. The chapter will include a description of the study design and of the site of the study. The selection of study population has already been justified. The chapter includes an explanation of the decision on sample size. It includes a description of the sampling method and how data collection actually took place. There is a justification of the selection of measuring tool and a description of the pilot study. Ethical clearance is also discussed.

3.2 Study Design: -

A cross sectional descriptive study was done.

3.3 Site of Study: -

The study took place at University College Cork (UCC) in Ireland. UCC was chosen for practical reasons. It was the university closest to where the researcher was working which made it convenient to administer and collect completed questionnaires. It also meant that the study had more relevance to the researcher as that was the population with which she was dealing on a daily basis. The local supervisor of the study was head of the department of family medicine there and was

able to facilitate interactions with the various departments. UCC offers multiple degrees and has students from all socio-economic groups. Students come to UCC from all over Ireland and for the Irish themselves the tuition is free. There are some non-nationals at UCC and they would have had to pay fees. There may be differences between these students and those attending the other universities in Ireland, but the study aims to study the first year students at Cork only and makes no claims that the results are applicable to students at the other universities. There were a total of 2462 first year students attending UCC in the year the study was done. 848 of these students were in the arts faculty, 482 in commerce, 145 engineering, 105-food science and technology, 126 in law, 295 in medicine and 461 in science. It was from this group of first year students that the study population was selected.

3.4 Study Population: -

The study population consisted of 2462 college students in their first year of study at UCC. As already mentioned students are an important group to study because they are more likely to abuse alcohol than their peers are.⁹³ They are therefore more at risk of developing long-term alcohol abuse problems than their peers.⁹⁴ Intervention at this stage may have short and long-term benefits especially in those children who already have an additional risk factor viz. an alcoholic parent.

First year students were selected, as it was assumed that they were less likely to have an established drinking habit. It was also for this reason that students over the age of 35 were excluded from the study. Brief intervention in first year college students has been shown to achieve long term benefits. ⁹⁵ It would be important to know the current knowledge, attitudes and practices amongst first year students with regards to alcohol use in order to determine what interventions would be most beneficial. In summary, the inclusion criteria were that the respondents had to be

students, in first year at college, at UCC. The exclusion criterion was those students over 35 years of age.

3.5 Sampling: -

3.5.1.Sample size: -

The study data was collected in the months of November 2003 to February 2004. A total of 2462 first year students were registered at UCC in the months that the study was done. 848 of them were in the arts faculty, 482 in commerce, 145 engineering, 105-food science and technology, 126 in law, 295 in medicine and 461 in the science faculty. The actual numbers of children of alcoholics at UCC was unknown prior to the study. A study done in children in the US found that approximately one out of four children (25 %) under the age of 18 is exposed to alcohol abuse and dependence in the family.⁹⁶ Here in Northern Ireland a study done in 1993 found that 15,8% of men and 5,7 % of women had a CAGE score of 3 or more. ⁹⁷Verbal correspondence with Rolande Anderson, director of alcohol research at the Irish College of General Practitioners, confirmed that the current rate of alcoholism in the south of Ireland is about 20%. The sample size was therefore calculated by using the expected true alcoholism rate of 20 %. Assuming a 95% confidence interval, 5% error and 20 % expected true alcoholism rate, the sample size required was 224. Correcting this for an 80% response rate, the sample size increased to 280. Correcting for 11 % ineligibility in the sample (found by dividing the non-first time entrants with first time entrants), the final sample size decided on was 315. First time entrants are those students who are doing their first degree. Using a proportional stratified sample, the numbers required from each faculty was arts 108, commerce 62, engineering 19, food science and technology 13, law 16, medicine 38 and science 59. The

representation for each faculty in the sample was to be in the same proportion as that in the population.

3.5.2 Sampling method:

Permission was obtained from the registrar's office before commencing the study. The offices of the deans in the various faculties were approached and permission obtained. In the original planning the numbers of students required in each faculty were as shown in Table 3.1.

Courses	Numbers of students		Number of students	
	in first year N= 2462		required N= 305	
	Frequency	%	Frequency	%
Arts	848	34,44	108	35,41
Commerce	482	19,58	62	20,33
Engineering	145	5,89	19	6,23
Food	105	4,26	13	4,26
Science				
Law	126	5,11	16	5,25
Medicine	295	11,98	38	12,46
Science	461	18,72	49	16,07
Total	2462	100	305	100

 $Table \ 3.1 \ \text{Numbers of students in each faculty vs. numbers required for sample}$

3.5.2.1 Arts faculty: -

The arts faculty consists of the courses shown in Table 3.2.

Table 3.2. Courses and cut off points in the arts faculty

Courses	Numbers of first time	Cut off
	entrants	points for
	N= 873	admission

	Frequency	%	
BA	582	66,67	400
BA(Arts Music)	28	3,21	415
BA(drama and	16	1,83	425
theatrical studies)			
BA(early childhood	27	3,09	400
studies)			
BA(European	20	2,29	330
studies)			
BA(French)	16	1,83	340
BA(German)	28	3,21	290
BA(Italian)	12	1,37	300
BA(Spanish)	11	1,26	375
BA(Psychology)	33	3,78	520
Music	28	3,21	360
Social Science	72	8,25	400
Total	873	100	

The cut off points for admission are a numerical score used as entrance standard for the courses. On leaving school the students' final marks are translated into a numerical value. Those with a higher mark will have a higher number of points. So in courses like medicine and law the cut off points would be relatively high. This means that to get into those courses the student would have had to get a good mark in the final year school exams. The reason for including the cut off points in the tables was to show those students who had done well at school but for some reason had chosen courses that were below their ability. The total numbers of students actually registered in the arts faculties was higher than expected because the initial data received from the admissions office was incorrect. However as the difference in number was not statistically significant the study went ahead using the original numbers of students' required.108 students were required from the faculty of arts. The names of the different degrees together with the numbers of students in each were written on separate pieces of paper. The pieces of paper where then thrown into a hat and a course drawn at random. Social science was drawn first. As there are only 72 students in social science another draw was done and music selected. To ensure a sufficient number of students the whole class needed to be sampled in both music and social science. Every consecutive student attending the lectures that day would be asked to fill in the questionnaire. Those students not at lectures that

day were excluded from the study. The heads of both departments were approached

and permission to proceed with the study obtained.

3.5.2.2 Faculty of Commerce

The faculty of commerce offers the courses shown in Table 3.3

Courses	Numbers of first time entrants N= 482		Cut off points for admission
	Frequency	%	
B.Comm	133	27,59	445
B.Comm(European) with French	18	3,73	445
B.Comm(European) with German	13	2,70	395
B.Comm(European) with Irish	10	2,07	435
B.Comm(European) with Italian	11	2,28	370
B.Comm(European) with Spanish	20	4,15	415
B.Sc. (accounting)	55	11,41	460
B.Sc. (BIS)	118	24,48	425
B.Sc. (Finance)	59	12,24	445
B.Sc. in government in public policy	45	9,33	425
Total	482	100	

Table 3.3. Courses and cut off points in the commerce faculty

62 students were required from the faculty of commerce. The names of the different degrees together with the numbers of students in each were written on separate pieces of paper. The pieces of paper where then thrown into a hat and drawn at random. B.Sc. in government and public policy was drawn first. As there are only 45 students in that course, another draw was done. The next course drawn was B.Sc. accounting. The 55 students in that course meant that sufficient students could be sampled in the faculty of commerce from those two courses. To ensure a sufficient number of students the whole class in both departments needed to be sampled. Every consecutive student attending the lectures would be asked to fill in the questionnaire. Permission was obtained from the heads of department to proceed with the study.

3.5.2.3 Faculty of Engineering

The faculty of engineering offers the courses shown in Table 3.4

Courses	Numbers of first time entrants N= 145		Cut off points for admission
	Frequency	%	
BE (Civil	60	41,38	490
Engineering)			
BE (Electrical	54	37,24	335
Engineering)			
BE (Microelectronics)	9	6,21	345
BE (Process	22	15,17	475
Engineering)			
Total	145	100	

Table 3.4 Courses and cut off points in the engineering faculty

19 students were required from the faculty of engineering. The names of the different degrees together with the numbers of students in each course were written on separate pieces of paper. The pieces of paper where then thrown into a hat and drawn at random. BE electrical engineering was drawn first. As there are 54 students in that course no further draw was done at that stage. Permission was obtained from the head of department in the faculty of engineering to proceed with the study. However when the first year lecturer was approached about the study he was uncomfortable to hand out the questionnaires. He would also not allow time in his lectures for the questionnaire to be handed out. So as the researcher was unable to gain access to the electrical engineering students the names were put back in the hat minus the electrical engineering course and a course redrawn. Civil engineering was selected. There were 60 students in this course. As there were a larger number of students in the class a smaller tutorial would be used to do the sampling and every consecutive student in that tutorial would be sampled. Permission was obtained from the head of department to proceed with the study.

3.5.2.4 Faculty of Food Science and Technology

The faculty of food science and technology offers the courses shown in Table 3.5

Courses	Numbers of first time entrants N= 105		Cut off points for admission
	Frequency	%	
B.Sc. (Food business)	43	40,95	355
B.Sc. (Food Science and technology)	36	34,29	345
B.Sc. (Nutritional Sciences)	26	24,76	415
Total	105	100	

Table 3.5 Courses and cut off points in the food science and technology faculty

13 students were required from the faculty of food science and technology. The names of the different degrees together with the numbers of students in each course were written on separate pieces of paper. The pieces of paper where then thrown into a hat and drawn at random. B.Sc. (food science and technology) was drawn. As there were sufficient students in that course for the sample, no further draw was done. There were no smaller tutorials so each consecutive student in that department would be sampled during a lecture. Permission was obtained from the head of department to proceed with the study.

3.5.2.5 Faculty of Law

The law faculty offers the courses shown in Table 3.6

Courses	Numbers of first time entrants N= 126		Cut off points for admission
	Frequency	%	
BCL	92	73,02	505
BCL (Law and French)	15	11,90	520
BCL (Law and German)	13	10,32	475
BCL (Law and Irish)	6	4,76	500

Table 3.6 Courses and cut off points in the law faculty
Total	126	100		
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16 students were required from the faculty of law. No selection was done for this group, as it would have been difficult to separate the law and French students from the law and German and law and Irish students. The students would be sampled during a small tutorial where there would be a good mix off all the courses and every consecutive student attending that tutorial would be asked to fill in a questionnaire.

3.5.2.6 Faculty of Medicine

The faculty of medicine offers the courses shown in Table 3..

Courses	Numbers of entrants N= 295	Cut off points for admission	
	Frequency	%	
BDS	23	7,80	530
Medicine	90	30,51	560
B.Sc.	133	45,08	405
Nursing(General)			
B.Sc. Nursing(20	6,78	335
Mental Handicap)			
B.Sc. Nursing	29	9,83	355
(Psychiatric)			
Total	295	100	

Table 3.7 Courses and cut off points in the faculty of medicine

38 students were required from the faculty of medicine. The names of the different degrees together with the numbers of students in each course were written on separate pieces of paper. The pieces of paper where then thrown into a hat and drawn at random. BDS dentistry was drawn first. As there were insufficient students in the dentistry course to make up the required numbers another draw was done. B.Sc. psychiatric nursing was then selected. The heads of department were approached and permission was obtained from the head of the department of dentistry to proceed with the study. The acting head of department in the department of psychiatric nursing was unhappy to allow the study to take place so another draw was done excluding the dentistry and psychiatric nursing courses. Medicine was selected and the head of department approached and permission obtained to proceed with the study. The students were to be sampled during a lecture. To ensure a sufficient number of students the whole class in both departments needed to be sampled. Every consecutive student attending the lectures would be asked to fill in the questionnaire.

3.5.2.7 Faculty of Science

The faculty of science offers the courses shown in Table 3.7

Courses	Numbers of	first time	Cut off points for
	entrants N=	= 461	admission
	Frequency	%	
B.Sc. (Biological and Chemical Science)	187	40,56	390
B.Sc.(Chemical Science)	27	5,87	365
B.Sc.(Computer Science)	116	25,16	300
B.Sc.(Environmental Science)	62	13,45	370
B.Sc.(Genetics)	23	4,99	425
B.Sc.(Mathematical Science)	24	5,21	495
B.Sc.(Physics and Astrophysics)	22	4,77	485
Total	461	100	

Table 3.7 Courses and cut off points in the faculty of science

49 students were required from the faculty of science. The names of the different degrees together with the numbers of students in each course were written on separate pieces of paper. The pieces of paper where then thrown into a hat and drawn at random. B.Sc. (Computer Science) was drawn. As there were 116 students in this course no further selection was done at this stage. The students would be sampled during a tutorial and every consecutive student attending that tutorial would

be sampled. The head of department was approached and permission was obtained to proceed with the study.

3.6 Data Collection: -

In addition to a telephonic briefing on how to administer the questionnaire, a letter was also attached to the front of the questionnaires explaining how the researcher would have liked the sampling to take place. However in an attempt to minimize the disruption to the classes it was left to the individual lecturers to decide how to administer the questionnaire. Questionnaires were posted to the department secretaries of each faculty who then gave the questionnaires to the lecturers of the first year classes to hand out. The lecturers were asked to indicate how many questionnaires they had handed out in order to calculate the response rate.

3.6.1 Faculty of arts

The department of social science allocated time at the beginning of a lecture for students to fill in the questionnaire. The questionnaires were then collected by the lecturer and returned to the researcher by pre paid envelope. The department of music kept the questionnaires in the department office and asked students to fill them in if they were in the office. Those too were returned by post. The lecturers were asked to indicate how many questionnaires they had handed out in order to calculate the response rate.

