Food-Restricted Alcohol Consumption: Prevalence and Motivators Among Irish College Students

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Abstract

Aims: Food-restricted alcohol consumption (FRAC) is a growing concern across college campuses. Several studies have investigated the prevalence of these behaviours among college students internationally, but no such studies have been conducted in Ireland. The current study investigated the prevalence of FRAC and its motivators in an Irish student population, and examined FRAC in relation to disordered eating and alcohol misuse. Gender differences between these factors were also assessed. **Method:** A total of 178 participants completed online self-reported questionnaires assessing past-year FRAC, demographic characteristics, and levels of disordered eating and alcohol misuse. **Results:** 54% of participants engaged in FRAC to prevent weight gain and 50% engaged in FRAC to get drunk faster. Disordered eating, body dissatisfaction, binge eating, cognitive restraint and restricting were significantly associated with engagement with FRAC, however alcohol misuse was not. More females engaged in FRAC for both motivators, and also engaged in FRAC more frequently than males. Disordered eating was associated with engaging in FRAC more often, but alcohol misuse was not. **Conclusion:** The current findings confirm the prevalence FRAC and its relationship with disordered eating among Irish college students, particularly females. Findings support the need for an increased focus on protective drinking behaviours of Irish college students, particularly for women. Routine screening of eating and drinking issues may decrease the extent of unfavourable consequences of FRAC.

Literature Review

Alcohol misuse and disordered eating are two major concerns in undergraduate student populations today (Berg et al., 2009; Johnston et al., 2016), and there is a high comorbidity between the two (Horvath et al., 2020; Vidot et al., 2016). In recent years, a disturbing trend has been recognised in which students intentionally restrict their food intake prior to drinking alcohol (Eisenberg & Fitz, 2014). This phenomenon has been labelled as Food Restricted Alcohol Consumption (FRAC), or colloquially termed "Drunkorexia" by the popular media (Anna et al., 2013; Hunt & Forbush, 2016, Qi et al., 2021). From the research that has been conducted on FRAC, it is estimated to prevail to a large extent across universities worldwide, approximating from 14% in first year students in the United States, to 79% in female Australian college students (Burke et al., 2010; Choquette et al., 2018; Eisenberg & Fitz, 2014; Knight & Simpson, 2013; Lupi et al., 2017; Osborne et al., 2011; Roosen & Mills, 2015; Wilkerson et al., 2017). Undoubtedly, adopting this behaviour often results in students' exposure to extreme health-risks (Burke et al., 2010; Smith & D'Aniello, 2021; Qi et al., 2021). The current literature review seeks to highlight such health risks while evaluating the existing research on FRAC and the factors which may motivate an individual to engage in the behaviour. These factors will be explored with reference to literature on both disordered eating and hazardous alcohol consumption in an Irish context.

Food Restricted Alcohol Consumption (FRAC): Motivators

The negative alcohol-related consequences associated with FRAC are severe and plentiful, and limiting one's caloric intake before drinking often results in females experiencing blackouts (White, 2003), injury (Eisenberg & Fitz, 2014), and unwanted sexual activity (Giles et al., 2009), and leaves males at a heightened risk of becoming involved in physical fights (Ham & Hope, 2003; Hingson et al., 2005; Lewis & Marchell,

2006). The literature has highlighted two common motivators for caloric restriction prior to drinking alcohol, linking the behaviour to individuals desire to 1) avoid weight gain and 2) enhance alcohol effects (Burke et al., 2010; Qi et al., 2021), with the former motivating factor emerging as more common among college students (Eisenberg & Fitz, 2014). Giles et al., (2009) supported this in findings that among the 39% of college students who reported having restricted food before consuming alcohol in the past month, 67% of them did so due to weight concerns.

This hazardous phenomenon has been investigated in countries such as America, Canada, Italy, France and Australia and has been shown to occur cross-culturally, with variations in the predictors of FRAC presenting among different cultures (Choquette et al., 2018, Knight & Simpson, 2013; Lupi et al., 2017). For example, a study conducted by Choquette et al., (2018) which explored differences in food and alcohol disturbance (FAD) between French and American individuals, found that French participants were more likely to engage in FAD for compensatory purposes in comparison to Americans. Additionally, a study conducted on an Australian sample of female university students found that binge drinking, group social norm of thinness and group social norm of drinking were positively correlated with increased weight-management behaviours in relation to alcohol consumption (Knight & Simpson, 2013), and similar findings were presented in an Italian student sample, with the addition of use of cocaine and Novel Psychoactive Substances as predictors of drunkorexia (Lupi et al., 2017).

To my knowledge, no such studies have investigated FRAC in an Irish context. Thus, the extent to which FRAC occurs, and the motivating factors for Irish students' engagement with it should be examined to increase awareness, and to develop appropriate treatment methods for the behaviour, particularly considering the unique cultural issues we experience with alcohol consumption in Ireland (see below for further discussion).

Furthermore, gender differences should be considered when examining the motivating factors for engaging in FRAC, with a noteworthy proportion of the literature indicating that females are at a greater risk of restricting calories due to weight concerns when compared to males (Barry et al., 2013; Eisenberg & Fitz, 2014; Tuazon et al., 2019).

Disordered Eating

Indeed, research has consistently indicated that females are more likely to experience body dissatisfaction and constantly strive for thinness in comparison to males (Barker & Glambos. 2003; Paxton et al., 1999; Rosenblum & Lewis, 1999). However, body dissatisfaction is not trivial among males (Corson & Andersen, 2002; Pope et al., 2000) and research proposed that around 30% of teenage boys engaged in unhealthy weight-management methods (Croll et al., 2002) and up to 40% of male students engaged in dieting throughout their time in university (Grogan, 1999). Particularly in university students, studies have estimated the prevalence of clinically diagnosed eating disorders (ED's) in females to be as high as 20%, and between 5-10% for males (Yager & O'Dea, 2008). This is before considering subclinical ED's, which are predicted to be much more prevalent than diagnosed ED's, with more than half of female college students engaging in dieting, bingeing and/or purging (Yager & O'Dea, 2008).

Problematically, extant research investigating FRAC among college students has predominantly focused on individuals who were previously clinically diagnosed with an ED (Giles et al., 2009). However, when examining the link between disordered eating patterns and alcohol misuse, it is crucial to include those who are undiagnosed, due to consistent evidence linking dieting and weight-management behaviours to a later official diagnosis of an ED (Leon et al., 1999; Levine & Smolak, 2006). This is emphasized by findings from The National Eating Disorders Association who reported that 20% of university students in the US believed they had an ED, however only 25% of this cohort

ever received treatment (NEDA, 2008). Importantly, across Irish college campuses today, these figures are speculated to be even greater, due to levels of ED's skyrocketing among the young people of Ireland since the beginning of the pandemic, with a 32% rise in adult admissions to psychiatric units for disordered eating in the year 2020, and 20–24-year-olds being the most affected group (Health Research Board, 2021). It is therefore possible that levels of undiagnosed ED's in Irish college students are at an all-time high, which is cause for great concern due to the long lasting physical and mental deleterious effects they can have if left untreated (Burke et al., 2010). It is therefore important to investigate the eating behaviours of Irish college students in relation to alcohol misuse, to achieve the most comprehensive view of the issues this cohort face when exposed to 'norms' of college heavy drinking and calorie restriction, simultaneously (Peralta, 2002).

Hazardous Alcohol Consumption (HAC)

Heavy drinking in college is another major concern across student populations (Bryant et al., 2012; Burke et al., 2010). Out of every five college students, four drink, with half engaging in heavy episodic drinking (denoted as four or more consecutive drinks within two weeks for women, or five or more drinks for men) (O'Malley & Johnston, 2002; Weschler & Kuo, 2000). The severity of this college binge-drinking norm is emphasized by research which identified that among university students, alcohol misuse related disorders were the most common type of disorder (Blanco et al., 2008; Carter et al., 2010). The misuse of alcohol is an issue with which Ireland has a unique and concerning relationship, and 54% of Irish adults are estimated to engage in hazardous alcohol consumption (HAC), while university students account for a large subsection of this figure (Davoren et al., 2015), with under 25 year-olds in Ireland averaging at 28 binge drinking encounters per year in comparison to the national average of 16 (Drinkaware, n.d.). Furthermore, data from the Irish College Lifestyle Attitudinal National Survey indicates

that students engage in HAC at least 60 times in every 100 instances of drinking, emphasizing the acceptance of hazardous drinking as a cultural norm in Ireland (Hope et al., 2005). These findings are corroborated by other Irish research on college drinking norms, and a study examining the drinking patterns of Trinity College Students revealed that 71% of participants reported they had engaged in binge drinking (Drinkaware, n.d.). Further, the Irish Health Survey 2019 (Central Statistics Office, 2020) supported this, acknowledging 15-24 year olds as the most likely to consume 6 or more units of alcohol within one occasion at least once a month, with 48% of these individuals having done so.

