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Final Paper:

Alcohol Consumption, Stress, and Mental Health Outcomes in Canadian Adults.

1. Introduction

Alcohol use and mental health are two areas of public health that receive constant attention in Canada. Adults regularly report high levels of work and life stress, and many also consume alcohol as part of their routine. These two patterns often overlap, which has led researchers and policymakers to question how drinking behaviour relates to how people feel about their own mental well-being. Although heavy drinking is known to cause harm, the link between typical weekly alcohol consumption and self-rated mental health is less clear. This uncertainty is significant because self-perceived mental health is one of the strongest summary indicators of overall well-being in population health research.

Previous studies show that psychological distress and substance use often occur together. Research on Canadian students, for example, finds that people who report higher anxiety or depressive symptoms are more likely to engage in substance use, alcohol included. Other work shows that stress is strongly related to poorer self-rated mental health among Canadian adults. There is also clear evidence that alcohol contributes significantly to disease burden and hospitalizations, which highlights its broader role in shaping health outcomes. At the same time, these studies generally describe associations rather than a direct relationship between drinking patterns and how individuals rate their mental health.

This leads to a central question: Does drinking more alcohol in a typical week relate to differences in how adults perceive their mental health? The answer is not apparent. Social and economic conditions, personal characteristics, and the presence of stress are likely to matter as much as, or more than, drinking behaviour itself. Still, it is helpful to test whether people who drink more tend to report lower levels of mental well-being once these other factors are taken into account.

This paper uses microdata from the 2019 to 2020 Canadian Community Health Survey to examine this question. The CCHS is a large, nationally representative dataset that includes detailed information on alcohol consumption, mental health ratings, stress measures, and key demographic and socioeconomic variables. The analysis focuses on adults aged 18 and older in Ontario and Quebec, which are the two provinces included in the public microdata file. Mental health is measured using a binary indicator that identifies respondents who describe their mental health as good, very good, or excellent. Alcohol use is calculated as the number of

drinks consumed in a typical week, with additional categories that distinguish between non-drinkers, light drinkers, moderate drinkers, and heavy drinkers.

The goal of this study is to estimate the association between weekly alcohol consumption and the probability of reporting good mental health, while also accounting for age, income, education, sex, immigrant status, visible minority status, and province. These factors are known to be strong predictors of well-being, and controlling for them helps isolate the unique role of alcohol use. The empirical approach uses survey-weighted logistic regression, which ensures that estimates reflect the broader population and that standard errors account for the CCHS's complex design.

Based on prior research, the expectation is that the direct effect of weekly alcohol consumption on mental health will be negligible once these controls are included. Broader social and economic factors are likely to play a much larger role in shaping how individuals perceive their mental health. The analysis presented here allows this hypothesis to be tested directly and provides updated evidence on the relationship between drinking behaviour and mental well-being in a recent Canadian context.

The rest of the paper is organized as follows: Section 2 reviews relevant literature on alcohol use, stress, and mental health. Section 3 describes the dataset and variables. Section 4 outlines the empirical methodology. Section 5 presents descriptive statistics. Section 6 reports the results. Section 7 discusses policy implications. Section 8 concludes our findings.

2. Literature Review

Researchers in Canada have examined the links between alcohol use, mental health, and stress for many years. Although the evidence shows clear connections between psychological distress and substance use, the direction and strength of these relationships depend on the measure being studied. Three areas of the literature are especially relevant to this paper: the relationship between stress and alcohol use, the prevalence of mental health and substance use comorbidity, and the broader population-level burden associated with alcohol use.

A first strand of research focuses on stress as a driver of alcohol consumption. Geda and Feng (2022) use data from the Canadian Community Health Survey to study the relationships between perceived mental health, work stress, life stress, and alcohol use. Their findings show that adults who report higher stress levels tend to drink more frequently and consume larger quantities of alcohol. The authors argue that stress is both a predictor of alcohol use and a reflection of underlying pressures related to work, income, and family life. This supports the idea that alcohol can function as a coping mechanism for some individuals, even if the behaviour is not necessarily classified as heavy or harmful drinking.