3.6.2 Faculty of Commerce

The department of government and public policy asked the researcher to hand the questionnaire out at the start of a lecture. Time was allocated for this to be done and the questionnaires handed out to the students by the researcher with the help of the first year lecturer. Every questionnaire was then collected completed or not. The first

year lecturer in the department of accounting elected to hand the questionnaires to the students at the beginning of a lecture. The class representatives then collected all the questionnaires and returned them to the department secretary at the end of the day. She posted all the questionnaires completed or not onto the researcher.

3.6.3 Faculty of Engineering

The department of civil engineering handed out the questionnaires to its first year students at the start of a lecture. Time was allocated for the questionnaires to be filled in. All the forms were then collected by the lecturer and posted on to the researcher by the department secretary.

3.6.4 Faculty of Food Science and Technology

The first year lecturer in the department of food science and technology elected to hand out the questionnaires at the start of a lecture. Time was allocated for them to be completed and then the lecturer returned all the forms to the researcher by post.

3.6.5 Faculty of Law

The lecturer in the department of law handed out the questionnaires to students during a small tutorial. These were then sealed in individual envelopes and collected by the researcher from the department.

3.6.6 Faculty of Medicine

The dentistry and medical students were both sampled at the start of their physiology lectures. Time was allocated for completion of the questionnaire and the lecturer then collected these. All questionnaires completed or not were then hand collected by the researcher from the lecturer.

3.6.7 Faculty of Science

The first year lecturer in the department of computer science handed out the questionnaires at the start of a lecture. The students were then asked to return the forms to the class representative who returned them to him. All the questionnaires were then returned to the researcher by post.

3.6.8 Initial Data Analysis

Once all the questionnaires had been returned the statistician analyzed the data. Three problems were noted at that stage. The first is that the incidence of parental alcoholism as defined by a CAST-6 score of 3 or more was found to be lower than predicted. There were only 32 positives in the initial sample. The statistician felt that this was too small a group to use for comparative purposes. Also insufficient numbers of students in the arts and science faculties had been sampled. Third there was a large numbers of students in the sample who had achieved high points in the leaving certificate and it was felt that might influence the results. It was for these reasons that the researcher decided to re-sample some more students. The course selected for re-sampling from the arts faculty was BA (German). This was done in a non-random sample so to avoid re-sampling the same students. German was selected because it was the arts course that had the lowest number of cut off points for entry. Permission was obtained from the head of department. Unfortunately the German lecturer was unable to hand out the questionnaires due to ill health. When he was well enough to return to work it was exam time and he felt that they had too much catching up to do for them to spare time for guestionnaires. So the German students were never sampled.

The science department was approached again for permission to resample its students. As it was approaching exam time permission was denied. The study was then terminated in order to avoid disrupting classes at that time of year.

3.6.9 Measuring Tool: -

A self-administered questionnaire was used. See Appendix 1, page 86. The questionnaire consisted of four main sections. The first section obtained demographic data on the students. They were asked about their age, sex, and year of study, degree, nationality and county of origin. The second part of the questionnaire asked about their drinking habits. They were asked about the average number of units of alcohol drunk, the age at which they started drinking, whether they had ever driven drunk, about membership at alcohol support groups and the four CAGE questions. The third part of the questionnaire consisted of the CAST-6 questions to establish the presence of parental alcoholism. Lastly the respondents were asked questions about their knowledge and attitudes to alcohol. They were asked how many units of alcohol were a safe number to drink per week, whether they felt they were at risk of developing a drinking problem, what factors increased ones risk of developing alcoholism and lastly where they gained their knowledge on alcohol.

Alcoholism although common is often a difficult diagnosis to make and there are number of tools available to aid in the diagnosis. Examples of these tools are the Alcohol Use Disorders Identification Test (AUDIT, with various cut-off scores), the CAGE (a four-question screening tool), and a 10-question version of the Michigan Alcoholism Screening Test (BMAST).⁹⁸ The students were asked about the number of units they were drinking on average per week. The answers to that question gave an indication of the amount of alcohol drunk, but no indication of the effect that drinking alcohol had on the students. It is for this reason that the CAGE questionnaire was used in the study. The CAGE has a sensitivity of 43%-94% and specificity of

70%-97% in detecting alcohol abuse and dependence⁹⁹. It consists of four questions. Answering yes to one of the questions is associated with a sensitivity of 42%, a specificity of 87%, a positive predictive value of 36% and a negative predictive value of 90% for detecting problem drinking.¹⁰⁰ Answering yes to the question about whether the respondent has an eye-opener drink to get going in the morning indicates a dependence on alcohol. Aertgeerts et al did a study on the value of the CAGE questionnaire in detecting alcohol problems in college freshmen.¹⁰¹ They found that replacing the question on feeling angry when criticized about drinking with a question about often driving under the influence increased the positive likelihood ratio of the CAGE to 8.7 and negative likelihood ratio to 0.04.¹⁰² For this reason the question on driving under the influence was included in the questionnaire as well as the four standard questions of the CAGE. A variety of screening methods is available for detection of alcohol problems. Fiellen et al compared a number of these and concluded that the Alcohol Use Disorders Identification Test (AUDIT) was most effective in identifying subjects with at-risk, hazardous, or harmful drinking (sensitivity, 51%-97%; specificity, 78%-96%)¹⁰³. While the CAGE questions proved superior for detecting alcohol abuse and dependence (sensitivity, 43%-94%; specificity, 70%-97). These 2 formal screening instruments were consistently found to be better than other methods, including questions about quantity of alcohol drank and frequency of drinking¹⁰⁴. As the AUDIT is a much longer questionnaire than the CAGE (ten questions versus four), for the purposes of this study the CAGE questions were used instead. The four questions being more easily assimilated into the studies questionnaire. The differences between the AUDIT and the CAGE in detecting alcohol problems are not significant enough to warrant the use of the AUDIT over the CAGE.

The CAST-6 screening test had also been incorporated into the questionnaire to identify the children of alcoholics. Study findings indicated that the CAST-6 is a reliable means of finding the children of alcoholics with low potential for error.¹⁰⁵ The Children of Alcoholics Screening Test (CAST) has a high internal consistency (.88 and .90) and test-retest reliabilities (.88) when administered to adolescents from intact alcoholic families.¹⁰⁶It consists of 6 questions and answering yes to 3 or more of the questions means that the child is more than likely to have an alcoholic parent. According to the CAST-6 questionnaire children who score 0-1 are unlikely to have an alcoholic parent. A score of 3+ confirms that the child has an alcoholic parent. For the purpose of the study only those students who score 3 and above were classified as having an alcoholic parent thereby eliminating some of the grey areas. The CAST-6 measures children's feelings, attitudes, perceptions and experiences related to their parents' drinking behavior. Although there might be gray areas between normal and problem drinkers one would assume that their children would easily identify the alcoholics. This is born out by the study done by Cuijpres et al where it was found that a single question asking whether the subjects' parents had alcohol problems was accurate in identifying parental alcoholism¹⁰⁷. Both the CAST-6 and CAGE questionnaires were designed to be administered but for the purposes of this study they were self-administered as part of the questionnaire. This may have influenced the answers to some extent in that the students may have found it easier to be honest if not in a one -on -one situation. However there may have been some misunderstanding of the questions that would not have arisen had the questionnaire been administered instead of selfadministered.

3.6.10 Pilot study: -

A pilot study was done before the final method of sampling was decided on. This was carried out on the current class of 5th year medical students. The reason for choosing them was a practical one. The supervisor of the study was head of the department of Family Medicine, which made it easy to gain access to the students. On the negative side the five years spent in medical school and exposure to research methodology might have influenced their response to the questionnaire. So although they were able to offer some sensible suggestions about the questionnaire they might not have been an ideal group to use for a pilot of a study on first year students. There were 100 students doing a rotation in Family Medicine at that time and 57 of those students were sampled for the pilot study during a tutorial. The questionnaires were handed out and the students given time to fill them in. The guestionnaires were then collected and the data entered into Epi-info 6.04. The pilot study was used to assess the questionnaire and the practicalities of data entering. Minor adjustments were made to the questionnaire and methods of data entry prior to starting the final study. Question 6 was altered on the questionnaire. It initially read "if you are Irish, which county are you originally from?" In the pilot study some of the students named more than one county. So the words 'name one only' were added to that question.

3.7 Ethics

Ethics approval was obtained from the Committee for Research on Human Subjects, Health Sciences Faculty, University of the Witwatersrand, South Africa. The ethics clearance number is - M03-06-11. See appendix 3. In addition the ethics committee at UCC was approached for ethics approval but after reading the proposal the committee felt that it was unnecessary to apply for ethical clearance there. Asking

about parental drinking habits is a very sensitive issue and could have opened some wounds. A support system based at the student counseling service at the university was in place for the students should it have been necessary. The counseling services were consulted prior to the study and their telephone number was on detachable information sheet attached to the questionnaire. The information sheet invited the students to make use of the student counseling services if they need to. See appendix 2. The issue of identification of high risk for alcoholism and high risk behavior had the potential to cause difficulties for some of the students and merely providing the students with the students counseling services telephone number might not have been sufficient support. This issue was discussed as part of the telephonic briefing of the lecturers prior to them handing out the questionnaires. Some of the lecturers were confident that they would be able to deal with any problems on the spot and agreed to be available to the students after the lecture for any discussions that could arise out of the questionnaire. Other lecturers were less comfortable with that role. The electrical engineering lecturer was reluctant to hand out the questionnaires because he felt that he was unable to deal with any problems that may have developed. His class was therefore not sampled. The law lecturer requested that the researcher be available at the time of handing out the questionnaire should there be any questions or problems with the students as a result of taking part in the study. The government and public policy lecturer asked that the researcher hand out the questionnaires. All of the lecturers' requests were accommodated in order to minimize any potential negative reaction of the students to filling in the questionnaire.

3.7 Conclusion

In summary this chapter included a description of study design, site of the study and the study population. It described the sample size, methods of sampling and data

collection. There was a justification of the selection of measuring tool and a description of the pilot study. Ethical clearance was also discussed.

Chapter 4

Results

4.1 Response rate

431 questionnaires were handed out. Of those 374 were returned completed. Hence the overall response rate was 86,8 %. After excluding those students over the age of 35 who were ineligible for the study the response rate was 86,4 %. The response rates within the individual faculties are shown in Figure 4.1.





There was a good response rate within the majority of faculties with the exception of the commerce and science faculties. These results are shown in Table 4.1. The "n" number varies throughout the tables as not all students answered all the questions.

Faculty	Numbers of	Response					
	responses N= 362		responses N= 362		responses N= 362		Rate
	Frequency	%					
Arts	81	22,38	98,78				
Commerce	64	17,68	6,54				
Engineering	46	12,71	93,88				
Food Science and Technology	22	6,08	100				
Law	17	4,69	100				
Medicine	122	33,70	98,39				
Science	10	2,76	47.62				
Total	362						

Table 4.1 Response rates within the various faculties

4.2 Age of respondents

The mean age of the 373 respondents who answered the question was 19,4, with the median being 19 and the mode 18. The range was 17 to 33.

4.3 Gender distribution

The gender distribution of the study population as a whole was 54,8%(203) females' and 45,2 % (171) males'. Breaking this down into children of alcoholics (COA) and children of non-alcoholics (NCOA) no statistical difference between the two was found with regards to gender. (χ^2 =0.008, df=1, p value =0.93.)

4.4 Year of study

374 of respondents (100 %) were in their first year of study.

4.5 Degree of study

Courses	NCOA	N= 325	COA N=37		Points required for course
	Frequency	%	Frequency	%	
accounting	17	5,23	1	2,70	460
arts	53	16,3	7	18,92	400
civil engineering	44	13,54	2	5,41	490
computer science	7	2,15	1	2,70	300
dentistry	32	9,85	3	8,11	535
food science	17	5,23	5	13,51	345
government and public policy	42	12,92	4	10,81	425
languages	9	2,77	5	13,51	290
law	15	4,62	2	5,41	500
mathematical science	1	0,31	0	0	495
medicine	81	24,92	6	16,22	560
music	2	0,62	0	0	360
psychology	3	0,92	1	2,70	520
sociology	1	0,31	0	0	400
commerce	1	0,31	0	0	450
Total	325	100	37	100	

Table 4.2 Courses for which the respondents were registered

There is a relatively high proportion of children of alcoholics in the arts (p value=0.022) and food science faculties (p value=0.035). This was calculated by the statistician using the different numbers of students in each faculty.

4.6 Points achieved in the leaving certificate

The average number of points achieved in the leaving certificate by the 306 respondents who answered the question was 495. Leaving certificate points are a scoring system used to grade what would be the equivalent of the matriculation results. The highest possible score of 600 points would equate to six A's in South Africa. The difference between children of alcoholics and children of non-alcoholics is

demonstrated in Table. 4.3. There is no statistical difference between the two groups. The Mann-Whitney U was used because the graph was not a true Gaussian curve. There is quite a difference in the interquartile ranges and the statistician felt that the Mann-Whitney U would give a better comparison between the two groups. However there was no statistical difference between the COA and NCOA using both the p-value and the Mann-Whitney U. The p-value indicates whether there is a true difference between two values or whether the difference observed is merely due to random variation. The conventionally accepted limit of statistical significant is a p-value <0.05.¹⁰⁸

Table. 4.3 Points achieved in the leaving certificate by NCOA vs. COA

	Children of non-alcoholics	Children of alcoholics
Mean	496	483
Median *	510(Interquartile range,	495 (IQR= 428.8-547.5)
	IQR =437.5- 560.0)	
Mode	570	550
Maximum	600	600
Minimum	300	350

*(Mann-Whitney U = 3770, p-value 0.205)

4.7 Nationality

The majority of the 368 respondents were Irish. They made up 83,97%(309) of the sample.