This kind of excessive drinking can have tragic outcomes for individuals including alcohol poisoning, injuries, suicide, high blood pressure, violence, drunk driving, and poor academic performance to name a few (Courtney & Polich, 2009; Hingon et al., 2009; Wu et al., 2007). The consequences associated with alcohol abuse in Ireland are alarming, with 10,803 alcohol-related deaths in the 10-year period between 2008-2017 (O'Dwyer et al., 2021). Indeed, the many health and behavioural consequences associated with alcohol misuse are well documented, and when co-current with disordered eating, the results can be devastating for students (Bryant et al., 2012).

Disordered Eating and Alcohol Misuse Comorbidity

Scholars have conclusively demonstrated the co-occurrence of alcohol use disorders and unhealthy eating behaviours (Anderson et al., 2006; Kelly-Weeder, 2011; Khaylis et al., 2009; Luce et al., 2007; Nelson et al., 2009; Piran & Robinson, 2011). Thus, a notable body of literature has indicated that individuals who suffer from disordered eating are not only at a greater likelihood of engaging in other behaviours which compromise their health, but also often experience maximised consequences of substance abuse (Neumark-Sztainer et al., 1998). Further, a meta-analysis conducted by Gadalla & Piran (2007) found a positive relationship between ED's and alcohol misuse in a large

proportion of the studies observed, with the strongest associations among college students. This is supported by findings from Rush et al., (2016), who found that 17% of male and 19% of female American students had co-current problems with disordered eating and alcohol misuse. Undoubtedly, drinking on an empty stomach is the source of many extreme health-risks, with the swift rise in blood alcohol concentration vastly increasing one's risk of blackouts (White, 2003), along with heightened levels of toxicity in the body which often lead to damage to the brain and other organs (Eisenberg & Fitz, 2014).

Further health-related dangers of replacing food calories with those from alcohol include alcohol's nutrient-leaching qualities, and its ability to interfere with metabolic mechanisms and alter blood sugar levels (Burke et al., 2010; Eisenberg & Fitz, 2014; Qi et al., 2021). These outcomes are of particular concern regarding women who by nature are typically lower in weight and have a lower capability of diluting alcohol in the blood due to their reduced capacity to retain water in comparison to men (Burke et al., 2010; Qi et al., 2021). This is before considering their increased vulnerability during blackouts, putting them at a higher social risk of assault or worse (Tuazon et al., 2019). Because of Ireland's culture of acceptance surrounding binge drinking on top of the already dangerous drinking norms that are associated with the college experience, it is important to examine the relationship between high-risk drinking and weight controlling behaviours in an Irish student population to fully understand the dangers faced by Irish youth today.

Demographical Factors

Although factors such as unhealthy eating patterns and alcohol misuse play a large part in predicting engagement with FRAC, it is important to look at a variety of demographic factors to understand the typical characteristics associated with engaging in FRAC. For example, a notable proportion of the literature has acknowledged an apparent greater tendency among college women in comparison to their male counterparts (Barry et

al., 2013; Eisenberg & Fitz, 2014; Giles et al., 2009; Peralta, 2002) to restrict what they eat on the days they are drinking. Researchers maintain that this is because females are more concerned with unreasonable societal pressures to maintain a slim and aesthetically pleasing figure, leaving them with increased concerns regarding body image in comparison to men (Barker & Glambos. 2003; Paxton et al., 1999; Rosenblum & Lewis, 1999). For instance, one study found that almost 50% of female students restricted food before drinking, which was more than 1.5 times the amount of males who reported such behaviours (Barry et al., 2013). These findings are supported by research from Burke et al., (2010) who demonstrated that from the high percentage of women who were more likely to engage in FRAC than men, many reported weight concerns as a reason for doing so. Bryant et al., (2012), expanded on this by identifying that female students had an increased tendency to choose low-fat foods or eat smaller meals to compensate for the calories they planned on drinking later that day. Taken together, these findings suggest that weight concerns can account for gender differences in FRAC, and Eisenberg & Fitz (2014) conducted the first study to empirically demonstrate this, concluding that weight management may be a higher priority for females in comparison to males. Alternatively, rapid intoxication may be a more common motivating factor among males, however no studies have shown empirically whether it can account for gender differences in FRAC (Qi et al., 2021).

However, while gender differences may account for some proportion of the variation in individuals' engagement with FRAC, other demographic variables may also indicate significant relationships with students' likelihood to adopt such behaviours (Griffin & Vogt, 2020; Knight & Simpson, 2013). For example, a study carried out in America found that students of particular ethnic origin (specifically non-Hispanic white

students) were more inclined to engage in FRAC to avoid gaining weight, in comparison to individuals of other ethnicities (Wilkerson et al., 2017).

Furthermore, Qi et al., (2021) reported a lack of research investigating the characteristic of year in college in relation to FRAC. This factor is speculated to have an important impact on FRAC, with first-year students being identified as a high-risk population for engaging in dangerous binge drinking (Larimer & Cronce, 2002), as they undergo a complex period of transition, often presenting cases where individuals leave home to live independently for the first time (Hicks & Heastie, 2008). During this transitory period, many students experience difficulties with adapting to new academic procedures, financial pressures and family strain, often turning to unhealthy eating and/or drinking behaviours as a means of coping (Hicks & Heastie, 2008; Staats et al., 2007). Thus, additional research is required to improve our understanding of the relationship between ethnicity and academic year with FRAC in order to facilitate university staff and parents in identifying patterns of FRAC, and enable them to offer appropriate support for students at risk.

The Current Study

Therefore, the aim of the current study is to determine the prevalence and motivators of FRAC in an Irish student population, while also examining the relationship between FRAC and alcohol misuse and disordered eating. Gender differences among individuals' engagement with and motives for FRAC will also be examined. The target sample of college students in Ireland was selected due to the increased risk at which this cohort are placed (Berg et al., 2009; Eisenberg & Fitz, 2014; Giles et al., 2009), and the lack of research in this area in an Irish context. This study is important as it will help determine the prevalence and motivators of FRAC among Irish students, while also

assessing its relationship with alcohol misuse and disordered eating habits, as a high comorbidity between these factors and FRAC has been largely indicated in the literature (Burke et al., 2010; Bryant et al., 2012; Giles et al., 2009; Qi et al., 2021). Specifically, the research questions in the current study are; to what extent do Irish college students engage in Food Restricted Alcohol Consumption (FRAC), are there differences between those that engage in FRAC and those that do not engage in FRAC on outcomes of alcohol misuse and disordered eating habits, are there differences between genders in levels of FRAC, and in how often males vs females engage in FRAC for 'preventing weight gain' or 'getting drunk faster', and are disordered eating habits and alcohol misuse associated with engaging in more FRAC. The methodology of the current study was informed by earlier investigations evaluating the connection between disordered eating and alcohol consumption among college students (Barry & Piazza-Gardner, 2012).

Based on previous research, it is hypothesised that

(1) There will be differences between those who engage in FRAC and those who do not on levels of both disordered eating and alcohol misuse.
(2) Gender differences will be found for engagement with FRAC, and among those who do engage in FRAC, there will be gender differences in what motivates participants to engage in FRAC (FRAC for weight loss and FRAC to get drunk quicker).
(3) Disordered eating habits and alcohol misuse will predict the frequency or extent to which one engages in FRAC.