A second area of the literature highlights the close association between mental health problems and substance use. Esmaeelzadeh et al. (2018) document high rates of co-occurring anxiety, depression, and substance use among young Canadians. Their study shows that these conditions often reinforce each other. Individuals who report poor mental health are more likely to engage in substance use. At the same time, those who consume alcohol or drugs more frequently are at higher risk of reporting mental health difficulties. Although the study focuses on students, the pattern of comorbidity reflects broader concerns in Canada regarding the interaction between psychological distress and drinking behaviour.

A third strand of research considers the broader population-level impact of alcohol. Sornpaisarn et al. (2020) describe alcohol as one of the leading contributors to disease burden in Canada. Their work emphasizes that alcohol harms are not limited to chronic diseases or injuries but also include social and economic costs that affect families and communities. The authors note that even moderate levels of drinking contribute to a substantial health burden at the population level because the behaviour is so widespread. This suggests that alcohol use is an essential factor in public health planning, regardless of whether it has a strong direct relationship with mental health in survey data.

Taken together, these studies point to essential relationships between stress, substance use, and mental health. Stress appears to influence alcohol use, and poor mental health is often found alongside higher rates of drinking. At the same time, the literature does not establish a clear causal pathway. Many of the observed associations may be driven by underlying socioeconomic conditions, demographic characteristics, or unmeasured factors that shape both alcohol use and perceptions of mental well-being. This is consistent with the view that mental health outcomes are shaped by a wide set of determinants, many of which extend beyond individual behaviour.

The existing literature, therefore, supports a cautious interpretation of any observed relationship between alcohol use and self-rated mental health. While stress and mental health challenges are clearly connected to substance use, it remains uncertain whether drinking more in a typical week translates into noticeably different mental health outcomes once differences in age, income, education, sex, province, and immigrant or minority status are taken into account. This gap motivates the empirical analysis that follows. Using a large and recent Canadian dataset and a consistent model specification, this paper examines whether weekly alcohol consumption is associated with reporting good mental health after controlling for key socioeconomic and demographic characteristics.

3. Data

This study uses microdata from the 2019 to 2020 Canadian Community Health Survey. The CCHS is a nationally representative survey that collects detailed information on health status, behaviours, and socioeconomic characteristics of the Canadian population. The Public Use Microdata File includes respondents from Ontario and Quebec and provides sampling weights that allow results to be generalized to the adult population in these provinces. The analysis focuses on individuals aged 18 and older.

The key outcome variable is self-perceived mental health, which the CCHS measures on a five-point scale ranging from excellent to poor. For this study, a binary indicator of positive mental health is created. Respondents who report excellent, very good, or good mental health are coded as one. Respondents who report fair or poor mental health are coded as zero. This classification is widely used in population health studies and aligns with the structure of the proposal and final presentation.

Weekly alcohol consumption is measured using the CCHS variable that records the number of drinks an individual typically consumes in a week. This variable is used in two ways. First, it is treated as a continuous measure to estimate whether an increase in the number of weekly drinks is associated with differences in mental health. Second, it is grouped into four categories: non-drinkers, light drinkers who consume between one and seven drinks per week, moderate drinkers who consume between eight and twenty drinks per week, and heavy drinkers who

consume twenty-one or more drinks per week. These categories reflect meaningful differences in drinking behaviour and allow the descriptive analysis to highlight how the sample is distributed across different consumption levels.

In addition to alcohol measures and mental health outcomes, the analysis includes several demographic and socioeconomic variables known to be important determinants of well-being. Age is grouped into four categories. Sex is recorded as male or female. Education includes three levels: less than high school, high school completion, and post-secondary education. Household income is measured through national income quintiles. The sample also includes indicators for immigrant status and visible minority status, as well as a provincial identifier for Ontario and Quebec. These variables are used as controls in the regression models because they are strongly related to both drinking behaviour and mental health.

Survey design features of the CCHS are incorporated into all analyses. The sampling weight provided by the survey (WTS_M) is applied via the survey commands in Stata, ensuring that estimates reflect the target population. The use of Taylor linearized standard errors accounts for the complex survey design and provides appropriate inference for the logistic regression models.

After removing individuals younger than eighteen and dropping observations with missing values for mental health or weekly alcohol consumption, the final analytic sample includes 34,570 adults. This sample forms the basis for the summary statistics and the survey-weighted regression models that follow.