4.8 Counties of origin of the Irish students

Of the 299 Irish students who indicated which county they came from, 190 (64%)

came from Cork originally as is shown in Table 4.4.

County of Origin	Distribution of Irish students within th counties N=299				
	Frequency	%			
Carlow	1	0,33			
Clare	9	3,01			

Cork	190	63,54
Dublin	4	1,33
Galway	5	1,67
Kerry	21	7,02
Kilkenny	8	2,67
Limerick	18	6,02
Louth	1	0,33
Offaly	2	0,66
Sligo	1	0,33
Tipperary	20	6,68
Waterford	15	5,01
Wexford	4	1,33
Total	299	100

The majority of the non-Irish respondents were Malaysian as shown in Table 4.5

Nationality	Numbers of			
	respondent	s N= 42		
	Frequency	%		
American	1	1,88		
Austrian	1	1,88		
British	5	9,43		
Canadian	10	18,86		
Chinese	1	1,88		
Dutch	1	1,88		
Emirates	1	1,88		
German	2	3,77		
Guanian	1	1,88		
Iraqi	1	1,88		
Korean	1	1,88		
Kuwaiti	6	11,32		
Malaysian	17	32,07		
Omani	1	1,88		
South African	2	3,77		
Sudanese	1	1,88		
Trinidadian	1	1,88		
Total	42	100		

Table 4.5. Nationalities of the non-Irish students

4.9 Alcohol consumption

The students were asked, "With regard to alcohol consumption, which phrase best

describes you?" They were given a choice of one of three options, non-drinker,

regular drinker or occasional drinker. Of the 370 respondents the majority, 171(45 %) considered themselves occasional drinkers, 144(40%) considered themselves regular drinkers, and 55(15%) considered themselves to be to be non-drinkers. These results are represented by Figure 4.2.



Figure 4.2 Students perceptions of their drinking habits

The responses to the questions about the students perception of their own drinking habits was compared in the COA vs the NCOA as shown in Table 4.6. The difference between the two groups was not statistically significant.

Table 4.6 Children of alcoholics vs children of non-alcoholics perception of

Students perceptions of their drinking	Children of non- alcoholics N=332		Children of alcoholics N=37	
	Frequency	%	Frequency	%
Regular drinkers	125	37,65	19	51,35
Occasional drinkers	155	46,69	15	40,54
Non drinkers	52	15,66	3	8,11
Total	332	100	37	100

their own drinking habits

(χ² 1.691, df 2, p-value=0.429)

The nationality of the 353 respondents vs. their perception of drinking habits is shown in Table.4.7. The majority 92,05% (278) of the Irish students considered themselves drinkers as opposed to the next largest group the Malaysians. 100% of the 17 Malaysian students considered themselves non-drinkers.

Nationality	Non Drinkers N=52		Occasional Drinkers N= 160		Regular Dri N= 141	nkers	Total
	Frequency	%	Frequency	%	Frequency	%	
American	0	0	1	100	0	0	1
British	2	40	2	40	1	20	5
Canadian	0	0	6	60	4	40	10
Chinese	0	0	1	100	0	0	1
Dutch	0	0	0	0	1	100	1
Emirates	1	100	0	0	0	0	1
German	0	0	2	100	0	0	2
Guanian	0	0	0	0	1	100	1
Iraqi	0	0	2	100	0	0	2
Irish	24	7,95	144	47,68	134	44,37	302
Korean	0	0	1	100	0	0	1
Kuwaiti	4	100	0	0	0	0	4
Malaysian	17	100	0	0	0	0	17
Omani	1	100	0	0	0	0	1
South African	1	50	1	50	0	0	2
Sudanese	1	100	0	0	0	0	1
Trinidadian	1	100	0	0	0	0	1
Total	52		160		141		353

Table.4.7 Nationality vs drinking habits

4.10 Age started drinking

The students were asked at what age they had started drinking. The average ages of the 373 respondents are shown in Table 4.8. There was no statistical difference between the COA and NCOA.

Table 4.8 Differences between the age at which NCOA started drinking vs. the

57
ars
rs
rs

COA

Minimum age	10 years	12 years
Maximum age	25 years	19 years

4.11 Average number of units drunk

Those students who drank alcohol were asked to estimate the number of units that they drank per week. 312 of the 319 students who drank answered this question. The response rate was 97,81%. The mean number of units of alcohol drunk per week in the 312 respondents was 11,86. 175(82,2%) of all the 203 female students drank within the recommended limits for females (<15 units per week). 144(84,21%) of all the 171 male students stayed within the recommended limits for males (<22 units per week) as shown in Figure 4.3.¹⁰⁹



Figure 4.3 Percentages of students in the various categories of average units

drunk per week.

The responses of the 37 COA was compared to the responses from the 277 NCOA in Table 4.8. There was no statistically significant difference between the two groups.

Table 4.8 Number of units drunk per week in NCOA v.s COA

Number of units of alcohol per week	Non-children of alcoholics	Children of alcoholics
Mean	11,58	12,52
Median*	9 (IQR 5-16)	12 (IQR 4-17)
Mode	10	4

*(Mann-Whitney U= 4048, p-value= 0.410)

4.12 The CAGE questionnaire

The CAGE has a sensitivity of 43%-94% and specificity of 70%-97% in detecting alcohol abuse and dependence¹¹⁰. It consists of four questions. These are," Have you ever had an eve-opener drink to get going in the morning?"" Have you ever felt angry when people criticize you about your drinking?"" Have you ever felt guilty about your drinking?" and" Have you ever felt you should cut down on your drinking?" Answering "yes" to one of the questions is associated with a sensitivity of 42%, a specificity of 87%, a positive predictive value of 36% and a negative predictive value of 90% for detecting problem drinking.¹¹¹ Sensitivity is the proportion of patients with alcoholism who have a positive test.¹¹² 42 % sensitivity means that there are a significant proportion of alcoholics who might still have the disease but test negative on the CAGE. In other words there are a significant number of false negatives. The 87 % specificity of the CAGE is an indication of the proportion of patients without alcoholism who have a negative test result. In other words there are relatively few false positives. So if a patient tests negative wit the CAGE they are most likely not alcoholics. The positive predictive value is the proportion of positive tests results that are true positives. The negative predictive value is the proportion of negative tests results that are true negatives. Answering "yes" to the question about whether the respondent has an eye-opener drink to get doing in the morning indicates a dependence on alcohol. The students who drank were asked to answer "yes" or "no"

to the four CAGE questions. 317 of the 319 students who drank answered the CAGE questions, response rate of 99,37%. Of the 317 respondents that answered the CAGE questions 112(35,6%) felt they should cut down on their drinking. This was the most common question that was answered in the affirmative. 75 (23,7%) felt guilty about their drinking, 49(15,5%) felt angry when criticized about their drinking and 13(4,1%) had an eye-opener drink to get going in the morning. The respondents were asked an additional question about whether they had ever driven drunk. Answering "yes" to the question about often driving under the influence increased the positive likelihood ratio of the CAGE to 8.7 and negative likelihood ratio to 0.04.¹¹³ 315(84,21%) students answered that question. 7,6% (24) of them had driven while drunk. The answers to those questions are shown in Figure 4.4. A likelihood ratio is a way of expressing how good a test for increasing the probability of a diagnosis.¹¹⁴



Figure 4.4 Answers to the CAGE questions

a). COA vs NCOA on the CAGE

The difference between the children of alcoholics and the children of non-alcoholics on the CAGE questionnaire is shown in Table 4.9. There was no statistical difference between the two groups. In total 7,6%(22) of the 315 respondents had driven while under the influence of alcohol.

N= 280 COA N=37 Yes answers NCOA Total Frequency % Frequency % 34,29 Have you ever 96 16 43,24 112 felt you should Cut down on your drinking? Have you ever 41 14,64 8 21,62 49 felt Angry when people criticize you about your drinking? 23,21 10 72 Have you ever 65 27,03 felt Guilty about your drinking? Have you ever 12 4,29 1 2,70 13 had an Eyeopener drink to get going in the morning? Have you ever 20 7.14 2 5,41 22 driven under the influence of alcohol? Total yes 234 37 271 answers

on driving under the influence

Table 4.9 NCOA vs COA with respect to the CAGE questions and the questions

The total CAGE scores between COA and NCOA were compared in

CAGE score	NCOA N= 257		COA N=	35
	Frequency	%	Frequency	%
0	141	54,86	13	37,14
1	62	24,12	9	25,71
2	38	14,79	11	31,43
3	15	5,84	2	5,71
4	1	0,39	0	0

Table 4.10 CAGE scores in NCOA v.s. COA

(Mann-Whitney U=3678.5, p value=0.057)

b). Gender differences on the CAGE

The differences between men and women with regards to the question about driving under the influence of alcohol are shown in Table 4.11. This difference is significant with men being more likely to drive while drunk than women (p value of 0.0038) are.

Table 4.11 Influence of gender on the question of driving while under the

influence

Driving under influence N =22			
Frequency	%		
6	27,27		
16	72,72*		
22 100			
	Driving und N =22 Frequency 6 16 22		

* (p value of 0.0038.)

c). CAGE scores overall

The majority of the 317 respondents 51,1%(164) answered "no" to all the CAGE questions and had a score of 0. 79. (24,9%) students answered "yes" to one of the

CAGE questions and scored 1. 54(17%) students answered "yes" to two of the CAGE questions and scored 2. 18(5,7%) students answered "yes" to three of the CAGE questions and scored 3. 2(0,6%) students answered "yes" to all four of the CAGE questions and had a score of 4.

Table 4.12 Break down of the characteristics of the students in the variousCAGE scores categories

	CAGE score 0 N=164	CAGE score 1 N=79	CAGE score 2 N=54	CAGE score 3 N=18	CAGE score 4 N=2
Most common gender	Females 62,8% (103)	Females 55,5% (44)	Males 59,6% (22)	Females 55,6% (10)	Males 100%
Average units drunk	8,8	13,45	16	15	20 (2)
Though they were at risk of developing a drinking problem	0,6% (1)	5% (18)	13,5% (7)	22% (4)	50% (1)
Driven under the influence of alcohol	5,5% (9)	9,1% (7)	9,6% (5)	5,6% (1)	50% (1)
Children of alcoholics	10% (13)	13,43% (9)	21% (10)	11,76% (2)	0%

4.13 Reasons for abstaining from alcohol.

In an open-ended question the non-drinking respondents were asked to give their reasons for abstaining from alcohol. 24 of the 55 non-drinking students answered that question yielding 68 responses between the 24 students who responded. The response rate was 43,64%. Their answers were coded into 11 categories. The most common reasons quoted for abstaining from alcohol were "I don't like alcohol". The next most common reasons were health, the cost of drinking, being involved on sport, being able to drive after a night out, being in control of myself and hangovers as demonstrated in Table 4.13. The students could give as many reasons as they wanted.

Reasons for abstaining from alcohol	Students who answered the question N=24	
	Frequency	%
Don't like alcohol	16	66.66
Health reasons	15	62.50
Cost of alcohol	11	45,83
Driving and being in control	8	33.33
Sport	6	25,00
Hangovers	4	16.66
Culture and religious reasons	3	12,25
Don't need it to enjoy myself	2	8,33
Family support	2	8,33
Weight	1	4,17
Previous problem with alcohol	1	4,17
Total answers	68	

Table 4.13 Reasons given by respondents for abstaining from alcohol

4.14 Answers to CAST-6

The CAST-6 questions were included in the questionnaire. The CAST-6 is a reliable means of finding the children of alcoholics with low potential for error.¹¹⁵ The Children of Alcoholics Screening Test (CAST) has a high internal consistency (.88 and .90) and test-retest reliabilities (.88) when administered to adolescents from intact alcoholic families.¹¹⁶What this means that if the test was repeated it would yield the same results again and again. It consists of 6 questions and answering "yes" to 3 or more of the questions means that the child is more than likely to have an alcoholic parent. The questioned asked were "Have you ever encouraged one of your parents to stop drinking?", "Have you ever fought or argued with a parent when he or she was drinking?"" Have you ever felt like hiding or emptying a parent's bottle of liquor?" "Have you ever heard your parents fight when one of them was drunk?"

"Have you ever wished a parent would stop drinking?" and "Have you ever thought one of your parents had a drinking problem?" The students were asked to complete the questions only if their parents drank alcohol. There were 274 respondents. The most common CAST-6 question that was answered in the affirmative was that 67(24,45%) respondents had heard their parents fighting when drinking. The second most commonly answered question is that 54(19,71%) respondents had argued with a parent when the parent had been drinking. 26 (9,49%) respondents had encouraged a parent to stop drinking 18 (6,57%) respondents had felt like hiding a parent's bottle of liquor, 39(14,23%) respondents had wished a parent would stop drinking and 34(12,41%) thought that a parent had a drinking problem These results are shown in Figure 4.5.



Figure 4.5 Answers to the CAST-6 questions

The "yes" answers to the CAST questions were added up and the respondents scored as either CAST 0= no "yes" answers, to CAST 6 =all "yes" answers to the questions. The majority, 190(67,6%) respondents had a score of 0. 34,12(1%) scored 1.18(6,5%) scored 2.15(5,3%) scored 3 .12(4,3%) scored 4. 7(2,5%) scored 5 and

5(1,8%) scored 6. Those with a CAST of 3 or more were classified as children of alcoholics.