Methods

Participants

The sample for the current study consisted of 178 Irish college students. This was calculated using Tabachnick and Fidell (2013) formula for calculating sample size for multiple regression analysis which is as follows: ($N > 50 + 8m$) n = number of participants and m = number of PVs, therefore the minimum sample size for the current study had to be $n = 130$. A convenience sampling, snowball technique was implemented to recruit participants, and a brief description of the study accompanied a link to the questionnaire which was distributed through the researcher's social media account (Instagram). Participants were also encouraged to share the link with any others who met the eligibility criteria to take part. In line with ethical considerations, participants were required to be at least 18 years of age and provide informed consent before completing the questionnaire. The sample of college students in the current study had a mean age of 22 years (SD = 2.74) ranging from 18 years to 43 years. The majority of the sample was female (63.5%; n = 113), White (95%; n = 169) and were in their third (33.1%; n = 59) or fourth year (34.8%; n = 62) of college.

Measures

Demographics. The survey asked participants about gender (male, female, other), age, and ethnicity. Participants were also asked to indicate the stage of college they were currently in (first, second, third, fourth, fifth/postgrad).

Food-restricted alcohol consumption (FRAC). Food-restricted alcohol consumption (FRAC) was defined as "purposefully restricting food intake prior to alcohol consumption during the past year" (Qi et al., 2021). A previous study (Qi et al., 2021) developed four items based on a FRAC measure designed by Burke et al., (2010) to assess whether participants

engaged in FRAC for two reasons and if so, the frequency of this engagement. These four items were used in the current study. The items asked students to answer "*Yes"* or "*No"* in response to "*In the past year, have you eaten less than normal for a day or more before you knew you were going to drink alcohol to save on calories to (1) prevent weight gain* or *(2) get drunk faster.* Students who answered yes to either question were then asked to indicate how many times they engaged in FRAC with response anchors ranging from "*1-2 times*" to "*Every time I drink alcohol"*. See Appendix D for further detail.

Alcohol Misuse. The Alcohol Use Disorders Identification Test (AUDIT) developed by the World Health Organization (1980; Saunders et al., 1993), is a 10-item self-report measure, and was used to assess past-year alcohol consumption. Each item is scored from 0 to 4 with the exception of questions 9 and 10 which have possible responses of 0, 2 and 4. Items are summed to produce a total score which may range from 0 to 40, where 0 indicates an abstainer with no alcohol-related issues, and 8 or more is recommended as an indicator of hazardous drinking (Saunders et al., 1993). Within a sample of college students, the Chronbach's alpha coefficient was 0.75 with a cutoff score of 8 exhibiting a sensitivity of 0.95 and a specificity of 0.93 in the detection of drinkers at an increased risk (see Carretero et al., 2016 for further detail). This scale had acceptable reliability within the current study (α = .78).

Disordered Eating. A revised version of the 45-item Eating Pathology Symptoms Inventory (EPSI; Forbush et al., 2014) scale was used to assess disordered eating among participants within the last month. Out of the eight subscales in this measure, four were selected for the current study, making the disordered eating questionnaire a total of 24 items. The four subscales included body dissatisfaction, binge eating, cognitive restraint and restricting. Items are scored on a 5-point Likert scale, and after summing all relevant subscale items; higher scores indicated higher disordered eating. The EPSI subscales had Chronbach's

alpha coefficients which ranged from 0.77 to 0.91 with the majority of subscales displaying moderate to strong positive correlations (correlation coefficients ranging from 0.30 to 0.72) with other established scales measuring disordered eating, suggesting the scale has good convergent and discriminant validity (Forbush et al., 2014). The refined version of the EPSI scale used in this study had a Chronbach's alpha of .88, with subscale alphas of .92 for body dissatisfaction, .85 for binge eating, .74 for cognitive restraint, and .92 for restricting, each suggesting a high level of internal consistency for this scale.

Design

The present study implemented a quantitative approach with an observational, cross-sectional design. A mixed within and between-groups design was utilized. To investigate the first hypothesis, Mann-Whitney *U* tests examined FRAC as two separate independent variables (FRAC 1) to prevent weight gain and 2) to get drunk faster) with dependant variables alcohol misuse, disordered eating, body dissatisfaction, binge eating, cognitive restraint and restricting. Hypothesis 2 involved Chi-Square tests in which FRAC 1 and 2 were entered alongside gender, and a Mann-Whitney *U* test which assessed FRAC 1 frequency and FRAC 2 frequency (as measured by Q's 2 and 4 on FRAC questionnaire – see Appendix D) with gender as the dependant variable. Finally, to investigate hypothesis 3, a Spearman's Correlation was run which included FRAC 1 frequency and FRAC 2 frequency as scale variables.

Procedure

Data was collected online through a Microsoft Forms survey. The questionnaire utilized for the current study was an anonymous, self-report questionnaire, which was shared on the researcher's social media account (Instagram) through a link. Upon clicking on the link, individuals were provided with a Participant Information Sheet detailing the nature and

purpose of the study, the organisation, the supervisor, and the author to which they may pose questions to regarding the study, should they have any concerns prior to, or following completion of the questionnaire (see Appendix A). On the next page, a consent form informed participants of their option to withdraw from the study at any point within the survey without penalty. To proceed with the questionnaire, participants were required to verify that they were over 18 years of age, and that they consent to voluntarily take part (see Appendix B).

The next page of the survey contained questions surrounding demographic information pertaining to age, gender, ethnicity and year in college (see Appendix C). Participants then answered questions about FRAC (Qi et al., 2021), followed by completing the AUDIT (Saunders et al., 1993), and lastly the refined version of the EPSI (Forbush et al., 2014). The final page of the survey provided participants with a debriefing form which thanked individuals for their participation along with the provision of various helpline numbers to be used in the event that some material may have caused psychological distress to participants (see Appendix G).

Ethical considerations

This research study was approved by the National College of Ireland's Ethics Committee, and all data was collected in accordance with The Psychological Society of Ireland Code of Professional Ethics (2010) and the NCI Ethical Guidelines and Procedures for Research involving Human Participants. Individuals were made aware of risks and benefits of partaking in the study before consent was provided, and participants were informed that there was no incentive to take part. Helplines such as Bodywhys and the Samaritans contact details were included in the debriefing form, should any participant feel psychologically triggered by the material presented in the survey.

Results

Descriptive Statistics

The current data is taken from a sample of 178 participants (*n* = 178). This consisted of 63.5% females (*n* = 113), 36% males (*n* = 64) and 0.6% other (*n* = 1). The majority of the sample 95% (*n* = 169) was white, 4% (*n* = 7) were black, one participant 1% (*n* = 1) was hispanic, and one (1%) was of mixed ethnicity (*n* = 1). A large proportion of the sample, 33.1%, were in their third (*n* = 59) or fourth (34.8%, *n* = 62) year of college, with the remaining participants reporting as 6.7% first years (*n* = 12), 7.3% second years (*n* = 13), and 18% in fifth year/postgraduate stage (*n* = 32). Over half (54%, *n* = 96) of participants reported engaging in FRAC to prevent weight gain, and out of those who did, most of them (13.5%) reported doing so every time they drank alcohol (*n* = 24). 50% of participants (*n* = 89) engaged in FRAC to get drunk faster, and most of this cohort equally reported doing so either 3-5 times or more than 10 times in the past year (12.4%, *n* = 22). More than half of individuals in the survey (60%, *n* = 107) indicated that they or someone else had been injured as a result of their drinking in the past year, yet the majority (75.8%) indicated that no relative, friend, doctor or other health worker had expressed concerns about their drinking (*n* = 135).

