

REPORT TO THE FOOD SAFETY PROMOTION BOARD

**STIMULANT DRINKS: CONSUMPTION, CONTEXT AND RISK FACTORS
ACROSS THE ISLAND OF IRELAND**

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I. INTRODUCTION

The Food Safety Promotion Board has been concerned with the consumption of stimulant drinks in Ireland and these data follow from their review of the health effects of stimulant drink consumption and associated issues (FSPB, 2002). The Centre for Health Promotion Studies, National University of Ireland, Galway was commissioned by the FSPB to investigate patterns and correlates of stimulant drink consumption across the island of Ireland. The objectives were to identify patterns in reported consumption across socio-demographic groups, to compare these to patterns of other substance consumption, to identify risk or predictive factors for use and to identify the self-attributed responses to stimulant drink consumption.

The study undertaken by the Centre for Health Promotion studies comprises three components;

- A series of 6 focus groups designed to explore the issue of stimulant drinks consumption in a qualitative fashion Three took place in Northern Ireland and three in the Republic of Ireland. For each jurisdiction, one adult group (ages 18-35) and 2 adolescent groups (ages 11-14, 15-17) took part.
- A self-completion survey of children and young adults across the Island of Ireland. This study was therefore designed to survey children and young adults in both urban and rural settings in Northern Ireland and the Republic of Ireland.
- Data taken from the 2002 Irish Health Behaviours in School-aged Children (HBSC) study. Two stimulant drink consumption questions were added to this cross-sectional survey of school-aged children in the Republic of Ireland.

The data from the all island survey and the 2002 HBSC study are reported below.

2. METHODS

2.1 Participants

2.1.1. Stimulant Drinks Survey

The sample was selected on the basis of convenience but in order to reflect the views of children, adolescence and young adulthood in rural and urban areas across the island. Participants were recruited from the following schools, third level institutes, youth clubs and training centres.

- Primary schools - 6th class, Galway (St. Patrick's School), Derry (Oak Grove School)
- Secondary schools- 1st year, Galway (Mercy Convent), Belfast (St. Louisa's Comprehensive College)
- Third level – Galway (NUI Galway), Dublin (DCU), Derry (Institute for Further and Higher Education), Belfast (Queens University Belfast) and Lisburn (Institute for Further and Higher Education).
- Youth clubs – Dublin (4 CYC groups), Roscommon / East Galway (4 CRYC groups), Ballina (YAB) and Derry (Youth Action).
- Training Centres – FAS Dublin and FAS Ballina and Deny – Springtown Training Centre.

2.1.2. Irish 2002 HBSC study

A two-stage (schools and classrooms) random sampling procedure was used to select 5, 712 pupils, aged between 9 and 18 years from schools across the Republic of Ireland. The sample was stratified by geographical region in order to reflect accurately the population of young people across the country. Only data from pupils aged 10-17 years (inclusive) are employed in these analyses due to the low numbers outside this age range.

2.2 Questionnaire

2.2.1. Stimulant Drinks Survey

The instrument employed for the stimulant drinks survey was a self-completion questionnaire. The questionnaire was developed following an appraisal of the consumption literature and the focus group interviews conducted (Dring, 2001). Thus, it was designed to ask separately about stimulant drink consumption with and without

alcohol and also included questions on the consumption of other drinks (tea, coffee, alcohol, fizzy drinks). The perceived reactions to consumption which were included were drawn from the Irish data collected during the focus group phase of the research as were the examples given of locations of use and the questions regarding where and why stimulant drinks were consumed.

The socio-demographic section was a modified version of that used in the Irish 1998 HBSC study (Friel *et al.* 1999) and consisted of questions regarding gender, educational status, social class and age. The consumption questions were based on the format employed by the European Schools Project on Alcohol and Drugs (Hibell *et al.*, 1997). In order to try and identify risk factors for stimulant drink consumption, questions regarding correlates or predictors of stimulant drink use were drawn from the Theory of Triadic Influence (Petraitis *et al.*, 1995). This theory is an attempt to draw together a variety of perspectives on experimental substance use and combines constructs from a number of previous theories and models. It conceives of influences on substance use as being of different types (social, attitudinal or intrapersonal) and as being variously influential (ultimate, distal or proximal). Table 1 provides an outline of this theory and examples of the possible influences on substance use. For the stimulant drinks survey, one construct was chosen from each of the 9 cells (type by level of influence) for inclusion in this study. Those included are entitled 'construct' in table 1.

Table 1: Types and levels of influence on Substance Use (adapted from Petraitis *et al.* 1995).

<i>Types of influence</i>			
Level of influence	<i>Social</i>	<i>Attitudinal</i>	<i>Intrapersonal</i>
<i>Ultimate</i>	Characteristics of those that make up individuals' intimate social support system Construct: Lack of parental warmth	Aspects of individuals immediate surroundings that encourage development of positive attitudes toward ISU Construct: Media depictions of ISU	Personality traits that might promote motivations to use illicit substances Construct: Sensation-seeking
<i>Distal</i>	Emotional attachments of individuals and behaviour of role models who encourage ISU Construct: Quality of relationship with parents and friends	Personal values and behaviours of individuals that contribute to their attitudes toward ISU Constructs: desire for independence from parents, rebelliousness	States and behavioural skills of individuals that promote ISU and that undermine their refusal skills Construct: psychological distress (anxiety, depression)
<i>Proximal</i>	Beliefs about the normative nature of ISU and pressures to use substances Construct: prevalence estimates	Beliefs and evaluations about the cost and benefits of ISU Construct: Attitudes toward ISU by self and others	Beliefs about one's ability to use or avoid substances Construct: Intention to consume illicit substances

A pilot study was carried out in October 2001 at the NUI, Galway 'open day' to test the appropriateness of the questionnaire. The questionnaire was piloted on a sample of 63 participants ranging in ages from 16-35 years. Questionnaires were both interviewer administered and self-administered. Findings from this pilot showed that interviewer administered questionnaires were very time consuming. In addition, the layout required too many pages and looked daunting. Therefore self-completion questionnaires were chosen as the data collection mechanism for this study.

For the main study, there were two versions of the questionnaire; in order to negate order effects (that is systematic selection of answers based on how the questionnaire is laid out), half of the questionnaires began with the socio-demographic questions and half with the stimulant drinks questions.

2.2.2. Irish HBSC Study

Two questions were added to the questionnaire developed for the Irish HBSC (2002) study. These were both included at the end of a series of questions in relation to beverage consumption, where respondents were asked to indicate how frequently they consumed stimulant drinks on their own and stimulant drinks as a mixer with alcohol.

2.3 Data collection procedure

2.3.1. Stimulant drinks survey

One of two fieldworkers or a designated on-site person administered the questionnaires. All collaborators were briefed about procedures and were provided with written introductions to read to the participants and a written set of instructions. At DCU, Derry Institute for Further and Higher Education and Oak Grove School in Derry the class lecturer/teacher administered the questionnaire; for the youth clubs, the area director administered the questionnaires. For the groups in educational settings, the questionnaires were administered during class time in the classroom. For training centres, the participants completed the questionnaires in the canteen area. The youth club groups participated in their usual premises at the regular time.

It was explained that the study was part of a larger study to find out more about stimulant drinks. The respondents were assured of their anonymity and the confidentiality of their responses. They were encouraged to ask if they weren't sure if

a drink that they have had is a stimulant drink or not, or to raise their hand if they had a question at any time. Upon completion, the questionnaires were placed in blank envelopes and put in an unmarked collection box, to ensure anonymity.

There were 23 separate data collection sessions. The introduction took between 5 to 10 minutes, depending on the number of questions from participants. It took approximately 20 minutes to fill out the questionnaires for the older groups, and 30 minutes for the younger groups.

2.3.1. Irish HBSC Study

Nominated teachers or school personnel collected data within classrooms. Each student was supplied with a blank questionnaire and a blank envelope in which to place it for return. A standardised introduction was provided on the cover page of the questionnaire. The data collection process took between 30-45 minutes with each class group.