4.15 Students' perceived risk of developing a drinking problem themselves

The respondents were asked, "Do you think you are at risk of developing a drinking problem?" They were given a choice of three options "yes", "no" or "don't know". 369 of the 374 students answered the question, response rate 98,66%. These results are shown in Table 4.14. The difference between the COA and NCOA is statistically significant.

Table 4.14 Students' perceived risk of developing a drinking problem

Answers to the question" do you think you are at risk of developing a drinking problem?"	NCOA N= 332		COA N=37	
	Frequency	%	Frequency	%
Don't know	46	13,86	7	18,9
No	274	82,53	24	64,9
Yes	12	3,61	6*	16,2

*(χ^2 =11.951, df 2, p-value=0.003)

Those respondents who thought they were at risk of developing a drinking problem were asked in an open-ended question to state their reasons for thinking they might be at risk of developing a drinking problem. 18 students felt they were at risk of developing a drinking problem and 18 answered the open-ended question, response rate 100%. Those 18 students provided 25 reasons for thinking they were at risk of developing a drinking problem. The respondents' answers to the question are shown in Table 4.15. The most common reason stated by the students was having a family history of alcoholism 9,36%.

Table 4.15 Students reasons for thinking they are at risk of developing a drinking problem

Reasons	Numbers N=	of answers =25
	Frequency	% of answers
Family history	9	36,00
Amount of alcohol drunk	3	12,00
Alcohol used as a crutch	2	8,00
Type of drinking, binge	1	4,00
No control over the drinking	1	4,00
Suffering from depression	1	4,00
Cheap vs. food	1	4,00
Culture at college	1	4,00
Addictive personality	1	4,00
Enjoy it too much	1	4,00
Rural area	1	4,00
Boredom	1	4,00
Recovering alcoholic	1	4,00
Frequency of drinking	1	4,00
Total	25	100

Those students who felt they were not at risk of developing a drinking problem were asked in an open-ended question to explain why they felt they were safe. 281 students answered this question as shown in Table 4.16. Those 281 students provided 401 reasons why they felt they were not at risk of developing a drinking problem. These were broken down in to a number of categories. The most common reason stated by the 281 respondents was control over their drinking 143(25,19%). This is included statements like, "I am in control of my drinking", "I can abstain for a period of time", I don't drink a lot" and "I don't drink often". Hazardous drinking avoided includes statements like "I do not use alcohol as a crutch", "I am a social drinker only, I never drink alone". Other reasons stated were and awareness of he risks. This included statements like "I know the effects of alcohol"," I don't drink because I am health conscious", and "my career is too important to me". Family history was quoted as a reason for feeling safe, both because the respondents had no family history of alcoholism and therefore felt that they were not at risk and also because of family history the COA could see the risks and were forewarned. Dislike of alcohol was another category and included statements like," I don't like alcohol", "I can enjoy myself without it" and "it is not important to me." Peer support and peer

pressure were both reasons given by the respondents for feeling they were not at risk of developing a problem. Other reasons given by students was "interference in sexual performance", "being a good boy" and "my girlfriend won't let me".

Table 4.16 Reasons given by the students to explain why they felt they were

Reasons given why students felt they were not at risk of	Answers N= 401	% of answers
developing a drinking		
problem		
Control	230	57,36
Avoidance of Hazardous	66	16,46
Drinking		
Dislike of alcohol	25	6,23
Awareness of Risks	21	5,24
Non drinker	15	3,74
Religion	7	1,75
Peers	8	2.00
Sport	6	1,50
Family History	6	1,50
Cost	5	1,25
Family responsibility	2	0,50
Other	10	2,49
Total	401	100

not at risk of developing a drinking problem

4.16 Students knowledge about the safe number of units of alcohol to drink per week.

The respondents were asked, "What do you consider to be a safe number of units to drink per week for a male and for a female?" Of the 374 respondents 308(82,35%) students answered the question about safe number of units in a male and 315 (84,22%) answered the question about the safe number of units in a female. The answers are shown in Table 4.17.

Table 4.17 Influence of gender on students' knowledge of the safe number of units to drink

Gender of students	Female Limit		Male limit	
	Frequency	%	Frequency	%
Females	9	64,3	3	60,0
Males	5	35,7	2	49
Total number of correct answers	14	100	5	100

In total only 14 students (4,6%) of the study population knew the exact safe number of units for a female to drink and only 5 students (1,7%) of the study population knew exactly how many units it was safe for a male to drink. Only one of those students who knew the safe amounts was a child of an alcoholic. The difference between the genders was not statistically significant.

4.17 Membership with alcohol support groups.

The respondents were asked about membership in alcohol support groups. Only 6 respondents had parents who were members of the Alcoholics Anonymous (AA) and only 2 students were themselves members of the AA as seen in Table 4.18. The students could answer yes to more than one type of support group if they belonged to more than one.

		1		
	AA	Al-Anon	Other support	Percentage of
	N=8	N=2	group	responses
			N=3	N=13
Student	2	2	1	15,38
Parent	6	0	2	61,54
Total	8	2	3	100

 Table 4.18 Membership in alcohol support groups

4.18 Causes of alcoholism



Figure 6 Extent of agreement with the suggested causes of alcoholism

The respondents were asked to use a five-point scale to indicate their opinion about the causes of alcoholism. 374 students answered the questions, response rate 100%. The respondents felt that regular heavy drinking was the most important cause for developing alcoholism. 209(58,4%) respondents strongly agreed that regular heavy drinking cause alcoholism and 120 (33,5%) agreed that regular heavy drinking caused alcoholism. 138(38,4%) respondents agreed that having an alcoholic parent put one at risk of developing alcoholism and 87(24,2%) strongly agreed with that statement. Their responses are shown in Figure 6 Extent of agreement with the suggested causes of alcoholism.

The students were asked in an open-ended question to state their opinion on the other causes for alcoholism. These answers are shown in Table 4.19.

NCOAS' suggestions on what might cause alcoholism	Number of responses N= 70	
	Frequency	%
Psychological reasons	32	45,71
College environment	16	22,86
Family issues	8	14,29
Boredom, no sport or hobbies	6	8,57
Work issues	3	4,29
Cultural	3	4,29
Early drinking	1	1,43
When used as a crutch socially	1	1,43
Total answers	70	100

Table 4.19 The students' additional suggestions for the causes of alcoholism

The 37 children of alcoholics' additional reasons for a person developing alcoholism were stress 3(37,5%), shyness 1(2,7%), bad parenting 1(2,7%), boredom 1(2,7%), using alcohol as a means of escape 1(2,7%) and loneliness 1(2,7%).

4.19 Sources of knowledge re alcohol.

The respondents were asked to indicate their sources of knowledge about alcohol. 373 students answered this question and gave a total of 1114 responses. The most common source of knowledge about alcohol was from their friends 27(24,24%). The second most common source of information was the family 249 (22,23%). Their responses are shown in Table 4.20.

Sources of knowledge re alcohol	Numbers of responses N=1114	
	Frequency	% of
		responses
Friends	270	24,24
Television	249	22,35
Family	176	15,80
Education system	134	12,03
Radio	104	9,34
Magazines	101	9,07
Professionals	49	4,40
Experience	8	0,72
AA	9	0,81
Newspapers	3	0,27
Pubs	2	0,18
Islam	2	0,18
Books	1	0,09
Adverts	1	0,09
Internet	1	0,09
Trial and error	1	0,09
Seen effects	1	0,09
Drink industry	1	0,09
Bartender job	1	0,09
Total responses	1114	100

Table 4.20 Sources of knowledge re alcohol

Chapter 5

Discussion

5.1 Response Rate

There were 374 completed questionnaires out of the 431 handed out. This reflected an overall response rate of 86,78%.

5.1.1 Distribution within the faculties

The majority of the faculties were adequately represented except for the arts and science faculties. In the planning of the study the number of students required from each faculty was calculated to represent the same proportion as in the whole students' population. So using a proportional stratified sample, the minimum numbers required from each faculty was arts 108, commerce 62, engineering 19, food science and technology 13, law 16, medicine 38 and science 59. The reason for using this method of sampling was to ensure a range of students with different abilities and potential. Unfortunately due to some practical problems with the data collection that was not achieved in two faculties.

The first problem is the way in which the questionnaires were administered. The plan was that the first year lecturers at the start of a class would hand out the questionnaire. Time was to be allocated for the questionnaires to be filled in and then all the questionnaires collected by the lecturer and returned to the researcher. This was explained verbally and a letter was attached to the questionnaires when they were sent to the lecturers explaining the desired method of data collection to be used. In the faculties where the instructions were followed the response rates were very good. As shown in Table 5.1.

Faculty	Responses N = 288	
	Frequency	Response
		rate
Arts	81	98,78
Engineering	46	93,88
Food Science and Technology	22	100
Law	17	100
Medicine	122	98,39
Total	288	98,39

Table 5.1 Response rates within the various faculties

In the faculties where the students were asked to return the questionnaires later either to the class representative or the department secretary the response rates were not as good, as is shown in Table 5.2.

Table 5.2 Res	ponse rates	within the	various	faculties
---------------	-------------	------------	---------	-----------

Faculty	Responses N=74		
	Frequency	Response rate	
Commerce	64	61,54	
Science	10	47,62	
Total	74	100	

The low response rate in the department of science was the reason insufficient numbers of students were sampled in that faculty. 59 students were required and only 10 responses were obtained.

In the faculty of arts the response rate was good. However, too few students were sampled again because the method of data collection was not adhered to. Instead of handing out the questionnaires at the start of a class the music students were asked to fill in a questionnaire when they were in the department office for whatever reason. During the time the study took place only two students had reason to go to the office so only two students filled in the questionnaire.

When the data was analyzed and the shortfall in students in the arts and science faculties realized, an attempt was made to sample more students. A number of practical difficulties were encountered. Firstly the science faculty was no longer

prepared to allow access to their students because of the closeness to the exams. They felt that it would no be fair to disrupt their classes at such a crucial time of year. Within the arts faculty the problem was not to sample the same students again as a lot of the students have a cross over of courses. The students in the department of German was selected for sampling but when one of the first year lecturers got sick, the remaining lecturers had too much on their hands with the approaching exams to hand out questionnaires. No German students were therefore sampled. So at that stage the decision was taken to stop further sampling of students. Further nonrandom sampling would have affected the validity and generalisability of the results.

The initial reason for the proportional stratified sample was to sample a range of students with varying abilities and potentials. To assess whether this was achieved the leaving certificate results were assessed. The average points achieved by the study population as a whole was 495 and that is in keeping with the average in the whole university. So although there were less students than originally planned in the arts and science faculties the students that were sampled were representative of the rest of the student population with respect to their ability as reflected by the leaving certificate points. Therefore the results can be seen to representative of the whole first year class.

The last limitation of the study is the use of the CAGE over the AUDIT. The literature shows that the Alcohol Use Disorders Identification Test (AUDIT) is most effective in identifying subjects with at-risk, hazardous, or harmful drinking (sensitivity, 51%-97%; specificity, 78%-96%)¹¹⁷. This is ideally the type of student that the study was trying to identify. The CAGE questions, which was the test used in the study for practical reasons, is superior for detecting alcohol abuse and dependence (sensitivity, 43%-94%; specificity, 70%-97). The motivation for the study is to detect the problem drinking before it gets to the stage of alcohol abuse and dependency. This means
that the study could have missed out on identifying a number of problem students simply because of the choice of questionnaire.

5.2 Objectives

The results will now be discussed using the objectives as a framework for discussion. The aim of the study was achieved by means of a number of objectives.

5.2.1.Demographics

The first objective was to obtain demographic data on the students.

5.2.1.1 Year of study

The research was aimed at first year students only and this was achieved as 100% of the study population was in first year. The reason for choosing first year students in preference to those in the later years of study was the assumption that they were less likely to have an established drinking habit and that intervention at that stage could be brief and effective. However not all first year students are young students as our age analysis of the study population showed. The ages ranged from 17 to 63 in the initial sample, so a decision had to be made about what age to use as a cut off. As the justification for using first year students was the effectiveness of intervention the question arose about the influence of age on effectiveness of intervention. A study done comparing older vs. middle aged and young chemically dependant patients showed that the older adults reported greater abstinence than the younger adults did after treatment.¹¹⁸ 55% of the older adults were abstinent six months after treatment in comparison to 59 % of the middle-aged adults and 50% of the younger adults. However this was formal treatment of established chemically dependent patients and the motivation for doing brief intervention in first year students is to prevent dependence from becoming established. It is for this reason that the students in the sample older than 35 were excluded from the study.

5.2.1.2 Gender

The majority of the study population was female 201(54,8%) with males making up the remaining numbers 171(45,2%). This may have had some influence on the results, as 84%(175) of females drink within the average safe number of units per week as opposed to the males where only 80%, 106 stay within the recommended safe limits. (See Figure 4.3) Females also have a better knowledge of the safe number of units to drink per week in comparison to the males. Males are more likely to engage in risk taking behaviors as shown in their answers to the question on driving while under the influence of alcohol, (p value of 0.0038.) (see Table 4.11)

5.2.1.3 Nationality

This study is very specific to UCC and cannot be generalized to any other first year students at any other university. The study population is predominantly Irish 85 (1%) and of those Irish students 63(54%), 190 are from county Cork.(see Table 4.4.) One would expect that universities in other counties would have a very different mix of students from different counties, e.g. University College Dublin would have the majority of its students from county Dublin. For this reason the results cannot be extrapolated to any other students from any other colleges. The majority of the non-Irish students were Malaysian 17 (32,07%).(see Table 4.5).100 % of the Malaysian students were non-drinkers for religious regions. The next most common non-Irish nationality was Canadian at 18(86%), 10 students, and only 40 % of who classify themselves as regular drinkers. The third most common non-Irish nationality was the 4 Kuwaitis at 11,32 %. 100% of them were also non-drinkers. (SeeTable.4.7). Having a fairly large number of non-drinking students may have decreased the average number of units drunk in the study population.