Table 1

Frequencies for the current sample in demographic variables, FRAC for two motivators along with frequencies, injury to oneself or others due to drinking, and concerns about one's drinking behaviours in the past year, N=178

Variable	N	Valid Percentage
Gender		
Female	113	63.5
Male	64	36
Other	1	.6
Ethnicity		
White	169	63.5
Black/Black Irish/African American	7	3.9
Hispanic	1	.6
Mixed Ethnicity	1	.6
Year in college		
First	12	6.7
Second	13	7.3
Third	59	33.1
Fourth	62	34.8
Fifth/Postgraduate	32	18
FRAC to prevent weight gain		
Yes	96	53.9
No	82	46.1
Frequency		
1-2 times	23	21.1
3-5 times	20	18.3
6-10 times	20	18.3

More than 10 times	22	20.2
Every time I drink alcohol	24	22
FRAC to get drunk faster		
Yes	89	50
No	89	50
Frequency		
1-2 times	25	24.3
3-5 times	22	21.4
6-10 times	19	18.4
More than 10 times	22	21.4
Every time I drink alcohol	15	14.6
Injury to oneself or others due to drinking behaviours		
No	71	39.9
Yes, but not in the last year	53	29.8
Yes, during the last year	54	30.3
Concerns from others about drinking behaviours		
No	135	75.8
Yes, but not in the last year	15	8.4
Yes, during the last year	28	15.7

Means (*M*) and standard deviations (*SD*) for all continuous variables are presented in Table 2. Participants had a mean age of 22 years (*SD* = 2.74), ranging from 18 to 43. Preliminary analyses were conducted to ensure no violation of the assumptions of

normality; all continuous variables except disordered eating presented significant results ($p < .05$) on the Kolmogorov-Smirnov statistic, indicating the data for these variables are non-normally distributed. Inspection of histograms indicated the data are positively skewed, and observation of box plots revealed two outliers. It was however observed that the responses obtained were within the boundaries of possible answers on the measures, and the appearance of these outliers may be caused by the apparent homogeneity of the current sample. In line with statistical guidelines for non-normally distributed data, non-parametric tests were utilized to conduct the analyses in the current study.

Table 2

Descriptive statistics for all continuous variables, N=178

Variable	Mean	SD	Minimum	Maximum
Age	22	2.74	18	43
Alcohol misuse	22.73	4.95	10	35
Disordered eating	67.26	15.25	34	118
Body dissatisfaction	21.87	7.49	7	35
Binge eating	23	6.31	10	40
Cognitive restraint	8.85	3.06	3	15
Restricting	13.54	6.10	6	30

Inferential Statistics

To test all three hypotheses, non-parametric tests including Mann-Whitney *U*, Chi-Square, and Spearman Rank Order Correlation analyses were run.

Hypothesis 1

Firstly, Mann-Whitney *U* tests were conducted to determine whether there were differences between those that engage in FRAC and those that do not on outcomes of alcohol misuse and disordered eating.

The first Mann-Whitney *U* analysis assessed engagement with FRAC for weight-control purposes in relation to six variables. The test revealed significant differences in those who did (n = 96) and did not (n = 82) engage in FRAC for weight concerns in five of the six variables, with a non-significant result presenting for alcohol misuse (p = .697). In accordance with Cohen's (1988) criteria for effect size, a medium to large effect size (r = .45) was discovered for disordered eating (p <.001), and a medium effect size for body dissatisfaction (r = .37, p <.001) and cognitive restraint (r = .33, p <.001) was found. Small to medium effect sizes for binge eating (r = .25, p = .001) and restricting (r = .21, p = .004) were also found. Results indicate that individuals who engaged in FRAC to prevent weight gain have higher levels of disordered eating, body dissatisfaction, cognitive restraint, binge eating and restricting tendencies than those who do not. Mann-Whitney *U* results for all variables, and medians for variables presenting significant results are displayed in Table 3 below.

Table 3

Mann Whitney U results for levels of six variables in relation to engaging in FRAC to prevent weight gain

Variable	*U*	*p*	*r*	*Md*	
				Yes	*No*
1. Alcohol Misuse	3723	.697			
2. Disordered Eating	1871	<.001***	0.45	74	58
3. Body Dissatisfaction	2267	<.001***	0.37	25	18
4. Binge Eating	2798	.001**	0.25	23.5	20
5. Cognitive Restraint	2422	<.001***	0.33	10	8
6. Restricting	2964	.004**	0.21	13	11

Note: N = 178; Statistical significance: *p < .05; **p < 0.1 ***p < .001

A second Mann-Whitney *U* test assessed individuals' engagement with FRAC to get drunk faster in relation to the same six variables. There was an equal split (50%, *n* = 89) within the sample of individuals who engaged in FRAC to get drunk faster and those who did not. Significant differences between the two groups were revealed for four of six variables, with non-significant results presenting in alcohol misuse ($p = .317$) and cognitive restraint ($p = .694$). Small to medium effect sizes were revealed for binge eating ($r = .27$, $p < .001$) and restricting ($r = .26$, $p < .001$), and a medium effect size was observed for both disordered eating ($r = .38$, $p < .001$) and body dissatisfaction ($r = .31$, $p < .001$). Results suggest that individuals who engage in FRAC to get drunk faster have higher levels of disordered eating, body dissatisfaction, binge eating, and restricting, but not in alcohol misuse or cognitive restraint. Mann-Whitney *U* results for all variables, and medians for variables displaying significant results are shown in Table 4 below.

Table 4

Mann Whitney U results for levels of six variables in relation to engaging in FRAC to get drunk faster

Variable	*U*	*p*	*r*	*Md*	
				Yes	*No*
1. Alcohol Misuse	3534	.317			
2. Disordered Eating	2213	<.001***	0.38	73	60
3. Body Dissatisfaction	2558	<.001***	0.31	25	19
4. Binge Eating	2740	<.001**	0.27	24	21
5. Cognitive Restraint	3826	.694			
6. Restricting	2753.5	<.001**	0.26	13	11

Note: N = 178; Statistical significance: *p < .05; **p < 0.1 ***p < .001

Hypothesis 2

To assess whether there were differences between genders for engagement with FRAC for either motivator (to prevent weight gain or get drunk quicker), two Chi-Square tests were conducted. Additionally, a Mann-Whitney *U* test was performed to investigate how often males and females engaged in FRAC for each motivator. Due to only one individual ($n = 1$) responding "other" in the gender category, this individuals' data was excluded from these analyses.

Firstly, a chi-square test to investigate gender differences in FRAC to prevent weight gain was performed. Preliminary analyses were conducted to ensure no assumptions of the chi-square test were violated concerning the minimum expected cell frequency.

The current Chi-Square test for independence indicated a significant association between gender and FRAC for weight control purposes, X^2 (1, n = 177) = 14.7, p < .001. This significant association was further explained through examination of the crosstabulation table which revealed most of the females (65.5%, n = 74) in the sample had engaged in FRAC to prevent weight gain and only 34.5% (n = 39) did not, while only 34.4% (n = 22) of males had engaged in FRAC to prevent weight gain while 65.6% (n = 42) had not. The phi coefficient was used to determine a medium effect size (.30) in the current sample. Overall, over half (54.2%, n = 96) of the sample had engaged in FRAC to prevent weight gain during the last year, while 44.8% (n = 81) did not. Results indicate more females engaged in past-year FRAC to prevent weight gain during the last year than males.

A second Chi-Square analysis was performed to assess differences in genders for engaging in FRAC to get drunk faster. Preliminary analyses were performed to ensure no violation of the assumptions of the Chi-Square test. The Chi-Square test for independence indicated a significant association between gender and FRAC to get drunk faster, X^2 (1, n = 177) = .14.8, p < .001. These results, similar to those for weight control purposes, indicated a medium effect size (.30), and over half of the females in the sample (61.1%, n = 69) reported having engaged in FRAC for rapid intoxication in the past year while only 38.9% (n = 44) did not. Contrastingly, only 29.7% (n = 19) of males reported having engaged in FRAC to get drunk faster while the majority (70.3%, n = 45) had not. Overall, almost half of the sample (49.7% n = 88) reported that they had engaged in FRAC for the purpose of getting drunk faster in the past year, while the other half (50.3%, n = 89) did not. Results indicate that more females engaged in FRAC to get drunk faster than males during the last year.

A Mann-Whitney *U* test was conducted assess how often females engage in FRAC with the intention of 1) preventing weight gain or 2) getting drunk faster, in comparison to males. Higher mean scores were observed within the female group of the sample for FRAC to prevent weight gain (M = 56.88, n = 81) compared to males (M = 49.57, n = 28). Females also scored higher in mean values for FRAC to get drunk faster (M = 52.76, n = 78) than males (M = 47.42, n = 24). Although results for either motivator were not of statistical significance (p = .28, p = .43) results indicate that females reported engaging in FRAC behaviours more frequently throughout the past year than males. *U* values and full details for the Mann-Whitney *U* test can be seen in Table 5 below.