3. Results

For the stimulant drinks survey, 608 completed questionnaires were received, completed by 272 males and 334 females ranging in ages from 11 to 35 years. There were 2 people who were present during a data collection session and who did not complete the questionnaire. Preliminary analyses revealed no significant gender bias between respondents from urban and rural backgrounds nor between those from Northern Ireland and the Republic. Similarly, there was no significant age difference between males and females. These findings are presented in table 2 below. Therefore the results are presented below by gender. The results are presented in six sections below:

- First, data collected regarding self-reported frequency of stimulant drink consumption are presented, this includes stimulant drinks on their own and stimulant drinks with alcohol.
- Second, data on consumption (frequency and quantity) of a series of beverages are displayed.

- Third, contextual data regarding stimulant drink consumption, the venues in which respondent's report drinking stimulant drinks, why they first tried stimulant drinks and their expected reactions to the consumption of stimulant drinks.
- Fourth, the consumption data collected were subjected to an analysis of variance designed to reveal interactions between socio-demographic groups across the island, and these findings are displayed.
- Fifth, logistic regression analyses designed to identify the most influential predictors of stimulant drink consumption are presented.
- Finally, the prevalence data from the 2002 HBSC study in the Republic of Ireland are included.

Table 1: Demographic profile of respondents by gender

	Males	Females
Age (median)	18 years	18 years
Northern Ireland	160 (58.8%)	179 (53.6%)
Republic of Ireland	109 (40.1%)	152 (45.5%)
City dweller	126 (46.3%)	165 (49.4%)
Town dweller	79 (29.0%)	89 (26.6%)
Rural dweller	63 (23.0%)	77 (23.1%)
<i>n</i>	272	334

3.1. Frequency of stimulant drinks consumption across lifetime, in the previous year and the previous month for stimulant drinks alone and stimulant drinks with alcohol.

Figure 1: Percentages reporting stimulant drink consumption on their own across lifetime

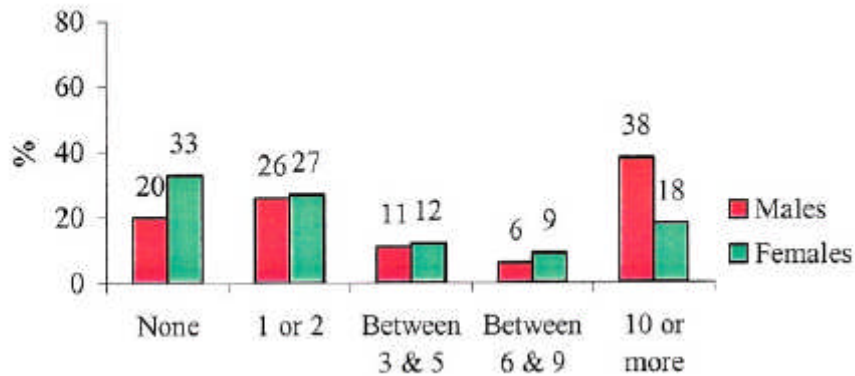


Table 3: Numbers and percentages reporting stimulant drinks consumption on their own in the past year

	Males		Females	
	Frequency	%	Frequency	%
None	79	32.2	142	45.5
One or two	62	25.3	82	26.3
Between 3 & 5	20	8.2	37	11.9
Between 6 & 9	22	9.0	21	6.7
Ten or more	62	25.3	30	9.6
Total	245	100.0	312	100.0

Table 4: Numbers and percentages reporting stimulant drinks consumption on their own in the past month

	Males		Females	
	Frequency	%	Frequency	%
Never	134	54.5	217	70.5
One or two	42	17.1	54	17.5
Between 3 & 5	25	10.2	8	2.6
Between 6 & 9	15	6.1	13	4.2
Ten or more	30	12.2	16	5.2
Total	246	100.0	308	100.0

It can be seen that males are more likely to report consumption of stimulant drinks than females whether considered as lifetime use, or in the past year or past month, and that they report higher levels of consumption irrespective of the time frame adopted.

Figure 2: Percentages reporting stimulant drink consumption *as a mixer* with alcohol across lifetime

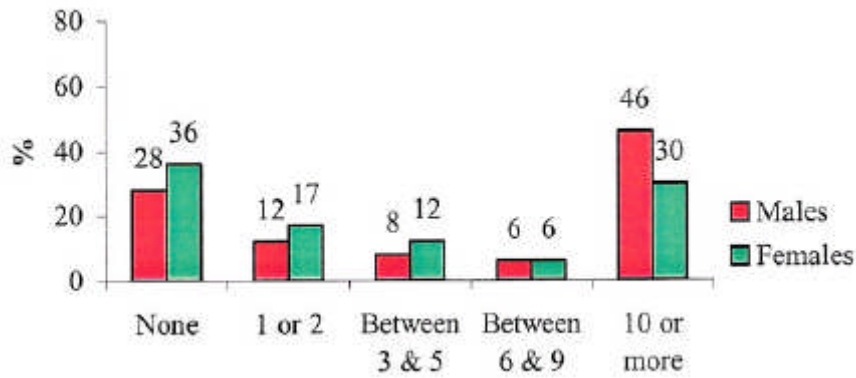


Table 5: Numbers and percentages reporting stimulant drink consumption with alcohol in the past year

	Males		Females	
	Frequency	%	Frequency	%
None	87	33.5	141	43.9
One or two	38	14.6	72	22.4
Between 3 & 5	24	9.2	28	8.7
Between 6 & 9	25	9.6	22	6.9
Ten or more	86	33.1	58	18.1
Total	260	100.0	321	100.0

Table 6: Numbers and percentages reporting stimulant drink consumption with alcohol in the past month

	Males		Females	
	Frequency	%	Frequency	%
None	142	54.6	210	64.4
One or two	38	14.6	52	16.0
Between 3 & 5	29	11.2	25	7.7
Between 6 & 9	18	6.9	13	4.0
Ten or more	33	12.7	26	8.0
Total	260	100.0	326	100.0

Males are also more likely than females to report consumption of stimulant drinks with alcohol, and to report higher levels of consumption. Consumption of stimulant drinks as a mixer is however less frequent for both sexes than consumption of stimulant drinks alone.

3.2. Frequency and quantity of beverage consumption; stimulant drink with and without alcohol, tea, coffee, cola, fizzy drinks, beer, wine, 'alcopops', spirits.

3.2.1 Stimulant drinks alone

Figure 3: Frequency of drinking stimulant drinks on their own

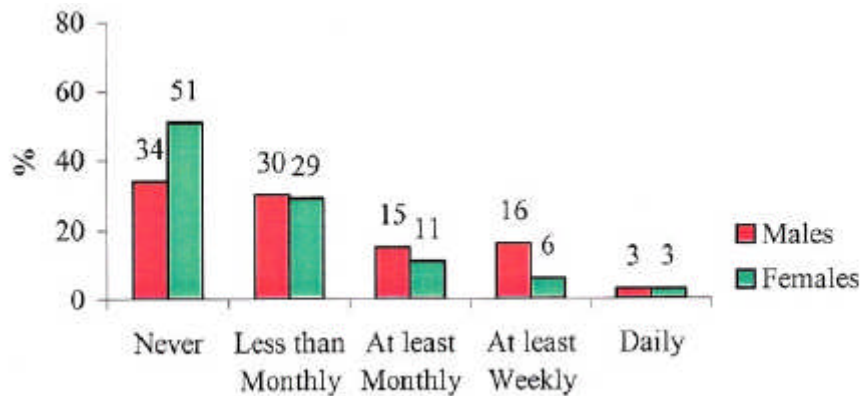


Table 7: Number of days per week that stimulant drinks on their own are consumed

	Males		Females	
	Frequency	%	Frequency	%
Never	171	64.0	240	73.2
Once or twice	72	27.0	66	20.1
Between 3 & 5	15	5.6	17	5.1
More than 6	9	3.3	5	1.5
Total	267	100.0	328	100.0

Table 8: Number of stimulant drinks on their own consumed in a session

	Males		Females	
	Frequency	%	Frequency	%
None	156	58.4	229	69.8
One or two	80	30.0	76	23.2
Between 3 & 5	15	5.6	17	5.1
Between 6 & 9	10	3.7	6	1.8
10 or more	6	2.3	0	0
Total	267	100.0	329	100.0

Consumption of stimulant drinks on their own were rarely reported for more than two days per week, for either genders, and it is also rare to consume more than two stimulant drinks in one session.