4. Methodology

The objective of the empirical analysis is to estimate whether weekly alcohol consumption is associated with the probability of reporting positive mental health among adults in Ontario and Quebec. Because the dependent variable is binary, the study uses logistic regression to model the relationship between alcohol use and mental health. All models incorporate the sampling design of the Canadian Community Health Survey and apply the person weight provided in the

Public Use Microdata File. This ensures that the estimated relationships reflect the underlying population and that standard errors are valid for inference.

The outcome variable is an indicator of positive mental health. It is coded as one for respondents who report that their mental health is good, very good, or excellent. It is coded as zero for respondents who report fair or poor mental health. The key explanatory variable is weekly alcohol consumption. This variable enters the model in its continuous form so that the coefficient measures the association between an additional weekly drink and the probability of reporting positive mental health.

The baseline model estimates the unconditional association between weekly alcohol consumption and mental health. This regression includes no additional variables beyond the key outcome and explanatory variable. The specification is given by:

$$logit(P(mh\_good_i = 1) = \beta_0 + \beta_1 \bullet alwdvwky_i$$

Where:

- $alwdvwky_i$ = weekly alcohol consumption

The extended model adds a set of demographic and socioeconomic characteristics known to influence mental well-being. The control variables include age group, sex, educational attainment, household income quintile, province, immigrant status, and visible minority status. These variables help isolate the unique contribution of alcohol use by accounting for factors that are strongly associated with both drinking behaviour and mental health. The full specification is given by:

$$logit(P(mh\_good_i = 1) = \beta_0 + \beta_1 \bullet alwdvwky_i + X_i'\varphi$$

Where:

- $alwdvwky_i$ = weekly alcohol consumption
- X_i = vector of control variables
- φ = vector of corresponding coefficients

Both models are estimated using the survey-weighted logistic regression command in Stata. The weighting procedure applies the person weight (WTS_M) to each observation, and Taylor linearization is used to compute design-consistent standard errors. This approach accounts for the CCHS's complex survey structure. It ensures that the estimated coefficients represent population-level associations for adults in the two provinces included in the Public Use Microdata File.

The coefficients from the logistic regression models are presented as odds ratios. An odds ratio greater than one indicates that higher weekly alcohol consumption is associated with higher odds of reporting positive mental health. An odds ratio less than one indicates that higher weekly alcohol consumption is associated with lower odds of reporting positive mental health. The control variables are interpreted in the same way. Odds ratios closer to 1 indicate a minimal association, whereas odds ratios above or below 1 indicate stronger associations.

These methods allow the analysis to test whether the association between alcohol consumption and mental health remains once key demographic and socioeconomic characteristics are taken into account. The results from these models are presented in Section 6.

5. Descriptive Analysis

Before estimating the regression models, it is helpful to summarize the main characteristics of the analytic sample. The final sample includes 34,570 adults from Ontario and Quebec. All descriptive statistics use the CCHS sampling weight, which ensures that the estimates reflect the broader adult population in the two provinces.

The sample's self-perceived mental health is generally positive. After grouping excellent, very good, and good responses into a single category, roughly 69 percent of adults report positive mental health, while the remaining 31 percent report fair or poor mental health. The mean value of the underlying five-point mental health scale is 2.93, corresponding to the midpoint of the distribution.

Weekly alcohol consumption varies widely across individuals. The weighted mean is 3.94 drinks per week, but the distribution is skewed, with a large share of people drinking only small amounts. Approximately 39 percent of adults report no alcohol consumption in a typical week. About 45 percent consume between one and seven drinks per week, 13 percent consume between eight and twenty drinks per week, and about 3 percent consume twenty-one or more drinks per week. This distribution indicates that most adults fall within the non-drinking or light-drinking categories.

The demographic composition of the sample is consistent with the population structure of Ontario and Quebec. Adults aged 18 to 34 represent 29 percent of the sample. Those aged 35 to 49 represent 25 percent. Individuals aged 50 to 64 represent 27 percent, and adults aged 65 and older account for 19 percent. The sample is also evenly split by sex, with 51 percent men and 49 percent women. Educational attainment is relatively high, as 86 percent of the weighted sample lives in households with post-secondary education. However, this reflects that the variable is defined at the household rather than the individual level.