5.2.2 Knowledge of alcohol

The next objective was to explore the students' knowledge of alcohol and alcoholism. Various aspects of their knowledge were assessed. These were

- Their knowledge of the seriousness of the disease
- The risk factors for developing the disease
- Their sources of information about the disease
- The students' factual knowledge of the safe number of units to drink per week.

5.2.2.1 Seriousness of the disease

This was assessed indirectly by the students' responses to why they would abstain from drinking. The most common short-term reason for abstaining given by the 24 students who answered that question was a dislike of alcohol (16; 66,66% of responses). The next most common reason quoted by 15(62,50%) of the 24 students was the negative impact of drinking on health, hangovers and weight gain, (see Table 4.13). This corresponds with the study done by Brown et al where one of the most common issues that prompted a reduction in drinking were health related issues¹¹⁹.

The cost of alcohol was a major deterrent for 11(45,83%) of the 24 respondents. The next most common reason 25 %(6) for abstaining from alcohol was students' involvement in sport and the negative consequences drinking has on sporting performance. The inability to drive after drinking was acknowledge and quoted as a reason for abstinence 5(20,83%). The loss of control was also perceived as a negative consequence of drinking 4(12,5%). (See Table 4.13).

An awareness of the seriousness of the long-term consequences was noted in the students' answers to why they felt they would not be at risk of developing a drinking problem. Reasons mentioned were knowledge of the effect 12%, 13 of the 24

students who answered the question, career too important to allow drink to interfere with it 2 students (8,34%) and family responsibility 2 (8,34%). In the study by Brown et al the family featured more prominently in their study as a reason for abstinence¹²⁰. The difference in results could be explained by the difference in study populations. Brown et al studied primary care patients aged 18-59. Whereas this study analyzed first year college students aged 17-35. The majority of who would have no family responsibilities as yet. Family history 9 (37,53%) was also mentioned as a reason for abstinence as was fear of the consequences of getting drunk 1 student (4,17%) of responses). The addictive nature of alcohol was acknowledge by one student 1(4,17%) with the following statement, "I am at risk because I have an addictive personality". Although this is only one student the statement was included for completeness.

On the whole, the short term negative effects of overindulgence served as more of a deterrent against drinking than the long-term consequences. The children of alcoholics were not statistically different from their peers in this respect.

5.2.2.2 Risk factors for developing the disease

The most commonly agreed on risk factor amongst the 322 students who answered the question was regular heavy drinking 297 (92,23%). The students acknowledged the association with other mental illnesses. A significant number of students felt that depression was a risk factor for developing the disease 78(24,29%). The influence of work was mentioned. Dissatisfaction with the job 1(1,43%), work pressure 1(1,43%) and unemployment 1(1,43%) were mentioned as risk factors for developing the disease. Other risk factors acknowledged were factors relating to the family. These were family history of alcoholism 11(15,71%), lack of parental control 1(1,43%), abuse in the family 1(1,43%), bad parenting 1(1,43%), and family problems 1(1,43%). The influence on social factors was also acknowledged. Stress was a

commonly quoted as a cause for alcoholism 11(15,71%). Also mentioned were low self-esteem 4(5,71%), boredom 4 (5,71%), loneliness 3(4,2%), no support 1(1,43%), shyness 1 (1,43%) and problems 2 (2,86%). Although these numbers are small they do give an indication of what the students are thinking.

5.2.2.3 Sources of information

The most common source of information on alcohol amongst the students was their friends' 270 (24,24%). This supports Jacob and Leonard's findings that peer alcohol use is the strongest predictor of adolescent alcohol use.¹²¹ The next most common source of information was the television 249(22,35%) and finally their family 176 (15,80%). (See Table 4.20.)

5.2.2.4 Knowledge of safe number of units to drink per week

On the whole students' knowledge of the exact safe number of units to drink per week was not good. Only 4,6 % knew that females could safely drink up to 14 units per week of alcohol and only 1,7 % knew that males could drink up to 21 units safely per week.¹²² Although they were not sure of the exact amounts only 19,6% felt that females could safely drink more than 14 units of alcohol per week and only 14,4 % felt that males could safely drink more than 21 units of alcohol per week.

Summary of the findings

In conclusion the students had a fairly good grasp on the seriousness of alcohol abuse both in the long and the short term. They were aware of the various risk factors and risky behaviors. Their factual knowledge of the actual numbers of units that were safe for each gender to drink was not great but the vast majority of them were within the safe limits with their guesses.

5.2.3 Attitude to alcohol

The third objective was to determine the students' attitudes to alcohol. Various aspects of their attitudes to alcohol were assessed. These were, perceived risk of developing the disease, when would they be concerned about their drinking and what would be their reasons for abstaining from alcohol.

5.2.3.1 Perceived risk

The students were asked if they felt at risk of developing the disease. 298 (80.3%) of the 369 respondents felt they were not and the reasons they felt they were safe were because of the way they were drinking. 101(27,37%) students felt that they were in control of their drinking and 54(14,63%) felt that they were not drinking enough to put themselves at risk. Of those who felt safe from developing a drinking problem, 45(12,20%) felt that they didn't use alcohol as a crutch while 10(30%) felt that the fact that they could abstain from alcohol for a period of time was evidence that they were not dependent on it. Of those students who said they were safe from developing a drinking problem 31students (8,4%) justified their answer buy saying that they didn't drink often enough. Drinking alone was a bad sign and those who drank socially felt they were not at risk of developing a drinking problem.

So control over their drinking, amount of alcohol drank, motivation for drinking, frequency and ability to abstain were perceived as the major protective factors against developing a drinking problem.

5.2.3.2 Cause for concern

Of the total study population 18(4,88%) respondents felt they were at risk of developing alcoholism. The most common reason for feeling this was family history 9(50%). The amount of alcohol drunk 3 (16,67%) and the fact that it was used as a crutch 2(11,11%) was cause for concern but less so. Only one person felt that binge drinking was a risk factor and only one student mentioned other factors like lack of control over drinking and depression as a reason for concern.

5.2.3.3 Reasons for abstinence

The majority of the 58-non drinkers, 33% (14) students were not drinking because they didn't like alcohol. The next most common reason for abstaining was healthrelated issues 54(17%), hangover (12,5%), effects on weight 1 student (2,4%) and interaction with medication 1(2,4%). The cost of alcohol was a good deterrent 11(45,83%) and being involved in sport was also a reason given by the students for abstaining 6(25%). Students would also abstain when they were driving 5 (20,83%) and because they liked to be in control 3(12,5%).

Summary of findings of students attitudes to alcohol

The lack of control over drinking, amount of alcohol drank, motivation for drinking, frequency and inability to abstain were perceived as the major determinants for developing a drinking problem by the students who felt they were not at risk. The students who had a family history of alcoholism were concerned about themselves and the most common reasons for abstaining from alcohol were, not liking alcohol and health reasons. Interestingly compared to their American peers for whom being a sporting jock was a risk factor for alcohol abuse, in Ireland partaking in a sport protected the students. ¹²³ (See Table 4.13.)

There is a difference between the reasons reported by those students who felt that they were not at risk of developing a drinking problem and those who felt they were. For those students who did not feel at risk the type of drinking, frequency and amount of alcohol drunk was the major issue. Whereas of those students who felt that they were at risk of developing a drinking problem only three mentioned the amount of alcohol drunk. The vast majority blamed other factors, family history 9(50%), depression 1(5,55%), and culture at college 1(5,55%), addictive personality 1(5,55%), being in a rural area 1(5,55%), and boredom 1(5,55%). Was there an element of denial in this group?

61,1% (22) of the 36 students who were drinking more than 21 units of alcohol per week said that they were not at risk of developing a drinking problem. Of the 36 students 6(16,7%) were not sure and 8(22,9 %) felt that they were at risk. Which is interesting because the same students said they were not at risk of developing a drinking problem because their type, frequency and amount of alcohol drank did not put them at risk and yet they were drinking above the recommended safe limits. In fact 2 students, (66,7%) who said they were not at risk of developing a drinking problem were drinking an average of 40 units or more per week. The other student who was drinking more than 40 units of alcohol per week did not know if he was at risk of developing a drinking problem. It is also interesting to note that those students who said they were not at risk of developing a drinking on average 33,29 units of alcohol per week said that they though the safe number of units of alcohol per week was 30,47. So it seems the perception of how many of units of alcohol were safe to drink per week was directly dependent on how much the students themselves were drinking.

5.2.4 Practices

The fourth objective was to determine the students' current drinking practices.

This was assessed on three levels. The students were asked how many units they were drinking on average per week. They were asked the four CAGE questions and given a score out of four and they were asked about membership at alcohol support groups.

5.2.4.1 Average number of units drunk per week

The study done in the USA showed that the average number of units of alcohol drunk per week by college students was five units.¹²⁴ Here the average for the study was 9,90. That is despite the fact that the majority of non-Irish students were non-drinkers. After excluding the non-drinkers from the equation the mean number of units of alcohol drunk per week was 11,86. This is significantly more than what their peers in the United States are drinking.

5.2.4.2 CAGE

The four CAGE questions were included in the questionnaire. The CAGE is designed to detect alcohol abuse and dependence¹²⁵. It consists of four questions. These are," Have you ever had an eye-opener drink to get going in the morning?"" Have you ever felt angry when people criticize you about your drinking?"" Have you ever felt guilty about your drinking?" and " Have you ever felt you should cut down on your drinking?" Answering "yes" to one of the questions is associated with a sensitivity of 42%, a specificity of 87%, a positive predictive value of 36% and a negative predictive value of 90% for detecting problem drinking.¹²⁶ As expected the majority of the students 51% scored zero. 25 % of the study population scored one, 17% scored two, 6% scored three and 1% scored four.

- Amongst those students who had scored one, 195,(54,2%) had answered "yes" to the question whether they felt that they should cut down on their drinking. 18,5% of students felt that they were at risk of developing a drinking problem This was despite the fact that on average they were only drinking 13,5 units of alcohol per week, which is not over the recommended safe limit. They also underestimated the safe number of units for both sexes. On average this group thought that men could drink up to 16 units of alcohol per week safely and that women could drink only 11. 54(55,1 %) of this group was women, which was not significantly different from the rest of the study population. 13,43% (nine students) of this group are children of alcoholics. Interestingly enough 9,1% of this group (seven students) had driven under the influence of alcohol compared to the study population average, which was 7,2% (22) of the students. This might in part explain why they felt they should cut down on their drinking despite the fact that on average they were not drinking to excess.
- The majority of the 62 students who scored two on the CAGE questions felt that they should cut down on their drinking. 13,5 % (7) felt that they were at risk of developing a drinking problem. Compared to the 54.2% in the previous group, 84,6%(52) students in this group though they should cut down. In addition 50 students, (80,8%) of this group felt guilty about their drinking. They were drinking on average 16 units of alcohol per week. This group differs from the ones who scored 1 on the CAGE questions in two ways. First the gender distribution is predominantly male 59,6% (37), hence the higher number of units drunk per week may have been appropriate. Their incidence of driving under the influence of alcohol is also above the study population average at 9,6% but what is distinctive about this group of students is that 10 students, 21% of them are children of alcoholics. The percentage of children of alcoholics in the whole study population is only 10,22%. This may in part explain the relatively high number of

them who feel they should cut down on their drinking and who feel guilty about their drinking despite the fact that they were drinking within the recommended safe limits.

- The 15 students who scored 3 on the CAGE questions seemed to be those with drinking problems. Although only 4 of them, (22,2%) felt they were at risk of developing a problem. 94,4% (17) of them felt they should cut down on their drinking, 94,4% (17) of them were angry when criticized about their drinking and 100% (18) of them felt guilty about their drinking. Only 11,1% (2) of them admitted to having had an eye-opener drink to get going in the morning. This group was predominantly female 8 (55,8%). They drank on average 15 units of alcohol per week yet thought that the safe number of units for females to drink was 12 and males 16. Compared to the other groups 5(6%) of them had driven drunk and 11(76%) of them were children of alcoholics, one of who was a member of Al-anon.
- Only two students scored 4 on the CAGE questionnaire. Both were male. One was drinking 10 units per week, the other 30. The student drinking 10 units knew that the safe number of units of alcohol for a male to drink was 21. The other student thought that the safe number of units for a male to drink was 40. The one who was drinking 40 units per week had also driven under the influence of alcohol. Neither were children of alcoholics. The student drinking 40 units per week felt he was at risk of developing a drinking problem, the other did not.

5.2.4.3 Membership in alcohol support groups

Only 3 students admitted to being members of alcohol support groups.