Table 5

Mann-Whitney U results for each gender's frequency of engaging in FRAC for two motivators during the past year

Variable	*N*	Mean Rank	*U*	*P*
FRAC to prevent weight gain			982	.28
Females	81	56.88		
Males	28	49.57		
FRAC to get drunk faster			838	.43
Females	78	52.76		
Males	24	47.42		

Note: N = 177; Statistical significance: *p < .05; **p < 0.1 ***p < .001

Hypothesis 3

Finally, a correlation matrix examining relationships between all continuous variables was conducted to investigate whether disordered eating habits and alcohol misuse are associated with engaging in FRAC more often. In line with guidelines for

conducting data analyses on non-normally distributed data, a Spearman Rank-Order correlation coefficient was conducted. There was a significant, moderate, positive correlation between the two variables frequency of FRAC to prevent weight gain and disordered eating ($r_s = .346$, $n = 109$, $p < .001$). This indicates that the two variables share approximately 12% of the variance in common. There was also a significant, weak, positive correlation between disordered eating and frequency of FRAC to get drunk quicker ($r_s = .217$, $n = 103$, $p < .05$). Results indicate that higher levels of disordered eating tendencies are associated with a more regular engagement with FRAC for both motives. A non-significant correlation between alcohol misuse and both frequency of FRAC to prevent weight gain and frequency of FRAC to get drunk quicker was found, see table 6 below for full details of correlations between all continuous variables.

Table 6

Spearman's correlations for levels of past-year engagement with FRAC for two motivators and all continuous variables

Variable	1	2	3	4	5	6	7	8
1. FRAC to prevent weight gain	1							
2. FRAC to get drunk quicker	.50***	1						
3. Alcohol Misuse	.05	.10	1					
4. Disordered Eating	.35***	.22*	-.02	1				
5. Body Dissatisfaction	.33***	.27**	-.14	.86***	1			
6. Binge Eating	.05	.19	.17*	.56***	.38***	1		
7. Cognitive Restraint	.32**	.09	.00	.47***	.34***	.07	1	
8. Restricting	.24*	-.02	-.04	.59***	.34***	-.04	.24**	1

Note: N = 178; Statistical significance: *p < .05; **p < 0.1 ***p < .001

Discussion

Food-Restricted Alcohol Consumption is an increasingly common health concern among college students (Roosen & Mills, 2015). Drawing from prior research, this study sought determine the prevalence of and reasons for engaging in FRAC in an Irish student population, and to examine whether there was a relationship between FRAC and alcohol misuse (AM) and disordered eating (DE) within Irish students. This study also sought to determine whether gender differences existed for engagement, and reasons for engagement with FRAC. It is concerning that 96 students (54%) within the current sample engaged in FRAC to control their weight within the past year, and that when asked how frequently they did so, the highest possible option; "every time I drink alcohol" received the most responses (n = 24). Additionally, with the intention to get drunk faster, 50% of students (n = 89) reported doing so more than 10 times within the past year. This indicates that FRAC was a routine element in over half of students' drinking experiences.

To understand the compensatory behaviours that comprise FRAC better, we assessed whether there were significant differences between those who did and did not engage in FRAC on levels of both DE and AM. Results partly supported hypothesis 1, revealing that individuals who engaged in FRAC for both motives had significantly higher levels of DE, body dissatisfaction, binge eating, and restricting than those who did not. These findings are corroborated by previous studies on FRAC (Gorrell et al., 2019; Hunt & Forbush, 2016; Michael & Witte, 2020; Qi et al., 2021) and therefore imply similarities between college samples in other countries and Irish college students in the development co-current dangerous drinking and DE. Due to previous research, it is unsurprising that individuals who engaged in FRAC for weight control also experienced problems with DE. These compensatory behaviours, such as the urge to conform to social standards on body image, may be linked to underlying disordered eating pathology (Michael & Witte, 2020).

Students' qualitative reports described an interaction between cultural pressures to drink alcohol and similar beauty standard pressures, both of which students felt the need to conform to (Peralta, 2002). Thus, in a society centred around social media, 'influencers', and Tik-Tok trends which endorse different body types each month, it is likely that for young people in Ireland, drinking behaviours and attempts to adhere to beauty standards may reinforce each other in a society perhaps more body-image focused than ever before (Vandenbosch et al., 2022). The strong association between FRAC and DE, body dissatisfaction, binge eating, and restricting found in the current study suggest FRAC is a definitive health issue affiliated with numerous health symptoms. Future research should investigate the relationship between FRAC and other psychiatric symptoms such as depression, anxiety, stress, and suicidality among Irish students, to achieve a more comprehensive view of the psychiatric symptoms associated with the behaviour.

Contrary to hypothesis 1, levels of AM did not differ between individuals who did and did not engage in FRAC. These results were surprising due to previous findings linking FRAC to alcohol use disorders (Gorrell et al., 2019; Hunt & Forbush, 2016; Michael & Witte, 2020). One explanation for this may be that because a core element of FRAC is reducing caloric intake, regardless of motive, an AM disorder may not necessarily be present but rather the dangerous effects of alcohol that follow from engaging in FRAC are a haphazard, unwanted result (Thompson-Memmer et al., 2018). Another reason could be that overall, the current sample indicated a large extent of past-year dangerous drinking with an average mean of 22 on the AUDIT scale on which a score of 15 or more indicates the likelihood of alcohol dependence, therefore results for AM remained high for most individuals, regardless of whether they engaged in FRAC or not. Alternatively, the current null findings between AM and FRAC may be attributed to measurement issues which can be improved upon in future studies, and a qualitative

research design may achieve a more comprehensive account of the thoughts and behaviours surrounding drinking among Irish students. However, problematic drinking was apparent within the current sample, in fact, 30% of individuals reported having injured themselves or others during the last year because of their drinking behaviours, and 15% received communication from another person expressing concerns about their drinking habits. Irish students should be aware that not only does alcohol erase extra brain cells responsible for storing memories, but eradicates ones that are responsible for later learning and cognitive functions (Brennan et al., 2020). The high level of AM found within the current sample emphasizes the need for educating students on the extremity of the risks that can result from their decisions regarding alcohol.

In support of hypothesis 2, results revealed that for both motives, more females engaged in FRAC than males, and that they did so more regularly. This corroborates previous reports suggesting women are more likely to engage in FRAC than men (Bryant et al., 2012; Eisenberg & Fitz, 2014; Knight & Simpson, 2013). Particularly, our findings that more females were motivated by weight control purposes could be explained by literature demonstrating that generally, more women experience issues with disordered eating than men (Hudson et al., 2007) and are therefore more driven by this motive. However, some studies suggest no difference in motivators of FRAC between the sexes (Burke et al., 2010; Qi et al., 2021). Furthermore, while means were higher for females in FRAC for both motives, males scored nearly as high for the two. Thus, while it is widely accepted that women have historically been obligated to conform to strict beauty norms (Schur, 1986) and may therefore be more motivated to avoid gaining weight, men are also exposed to increasingly rigid beauty standards (Luciano, 2001). Additionally, in college settings, and especially in Irish society where social gatherings are so often centred around drinking along with cultural body-image expectations, drinking behaviours of students

may be shaped by a combination of these factors. Indeed, the literature surrounding FRAC has presented empirical evidence for a relationship between compensatory dietary practices and drinking habits ingrained in a sociocultural environment with conflicting standards and norms (Peralta, 2002). For this reason, and the high scores for DE in males in the current sample, body-image issues among males should not be overlooked, as it is possible they may be more conscious of their physical appearance and likely to manage their weight than society may recognise.

To enhance alcohol effects, our findings that more females were motivated by this factor were supported by previous studies (Pompili & Laghi, 2018; Ward & Galante, 2015). Recent estimates identifying a change in drinking trends among young people, in that young women are increasing their engagement with binge drinking could explain this (ESPAD, 2015). Essentially, some females may restrict their calories to enjoy themselves and experience the effects of alcohol, as opposed to body-image related motives. However, although scores among females were higher for enhancing alcohol effects, males were again, not far behind, and other research on FRAC indicated that more males were driven by this motive (Eisenberg & Fitz, 2014), while other research found no gender differences (Qi et al., 2021). The inconsistency of these results highlights that alcohol misuse and patterns of disordered eating may be prevalent among both male and female students. These findings emphasise the necessity of informing college students, regardless of their gender, about both issues as they are equally exposed to such dangerous behaviours (Qi et al., 2021). While this study was useful in providing insight into sex differences by motives which may inform college staff and parents on risky behaviours of college students, future studies should expand on this by examining gender differences in alcohol misuse and disordered eating for a broader understanding of students' motives for such compensatory behaviours.