Income is measured through national income quintiles, and the distribution is balanced across the five categories. Roughly 17 percent fall into the lowest quintile and 21 percent fall into the highest quintile, with the remaining respondents distributed across the middle three quintiles. About 24 percent of adults in the sample are immigrants, and about 17 percent identify as part of a visible minority group. Finally, 39 percent of the sample resides in Quebec, and 61 percent resides in Ontario.

Taken together, the descriptive statistics indicate a population that is generally in good mental health and drinks modestly on a typical week. They also illustrate that socioeconomic and demographic characteristics vary considerably across individuals. These factors are likely to play an essential role in shaping mental well-being and are included as controls in the regression models presented in the next section.

6. Results

This section presents the results from the survey weighted logistic regression models that examine the association between weekly alcohol consumption and the probability of reporting positive mental health. The coefficients are reported as odds ratios for ease of interpretation.

The baseline model estimates the relationship between weekly alcohol consumption and mental health without additional controls. The results show no meaningful association between drinking behaviour and positive mental health. The odds ratio for weekly alcohol consumption is essentially equal to one, which indicates that an additional weekly drink does not change the probability of reporting good, very good, or excellent mental health in any measurable way. This finding suggests that drinking volume alone does not explain differences in mental well-being between adults in Ontario and Quebec.

The extended model incorporates demographic and socioeconomic characteristics that are known to influence mental health. These include age group, sex, educational attainment, household income quintile, province, immigrant status, and visible minority status. Once these factors are included in the model, the estimated association between weekly drinking and mental health remains small and is not statistically significant at conventional levels. The odds ratio is slightly above one but remains very close to one, which confirms that weekly alcohol consumption does not have a meaningful relationship with positive mental health when accounting for broader determinants of well-being.

Several of the control variables exhibit strong and expected patterns. Age is one of the strongest predictors. Adults aged 50 to 64 and those aged 65 and older have substantially higher odds of reporting positive mental health compared to individuals aged 18 to 34. This pattern aligns with other studies showing that older adults often report more stable well-being than younger adults, even after controlling for socioeconomic differences.

Educational attainment is also a significant predictor of mental health. Respondents living in households with post-secondary education have higher odds of reporting positive mental health than those with less than a high school education. Income shows a similar pattern. Individuals in higher income quintiles have greater odds of reporting positive mental health, which reflects the well-documented relationship between socioeconomic status and well-being.

The results for sex indicate that men have higher odds of reporting positive mental health compared to women. This difference is consistent with population health research that often finds women reporting lower mental health outcomes despite similar or higher levels of social support. Province also matters. Adults living in Quebec have higher odds of reporting positive mental health than those living in Ontario. This provincial difference has been observed in previous CCHS cycles and may reflect regional differences in culture, social networks, or health outcome reporting.

Both immigrant status and visible minority status are related to mental health in the extended model. Non-immigrants have slightly higher odds of reporting positive mental health compared to immigrants, although the effect is relatively modest. Individuals who do not identify as visible minorities also have higher odds of reporting positive mental health. These patterns are consistent with broader evidence that some minority and immigrant groups face additional stressors, socioeconomic barriers, or challenges related to integration that can influence mental well-being.

Overall, the results show that weekly alcohol consumption is not a meaningful predictor of positive mental health once differences in age, income, education, sex, province, and minority or immigrant status are taken into account. The factors that show strong associations with mental health are structural and socioeconomic rather than behavioural. This finding supports the idea that moderate drinking plays a limited role in shaping subjective well-being at the population level.

7. Policy Implications

The results of this study have several implications for public health and mental health policy in Canada. The analysis shows that weekly alcohol consumption does not have a meaningful relationship with self-reported mental health once demographic and socioeconomic differences are taken into account. This suggests that reducing drinking levels alone is unlikely to produce substantial improvements in mental well-being at the population level. Policies aimed at mental health improvement should therefore focus on the broader conditions that influence stress, economic stability, and quality of life.

The strongest predictors of positive mental health in the extended model are income, education, age, and sex. These findings highlight the importance of addressing structural determinants of well-being. Adults with higher levels of education and income are significantly more likely to report positive mental health. This suggests that policies that support access to education, income stability, job security, and poverty reduction can have meaningful effects on mental health outcomes. Interventions that focus only on health behaviours, without addressing underlying social and economic inequalities, may have limited impact.