Children of alcoholics

The children of alcoholics were studied as a separate subgroup as they are a highrisk group with unique problems. These students were identified by means of the CAST-6 questionnaire. Those students who answered yes to three or more of the questions were classified as children of alcoholics. Unfortunately the numbers of students who were identified as children of alcoholics was only 10.22% (37) of the study population. In the initial planning of the study the actual numbers of children of alcoholics at UCC was unknown so the sample size was calculated using the true alcoholism rate in the general population of 20% and the incidence of children of alcoholics at school which was 25%.¹²⁷ In retrospect it is obvious that the percentage of children of alcoholics who went to college would be less than in the general population. The figure of 10,22% was on a par with a study done in the United States.¹²⁸ The figure they came up with for children of alcoholics at college was 10%.So in hindsight a larger number of students should have been sampled in order to get a bigger number of children of alcoholics for comparative purposes. Because of the fact that these are first year college students, the findings cannot be generalized to all children of alcoholics. We know that children of alcoholics perform less well academically on average than their peers so those who do go to college are possibly the exception to the rule rather than the norm.¹²⁹

However despite the small number of children of alcoholics some interesting differences between them and the non-children of alcoholics has been noted.

Demographics of children of alcoholics at college

56,8% (21) of the children of alcoholics were female compared to the 54,6 % (177) in the non-children of alcoholics' population. This difference did not reach statistical significance. (χ^2 =0.008, df=1, p value=0.93.)

On average the points they achieved were lower than the non-children of alcoholics were. The mean for children of alcoholics was 483 vs. 496 for the rest of the population. There were those who performed well and achieved 600 points but they were the exception. This difference is was not statistically significant and unexpected. (Mann-Whiney U =3770, p value= 0.21). Previous studies have shown that the children of alcoholics perform less well in the pre-college years than the children of non-alcoholics.¹³⁰

The majority of the children of alcoholics were in the arts (p value=0.022) and food science faculties (p value=0.035). The points required for these courses are lower on average than required for the courses where the children of alcoholics were not found. So it would seem that, being a child of an alcoholic limits the choices of course to study at college and hence the chance of improving oneself despite there being no significant difference in the points achieved in the leaving certificate between the two groups.

There was no difference between the children of alcoholics and the rest of the study population with respect to the age they were in first year.

Knowledge of alcohol

The children of alcoholics were not significantly different from the non-children of alcoholics with respect to their understanding of the seriousness and risk factors for

developing the disease. They were more likely to mention stress as an important factor for precipitating alcohol abuse.

Attitudes to alcohol

As a group the trend was that they were more wary of alcohol and felt more guilt associated with their drinking than the children of non-alcoholics did. This was obvious in the CAGE scores. There were a significant number of children of alcoholics who scored 2 on the CAGE questions despite drinking within the safe limits. The questions they answered yes to were those on feeling guilty about their drinking and thinking they should cut down. However the difference in total CAGE scores between the children of alcoholics and children of non-alcoholics was not statistically significant (p value= 0.474).

The children of alcoholics were no different to the children of non-alcoholics when it came to engaging in risk taking behavior. They were as likely to have driven under the influence of alcohol as their peers were.

Compared to children of non-alcoholics the majority of children of alcoholics considered themselves regular drinkers, however the difference not statistically significant (p value= 0.429).

Practices

Questions have been asked about the age at which children of alcoholics start drinking. ¹³¹There is an association between family history of alcoholism and early initiation of drinking. In this study there was no statistically significant difference

between the children of alcoholics and the children of non-alcoholics with respect to the age at which they started drinking.

The children of alcoholics were drinking more units on average per week than the children of non-alcoholics but the difference was not statistically significant. (p value= 0.410).

They perceived themselves to be more at risk of developing a drinking problem than their peers would be. 16,2%(6) of the children of alcoholics felt they were at risk of developing a drinking problem vs. only 3,8% (12) in the rest of the study population. This difference was statistically significant. (p value= 0.003). (See Table 4.14). Of those children who felt at risk of developing a drinking problem only 3, 8% of the 37 thought that having a parent who was an alcoholic put them at risk of developing the disease. Of the total population of children of alcoholics 19 (51,35%) of the 37 felt that having an alcoholic parent was a cause for developing the disease compared to the rest of the study population 197(63,34%) of the 311 felt the same way

Summary of the differences between the children of alcoholics and non-children of alcoholics in their first year of college at UCC.

There are a higher number of females than males, which is in keeping with the rest of the study population. They seem to achieve as well as their peers with regards to their leaving certificate results. The children of alcoholics seem to be over represented in the arts and food science faculties, so being a child of an alcoholic seems to influence the choice of career and future prospects. They are more wary of alcohol but are no less likely to drive under the influence. Their average alcohol intake is no different from their peers and they do not score differently on the CAGE

questions. They feel more at risk of developing an alcohol problem than their peers do but only 51,35% (19) admit this is because they have an alcoholic parent.

No cross tabulations have been done across the faculties. This was deliberate and was one of the conditions that the researcher agreed to prior to starting the study. This was to avoid comparing alcohol use etc between faculties.

Chapter 6

Recommendations

Should interventions be planned, they should take place during the school years. This study showed us that the mean age at which the students started drinking alcohol was 15. The mode was 16. Waiting until the children reached college could be too late. The added advantage of doing the intervention at school is that those high-risk children of alcoholics the majority of whom never make it to college would benefit from the intervention. In Ireland the tradition was to rely on the church to influence the children's drinking habits. At the age of 13, a communion a pledge is taken where the children have to swear to stay away from alcohol. However in this study only one student said that the reason they abstained from alcohol was the communion pledge. The only time religion worked as a deterrent to prevent drinking was when the students were Muslim.

From this study it would seem that the family and peers, not the church were the more likely sources of information about alcohol and therefore the more appropriate people to be doing the intervention. This was investigated in 2001 when a study was done on the efficiency of intervention on students before they start college through their parents. ¹³² The group whose parents had been educated on how to convey information about drinking to them where significantly different from the non intervention groups with regards to drinking activities and drinking related consequences in their first semester.

So the intervention should be done in the school years by the parents. The children should be encouraged to participate in sport and to look after their health. Being health conscious and taking part in sport was both were found to be good deterrents against drinking. Having a car and driving acted as a deterrent as did not having enough money for alcohol. Parents have a role to place in all of these areas.

Unfortunately those parents who are alcoholics are less likely to do the appropriate intervention in their children putting them once again at a disadvantage. As far as the family physician is concerned in this study, only 4.4 %(49) of the 1114 responses got their knowledge of alcohol from professionals e.g. Teachers, doctors. This could surely be improved. Health professionals could educate the parents of adolescents and let them know how important they are as a source of information about alcohol for their children. Family physicians could teach parents how to implement alcohol education measures and what is the safe number of units to drink per week. Health professions could also make a point of educating their patients about alcohol when they see them for other routine complaints.

Chapter 7

Conclusions

Despite the fairly small sample a number of conclusions can be drawn from this study.

The aim of the study was to investigate the knowledge attitudes and practices of first year students at UCC regarding parental and personal alcohol use.

Firstly with respect to the practices of the students regards to alcohol. The students at UCC in Ireland drink on average more than their peers at Universities in the United States. The majority of them are drinking within safe limits, (83,3% of females and 80,6% of males).

Their knowledge of the negative effects of alcohol is quite good. Their main sources of knowledge re alcohol are their friends and family. The implications for the family physician is that only 4.4 %(49) of the 1114 responses got their knowledge of alcohol from professionals e.g. Teachers, doctors.

Children of alcoholics are different from their peers at college in that they feel more at risk of developing a drinking problem, and chose career paths that require less time and study commitments than their peers.

The limitations of this study are the small numbers of students sampled, the possible bias introduced by trying to re-sample the science and German students and finally the choice of measuring tool used. However some interesting trends were noted in the children of alcoholics with respect to the way they answered the CAGE questions and their attitudes to alcohol. Unfortunately because of the relatively small sample these trends were not statistically significant. A larger study sampling 2000 or more students would show these differences more clearly.

APPENDIX 1

Questionnaire



13) Have you ever felt guilty about your drinking?

Tick one Y N (G)

14). Have you ever felt you should cut down on your drinking? Tick one

15). Have you ever driven while under the influence of alcohol? Tick one Y N (U)

16. If you don't drink alcohol what are your reasons for abstaining?



(ct)

If your parents don't drink go straight to question 23.

Otherwise continue with question 17

17). Have you ever encouraged one of your parents to stop drinking?

(tick) Y N

18). Have you ever fought or argued with a parent when he or she was drinking? (tick one) Y N (ct)

Э)	Y	N	(

19). Have you ever felt like hiding or emptying a parent's bottle of liquor?

(tick one)	Y	N	(ct)

20). Have you ever heard your parents fight when one of them was drunk?

(tick one)	Y	N	(ct)

21). Have you ever wished a parent would stop drinking?

(tick one)	Y	Ν	(ct)

22). Have you ever thought one of your parents had a drinking problem? (tick one) Y N (ct)



23). Do you think you are at risk of developing a drinking problem?

Ν

(tick one)

Don't (pr) know

24). If yes, why do you think you are at risk of developing a drinking problem?



25). If no, why do you think you are not at risk of developing a drinking problem?

26). What do you consider to be a safe number of units to drink per week?

(nr)

1 unit=1/2 pint beer lager or cider/1 small glass wine, 1 single measure spirits,

1 small glass sherry/1 single measure aperitifs

In Males	In Females	(Id)

27). Do you or any other member of your family belong to an alcohol support group?

-		-		
(tick one)	Y	Ν	Don't	(as)
			know	

28). If yes, what do you or they attend?

Tick each as appropriate

	AA	Al-Anon	Al-Teen	Other alcohol support groups
Vourcelf				
Toursen				
Parent				
Other relative				

29). State the extent with which you agree with these statements?

29).One's chances of becoming an alcoholic are increased by Tick					
	strongly agree	agree	don't know	disagree	strongly disagree
a). Having an alcoholic parent. (ap)					
b). Having a relative other than a parent who is an alcoholic. (ora)					
c). Regular heavy drinking. (hd)					
d).Use of other drugs (d)					
e). Weak personality (wp)					

f). Others, please explain



30). From where do you get your knowledge on alcohol? (tick more than one if necessary)

relevision Professionals riends amily Magazines Micohol support groups ducation system	(t) (p) (fr) (fa) (m) (asg)
Professionals Friends Family Magazines Alcohol support groups Education system	(p) (fr) (fa) (m) (asg)
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Magazines Alcohol support groups Education system	(m) (asg)
Alcohol support groups Education system	(asg)
Education system	(U)
	(ed)
Others, please explain	· /

Thank you for taking the time to fill in this questionnaire for me.

services

They can be contacted on 021 490 2311.

Once again, thank you for your co-operation.

Dr Jacqueline Glisson

Appendix 2 Alcohol Study

Dear student,

I am a post graduate student at the University of the Witwatersrand in Johannesburg. I am doing a degree in Family medicine for which I am required to do a research project. I am being assisted in my research by Professor Bradley of the Family medicine department at this university. I am doing research on alcohol use amongst first year students and their families. I would be very grateful if you would fill in the questionnaire below. Your name was randomly selected from all first year students at Cork. The questionnaire is anonymous and your identity can not be known in any way. The information is confidential and will only be made available to myself and my supervisor. The results of the research will be published so that other doctors can benefit from this study.

While I hope that you will be prepared to help me, you are under no obligation to complete this questionnaire and you will experience no negative consequences if you refuse to do so. Similarly you are free to omit any question or part of a question with which you aren't comfortable.

If you are willing to fill in the questionnaire please do so now. Unfortunately the form cannot be taken home and returned later. We would like you to fill in the questionnaire as carefully and completely as possible. If you don't wish to answer any question for whatever reason, please feel free to do so. When you have finished please check to see that you have answered all the questions and then place the form in the box in the front.

If you decide not to fill in the questionnaire, I still request that you place your form in the box provided.

If you would like more information about alcohol please feel free to contact the student counselling service on:- 021 490 2311. Alternatively you can contact the AA on - 01 6795967.