3.2.2. Stimulant drinks with alcohol

Figure 4: Frequency of drinking stimulant drinks with alcohol

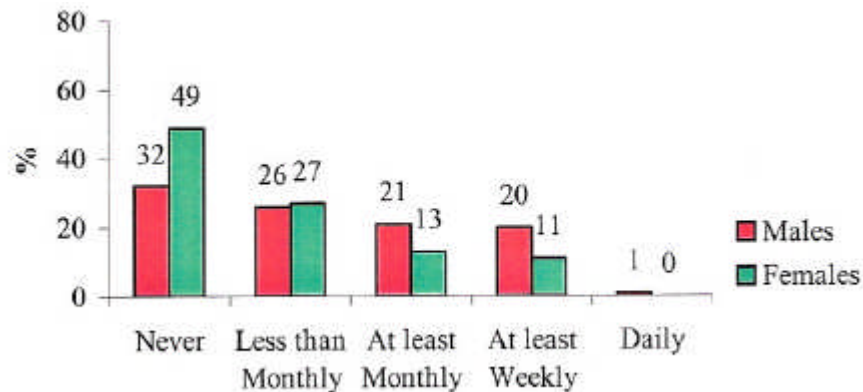


Table 9: Number of days per week that stimulant drinks are consumed with alcohol

	Males		Females	
	Frequency	%	Frequency	%
Never	164	61.2	243	73.9
One or two	91	34	77	23.4
Between 3 & 5	12	4.5	8	2.4
More than 6	1	.4	0	0
Total	268	100.0	328	100.0

Table 10: Number of stimulant drinks with alcohol consumed in a session

	Males		Females	
	Frequency	%	Frequency	%
None	142	53.0	225	68.4
One or two	37	13.8	52	15.8
Between 3 & 5	48	17.9	36	11.0
Between 6 & 9	27	10.1	10	3.0
10 or more	14	5.3	6	1.8
Total	268	100.0	329	100.0

Consumption of stimulant drinks with alcohol is usually reported as occurring one or two days per week. However, when consumed with alcohol, the number of drinks per session increases sharply, especially for males.

3.2.3. Tea

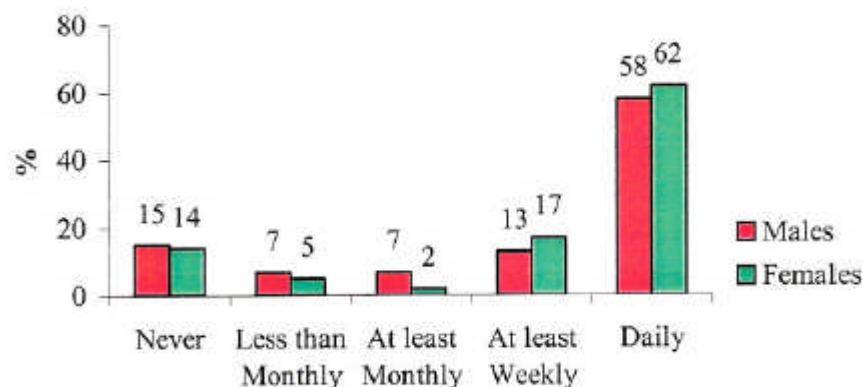


Table 11: Number of days per week that tea is consumed

	Males		Females	
	Frequency	%	Frequency	%
Never	63	23.2	57	17.2
Once or twice	27	11.4	30	9
Between 3 & 5	42	15.5	59	17.8
Between 6 & 7	134	49.2	185	55.9
Total	270	100.0	331	100.0

Table 12: Number of teas consumed in a session

	Males		Females	
	Frequency	%	Frequency	%
None	59	21.9	57	17.3
One or two	109	40.6	109	33.1
Between 3 & 5	62	23.0	121	36.7
Between 6 & 9	25	9.3	27	8.1
10 times or more	14	5.2	16	4.9
Total	269	100.0	329	100.0

3.2.3. Coffee

Figure 6: Frequency of drinking coffee

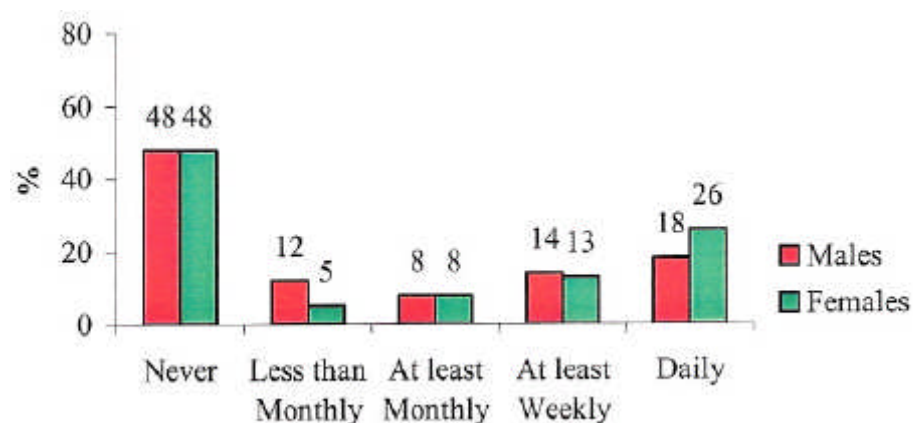


Table 13: Number of days per week that coffee is consumed

	Males		Females	
	Frequency	%	Frequency	%
Never	157	58.4	179	54.7
One or two	50	18.4	47	14.3
Between 3 & 5	23	8.5	30	9.2
Between 6 & 7	36	13.4	71	21.7
Total	266	100.0	327	100.0

Table 14: Number of coffees consumed in a session

	Males		Females	
	Frequency	%	Frequency	%
None	158	59.2	179	55.2
One or two	79	29.6	96	29.7
Between 3 & 5	20	7.5	33	10.2
Between 6 & 9	6	2.2	10	3.0
10 times or more	4	1.5	6	1.8
Total	267	100.0	329	100.0

3.2.4 Cola

Figure 7: Frequency of drinking cola

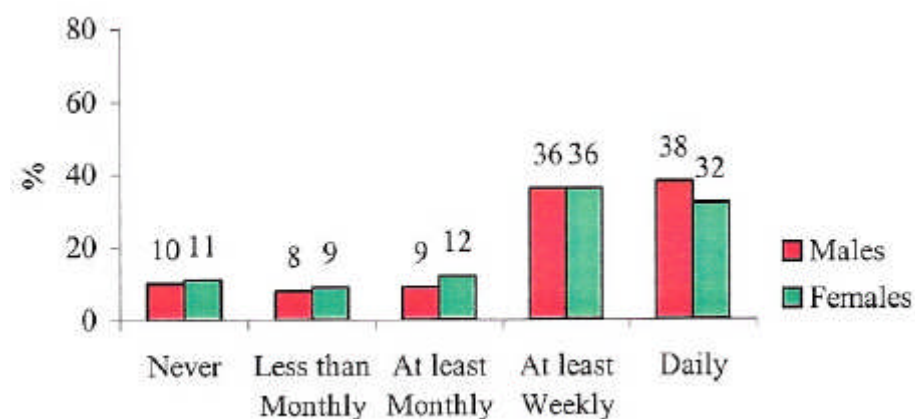


Table 15: Number of days per week that cola is consumed

	Males		Females	
	Frequency	%	Frequency	%
Never	43	16.0	71	21.6
One or two	74	17.5	77	23.4
Between 3 & 5	73	27.1	93	28.2
More than 6	78	29.0	87	26.4
Total	268	100.0	328	100.0

Table 16: Number of colas consumed in a session

	Males		Females	
	Frequency	%	Frequency	%
None	49	18.4	73	22.2
One or two	133	50.0	173	52.6
Between 3 & 5	51	19.3	58	17.6
Between 6 & 9	22	8.4	17	5.1
10	11	4.1	8	2.4
Total	266	100.0	329	100.0