In partial support of hypothesis 3, a correlation matrix examining the relationships between all continuous variables revealed that DE habits significantly predicted greater engagement with FRAC for both motives. This indicates that individuals with higher levels of DE engaged in FRAC significantly more often throughout the past year, corroborating previous findings (Hunt & Forbush, 2016; Michael & Witte, 2020). For preventing weight-gain, not only did individuals who took part in more regular FRAC indicate higher levels of DE, but they also experienced more dissatisfaction with their bodies, cognitive restraint, and restricted more. It should be noted that higher DE and body dissatisfaction were also observed in individuals who more frequently restricted their food to get drunk faster, highlighting these two issues as particular concerns. These findings reinforce the severity and complexity of the mental health symptoms that are associated with engaging in FRAC.

Contrary to hypothesis 3, and multiple studies examining FRAC (Gorrell et al., 2019; Hunt & Forbush, 2016; Knight & Simpson, 2013; Michael & Witte, 2020), AM was not a significant predictor of increased FRAC in the current sample. It was, however, positively correlated with FRAC frequency for both motives. Although not significantly, this indicates that individuals who displayed problematic drinking behaviours throughout the past year also engaged in FRAC more often. Given the significance of the relationship between FRAC and DE, and the high levels of AM found in the current sample, the importance of examining how these factors become expressed co-currently in, and affect Irish students is emphasized by the current findings.

Importantly, this kind of co-occurrence between dangerous drinking and eating habits can hinder students' educational attainment (Aertgeerts & Buntinx, 2002; Yanover & Thompson, 2008). Furthermore, while in college, this co-occurrence may develop as an added and unique threat which can be expressed as FRAC. Likewise, both AM and DE

may be predicted by the presence of FRAC (Hunt & Forbush, 2016). For instance, engagement with FRAC places one at a greater likelihood of blacking out, which has been linked to the prediction of eventual alcohol-related injuries among students (Mundt & Zakletskaia, 2012). Therefore, FRAC may be a unique and specific type of comorbid alcohol misuse and disordered eating detected among students which should be addressed to minimize the detrimental outcomes that come with the development of both disorders (Qi et al., 2021).

Practical Implications

Disordered eating or reckless drinking can result in poor grades, health problems, or even death (Rush et al., 2016). This study demonstrates that both female and male Irish college students restricted the calories they consumed from food on days they planned to drink alcohol with the aim of avoiding weight gain or to get drunk faster. This study also shows that disordered eating behaviours can predict these dangerous drinking behaviours. These findings imply the need for awareness and improved prevention methods in Irish colleges.

Based on the current results, Irish college officials may benefit greatly from acknowledging the competing pressures to get drunk and maintain a socially desirable figure that young people in Ireland face today. Designing activities and information to deal with these societal influences may assist young people in meeting both norms in a safe way, for example, implementing a focus on healthy eating (particularly prior to drinking alcohol) and drinking in moderation (Eisenberg & Fitz, 2014). A decrease in FRAC may be observed by implementing the latter approach due to an expected lower caloric intake from alcohol, and may also have the advantage of lessening the negative effects of alcohol use.

The current findings support the need for an increased focus on protective drinking behaviours of Irish college students, particularly for women. Institutions may enforce strong policies as a form of prevention, and Butcher et al., (2013) discovered compelling effects of strong leadership by authority figures in colleges on the reduction of dangerous alcohol consumption. Additionally, Irish college administrators should be informed of the potential interconnection between disordered eating and risky alcohol use among students to facilitate the provision of services which can confront both issues at the same time.

The central implication of this study for treatment is the requirement for structured plans which will deal with both DE and AM, and to address the issue of different experts dealing with alcoholism and eating disorders in separate departments with little communication (Rush et al., 2016). Treatment providers are generally specialized in one specific area, such as substance abuse, but are untrained in issues with disordered eating. However, professionals who are equipped to deal with both issues should be made available on Irish college campuses (Rush et al., 2016). A joining of training programs which expand the competencies of specialists from both fields could facilitate this.

Finally, routine screening of eating and drinking issues may decrease the extent of unfavourable consequences of food-restricted alcohol consumption. Not only health care providers, but college counsellors, lecturers and leaders of student unions should be made aware and trained in necessary and appropriate protocol regarding common eating or drinking problems.

Strengths and Limitations

It is important to acknowledge the strengths of the current study. First, this likely the first study to investigate FRAC or drunkorexia in an Irish context. Second, our analyses of disordered eating were based on a revised version of the Eating Pathology

Symptoms Inventory (Forbush et al., 2013), a scale that has demonstrated evidence for strong discriminant validity along with a more powerful and replicable factor structure in comparison to alternative measures of DE (Forbush et al., 2014). Finally, participants in the current study attended college in Ireland, and the literature has demonstrated the high risk for AM and DE that this cohort face (Larimer & Cronce, 2002; O'Malley & Johnston, 2002).

However, despite the important contribution of the present study regarding FRAC in an Irish context, some limitations should also be considered; firstly, scholars have not yet determined a standard definition of FRAC. Thus, a number of scales have been designed to assess FRAC and implemented across various samples. The scale utilized in the current study was derived from a previous study (Qi et al., 2021) and has not yet been validated. It is therefore essential to acknowledge that the results generated from the current study may not be generalisable to other populations. Second, certain factors, such ethnicity and year in college, which have both been associated with drinking behaviour and may be connected to FRAC (Qi et al., 2021), were not measured. Two other limitations are the self-report and cross-sectional design of the current study which meant we relied on participant recall rather than objectively measuring DE, AM, and FRAC. This reduced the reliability of results, and our ability to make inferences regarding time sequence associations between variables.

Conclusion

A substantial proportion of Irish college students in the current sample engaged in past-year FRAC. The current study implies that more Irish females engage in this behaviour, however it is also highly prevalent among males. This study also found that disordered eating, body dissatisfaction, cognitive restraint and restricting are all

significantly associated with past-year FRAC. College administrators and healthcare providers in Irish colleges should be informed on FRAC and its related consequences for the well-being of students, and medical teams should consider screening for FRAC for students who display patterns of AM and DE. While this study was useful in that it was the first to investigate FRAC in an Irish context, our findings emphasise the need for more research on this phenomenon in Irish student populations. Specifically, future research could utilize a longitudinal design which may provide knowledge surrounding the order of sequence and components that could lead to FRAC, and also examine its long-term effects. Future research may also consider additional psychological, social, and demographical factors that are linked to greater risks of developing both disordered eating and problematic drinking habits such as self-esteem, influence from peers, social media use, and year in college in order to improve attempts at prevention and intervention (Gerbasi et al., 2014; Iannaccone et al., 2015).

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Appendix A

Participation Information Sheet

You are invited to take part in a research study. Before deciding whether to take part, please take the time to read this document, which explains why the research is being done and what it would involve for you. If you have any questions about the information provided, please do not hesitate to contact me using the details at the end of this sheet.

What is this study about?

I am a final year Psychology student at the National College of Ireland. As part of my degree, I am required to conduct an independent research project. I am interested in investigating the extent to which Irish college students restrict their food intake on days they plan on drinking alcohol, and what their reasons for doing so may be. I will be investigating the eating patterns and alcohol misuse tendencies of individuals and comparing them between different genders/groups (ethnicities/years in college) to identify patterns of the behaviour of food-restricted alcohol consumption.

What will taking part in the study involve?

Taking part in the study will involve the completion of a set of questions regarding some demographic details along with your alcohol consumption and eating habits, and should take 2-5 minutes.

Who can take part?

You can take part in this study if you are at least 18 years old and are currently attending college in Ireland.

Do I have to take part?

Participation in this study is voluntary, you do not have to take part and a decision not to take part will result in no consequences. If you do decide to take part, once you have submitted

your questionnaire, it will not be possible to withdraw your data from the study as the questionnaire is anonymous and individual responses cannot be identified.