Thank you for your time and assistance,

Dr. Jacqueline Glisson. MBBcH, MCGP, University of Witwatersrand South Africa Mary Street Medical Centre, 12 Mary Street, Clonmel, County Tipperary

Appendix 3

TOTAL P.01	
10.	Dr. J. GLISSON
UNIVERSITY OF THE WITWA	TERSRAND. JOHANNESBURG
Division of the Deputy Registra	(Research) Aural Wright
COMMITTEE FOR RESEARCH Ref: R14/49 Glisson	LON HUMAN SUBJECTS (MEDICAL)
CLEARANCE CERTIFICATE	PROTOCOL NUMBER M03-06-11
PROJECT	A Study of the Knowledge, Attitudes and Practices of 1st Year Students at Cork University Regarding Parental and Personal Alcohol Use
INVESTIGATORS	Dr J Glisson
DEPARTMENT	School of Clincial Medicine, Tipperary Town, Ireland
DATE CONSIDERED	03-06-27
DECISION OF THE COMMITTEE	Approved uncondiitionally
Unless otherwise specified the application This ethical clearance will expire	ethical clearance is valid for 5 years but may be renewed upon
	1. Mochaehane of
DATE 03-06-30 CHAIRMAN.	(Professor P E Cleaton-Jones)
* Guidelines for written "informed o	onsent" attached where applicable.
c c Supervisor: Dr A Wright	
Dept of School of Works2\lain0015\HumEth97 wdb\M	Clinical Medicine, Wits Medical School
DECLARATION OF INVESTIGATO	
To be completed in duplicate and Senate House, University	ONE COPY returned to the Secretary at Room 10001 10th Elect
If we fully understand the conditions research and I/we guarantee to en- contemplated from the research pro Committee. I agree to a completion the study is completed.	under which I am/we are authorized to carry out the abovernentioned sure compliance with these conditions. Should any departure to be cedure as approved I/we undertake to resubmit the protocol to the of a yearly progress form. I/we agree to inform the Committee once
DATESIGNATE	JRE
PLEASE QUOTE	THE PROTOCOL NUMBER IN ALL ENQUIRIES

Chapter 8

References

- 1 O'Farrell Anne. Ireland and its Drink Problem: The Immediate Adverse Effects of Binge Drinking in Ireland. Irish Medical Journal. June 2004:165-166.
- 2 \Mash B. Handbook of Family Medicine.2000:121-122.
- 3 O'Farrell Anne. Ireland and its Drink Problem: The Immediate Adverse Effects of Binge Drinking in Ireland. Irish Medical Journal. June 2004:165-166.
- 4 Mayor S. Alcohol and drug misuse sweeping world says WHO. British Journal of Medicine 2001 February: 322-499.
- 5 Clancy C. Public disorder in Ireland-An Garda Siochana Response. In: Alcohol Policy-A Public Health perspective Proceeding of the International Conference, Dublin.
- 6 O'Farrell Anne. Ireland and its Drink Problem: The Immediate Adverse Effects of Binge Drinking in Ireland. Irish Medical Journal. June 2004:165-166.
- Baer JS, Kivlahan DR, Blume AW, McKnight P, Marlatt GA. Brief intervention for heavy-drinking college students: 4-year follow-up and natural history. Journal of Study of Alcohol 2003 Jan; 64(1): 23-31.
- 8 O'Farrell Anne. Ireland and its Drink Problem: The Immediate Adverse Effects of Binge Drinking in Ireland. Irish Medical Journal. June 2004:165-166.
- Fact sheet-alcohol use in South Africa. Prepared by; Alcohol and Drug Abuse ResearchGroup,MedicalResearchCouncil.2001. http://www.sahealthinfo.org/admodule/alcohol.htm
- 10 Groenewald PJ, Ponicki WR, Mitchell PR. Suicide rates and alcohol consumption inn the United States .Addiction 1995;90:1063-1075.
- 11 Department of Public Health, Health Boards. Suicide in Ireland: A national study. Dublin: Departments of Public Health on behalf of the Chief Executive Officers of the Health Boards,2001.
- 12 Clancy C. Public disorder in Ireland-An Garda Siochana Response. In: Alcohol Policy-A Public Health perspective Proceeding of the International Conference, Dublin.

- 13 Fact sheet-alcohol use in South Africa. Prepared by; Alcohol and Drug Abuse Research Group, Medical research Council.2001. http://www.sahealthinfo.org/admodule/alcohol.htm
- 14 Simbayi LC, Kalichman SC, Jooste S, Mathiti V, Caine D, Cherry C. Alcohol Use and Sexual Risks for HIV Infection among Men and Women Receiving Sexually Transmitted Infection Clinic Services in Cape Town, South Africa. Journal of the study of Alcohol 2004;65: 434-442.
- 15 Abbey A, Ross LT, McDuffie D. Alcohol's role in sexual assault. Drug and alcohol Abuse Reviews Addictive Behaviours in Woman. Totowa, New Jersey, USA: Humana Press, 1994:97-123.
- 16 Dr M Holohan, Director of the Sexual Assault treatment Unit speaking at the Oireachtas Committee, Dublin, March 2003.
- Ashworth, M. Clinical Review. ABC of mental health: Addiction and dependence-II: Alcohol. British Journal of Medicine 2001 October; 323:817-818.
- 18 Gill JS. Reported levels of alcohol consumption and binge drinking within the UK undergraduate student population over the last 25 years. Alcohol 2002 Mar-Apr; 37(2): 109-20.
- 19 Knight JR, Wechsler H, Kuo M, Seibring M, Weitzman ER, Schuckit MA. Alcohol Abuse and Dependence among U.S. College Students. Journal of Studies on Alcohol. 2002; 63(3): 263-270.
- 20 Paschall MJ. College attendance and risk-related driving behavior in a national sample of young adults. Journal of the Studies of Alcohol. 2003 Jan; 64(1): 43-49.
- 21 Mohler-Kuo M, Dowdall GW, Koss MP, Weschler H. Correlated of Rape while intoxicated in a National Sample of College Women. Journal of the Studies of Alcohol 2004; 65:37-45.
- 22 Mayor S. Alcohol and drug misuse sweeping world, says WHO. British Journal of Medicine 2001 February; 322:499.
- 23 Goodwin D.W, Schulsinger F, Moller N, Hermansen L, Winokur G, Guze S.B. Drinking problems in adopted and non- adopted sons of alcoholics. Archives of General Psychiatry 1974; 31: 164-169.

- 24 Cotton N.S. The familial incidence of alcoholism: A review. Journal of Studies on Alcohol 1979; 40: 89-116.
- 25 National Institute on Alcohol Abuse and Alcoholism No 18 PH 357 July 1992.
- 26 Dore G. How much is too much? Brief interventions for excessive drinking. Modern Medicine 2000; 25 (September): 58.
- 27 Lieberman DZ.Children of alcoholics: An update. (review). Current opinion in Pediatrics 2000; 12(4): 336-340.
- 28 Fischer KE, Kittleson M, Ogletree R, Welichimer K, Woehlke P, Benshoff J. The relationship of parental alcoholism and family dysfunction to stress among college students. Journal of American College Health. 2000 Jan;48(4):151-156.
- 29 Sheridan MJ. A psychometric assessment of the Children of Alcoholics Screening Test (CAST). J Stud Alcohol 1995 Mar; 56(2): 156.
- 30 Weitzman ER, Wechsler H. Alcohol Use, Abuse and Related Problems Among Children of Problem Drinkers, Findings From A National Survey of College Alcohol Use. Journal of Nervous and Mental Disease 2000. 188:148-154.
- 31 Casas-Gil MJ, Navarro-Guznman JI. School characteristics among children of alcoholic parents. Psychology Reports 2002; 90(1): 341-348.
- 32 Obot IS, Wagner FA, Anthony JC. Early onset and recent drug use among children of parents with alcohol problems. Data from a national epidemiological survey. Drug and Alcohol Dependence 2001; 65(1): 1-8.
- 33 O'Farrell Anne. Ireland and its Drink Problem: The Immediate Adverse Effects of Binge Drinking in Ireland. Irish Medical Journal. June 2004:165-166.
- 34 Mayor S. Alcohol and drug misuse sweeping world says WHO. British Journal of Medicine 2001 February: 322-499.
- Allan A, Roberts MC, Allan MM, Pienaar WP, Stein DJ. Intoxication, criminal offences and suicide attempts in a group of South African problem drinkers.
 South African Medical Journal. 2001 Feb; 91(2): 145-50.
- 36 Parry C, Tibbs J, van der Spuy J, Cummins G. Alcohol attributable fractions for trauma in South Africa. Curationis. 1996 Mar; 19(1):2-5.
- Parry CD, Bhana A, Myers B, Pluddemann A, Flisher AJ, Peden MM, Morojele
 NK. Alcohol use in South Africa: findings from the South African Community

Epidemiology Network on Drug use (SACENDU) Project. Journals of Studies of Alcohol. 2002 Jul; 63(4): 430-5.

- Hearne R, Connolly A, Sheehan J. Alcohol abuse: prevalence and detection in a general hospital. Journal of the Royal Society of Medicine. 2002 Feb; 5(2):84-87.
- 39 Murray M, McMillian C. Problem drinking in Northern Ireland: survey using the CAGE questionnaire. Alcohol Alcohol 1993 Jul; 28(4): 477-483.
- 40 O'Farrell Anne. Ireland and its Drink Problem: The Immediate Adverse Effects of Binge Drinking in Ireland. Irish Medical Journal. June 2004:165-166.
- 41 Greenslade L, Pearson M, Madden M. A good man's fault: alcohol and Irish people at home and abroad. Alcohol Alcohol. 1995 Jul; 30(4): 407-17.
- 42 Mash B. Handbook of Family Medicine.2000:121-122.
- Aira M, Kauhanen J, Larivaara P, Rautio P. Differences in brief interventions on excessive drinking and smoking by primary care physicians: qualitative study.
 Preventative Medicine. 2004 Apr; 38(4): 473-8.
- 44 Johansson K, Bendtsen P, Akerlind I. Early intervention for problem drinkers: readiness to participate among general practitioners and nurses in Swedish primary health care. Alcohol Alcohol. 2002 Jan-Feb; 37(1): 38-42.
- 45 Johansson K, Bendtsen P, Akerlind I. Early intervention for problem drinkers: readiness to participate among general practitioners and nurses in Swedish primary health care. Alcohol Alcohol. 2002 Jan-Feb; 37(1): 38-42.
- Aalto M, Pekuri P, Seppa K. Primary health care nurses' and physicians' attitudes, knowledge and beliefs regarding brief intervention for heavy drinkers. Addiction. 2001 Feb; 96(2): 305-11.
- 47 M. F. Fleming, K. L. Barry, L. B. Manwell, K. Johnson and R. London. Brief physician advice for problem alcohol drinkers. A randomised controlled trial in community-based primary care practices. Journal of the American Medical Association. 1997 April (2); 13:277.
- 48 Saitz R, Horton NJ, Sullivan LM, Moskowitz MA, Samet JH. Addressing alcohol problems in primary care: a cluster randomized, controlled trial of a systems intervention. The screening and intervention in primary care (SIP) study. Annals of Internal Medicine. 2003 Mar 4; 138(5): 372-82.

- 49 Nkonzo-Mtembu LL. An investigation of the opinions of black adolescents in the Esikhawini area of Kwa-Zulu in regard to the use and abuse of alcohol. Curationis. 1994 Dec; 17(4): 50-3.
- 50 Miller KE, Hoffman JH, Barnes GM, Farrell MP, Sabo D, Melnick MJ. Jocks, gender, race, and adolescent problem drinking. Journal on Drug Education. 2003; 33(4): 445-62.
- 51 Nelson TF, Wechsler H. Alcohol and College Athletes Medicine and Science in Sports and Exercise. 2001; 33(1): 43-47.
- McElligott-Tangney P, Morrissey PA. Nutrition and lifestyle survey of 15-17
 year old second level school pupils in the Cork city area. Irish Medical Journal.
 2001 Feb; 94(2): 43-4.
- 53 Clancy C. Public disorder in Ireland-An Garda Siochana Response. In: Alcohol Policy-A Public Health perspective Proceeding of the International Conference, Dublin.
- 54 Mayor S. Alcohol and drug misuse sweeping world says WHO. British Journal of Medicine 2001 February: 322-499.
- 55 Bjarnason T, Andersson B, Choquet M, Elekes Z, Morgan M, Rapinett G. Alcohol culture, family structure and adolescent alcohol use: multilevel modeling of frequency of heavy drinking among 15-16 year old students in 11 European countries. Journals of the Studies of Alcohol. 2003 Mar; 64(2): 200-8.
- 56 Parry CD, Bhana A, Myers B, Pluddemann A, Flisher AJ, Peden MM, Morojele NK. Alcohol use in South Africa: findings from the South African Community Epidemiology Network on Drug use (SACENDU) Project. Journals of Studies of Alcohol. 2002 Jul; 63(4): 430-5.
- 57 O'Farrell Anne. Ireland and its Drink Problem: The Immediate Adverse Effects of Binge Drinking in Ireland. Irish Medical Journal. June 2004:165-166.
- 58 Gill JS. Reported levels of alcohol consumption and binge drinking within the UK undergraduate student population over the last 25 years. Alcohol 2002 Mar-Apr; 37(2): 109-20.
- 59 Wechsler H, Dowdall GW, Davenport A, Castillo S. Correlates of student binge drinking. American Journal of Public Health 1995;85:921-926

- 60 Knight JR, Wechsler H, Kuo M, Seibring M, Weitzman ER, Schuckit MA. Alcohol Abuse and Dependence among U.S. College Students. Journal of Studies on Alcohol. 2002; 63(3): 263-270.
- 61 Clapp JD, Shillington AM, Segars LB. Deconstructing Contexts of Binge Drinking Among College Students. American Journal of Drug and Alcohol Abuse. February 2000:2.
- Paschall MJ. College attendance and risk-related driving behavior in a national sample of young adults. Journal of the Studies of Alcohol. 2003 Jan; 64(1): 43-49.
- 63 Hingson R, Heeren T, Zakocs RC, Kopstein A, Wechsler H. Magnitude of Alcohol-Related Mortality and Morbidity Among U.S. College Students Ages 18-24 Journal of Studies on Alcohol. 2002; 63(2): 136-144.
- Hingson R, Heeren T, Zakocs RC, Kopstein A, Wechsler H. Magnitude of
 Alcohol-Related Mortality and Morbidity Among U.S. College Students Ages
 18-24 Journal of Studies on Alcohol. 2002; 63(2): 136-144.
- 65 Wechsler H, Moeykens B, Davenport A, Castillo S, Hansen J. The Adverse Impact of Heavy Episodic Drinkers on Other College Students Journal of Studies on Alcohol. 1995; 56: 628-634.
- 66 Mohler-Kuo M, Dowdall GW, Koss MP, Weschler H. Correlated of Rape while intoxicated in a National Sample of College Women. Journal of the Studies of Alcohol 2004; 65:37-45.
- 67 Weitzman, Elissa R. Poor Mental Health, Depression, and Associations With Alcohol Consumption, Harm, and Abuse in a National Sample of Young Adults in College. Journal of Nervous & Mental Disease. April 2004; 192(4): 269-277.
- 68 O'Neill SE, Parra GR, Sher KJ. Clinical relevance of heavy drinking during the college years: cross-sectional and prospective perspectives. Psychol Addict Behav 2001 Dec;15(4):350-9.
- Williams J, Powell LM, Wechsler H. Does Alcohol Consumption Reduce Human Capital Accumulation? Evidence from the College Alcohol Study.
 Applied Economics. 2003; 35(10): 1227-1239.
- Baer JS, Kivlahan DR, Blume AW, McKnight P, Marlatt GA. Brief intervention for heavy-drinking college students: 4-year follow-up and natural history. Journal of Study of Alcohol 2003 Jan;64(1): 23-31.