3.2.5. Fizzy Drinks

Figure 8: Frequency of drinking fizzy drinks

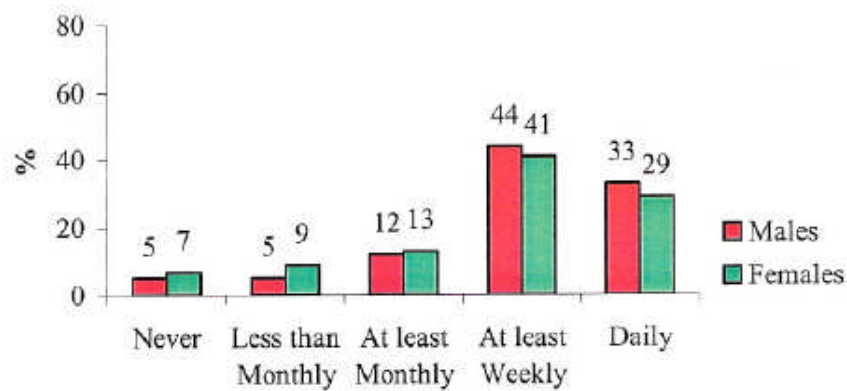


Table 17: Number of days per week that fizzy drinks are consumed

	Males		Females	
	Frequency	%	Frequency	%
Never	34	12.7	48	14.6
One or two	82	30.6	107	32.6
Between 3 & 5	79	29.4	94	28.7
6 or more	72	26.9	77	23.5
Total	267	100.0	326	100.0

Table 18: Number of fizzy drinks consumed in a session

	Males		Females	
	Frequency	%	Frequency	%
None	33	12.4	64	19.8
One or two	156	58.6	200	61.7
Between 3 & 5	49	18.4	34	10.5
Between 6 & 9	19	7.2	22	6.8
10 or more	9	3.4	4	1.2
Total	266	100.0	329	100.0

3.2.6. Beer

Figure 9: Frequency of drinking beer

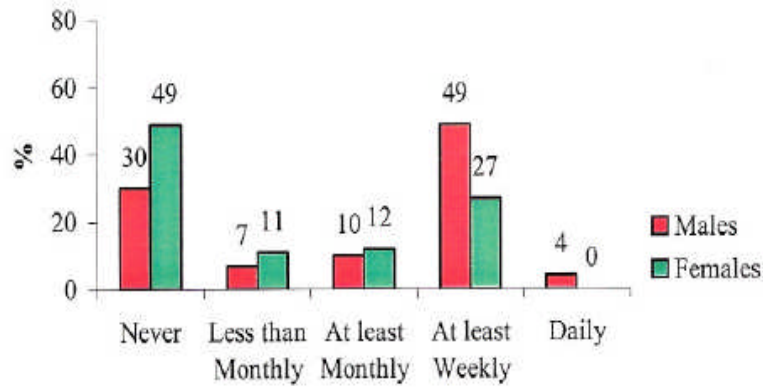


Table 19: Number of days per week that beer is consumed

	Males		Females	
	Frequency	%	Frequency	%
Never	105	39.2	211	63.9
One or two	105	39.2	88	26.7
Between 3 & 5	48	17.9	30	9.1
Between 6 & 7	9	3.4	1	0.3
Total	267	100.0	330	100.0

Table 20: Number of beers consumed in a session

	Males		Females	
	Frequency	%	Frequency	%
None	104	39.0	201	61.1
One or two	18	6.7	29	8.8
Between 3 & 5	35	13.2	52	15.9
Between 6 & 9	54	20.2	32	9.7
10 or more	56	21.0	15	4.6
Total	267	100.0	329	100.0

3.2.7. Wine

Figure 10: Frequency of drinking wine

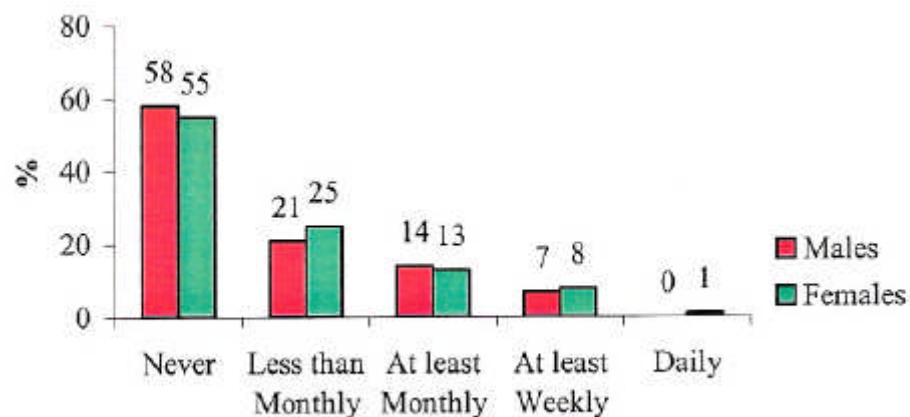


Table 21: Number of days per week that wine is consumed

	Males		Females	
	Frequency	%	Frequency	%
None	222	83.1	263	80.4
One or two	37	13.9	54	16.5
Between 3 & 5	8	3	10	3.1
Between 6 & 7	0	0	0	0
Total	267	100.0	327	100.0

Table 22: Number of (glasses of) wine consumed in a session

	Males		Females	
	Frequency	%	Frequency	%
None	205	77.1	240	73.2
One or two	32	12	48	14.6
Between 3 & 5	21	7.9	48	11.6
Between 6 & 9	7	2.7	1	.3
10 or more	1	.4	5	1.5
Total	266	100.0	329	100.0

3.2.8. Alcopops

Figure 11: Frequency of drinking 'alcopops'

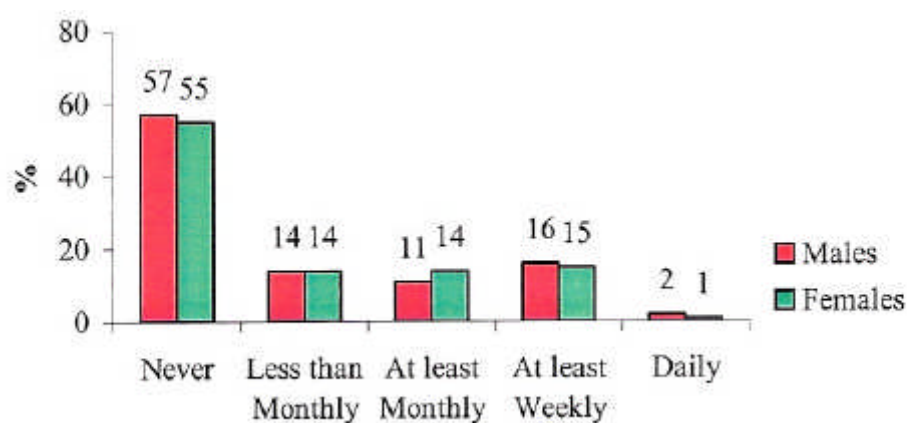


Table 23: Number of days per week that 'alcopops' are consumed

	Males		Females	
	Frequency	%	Frequency	%
Never	198	74.4	231	70.4
One or two	53	20.0	81	24.7
Between 3 & 5	10	3.8	15	4.6
Between 6 & 7	5	1.9	1	0.3
Total	266	100.0	328	100.0

Table 22: Number of 'alcopops' consumed in a session

	Males		Females	
	Frequency	%	Frequency	%
None	189	70.8	217	66.6
One or two	24	8.9	38	11.6
Between 3 & 5	39	13.5	47	14.4
Between 6 & 9	16	5.9	18	5.5
10 or more	2	.7	6	1.8
Total	267	100.0	329	100.0

3.2.9. Spirits

Figure 12: Frequency of drinking spirits

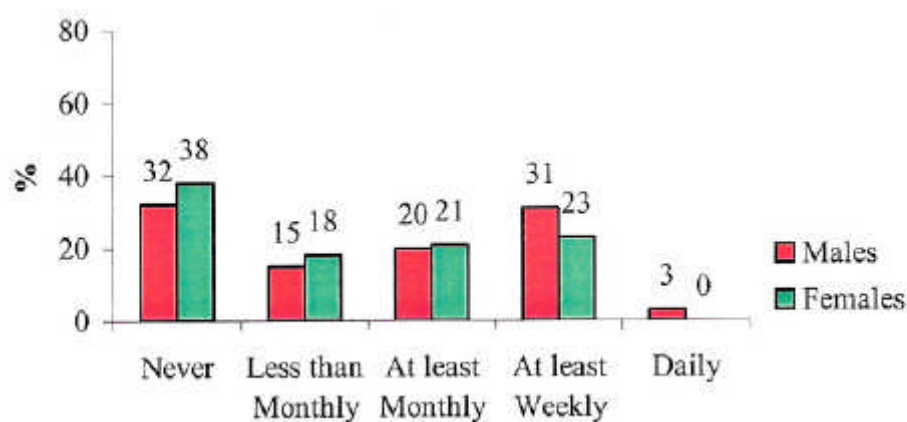


Table 25: Number of days per week that spirits are consumed

	Males		Females	
	Frequency	%	Frequency	%
Never	146	54.5	192	58.4
One or two	96	35.8	119	36.1
Between 3 & 5	17	6.3	17	5.2
Between 6 & 7	8	2.9	0	0
Total	267	100.0	329	100.0