The results also show that women, immigrants, and visible minority respondents have lower odds of reporting positive mental health compared to their respective reference groups. This pattern points to the need for targeted mental health supports for groups that experience additional stressors or barriers. These could include culturally informed services, community-based mental health programs, and expanded access to primary care for populations that have historically faced inequities in the Canadian health system.

The provincial difference observed in the analysis, with Quebec residents reporting better mental health than Ontario residents, suggests that regional policy contexts also play a role. Differences in social programs, community support networks, or health system structures could contribute to this gap. Examining these contextual factors further may help identify policies that promote stronger mental well-being across provinces.

Although alcohol consumption itself does not appear to be closely linked to mental health in this analysis, this does not mean that alcohol policies are unimportant. Alcohol continues to contribute to significant health and social costs in Canada. Policies that reduce high-risk drinking, such as pricing regulations and public awareness campaigns, remain important for reducing acute and chronic harms. However, the results of this study suggest that such policies should not be expected to produce substantial changes in population mental health unless they are paired with broader initiatives that address stress, inequality, and access to mental health supports.

Overall, the findings support a comprehensive approach to mental health policy that prioritizes social and economic determinants while maintaining responsible public health strategies related to alcohol consumption. Improving mental well-being among Canadian adults requires coordinated efforts that extend beyond individual behaviours and address the broader conditions in which people live and work.

8. Conclusion

This study examined whether weekly alcohol consumption is associated with the probability of reporting positive mental health among adults in Ontario and Quebec. Using data from the 2019 to 2020 Canadian Community Health Survey and applying survey-weighted logistic regression, the analysis focused on adults aged eighteen and older. It accounted for a comprehensive set of demographic and socioeconomic characteristics. Mental health was measured through a binary indicator that identified respondents who rated their mental health as good, very good, or excellent.

The results show that weekly alcohol consumption has no meaningful association with positive mental health. In both the baseline and extended models, the odds ratios for weekly drinking were close to one, and the estimates were small across specifications. This suggests that drinking behaviour, at least when measured as total weekly consumption, does not explain differences in mental well-being among adults in the two provinces included in the dataset.

In contrast, several demographic and socioeconomic variables showed strong and consistent relationships with mental health. Adults with higher levels of income and education were more likely to report positive mental health, as were older individuals relative to those in younger age groups. Men also reported higher odds of positive mental health than women. Immigrant status and visible minority status were associated with somewhat lower mental health ratings, while residents of Quebec reported better mental health outcomes than those in Ontario. These patterns align with the broader literature linking mental well-being to social and economic determinants.

The findings therefore support the view that mental health outcomes are shaped more by structural and socioeconomic conditions than by moderate alcohol consumption. Although alcohol use remains a significant public health concern for many reasons, the analysis suggests that reducing weekly drinking levels is unlikely to produce substantial improvements in mental well-being unless broader determinants of stress, income stability, and social conditions are addressed at the same time. Policies aimed at improving mental health should prioritize these broader determinants while maintaining evidence-based strategies for reducing the harms associated with high-risk drinking.

Overall, the study provides updated evidence on the relationship between drinking behaviour and mental health using recent, representative Canadian data. While alcohol consumption does not appear to be a strong predictor of self-perceived mental health, the analysis highlights the importance of socioeconomic conditions in shaping well-being. Future research could explore other dimensions of alcohol use, such as binge drinking or drinking frequency, or examine interactions between drinking behaviour and stress levels. Additional work could also investigate subgroup differences and explore how experiences vary across demographic and regional contexts. These extensions may help clarify the mechanisms through which alcohol use and mental health are connected and provide further insight for public health policy.