What are the possible risks and benefits of taking part?

This study will contribute to research that helps us understand the dangers that young Irish people encounter when making decisions around drinking too much and eating too little at the same time. Your contribution of data to this study would be of extreme value and would be hugely appreciated. There is a slight risk of minor feelings of distress surrounding the nature of this study, however no major distress is expected to be caused by the questions asked.

Will taking part be confidential and what will happen to my data?

The results of this study will be confidential and remain anonymous. Data stored on SPSS for analysis will also be encrypted and password protected to ensure protection of the participants identity. Data will be retained and managed in accordance with the NCI data retention policy.

What will happen to the results of the study?

The results of this study will be presented in my final dissertation, which will be submitted to National College of Ireland. The final dissertation will be submitted to examiners to be graded, and will also be presented orally in National College of Ireland.

Who should you contact for further information?

For further information, please do not hesitate to contact the researcher, Susie Boyle at X20515299@student.ncirl.ie or susieboyle95@yahoo.com

Appendix B

Consent Form

I understand that the information I provide when answering this survey will be anonymous and will be used for research purposes only.

I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.

I understand that even if I agree to participate now, I can withdraw my data at any point before submission of the questionnaire or refuse to answer any question without consequences of any kind.

I understand that once I have submitted my completed questionnaire, I cannot withdraw my data as it is anonymous and will be impossible to identify.

I understand that results from the tests for this study will be retained in SPSS until the exam board confirms the results of their dissertation.

I understand that my data will be retained and managed in accordance with the NCI data retention policy, and that my anonymised data may be archived on an online data repository and may be used for secondary data analysis. No participants data will be identified at any point.

I agree to answer the questions asked truthfully, and to the best of my knowledge. I am aware that my participation is completely voluntary, and I will receive no direct benefits from my decision to participate.

Required Question*

☐ I verify that I am over 18 years of age and voluntarily consent to take part in this study

Appendix C

Demographics

How old are you? _____

Are you

- Male
- Female
- Other

What ethnicity are you?

- White
- Black/Black Irish/African American
- Asian/Asian Irish
- Hispanic
- Mixed Ethnicity

What year of college are you in currently?

- First
- Second
- Third
- Fourth
- Fifth/Postgrad +

Appendix D

Food-Restricted Alcohol Consumption (FRAC)

Qi, Humphrey, Bulik, Baker & Munn-Chernoff (2021)

Response Anchors

Response options to questions 1 and 3:

- Yes
- No

Response options to questions 2 and 4:

- 1–2 times
- 3–5 times
- 6–10 times
- More than 10 times
- Every time drink alcohol

Questions

1. In the past year, have you eaten less food than normal for a day or more before you knew you were going to drink alcohol to save on calories or to prevent weight gain?

If yes,

2. In the past year, how many times have you eaten less food than normal when you were going to drink alcohol to save on calories or to prevent weight gain?
3. In the past year, have you eaten less food than normal for a day or more before you knew you were going to drink alcohol to get drunk faster?

If yes,

4. In the past year, how many times have you eaten less food than normal to get drunk faster?

Appendix E

Alcohol Use Disorders Identification Test (AUDIT)

Saunders, Aasland, Babor, De La Fuente & Grant (1993)

Please select the answer that is correct for you

Response Anchors

For items 1-8

- Never
- Monthly or less
- Two to four times a month
- Two to three times a week
- Four or more times a week

For items 9 and 10

- No
- Yes, but not in the last year
- Yes, during the last year

Items

1. How often do you have a drink containing alcohol?

2. How many drinks containing alcohol do you have on a typical day when you are drinking?

3. How often do you have six or more drinks on one occasion?

4. How often during the last year have you found that you were not able to stop drinking once you had started?

5. How often during the last year have you failed to do what was normally expected from you because of drinking?

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

7. How often during the last year have you had a feeling of guilt or remorse after drinking?

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

9. Have you or someone else been injured as a result of your drinking?

10. Has a relative or friend, or a doctor or other health worker been concerned about your drinking or suggested you cut down?

Scoring

The AUDIT has 10 questions and possible responses to each question are scored 0, 1, 2, 3 or 4, with the exception of questions 9 and 10 which have possible responses of 0, 2 and 4. Scores are summed and the range of possible scores is from 0 to 40. A score of 1 to 7 indicates low-risk consumption, scores 8-14 indicate hazardous alcohol consumption, and a score of 15 or more indicates the likelihood of alcohol dependence (World Health Organization, 1992).

Appendix F

The Eating Pathology Symptoms Inventory (EPSI) (Revised)

Forbush, Wildes, Pollack, Dunbar, Patterson, Petruzzi, Pollpeter, Miller, Stone, Bright & Watson (2013)

Below is a list of experiences and problems that people sometimes have. Read each item to determine how well it describes your recent experiences. Then select the option that best describes how frequently each statement applied to you during the past four weeks, including today. Use this scale when answering:

0 = Never

1 = Rarely

2 = Sometimes

3 = Often

4 = Very Often

1. I tried to exclude “unhealthy” foods from my diet

2. I did not like how clothes fit the shape of my body

3. I snacked throughout the evening without realizing it

4. I did not like how my body looked

5. I ate when I was not hungry

6. I was not satisfied with the size of my hips

7. I tried to avoid foods with high calorie content

8. People told me that I do not eat very much

9. I did not notice how much I ate until I had finished eating

10. I ate until I was uncomfortably full

11. I snacked throughout the evening without realizing it

12. I tried on different outfits, because I did not like how I looked

13. I got full after eating what most people would consider a small amount of food

14. I stuffed myself with food to the point of feeling sick

15. I skipped two meals in a row

16. I counted the calories of foods I ate

17. People would be surprised if they knew how little I ate

18. I ate as if I was on auto-pilot

19. If someone offered me food, I felt that I could not resist eating it

20. I did not like the size of my thighs

21. I ate a very large amount of food in a short period of time (e.g., within 2 hours)

22. I got full more easily than most people

23. People encouraged me to eat more

24. I thought my butt was too big

Scoring

Each item is scored on a 5-point Likert-style scale (0 = Never; 4= Often) to describe how well each item describes the participant's experiences. Scores are derived by summing responses across the questions included in each subscale.

Appendix G

Debriefing Sheet

I would like to thank you immensely for participating in this study. Your contribution is hugely appreciated and will greatly assist in the research process. Your contribution will now be included in the analysis of all data obtained for this study and will be considered as unique and valuable information. It will help to provide a clearer picture of the factors associated with food-restricted alcohol-consumption among Irish college students and how prevalent it is.

At this point, it is not possible to withdraw your data from the study as it is completely anonymous and therefore cannot be identified. However, your data will be treated with complete confidentiality and will be stored in a password-protected file on the researcher's computer which only the researcher will have access to.

It is my hope that your participation in this study was a pleasant experience, however should you be experiencing any feelings of negative affect after participating, I have provided some helpline contacts below. I have also included my own contact details should you wish to reach out with any questions or concerns about the study.

Thank you.