Table 26: Number of spirits consumed in a session

	Males		Females	
	Frequency	%	Frequency	%
None	127	48.1	183	56.1
One or two	35	13.2	46	14.1
Between 3 & 5	50	18.9	57	17.5
Between 6 & 9	31	11.7	31	9.4
10 or more	21	8.0	9	2.7
Total	264	100.0	329	100.0

3.2.10 Comparison of beverages

Table 27: Percentage of respondents reporting weekly and daily consumption of beverages by gender

Gender Time frame	Males		Females	
	Daily	Weekly	Daily	Weekly
Stimulant drinks alone	3	16	3	6
Stimulant drinks as mixer	1	20	0	11
Tea	58	13	62	17
Coffee	18	14	26	13
Cola	38	36	32	36
Fizzy drinks	33	44	29	41
Beer	4	49	0	27
Wine	0	7	1	8
Alcopops	2	16	1	15
Spirits	3	31	0	23

Although stimulant drinks are consumed relatively frequently, at least when measured by the week, most other beverages are consumed more frequently, the only exceptions are wine and 'alcopops'.

Table 28: Percentage of respondents reporting weekly and daily consumption of beverages by gender

Gender	Males		Females	
	>twice per week	>two per session	>twice per week	>two per session
Stimulant drinks alone	8.8	11.6	6.6	6.9
Stimulant drinks as mixer	4.9	33.3	2.4	15.8
Tea	64.7	37.5	73.7	49.7
Coffee	21.9	11.2	30.9	15.0
Cola	56.1	31.8	54.6	25.1
Fizzy drinks	56.3	29.0	52.2	18.5
Beer	21.3	54.4	9.4	30.2
Wine	3.0	11.0	3.1	13.4
Alcopops	5.7	20.1	4.9	21.7
Spirits	9.2	38.6	5.2	29.6

This table illustrates which beverages are consumed frequently; wine and stimulant drinks as a mixer are least likely to be consumed more than twice weekly. In addition, relatively few respondents report drinking three or more servings of stimulant drinks in a session.

3.3. Contextual data regarding venues for, reasons for and reactions to stimulant drink consumption.

Table 29: Venues for last consumption of stimulant drink(s)

	Males		Females	
	Frequency	%	Frequency	%
Night Club	67	27.9	77	24.1
Pub	43	17.9	40	12.5
Open area	37	15.4	27	8.5
At home	28	11.7	63	19.7
Other home	13	5.4	17	5.3
Cafe	9	3.8	2	.6
Work or school	3	1.3	2	.6
Other	14	5.8	10	3.1
Doesn't apply	26	10.8	81	25.4
Total	240	100.0	319	100.0

Table 30: Reported reasons why stimulant drinks were first consumed*

Reason	Males		Females	
	Frequency	%	Frequency	%
Was curious	114	42.9	118	36.0
Given by friend	52	19.6	64	19.5
Increase alertness	34	12.8	36	10.9
To get high	32	12.0	16	4.9
On sale	29	10.9	23	7.0
Never tried	28	10.5	67	20.4
Liked ads	24	9.0	33	10.0
Cure Hangover	21	7.9	18	5.5
Other	11	4.4	16	5.2
Forget problems	5	1.9	7	2.1
Help study	5	1.9	7	2.1
Total	240	100.0	319	100.0

*Percentages do not sum to 100, as respondents could indicate one or more reasons

In the case of both males and females, the nightclub was a more likely venue than the pub for consuming stimulant drinks. This may reflect general issues of availability and access to beverages rather than anything specific to stimulant drinks per se. Curiosity and peers were the most frequently reported reasons for first consumption, whereas increasing alertness in general was much more frequently cited than to help study.

Table 31: Those reporting the following reactions to stimulant drink consumption as unlikely or very unlikely*

Reaction	Males		Females	
	Frequency	%	Frequency	%
Spend too much money	121	50.8	134	44.3
Get upset stomach	105	43.5	110	36.2
Find it hard to sleep	99	41.3	128	42.1
Feel more awake	98	39.2	141	46.2
Get a headache	92	39.2	111	36.5
Feel happier	94	39.0	111	36.7
Find it easier to talk to others	92	38.5	111	36.4
Increased energy	92	38.4	128	41.7
Become addicted to them	92	38.2	108	35.6
Have more fun	91	37.5	114	37.6
Study better	87	36.9	108	35.8
Perform better physically	75	31.5	99	33.0
Feel no difference	86	35.3	95	31.1
Feel heart racing	84	35.3	89	29.5
Feel jittery	79	33.2	97	32.3
Have faster reactions	77	32.7	79	26.4

* Percentages do not sum to 100, as respondents could indicate one or more reasons

Table 32: Those reporting the following reactions to stimulant drink consumption as likely or very likely*

Reaction	Males		Females	
	Frequency	%	Frequency	%
Find it hard to sleep	144	64.6	107	35.2
Feel more awake	117	46.8	102	33.4
Become addicted to them	103	42.7	124	40.9
Increased energy	99	41.4	104	33.9
Feel heart racing	93	39.1	102	33.8
Feel no difference	94	38.7	95	31.1
Have more fun	93	38.3	108	35.6
Feel happier	91	37.8	94	31.1
Feel jittery	88	37.0	100	33.3
Get upset stomach	89	36.9	114	37.5
Study better	87	36.7	108	35.8
Get a headache	86	36.6	107	35.2
Find it easier to talk to others	85	35.6	101	33.1
Have faster reactions	79	33.5	92	30.9
Spend too much money	77	32.4	109	36.1
Perform better physically	84	35.3	102	34.0

* Percentages do not sum to 100, as respondents could indicate one or more reasons

Finance was not perceived as an obstacle to consumption. Physiological effects were more frequently cited as likely than unlikely, but the possibility of addiction to stimulant drinks also emerges as an important perception.

3.4. Analysis of Variance

This type of analysis affords an opportunity to assess the relative importance of different influences on behaviour. In case the relative influences of gender, age, jurisdiction and whether respondents live in an urban, town or rural setting are examined. ANOVA results are presented separately for stimulant drinks on their own and stimulant drinks with alcohol. Three individual ANOVA were conducted for each; lifetime consumption, consumption in the past year and consumption in the last month. Where significant interactions or main effects were identified, further analyses have been conducted to assist in interpretation.

3.4.1 ANOVA for stimulant drinks on their own

Table 33: Stimulant drinks on their own across lifetime: Age group by gender by urban/rural by north/south variance analysis

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Gender	14.000	1	14.000	6.602	.010
North / South	9.968	1	9.968	4.701	.031
Urban / Rural	2.686	2	1.343	.633	.531
Age	52.150	3	17.383	8.198	.000
Gender by North / South	.224	1	.224	.105	.746
Gender by Urban / Rural	4.614	2	2.307	1.088	.338
North / South by Urban / Rural	10.061	2	5.031	2.372	.094
Gender by North / South by Urban / Rural	.329	2	.165	.078	.925
Gender by Age	2.377	3	.792	.374	.772
North / South by Age	9.895	3	3.298	1.555	.199
Gender by North / South by Age	1.914	3	.638	.301	.825
Urban / Rural by Age	10.933	6	1.822	.859	.525
Gender by Urban / Rural by Age	14.842	6	2.474	1.167	.323
North / South by Urban / Rural by Age	13.980	6	2.330	1.099	.362
Gender by North / South by Urban / Rural by Age	15.909	5	3.182	1.501	.188

R Squared = .209. Those in bold are statistically significant.

There are no significant interactions between the reported socio-demographic characteristics of participants but there are separate main effects of age group, gender and north/south. Reported lifetime consumption of stimulant drinks without alcohol increases by age up to age 25 years, but is lower for those over 25 years. Males are more likely than females to report lifetime consumption, and age is important for both genders. In addition those from the Northern Ireland are more likely, on average to report lifetime consumption than those from the Republic (see table 34 below).

