Title: Alcohol and youth mental health- The evidence base.
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Declaration of Interest: none
Summary
The My World Survey- Second Level (MWS-SL) assessed alcohol-related behaviours in 6,085 adolescents. Findings demonstrated a significant shift in the frequency, binge drinking and volume of alcohol consumed across the school year. Alcohol use in the Senior Cycle was a particular concern, with 35% outside the low risk category for alcohol behaviour. The MWS-SL found a strong relationship between alcohol use and mental health distress. Risky alcohol behaviour was associated with family conflict and other negative behaviours.
Underage drinking is a major public health concern in many parts of the world. The initiation of alcohol consumption, and heavy or risky drinking begins during adolescence.¹ Patterns of alcohol use increase during adolescence and the peak period for alcohol consumption and alcohol-related harm occurs in late adolescence and early adulthood.²,³ Heavy drinking by adolescents can have several serious health and social consequences, including impairments in cognitive functioning, poor school performance,⁴ future risk of development of alcohol problems,⁵ fatal and nonfatal accidents,⁶ and poor psychosocial outcomes.⁷

Adolescence is also the stage in life when most mental health problems begin.⁸ There is an increase in mental health difficulties during adolescence, and international research indicates that 75% of all mental health disorders occur before the age of 25 years.⁹,¹⁰ The onset of alcohol use and mental difficulties occur for many during the adolescent years.¹¹ Use of alcohol and mental health problems often co-occur among adolescents as reflected in both a high risk of substance use in youth with mental health difficulties and a high frequency of psychopathology among adolescents who use alcohol.¹²,¹³,¹⁴ There is evidence that adolescents who use alcohol are at increased risk for developing mental health difficulties including emotional and behavioural problems.⁷,¹⁵ Further research is needed to understand the onset and progression of alcohol use and mental health difficulties during adolescence and the link between adolescents early alcohol use and mental health difficulties.

Research has identified a number of risk and protective factors for adolescents drinking. Risk and protective factors range from personal to cultural. An important consideration is whether these factors are malleable, for example, socioeconomic status (SES) is difficult to change, however, some psychological characteristics and social factors can successfully be changed leading to positive outcomes. Psychological factors, which have been shown to act as protective factors include self-regulation or the ability toward self-control, while parenting is an important social factor that can act as both risk or protective for adolescents’ alcohol use. Personality factors such as impulsivity and disinhibited behaviors can be potential risk factors for early onset of alcohol use.¹

The main aims of this paper are to (i) profile drinking behaviour in a large sample of second-level students, in terms of frequency, binge drinking and typical drinking
volume; (ii) determine the association between drinking behaviour and mental health and (iii) identify risk and protective factors associated with adolescent drinking.

1. Method
A cross-sectional study was conducted with 6,085 adolescents in 72 randomly selected post-primary schools in Ireland. Participants ranged in age from 12-19 years (M=14.94, SD=1.63), 51% were female and 59% were in the Junior Cycle. Participants completed the My World Survey- Second Level (MWS-SL), which contains a battery of psychometrically reliable instruments assessing risk and protective factors of psychological health.16

1.1 Alcohol Use Disorders Identification Test (AUDIT)
The World Health Organization AUDIT tool is a 10-item screener for high risk alcohol consumption.17 The AUDIT has been shown to be a valid and reliable tool for identifying adolescents’ alcohol behaviour.18

1.2 Risk Factors
1.2.1 Behavioural Adjustment Scale (BAS)
A 13-item version of the Behavioural Adjustment Scale (BAS) was used to assess the frequency that adolescents engage in behaviours that challenge familial and social standards and pose some risk to their own and others’ well-being.19 The BAS has been shown to have acceptable validity.19,20

1.2.2 Depression, Anxiety and Stress Scale (DASS-21)
The Depression, Anxiety and Stress Scale (DASS)-21 is a self-report measure in which participants rate the frequency and severity of experiencing negative emotions over the previous week. Using recommended cut-off scores, adolescents are classified as displaying normal, mild, moderate, severe, or very severe symptoms of depression, anxiety or stress.21 The validity of the DASS-21 has been consistently demonstrated.22

1.3 Protective Factors
1.3.1 Brief Multidimensional Students’ Life Satisfaction Scale (BMSLSS)
The BMSLSS is a 6-item measure which assessing satisfaction with family life, friends, school experience, ‘myself’, ‘where I live’ and with ‘my overall life’.23 The BMSLSS has shown adequate reliability and validity for adolescents.24
1.3.2. Resilience Scale for Adolescents (READ)

The READ is a 28-item measure of adolescent resilience. This scale focuses on how the adolescent relates to family and friends, and the degree to which they are goal-oriented. Two factors of the READ included in the current study were: Personal Competence (PC), and Family Cohesion (FC). The READ has shown adequate psychometric properties and promising validity.

2. Results

The AUDIT tool is used to categorize drinking behaviour based on international cutoffs and to generate data with regard to drinking frequency, binge drinking behaviour and typical volume of drinking. Data presented here investigating the relationships between school year and frequency, binging and volume were significant using chi-square analyses.

2.1 Profile of Drinking Behaviour Across School Year

Overall, 49% of the second level sample reported never drinking alcohol, while 22% reported drinking less than once a month, 18% drink monthly and a further 10% drink weekly. Of the sample, 83% of 1st years and 68% of 2nd years reported never drinking and this percentage decreased across school year, with only 8.5% of 6th years who reported never drinking. Third years, most typically, reported drinking less than monthly at 29%. In the Senior Cycle, the frequency of drinking increased and this was particularly evident in 5th and 6th year. By 5th year, the typical frequency of drinking was monthly (32%, mean age =16.47) and a further 19% drink weekly. By 6th year, 28% drink weekly (mean age=17.5). Patterns for males and females were broadly similar, with few differences.