References

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Appendix

Section A - Descriptive Analysis

Table A1 - Mean Mental Health Score and Weekly Alcohol Consumption (svy: mean)

```
. svy: mean gendvmhi alwdvwky
(running mean on estimation sample)

Survey: Mean estimation

Number of strata =      1          Number of obs    =     34,570
Number of PSUs   = 34,570          Population size = 13,663,590
                                   Design df       =     34,569
```

	Mean	Linearized std. err.	[95% conf.	interval]
gendvmhi	2.925389	.008489	2.90875	2.942027
alwdvwky	3.942225	.0569044	3.830691	4.053759

Table A2 - Weekly Alcohol Consumption Categories (svy: tab alc_cat)

```
. svy: tab alc_cat, percent
(running tabulate on estimation sample)

Number of strata =      1                       Number of obs    =     34,570
Number of PSUs   = 34,570                       Population size = 13,663,590
                                                 Design df       =     34,569

------------------------
  alc_cat   | percentage
------------+-----------
 0 drinks   |      38.88
  1-7 dri   |      44.97
  8-20 dr   |      13.05
 21+ drin   |      3.105
            |
    Total   |        100
------------------------
Key: percentage = Cell percentage
```

Table A3 - Age Distribution (svy: tab dhhgage)

```
. svy: tab dhhgage, percent
(running tabulate on estimation sample)

Number of strata =      1                       Number of obs    =     34,570
Number of PSUs   = 34,570                       Population size = 13,663,590
                                                 Design df       =     34,569

------------------------
Age -
Grouped    | percentage
-----------+------------
 18 to 34  |      29.15
 35 to 49  |      24.88
 50 to 64  |      26.69
 65 and o  |      19.28
           |
    Total  |        100
------------------------
Key: percentage = Cell percentage
```

Table A4 - Sex Distribution (svy: tab DHH_SEX)

```
. svy: tab DHH_SEX, percent
(running tabulate on estimation sample)

Number of strata =      1                       Number of obs    =     34,570
Number of PSUs   = 34,570                       Population size = 13,663,590
                                                 Design df       =     34,569

------------------------
Sex at
birth      | percentage
-----------+------------
     Male  |      51.07
   Female  |      48.93
           |
    Total  |        100
------------------------
Key: percentage = Cell percentage
```

Table A5 - Education Distribution (svy: tab EHG2DVH3)

```
. svy: tab EHG2DVH3, percent
(running tabulate on estimation sample)

Number of strata =      1                       Number of obs    =     32,850
Number of PSUs   = 32,850                      Population size = 13,026,589
                                                Design df       =     32,849

------------------------------
Highest     |
level of    |
education   |
-           |
household   |
, 3         |
levels -    |
(D)         |  percentage
------------+-----------------
 Less tha   |       3.536
 Secondar   |       10.75
 Post-sec   |       85.71
            |
    Total   |         100
------------------------------
Key: percentage = Cell percentage
```

Table A6 - Household Income Quintile Distribution (svy: tab incdgrca)

```
. svy: tab incdgrca, percent
(running tabulate on estimation sample)

Number of strata =      1                       Number of obs    =     33,872
Number of PSUs   = 33,872                      Population size = 13,552,485
                                                Design df       =     33,871

------------------------------
Distribut |
ion of    |
household |
income    |
ratio -   |
national  |
level -   |
(D, G)    | percentage
----------+-------------------
 Quintile |       16.89
 Quintile |        19.8
 Quintile |       20.72
 Quintile |       21.68
 Quintile |       20.92
          |
    Total |         100
------------------------------
Key: percentage = Cell percentage
```

Table A7 - Provincial Distribution (svy: tab geogprv)

```
. svy: tab geogprv, percent
(running tabulate on estimation sample)

Number of strata =      1                       Number of obs    =     34,570
Number of PSUs   = 34,570                      Population size = 13,663,590
                                                Design df       =     34,569
```

Province of residence of respondent	percentage
quebec	39.5
ontario	60.5
Total	100

Key: percentage = Cell percentage

Table A8 - Visible Minority Status (svy: tab sdcdvfla)

```
. svy: tab sdcdvfla, percent
(running tabulate on estimation sample)

Number of strata =      1                       Number of obs    =     33,829
Number of PSUs   = 33,829                       Population size = 13,308,807
                                                Design df       =     33,828
```

Visible minority flag - (D)	percentage
Visible	16.78
Not a vi	83.22
Total	100

Key: percentage = Cell percentage

Table A9 - Immigrant Status Distribution (svy: tab sdcdvimm)

```
. svy: tab sdcdvimm, percent
(running tabulate on estimation sample)

Number of strata =      1                       Number of obs    =     33,957
Number of PSUs   = 33,957                      Population size = 13,403,389
                                                Design df       =     33,956
```