Table 34: Reported lifetime frequency of consuming stimulant drinks with alcohol by age group, gender and location

	Age 11-15	Age 16-18	Age 19-24	Age 25+	Male	Female	North	South
Never (%)	35	19	22	41	20	33	24	30
Once or twice (%)	36	26	20	25	26	27	25	28
Three to five times (%)	14	13	6	15	11	12	13	10
Six to nine times (%)	7	8	11	2	6	9	7	8
Ten times or more (%)	8	34	40	17	38	18	30	24

Table 35: Stimulant drinks on their own in the last year: Age group by gender by urban/rural by north/south variance analysis

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Gender	11.178	1	11.178	5.882	.016
North / South	3.336E-02	1	3.336E-02	.018	.895
Urban / Rural	.279	2	.139	.073	.929
Age	41.365	3	13.788	7.256	.000
Gender by North / South	1.529	1	1.529	.805	.370
Gender by Urban / Rural	.189	2	9.450E-02	.050	.951
North / South by Urban / Rural	1.858	2	.929	.489	.614
Gender by North / South by Urban / Rural	.265	2	.132	.070	.933
Gender by Age	1.324	3	.441	.232	.874
North / South by Age	16.268	3	5.423	2.854	.037
Gender by North / South by Age	3.345	3	1.115	.587	.624
Urban / Rural by Age	11.206	6	1.868	.983	.436
Gender by Urban / Rural by Age	23.193	6	3.866	2.034	.060
North / South by Urban / Rural by Age	7.942	6	1.324	.697	.653
Gender by North / South by Urban / Rural by Age	16.580	5	3.316	1.745	.123

R Squared = .201. Those in bold are statistically significant.

In the case of consumption of stimulant drinks without alcohol in the last year, there is a significant north/south by age group interaction. This means that the difference between north and south varies within age groups (or the pattern across age group varies by location). In this case, further analyses reveal that there are no significant differences across any pair of age groups in the south, but that in the north, there are reported significant increases in frequency of consumption between ages 11-15 and 16-18, and between ages 11-15 and 19-24 as well as between ages 19-24 and 25+ years.

Looking at the interaction from the other perspective, there were no overall differences between participants from the north and south of Ireland within the age groups 16-18 or 25+ years. However, within the youngest age group (ages 11-15),

participants from the south reported significantly more frequent consumption of stimulant drinks without alcohol in the last year. On the other hand, within the age group 19-24 years, participants from the north reported a higher frequency of consumption than their southern counterparts.

Analysis of the item relating to frequency of consumption of stimulant drinks without alcohol in the last month revealed no significant interactions between socio-demographic characteristics. There were however two main effects; age group and gender. Further examination showed that males reported more frequent consumption than females and that the pattern for age is similar to that reported above, sequential age groups report more frequent consumption, with the exception of the eldest group (age 25+ years).

Table 36: Reported frequency of consuming stimulant drinks (without alcohol) in the last month by age group and gender.

	Age 11-15	Age 16-18	Age 19-24	Age 25+	Male	Female
Never (%)	74	55	53	87	54	70
Once or twice (%)	20	20	19	3	17	18
3 to 5 times (%)	2	8	8	4	10	3
6 to 9 times (%)	3	7	6	3	6	4
10 times or more (%)	1	10	15	4	12	5

3.4.1 ANOVA for stimulant drinks with alcohol

Table 37: Stimulant drinks with alcohol across lifetime: Age group by gender by urban/rural by north/south variance analysis

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Gender	2.915	1	2.915	1.380	.241
North / South	2.133	1	2.133	1.009	.316
Urban / Rural	11.626	2	5.813	2.751	.065
Age	185.154	3	61.718	29.211	.000
Gender by North / South	4.059E-04	1	4.059E-04	.000	.989
Gender by Urban / Rural	7.622	2	3.811	1.804	.166
North / South by Urban / Rural	3.698	2	1.849	.875	.417
Gender by North / South by Urban / Rural	.182	2	9.087E-02	.043	.958
Gender by Age	15.245	3	5.082	2.405	.067
North / South by Age	12.543	3	4.181	1.979	.116
Gender by North / South by Age	13.313	3	4.438	2.100	.099
Urban / Rural by Age	20.307	6	3.385	1.602	.144
Gender by Urban / Rural by Age	15.517	6	2.586	1.224	.292
North / South by Urban / Rural by Age	7.209	6	1.202	.569	.755
Gender by North / South by Urban / Rural by Age	6.695	5	1.339	.634	.674

R Squared = .348. Those in bold are statistically significant.

There are no significant interactions between the reported socio-demographic characteristics of participants and only a main effect of age group. Each sequential level of age group reports more frequent consumption, except for the eldest group, see table 38 below.

Table 38: Reported frequency of consuming stimulant drinks with alcohol by age group

	Age 11-15	Age 16-18	Age 19-24	Age 25+
Never (%)	62	23	11	37
Once or twice (%)	17	16	11	15
3 to 5 times (%)	11	8	11	12
6 to 9 times (%)	4	9	5	4
10 times or more (%)	6	44	62	32

Exactly the same pattern emerges for reported frequency of consumption of stimulant drinks with alcohol in the past year and in the last month; that is, there are no interactions between the socio-demographic categories and the only significant main effects are for age group. The age group pattern for last year and last month consumption mirrors that above for lifetime consumption.

3.5. Logistic Regression Analyses

In order to predict stimulant drink consumption data, both socio-demographic characteristics and hypothesised predictors (see table 1) are included in the following logistic models. Only those variables that proved to be statistically significant are included in these tables.

Table 39: Stepwise Logistic Regression for ever having consumed a stimulant drink with alcohol.

Variables	P	Odds Ratio	95% Confidence Interval Lower - upper
Age	.000	3.568	2.354 - 5.409
Urban	.022	1.353	1.044 - 1.754
Perceived peer use	.006	1.877	1.201 - 2.933
Quality of relationship with parents	.004	.544	0.359 - 0.826
Intention to consume stimulant drinks	.000	3.503	2.198 - 5.582
Constant	.033	.515	

Table 39 shows that perceived peer use, being older, living in an urban area, negative quality of relationship with parents and intention to consume stimulant drinks are all individually and together, significant predictors for ever having consumed a stimulant drink with alcohol. Results using the enter method showed that a higher level of sensation seeking also significantly predicted for ever having consumed a stimulant drink with alcohol.

Table 40: Stepwise Logistic Regression for ever having consumed a stimulant drink on it's own.

Variables	P	Odds Ratio	95% Confidence Interval Lower - upper
Gender	.013	.578	0.375 - 0.892
Sensation Seeking	.010	.573	0.375 - 0.875
Intention to consume stimulant drinks	.000	5.160	2.847 - 9.354
Constant	.000	6.671	

Table 40 indicates that intention to consume stimulant drinks, higher levels of sensation seeking and being male are both individually and together, significant predictors for ever having consumed a stimulant drink with alcohol. Results using the enter method showed that increased exposure to television advertising also significantly predicted ever having consumed a stimulant drink with alcohol.

3.6 Consumption data from the 2002 HBSC dataset.

These data are presented broken down by gender, age group and social class.