2.2 Binge Drinking

For the purpose of the data presented here, binge drinking is defined as six or more drinks in one sitting or session. Overall, 30% of the second-level sample reported never binge drinking. Only 63% of 1st years and 10% of 6th years reported never binge drinking. The frequency of binge drinking for 3rd years tended to be less than once a month (35%). By 5th year, typical binge frequency is monthly (35%), and 18% weekly. By 6th year, binging monthly is 36%, but binging weekly had risen to 24%.
2.3 Typical Drinking Volume
The typical drinking volume for adolescents was 1-2 drinks (22%), 3-4 drinks (28%), 5-6 (26%), 7-9 drinks (15%), and 10 or more (9%). The typical drinking volume for 1st years, 2nd years and 3rd years was 1-2 drinks. The volume increases by 4th year to 3-4 drinks (38%), a further increase was seen in 5th year with 31% consuming 5-6 drinks, and a further 20% consuming 7-9 drinks. By 6th year, 31% consume 5-6 drinks, 24% consume 7-9 drinks, and over 14% report that they drink 10 or more drinks on a typical drinking occasion. This steady progression was most evident among females.

2.4 Behavioural Consequences of Drinking
16% of those in the Senior Cycle reported having injured themselves or someone else when drinking in the past year, while only 6% reported that an adult in their lives had expressed concerns to cut down on their drinking behaviour in the past year. This may suggests a potential lack of awareness among adults in relation to their adolescents’ risk behaviour and drinking.

2.5 Alcohol Behaviour Classification
From Table 1, it is evident that 35% of students in the Senior Cycle fall outside the low risk range for alcohol behaviour, with over 9% falling into categories indicative of dangerous levels of drinking. Scoring in the ‘hazardous’ or ‘possible alcohol dependence’ categories include alcohol-related consequences such as alcohol-related injuries, blackouts, or loss of control over drinking.

[Insert Table 1 here]

The mean score on the AUDIT for 6th years was 8.5, thus, as a cohort, the average sixth year’s AUDIT score falls outside the low risk range.

2.6 Alcohol and Mental Health
Using the DASS recommended cutoffs, 70% of adolescents were classified as having normal levels of depression, 11% were in the mild range for depression, 11% were in the moderate range, 4% were in the severe and another 4% were in the very severe range for depression.

A strong association was observed between categories of drinking behaviour and severity of depression, $\chi^2(12, N=5361)=325.54$, $p<.001$. Drinking excessively was found to increase the risk for depressive symptoms. In the Junior Cycle, 2% were classified as having a possible alcohol dependence. For those with possible alcohol dependence, 12% were found to have severe depression, $\chi^2(12, N=3016)=232.42$, $p<.001$. Similar patterns were observed for those in the Senior Cycle, $\chi^2(12, N=2345)=118.13$, $p<.001$. The patterns seen for depression were also evident for anxiety and stress. This clearly demonstrates the strong link between alcohol behaviour and levels of distress.

[Insert Table 2 here]

2.7 Risk and Protective Factors for Alcohol Behaviour

Personal competence, family cohesion and life satisfaction are significantly linearly related to alcohol behaviour (Table 2). With increases in problem drinking behaviour these protective factors decrease. The opposite pattern is evident with risk factors. The BAS scores, indicative of school misconduct and other conduct behaviours, increases with problem drinking as does substance misuse. The strongest associations were observed for the risk factors.

3 Discussion

Data on Irish adolescents alcohol patterns indicate that alcohol consumption is typically beginning in mid-adolescence and significant binging is evident by 5th year in school. In 6th year the average score on the AUDIT is already outside the low risk range, with only 8.5% of that year group not drinking. These data concur with patterns seen elsewhere in Europe. These findings demonstrate that there is a significant shift in the frequency, binge drinking and volume of alcohol consumed across the school year, where alcohol use becomes a particular concern among adolescents in the Senior Cycle.
The MWS-SL clearly demonstrates the negative associations between alcohol behaviour and mental health in a sample of adolescents still attending second level education. The results concur with Storr et al.\textsuperscript{11} and other researchers and highlight the importance of research in this area. The MWS-SL also highlight that alcohol behaviour is not only linked to mental difficulties but also to other risk and protective factors in a young person’s life. Significant alcohol problems is linked to significant reductions in a young person’s personal competence, decreases in family cohesion (increases in family conflict), significantly impacts on life satisfaction and increases negative behaviours such as school misconduct and other substance misuse. This is consistent with research showing that those who engage in conduct or deviant behaviours in early adolescence are at greater risk of alcohol use later in adolescence.\textsuperscript{27}

4. Implications
Given the cross-sectional nature of the study, this study cannot identify whether mental health distress might prompt alcohol consumption among adolescents (i.e., adolescents with symptoms of depression might use alcohol to self-medicate) or that alcohol consumption gives rise to the emergence of mental health difficulties. The observed co-occurrence may be a combination of bi-directional process.\textsuperscript{7} However, by tackling alcohol behaviour in adolescents the bi-directionality of the association would suggest that other risk behaviours may decrease and protective factors increase. Tackling alcohol behaviours in Irish adolescents will require a multi-faceted approach with the involvement of parents, schools and the wider community. International research on preventing underage drinking suggests that key components of interventions include school strategies focusing on strengthening personal and social protective factors; family approaches such as increasing family cohesion; and community strategies, for example, reduction of alcohol availability through regulation.\textsuperscript{1} In addition, future epidemiological, clinical, and experimental studies are needed to confirm, and extend these results, and to investigate more deeply into explanations for the relationship between alcohol use and adolescents’ emotional difficulties.
Table 1: AUDIT Classification by School Cycle

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Table 2. Risk and Protective Factors for Alcohol Behaviour

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