- 71 Brown RL, Saunders L, Bobula JA, Martha HL. Remission of alcohol disorders in primary care patients. Does diagnosis matter? Journal of Family Practice 2000; 49:522-528.
- 72 Goodwill D.W, Schulsinger F, Moller N, Hermansen L, Winokur G, Guze S.B. Drinking problems in adopted and non- adopted sons of alcoholics. Archives of General Psychiatry 1974; 31: 164-169.
- 73 Dawson DA. The link between family history and early onset of alcoholism: earlier initiation of drinking or more rapid development of dependence? Journal of Studies on Alcohol 2000; 61(5): 637-646.
- 74 Casas-Gil MJ, Navarro-Guznman JI. School characteristics among children of alcoholic parents. Psychology Reports 2002; 90(1): 341-348.
- Poon E, Ellis DA, Fitzgerald HE, Zucker RA. Intellectual, cognitive and academic performance among sons of alcoholics during the early school years:
 Differences related to subtypes of familial alcoholism. Alcoholism: Clinical and Experimental Research 2000; 24(7): 1020-1027.
- 76 Obot IS, Wagner FA, Anthony JC. Early onset and recent drug use among children of parents with alcohol problems. Data from a national epidemiological survey. Drug and Alcohol Dependence 2001; 65(1): 1-8.
- 77 Dawson DA. The link between family history and early onset of alcoholism: earlier initiation of drinking or more rapid development of dependence? Journal of Studies on Alcohol 2000; 61(5): 637-646.
- Fischer KE, Kittleson M, Ogletree R, Welsheimer K, Woehlke P, Benshoff J.
 The relationship of parental alcoholism and family dysfunction to stress among college students. Journal of American College Health 2000 Jan; 48(4): 151-156.
- 79 MacPherson PS, Stewart SH, McWilliams LA. Parental problem drinking and anxiety disorder symptoms in adult offspring: examining the mediating role of anxiety sensitivity components. Addictive Behavior 2001 Nov-Dec: 26(6): 917-934.
- 80 Baer JS. Student factors: Understanding Individual variation in College Drinking. Journal of the Studies of Alcohol 2002; 14:40-53.

- 81 Engs RC. Family background of alcohol abuse and its relationship to alcohol consumption amongst college students: An unexpected finding. Journal of the Study of Alcohol 1990 ;51:542-547.
- 82 Alterman AI, Searles JS, Hall JG. Failure to find differences in drinking behavior as a function of familial risk for alcoholism: A replication. Journal abnormal Psychology 1989;98: 50-53.
- 83 Havey JM, Dodd DK. Variables associated with alcohol abuse amongst selfidentified collegiate COAs and their peers. Addictive behaviour1993; 18: 567-575.
- 84 Kushner MG, Sher KJ, Erickson DJ. Prospective analysis of the relationship between DSM-III anxiety disorders and alcohol use disorders. American Journal of Psychiatry 1999; 156: 723-732.
- Perkins HW, Berkowitz AD. Collegiate COAs and alcohol abuse: Problem drinking in relation to assessments of parent and grandparent alcoholism. Journal of Counsel and Development 1991; 21:237-240.
- 86 Pullen LM. The relationships among alcohol abuse in college students and selected psychological/ demographic variables. Journal of Alcohol and Drug Education 1994; 40(1): 36-50.
- Rodney HE, Rodney L. An exploratory study of African American collegiate adult children of alcoholics. Journal of American College Health 1996; 44:267-272.
- 88 Kushner MG, Sher KJ, Erickson DJ. Prospective analysis of the relationship between DSM-III anxiety disorders and alcohol use disorders. American Journal of Psychiatry 1999; 156: 723-732.
- 89 Weitzman ER, Wechsler H. Alcohol Use, Abuse and Related Problems Among Children of Problem Drinkers, Findings From A National Survey of College Alcohol Use. Journal of Nervous and Mental Disease 2000. 188:148-154.
- 90 Turrisi R, Jaccard J, Taki R, Dunham H, Grimes J. Examination of the shortterm efficacy of parent intervention to reduce college student drinking tendencies. British Journal of Medicine 2001; Feb: 322-449.
- 91 Turrisi R, Jaccard J, Taki R, Dunham H, Grimes J. Examination of the shortterm efficacy of parent intervention to reduce college student drinking tendencies. British Journal of Medicine 2001; Feb:322-449.

- 92 M. F. Fleming, K. L. Barry, L. B. Manwell, K. Johnson and R. London. Brief physician advice for problem alcohol drinkers. A randomised controlled trial in community-based primary care practices. Journal of the American Medical Association. 1997 April (2); 13:277.
- 93 Gill JS. Reported levels of alcohol consumption and binge drinking within the UK undergraduate student population over the last 25 years. Alcohol 2002 Mar-Apr; 37(2): 109-20.
- 94 O'Neill SE, Parra GR, Sher KJ. Clinical relevance of heavy drinking during the college years: cross-sectional and prospective perspectives. Psychol Addict Behav 2001 Dec; 15(4): 350-359.
- Baer JS, Kivlahan DR, Blume AW, McKnight P, Marlatt GA. Brief intervention for heavy-drinking college students: 4-year follow-up and natural history. Journal of Study of Alcohol 2003 Jan;64(1): 23-31.
- 96 Grant BF. Estimates of US children exposed to alcohol abuse and dependence in the family. American Journal of Public Health 2000 90(1): 112-115.
- 97 Murray M, McMillian C. Problem drinking in Northern Ireland: survey using the CAGE questionnaire. Alcohol Alcohol 1993 Jul; 28(4): 477-483.
- Hearne R, Connolly A, Sheehan J. Alcohol abuse: prevalence and detection in a General hospital. Journal of the Royal Society of Medicine 2002 Feb;95(2):
 84-7.
- 99 Fiellin DA, Reid MC, O'Connor PG. Screening for alcohol problems in primary care: a systematic review. Arch Intern Med. 2000 Jul 10; 160(13): 1977-89.
- 100 Aertgeerts B, Buntinx F, Bande-Knops J, Vandermeulen C, Roelants M, Ansoms S, Fevery J. The value of CAGE, CUGE, and AUDIT in screening for alcohol abuse and dependence among college freshmen. Alcohol Clin Exp Res 2000 Jan; 24(1): 53-59.
- 101 Aertgeerts B, Buntinx F, Bande-Knops J, Vandermeulen C, Roelants M, Ansoms S, Fevery J. The value of CAGE, CUGE, and AUDIT in screening for alcohol abuse and dependence among college freshmen. Alcohol Clin Exp Res 2000 Jan; 24(1) :53-59.
- 102 Aertgeerts B, Buntinx F, Bande-Knops J, Vandermeulen C, Roelants M, Ansoms S, Fevery J. The value of CAGE, CUGE, and AUDIT in screening for

alcohol abuse and dependence among college freshmen. Alcohol Clin Exp Res 2000 Jan; 24(1): 53-59.

- 103 Fiellin DA, Reid MC, O'Connor PG. Screening for alcohol problems in primary care: a systematic review. Arch Intern Med. 2000 Jul 10; 160(13): 1977-89.
- 104 Fiellin DA, Reid MC, O'Connor PG. Screening for alcohol problems in primary care: a systematic review. Arch Intern Med. 2000 Jul 10; 160(13): 1977-89.
- 105 Sheridan MJ. A psychometric assessment of the Children of Alcoholics Screening Test (CAST). J Stud Alcohol 1995 Mar; 56(2): 156.
- 106 Clair DJ, Genest M. The Children of Alcoholics Screening Test: reliability and relationship to family environment, adjustment, and alcohol-related stressors of adolescent offspring of alcoholics. J Clin Psychol 1992 May; 48(3): 414-20.
- 107 Cuijpers P, Smit F. Assessing parental alcoholism: a comparison of the family history research diagnostic criteria versus a single-question method. Addictive Behaviour 2001 Sep-Oct; 26 (5): 741-748.
- 108 Clarke R, Croft P. Critical reading for the Reflective Practitioner. A Guide to Primary Care. Butterworth, Heinmann.1998:105.
- 109 Baer JS, Kivlahan DR, Blume AW, McKnight P, Marlatt GA. Brief intervention for heavy-drinking college students: 4-year follow-up and natural history. Journal of Study of Alcohol 2003 Jan; 64(1): 23-31.
- 110 Fiellin DA, Reid MC, O'Connor PG. Screening for alcohol problems in primary care: a systematic review. Arch Intern Med. 2000 Jul 10; 160(13): 1977-89.
- 111 Aertgeerts B, Buntinx F, Bande-Knops J, Vandermeulen C, Roelants M, Ansoms S, Fevery J. The value of CAGE, CUGE, and AUDIT in screening for alcohol abuse and dependence among college freshmen. Alcohol Clin Exp Res 2000 Jan;24(1) :53-59.
- 112 McWhinney IR. A textbook of Family Medicine. 2nd edition. Oxford university Press 1997:161-162.
- 113 Aertgeerts B, Buntinx F, Bande-Knops J, Vandermeulen C, Roelants M, Ansoms S, Fevery J. The value of CAGE, CUGE, and AUDIT in screening for alcohol abuse and dependence among college freshmen. Alcohol Clin Exp Res 2000 Jan;24(1) :53-59.
- 114 McWhinney IR. A textbook of Family Medicine. 2nd edition. Oxford university Press 1997:166.
- 115 Sheridan MJ. A psychometric assessment of the Children of Alcoholics Screening Test (CAST). J Stud Alcohol 1995 Mar; 56(2): 156.
- 116 Clair DJ, Genest M. The Children of Alcoholics Screening Test: reliability and relationship to family environment, adjustment, and alcohol-related stressors of adolescent offspring of alcoholics. J Clin Psychol 1992 May; 48(3): 414-20.
- 117 Fiellin DA, Reid MC, O'Connor PG. Screening for alcohol problems in primary care: a systematic review. Arch Intern Med. 2000 Jul 10; 160(13): 1977-89.
- 118 Satre DD, Mertens J, Arean PA, Weisner C. Contrasting outcomes of older versus middle-ages and young adult chemical dependence patients in a managed care program. Journal of the Study of Alcohol 2003 Jul; 64 (4): 520-530.
- 119 Brown RL, Saunders L, Bobula JA, Martha HL. Remission of alcohol disorders in primary care patients. Does diagnosis matter? Journal of Family Practice 2000; 49:522-528.
- 120 Brown RL, Saunders L, Bobula JA, Martha HL. Remission of alcohol disorders in primary care patients. Does diagnosis matter? Journal of Family Practice 2000; 49:522-528.
- 121 Jacob T , Leonard K. Family and peer influences in the development of adolescent alcohol abuse. Department of Health and Human Services 1994: 123-155.
- 122 Baer JS, Kivlahan DR, Blume AW, McKnight P, Marlatt GA. Brief intervention for heavy-drinking college students: 4-year follow-up and natural history. Journal of Study of Alcohol 2003 Jan;64(1): 23-31.
- 123 Miller KE, Hoffman JH, Barnes GM, Farrell MP, Sabo D, Melnick MJ. Jocks, gender, race, and adolescent problem drinking. Journal on Drug Education. 2003; 33(4): 445-62.
- 124 Wechsler H, Dowdall GW, Davenport A, Castillo S. Correlates of student binge drinking. American Journal of Public Health 1995; 85:921-926.
- 125 Fiellin DA, Reid MC, O'Connor PG. Screening for alcohol problems in primary care: a systematic review. Arch Intern Med. 2000 Jul 10; 160(13): 1977-89.

- 126 Aertgeerts B, Buntinx F, Bande-Knops J, Vandermeulen C, Roelants M, Ansoms S, Fevery J. The value of CAGE, CUGE, and AUDIT in screening for alcohol abuse and dependence among college freshmen. Alcohol Clin Exp Res 2000 Jan; 24(1): 53-59.
- 127 Grant BF. Estimates of US children exposed to alcohol abuse and dependence in the family. American Journal of Public Health 2000; 90(1): 112-115.
- 128 Weitzman ER, Wechler H. Alcohol use, abuse, and related problems among children of problem drinkers: Findings from a national survey of college alcohol use. Journal of Nervous and Mental Disease 2000; 188(3): 148-154.
- 129 Poon E, Ellis DA, Fitzgerald HE, Zucker RA. Intellectual, cognitive and academic performance among sons of alcoholics during the early school years: Differences related to subtypes of familial alcoholism. Alcoholism: Clinical and Experimental Research 2000; 24(7): 1020-1027.
- 130 Casas-Gil MJ, navarro-Guznman JI. School characteristics among children alcoholic parents. Psychology Reports 2002; 90(1): 341-348.
- 131 Dawson DA. The link between family history and early onset of alcoholism: earlier initiation of drinking or more rapid development of dependence? Journal of Studies on Alcohol 2000; 61(5): 637-646.
- 132 Turrisi R, Jaccard J, Taki R, Dunham H, Grimes J. Examination of the shortterm efficacy of parent intervention to reduce college student drinking tendencies. British Journal of Medicine 2001; Feb: 322-449.