3.6.1 Stimulant drinks on their own

Figure 13: Stimulant drinks on their own by gender

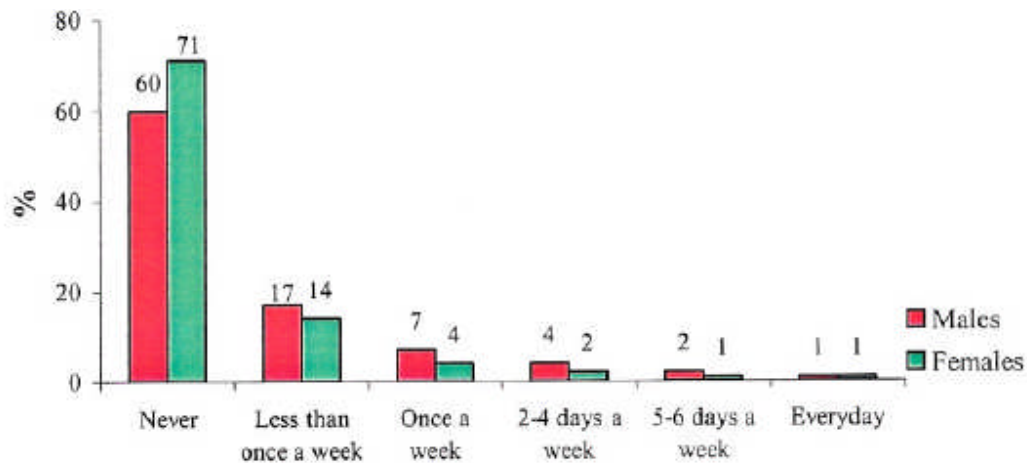


Figure 14: Stimulant drinks on their own by age

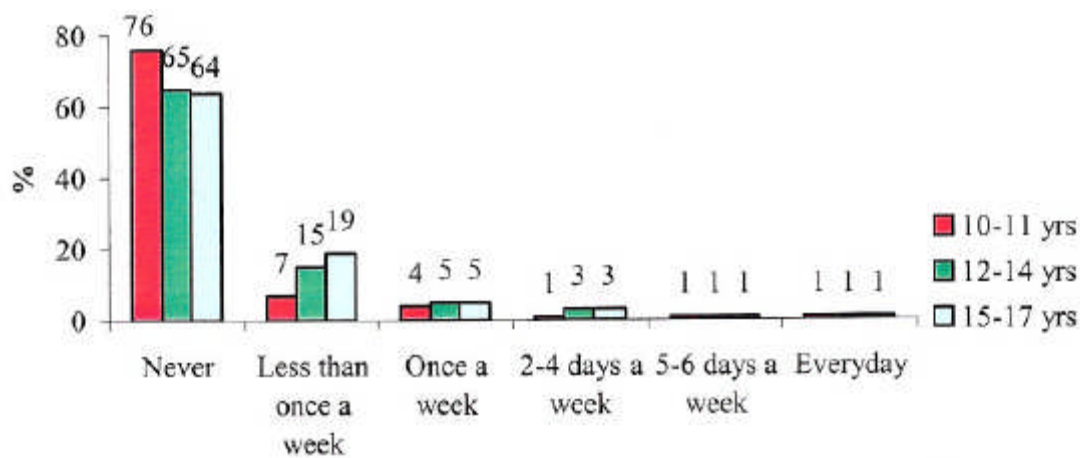
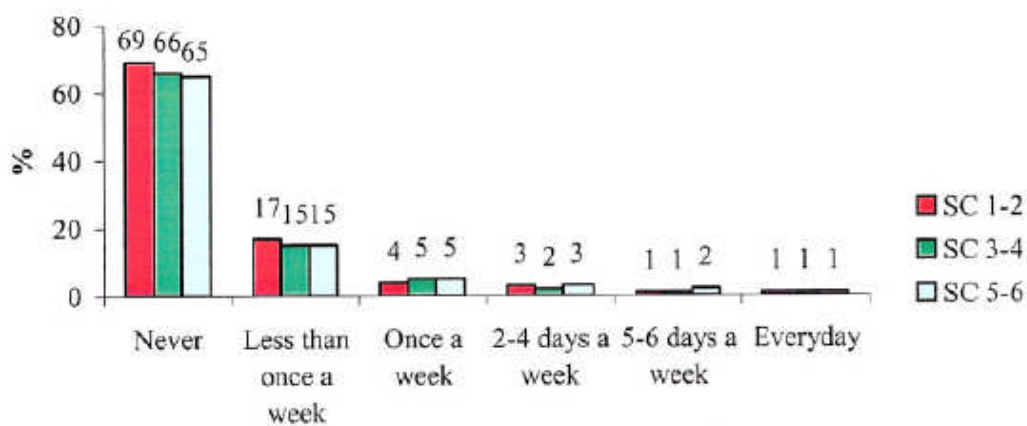


Figure 15: Frequency of stimulant drink consumption on their own by social class



3.6.1 Stimulant drinks with alcohol

Figure 16: Stimulant drinks as a mixer with alcohol by gender

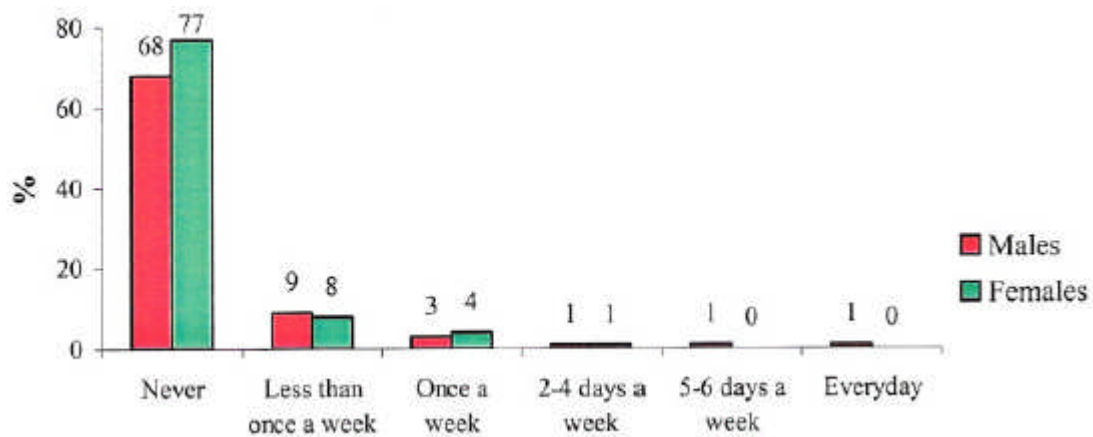


Figure 17: Stimulant drinks as a mixer with alcohol by age

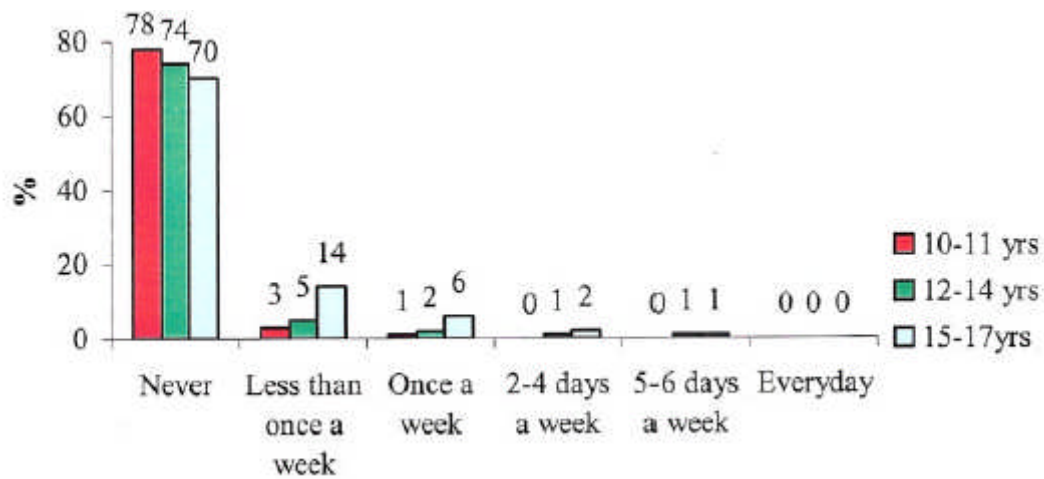
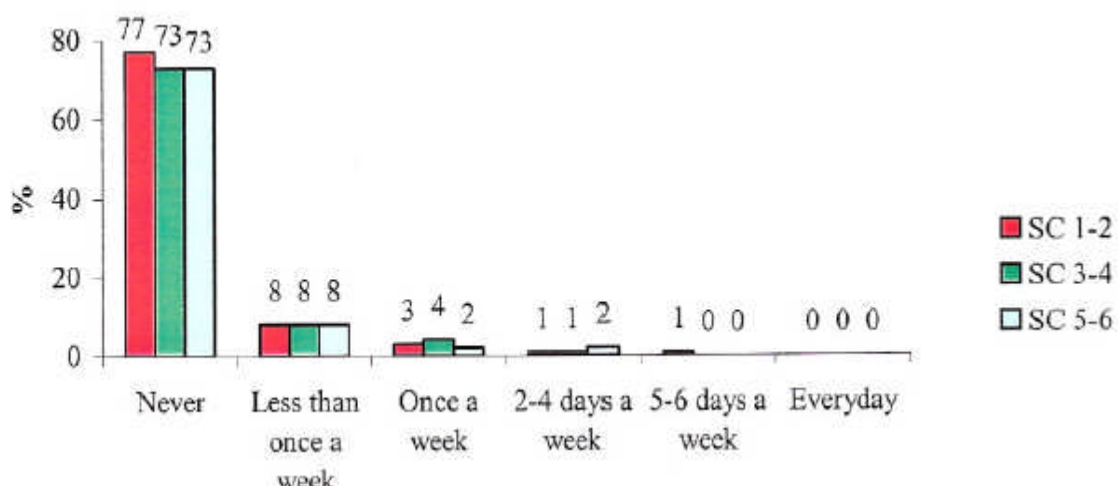