The Researchers Contact information:

Email: Personal- susieboyle95@yahoo.com College-X20515299@student.ncirl.ie

Help Services:

Bodywhys: The Eating Disorders Association of Ireland: Helpline: 01-2107906 or

Email: alex@bodywhys.ie

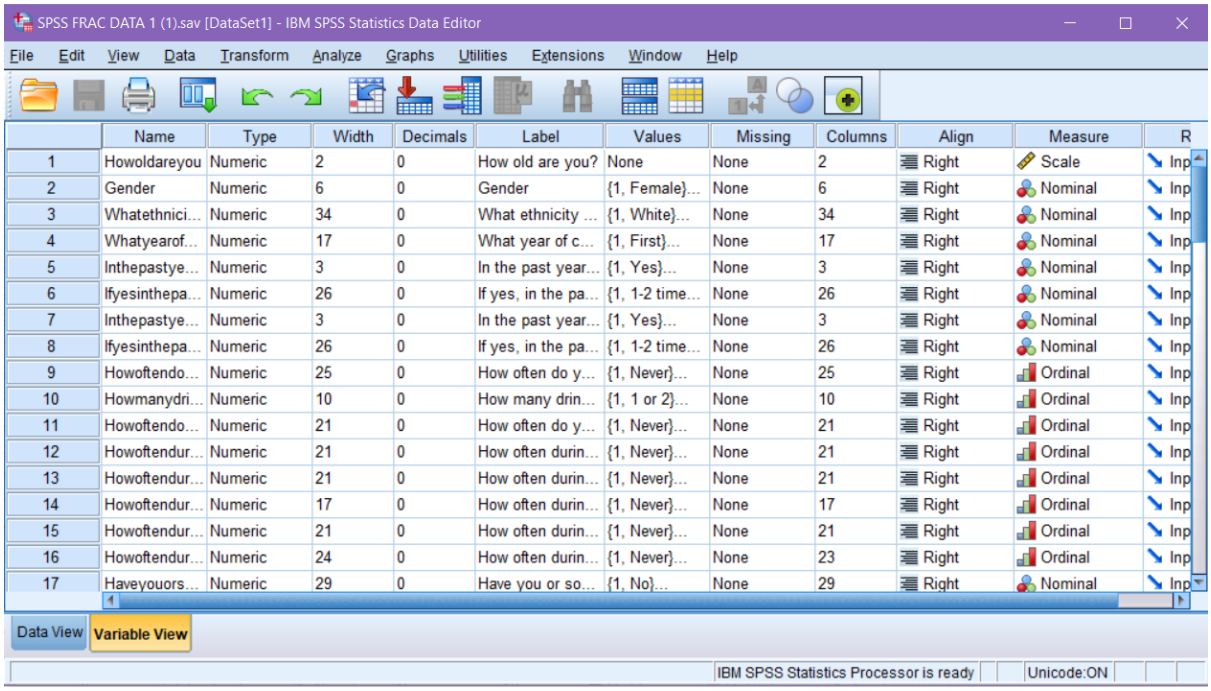
Pieta House: Helpline: 1800 247 247 or Text: HELP to 51444

Samaritans: Helpline: 116 123 or Text: HELP to 51444

Appendix H

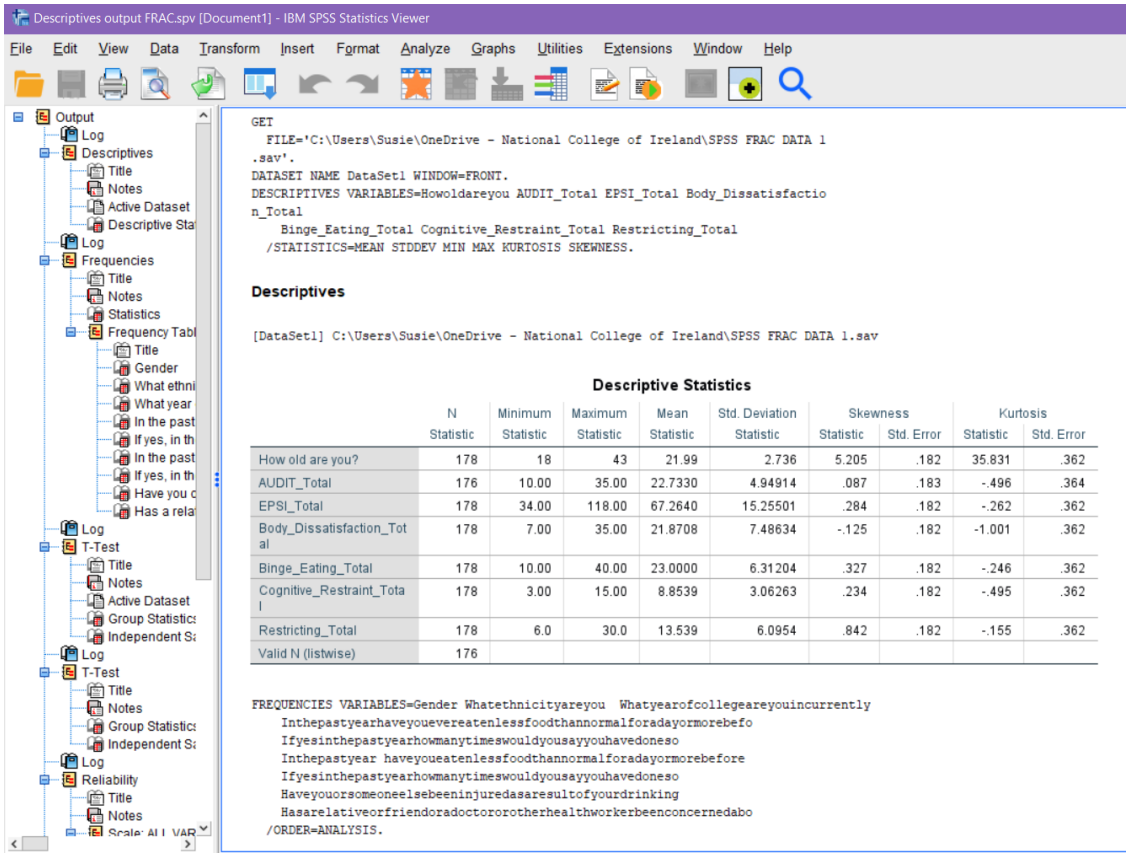
Proof of Analysis

Screenshot of SPSS data file used:



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	R
1	Howoldareyou	Numeric	2	0	How old are you?	None	None	2	Right	Scale	Inp
2	Gender	Numeric	6	0	Gender	{1, Female}...	None	6	Right	Nominal	Inp
3	Whatethnici...	Numeric	34	0	What ethnicity ...	{1, White}...	None	34	Right	Nominal	Inp
4	Whatyearof...	Numeric	17	0	What year of c...	{1, First}...	None	17	Right	Nominal	Inp
5	Inthepastye...	Numeric	3	0	In the past year...	{1, Yes}...	None	3	Right	Nominal	Inp
6	Ifyesinthepa...	Numeric	26	0	If yes, in the pa...	{1, 1-2 time...	None	26	Right	Nominal	Inp
7	Inthepastye...	Numeric	3	0	In the past year...	{1, Yes}...	None	3	Right	Nominal	Inp
8	Ifyesinthepa...	Numeric	26	0	If yes, in the pa...	{1, 1-2 time...	None	26	Right	Nominal	Inp
9	Howoftendo...	Numeric	25	0	How often do y...	{1, Never}...	None	25	Right	Ordinal	Inp
10	Howmanydri...	Numeric	10	0	How many drin...	{1, 1 or 2}...	None	10	Right	Ordinal	Inp
11	Howoftendo...	Numeric	21	0	How often do y...	{1, Never}...	None	21	Right	Ordinal	Inp
12	Howoftendur...	Numeric	21	0	How often durin...	{1, Never}...	None	21	Right	Ordinal	Inp
13	Howoftendur...	Numeric	21	0	How often durin...	{1, Never}...	None	21	Right	Ordinal	Inp
14	Howoftendur...	Numeric	17	0	How often durin...	{1, Never}...	None	17	Right	Ordinal	Inp
15	Howoftendur...	Numeric	21	0	How often durin...	{1, Never}...	None	21	Right	Ordinal	Inp
16	Howoftendur...	Numeric	24	0	How often durin...	{1, Never}...	None	23	Right	Ordinal	Inp
17	Haveyouors...	Numeric	29	0	Have you or so...	{1, No}...	None	29	Right	Nominal	Inp

Screenshot of SPSS Output:



	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
How old are you?	178	18	43	21.99	2.736	5.205	.182	35.831	.362
AUDIT_Total	176	10.00	35.00	22.7330	4.94914	.087	.183	-.496	.364
EPSI_Total	178	34.00	118.00	67.2640	15.25501	.284	.182	-.262	.362
Body_Dissatisfaction_Total	178	7.00	35.00	21.8708	7.48634	-.125	.182	-1.001	.362
Binge_Eating_Total	178	10.00	40.00	23.0000	6.31204	.327	.182	-.246	.362
Cognitive_Restraint_Total	178	3.00	15.00	8.8539	3.06263	.234	.182	-.495	.362
Restricting_Total	178	6.0	30.0	13.539	6.0954	.842	.182	-.155	.362
Valid N (listwise)	176								