Figure 18: Stimulant drinks as a mixer with alcohol by social class



5. Discussion

This report contains data from two unique Irish studies, first a specifically targeted survey of stimulant drink consumption and context across the island that was designed to answer specific questions regarding stimulant drink use in the Irish context. The second comprising data from the 2002 Irish Health Behaviour in School-aged children study, reports with much higher levels of precision the self-reported frequency of consumption of stimulant drinks, with and without alcohol across the Republic of Ireland, broken down by gender, age and social class. The first study includes respondents ranging in age from 11 to 36, while the HBSC includes school-going children aged 10-17 only.

The findings reported here are similar to those reported by the FSPB (2002) in their review of the health effects of stimulant drinks. The data they commissioned from Lansdowne Marketing Surveys also indicated that stimulant drink consumption was higher among males and young adults and that there was no identifiable social class effect. While our respondents reported that it was rare to drink stimulant drinks, on their own or with alcohol, on more than two days per week, 3.3% did report consuming stimulants drinks on their own every day of the week. In relation to consumption with alcohol, the pattern changes. Less than 5% of males and 2.5% of females report taking stimulant drinks with alcohol on more than two days per week, however 33.3% of males and 15.8% of females reported consuming more than two drinks in a session. Including only those who report that they drink stimulant drinks with alcohol, this corresponds to 70.6% of males and 50% of females, and therefore suggests that relatively large quantities of both alcohol and stimulant drinks are being consumed by this minority. The analyses of variance reveal that differences across socio-demographic groups in the frequency of consumption of stimulant drinks confirm earlier reports (FSPB, 2001). Males consistently reported higher frequency of consumption than females, *as* did the 19-24 years old age group *as* compared to either older or younger groups. In one age group (11-15 years) those from the south reported more frequent consumption, while in another (19-24 years) consumption was more frequent amongst those from Northern Ireland.

The comparison of stimulant drinks with other beverages provides a picture of the relative status of stimulant drinks amongst these groups. All other non-alcoholic drinks are consumed both more frequently and in greater quantities than are stimulant drinks. In comparison to alcoholic drinks, beer is the most popular for both males and females, followed by spirits and 'alcopops'. Indeed the frequency of consumption of stimulant drinks is most similar to 'alcopops'. It should be noted that consumption of spirits is more frequent than that of stimulant drinks as a mixer, suggesting that other mixers remain popular, especially amongst females.

That stimulant drinks were most likely to be last consumed in a licensed premises confirms earlier reports (FSPB, 2002) regarding marketing and reported consumption patterns. Nevertheless, it should be noted that a substantial number are reporting consuming in open areas such as parks and fields. In addition, consuming at home (respondents own or someone elses) accounted for 17.1% of males and 25% of females last consumption venue. While curiosity was reported as accounting for the highest proportion of first consumption experiences, it is clear that peer influences and marketing strategies were also evident. Almost 20% of both males and females were given their first stimulant drink by a friend, while being on sale and liking the advertisements were cited by 22.1% of males and 17.6% of females. Very few respondents reported trying stimulant drinks in order to help them to study or to forget their problems, but increasing alertness and getting high were both relatively frequently cited. Indeed, 12% of males reported that the reason for their first consumption of stimulant drinks was to get high.

That the experienced reactions to stimulant drink consumption were reported by substantial proportions of respondents was expected, given that these potential reactions were drawn from the content of the focus groups conducted during the pilot phase of this study. Nevertheless it is clear that some reactions were considered more likely than others were. Only finding it hard to sleep was reported as likely or very likely by more than 50% of males, while on the other hand only spending too much money was reported as unlikely or very unlikely by more than 50% of males. Certain physiological reactions were reported as more likely; 'increased energy', 'feel heart racing', 'feel jittery' and get 'upset stomach'. Respondents were also likely to report

that they would 'feel happier' and have 'more fun'. However, a substantial proportion (42.7% of males, 40.9% of females) reported that they thought it likely or very likely that one could become addicted to stimulant drinks.

The constructs chosen from the Theory of Triadic Influence (Petraitis *et al*, 1995) were all possible predictors of stimulant drink consumption. They were included in order to help identify which if any of these variables were associated with stimulant drink use. Although they were developed for use in predicting illicit substance use the perceived 'riskiness' of stimulant drink consumption (FSPB, 2002) means that these aspects of the individual and their world may be important. It is perhaps unsurprising that male, older and urban young people would be more likely to have consumed stimulant drinks than others. The predictors associated with stimulant drinks as a mixer and stimulant drinks on their own are slightly different, for stimulant drinks on their own they are; sensation seeking, intention to consume stimulant drinks and self-reported exposure to television advertising. For stimulant drinks with alcohol, perceiving that your peers drink stimulant drinks, self-reported poor relationship with parents and intention to consume stimulant drinks were all significant predictors.

The 2002 HBSC data provide a picture of the frequency of stimulant drink consumption from a different perspective. A number of factors mitigate against drawing direct comparisons between these data and those collected for the stimulant drink survey. Second, the data were collected from school going children only and in classroom situations. Therefore the age of the sample is much lower and amongst the over 15 year olds, includes only those who have remained in full time education. In addition the data was collected almost a year after that from Landsdowne Marketing and approximately 8 months after that of the stimulant drinks survey, and this in a context where consumption is reported to have dropped 20% between 2000 and 2001 (FSPB, 2002). Given all of these factors (relative youth, school-going only and more recent data collection), we would expect rates of consumption to be lower. This is indeed the case.

If stimulant drink consumption is considered to be a public health issue and if attempts are to be introduced to reduce consumption these data suggest where we could begin. It is clear that some young people report higher levels of consumption

than others and therefore that preventive education should commence with and target young urban males before the age of 18. It is clear that targeting perceived social norms in the form of perceived peer use may be a useful strategy, as could providing alternative recreational activities which could stimulate or satisfy young peoples' desire to seek sensation. Parental support is also crucial and both young people and parents need to be supported in their relationships with each other. None of these risk factors are unique to stimulant drink consumption and national government policy in both the Republic of Ireland and the United Kingdom recognise and have developed strategic policy in these areas. This report provides further support for these activities. While evidence for the influence of television advertising is not as strong, the watchdog activities of the ASAI and the ASA (UK) should continue. The context for high levels of stimulant drink consumption is clearly with alcohol in licensed premises and therefore the liaison and consultation with members of the licensed trade is important. This is particularly relevant to point of sale advertising and promotions, which fall outside of the ASAI code of practice. Finally, the regulation of sampling teams and student brand managers could be both strengthened and enforced.

References

- Dring, C. (2001) Focus group reports on stimulant drink consumption. Unpublished report, Department of Health Promotion, NUI Galway.
- Food Safety Promotions Board (2002) A review of the health effects of stimulant drinks. Cork: FSPB.
- Friel, S., Nic Gabhainn, S. & Kelleher, C.C. (1999) The National Health and Lifestyle Surveys; SLAN and HBSC. Galway: Centre for Health Promotion Studies, NUI Galway.
- Hibell, B., Andersson, B., Bjarnason, T., Kokkevi, A., Morgan, M. & Norilsk, A. (1997). The 1995 ESPAD report: alcohol and other drug use among students in 26 European countries. Stockholm: Swedish Council for Information on Alcohol and Other Drugs.
- Petraitis, J., Flay, B.R., & Miller, T.Q. (1995). Reviewing theories of adolescent substance use: Organizing pieces in the puzzle. *Psychological Bulletin*, 117(1), 67-68.