Immigrant flag - (D)	percentage
Landed i	23.58
Non-immi	76.42
Total	100

Key: percentage = Cell percentage

Section B - Regression Results

Table B1 - Baseline Logistic Regression Model (Odds Ratio)

```
Survey: Logistic regression

Number of strata =      1                       Number of obs    =     34,570
Number of PSUs   = 34,570                       Population size = 13,663,590
                                                Design df       =     34,569
                                                F(1, 34569)     =       0.00
                                                Prob > F        =     0.9523
```

mh_good	Odds ratio	Linearized std. err.	t	P>|t|	[95% conf.	interval]
alwdvwky	.9998306	.0028325	-0.06	0.952	.9942942	1.005398
_cons	2.303721	.0550117	34.95	0.000	2.198381	2.414109

Table B2 - Extended Logistic Regression Model with Controls (Odds Ratio)

Number of strata = 1 | Number of obs = 31,384
Number of PSUs = 31,384 | Population size = 12,560,522
Design df = 31,383
F(14, 31370) = 24.93
Prob > F = 0.0000

mh_good	Odds ratio	Linearized std. err.	t	P>|t|	[95% conf.	interval]
alwdvwky	1.005225	.0032641	1.60	0.109	.9988471	1.011643
dhhgage						
35 to 49 years	.9492996	.0632614	-0.78	0.435	.8330613	1.081757
50 to 64 years	.6270635	.0403394	-7.25	0.000	.5527783	.7113314
65 and older	.5023772	.0303242	-11.40	0.000	.4463218	.5654727
DHH_SEX						
Female	1.3754	.0592244	7.40	0.000	1.264082	1.496522
EHG2DVH3						
Secondary school graduation, no post-secondary edu..	.7994256	.0786068	-2.28	0.023	.6592907	.9693467
Post-secondary certificate/diploma / university de..	.7427036	.0635972	-3.47	0.001	.6279497	.8784279
incdgrca						
Quintile 2	.8450701	.0650382	-2.19	0.029	.7267416	.9826647
Quintile 3	.8745048	.067341	-1.74	0.082	.7519919	1.016977
Quintile 4	.7682638	.0595273	-3.40	0.001	.6600158	.8942655
Quintile 5	.6804273	.0531437	-4.93	0.000	.5838449	.7929869
geogprv						
quebec	.7032343	.0309568	-8.00	0.000	.6451018	.7666054
sdcdvfla						
Not a visible minority	1.208401	.105409	2.17	0.030	1.018492	1.43372
sdcdvimm						
Non-immigrant (Canadian born)	1.165305	.078953	2.26	0.024	1.020389	1.330801
_cons	3.694577	.4500047	10.73	0.000	2.909934	4.690793

Section C - Do-Files

Summary Stats - Do-File 1

```
*******************************************************
* CCHS 2019-20 PUMF – Summary Statistics Do-file
* Creates cleaned analytic sample + summary stats
*******************************************************
log using final_output.log, replace text
version 17.0
clear all
set more off
set linesize 120

*-------------------------------------------------------
* 1. Set working directory and open data
*-------------------------------------------------------
* EDIT THIS PATH TO WHERE YOUR .dta FILE LIVES
cd "C:\Users\user\Downloads\research proposal\cchs 19-20\cchs_201920_stata_dta\stata"
use "cchs_201920_pumf.dta", clear

* Optional: start a log file
* capture log close
* log using "cchs_summstats.log", replace text

*-------------------------------------------------------
* 2. Define analytic sample
*   - Drop 12–17 (keep 18+)
*   - Clean mental health DV
*   - Keep nonmissing DV & main IV
*-------------------------------------------------------

* Age group dhhgage: drop youngest group (likely 12–17)
drop if dhhgage == 1

* Mental health DV: gendvmhi
* In the PUMF, 0 looks like a non-valid category.
* Check the user guide; if 0 = Not applicable, this is correct:
```

```
recode gendvmhi (0 = .)

* Keep only observations with defined mental health and weekly alcohol
drop if missing(gendvmhi, alwdvwky)

*-----------------------------------------------------
* 3. Create weekly alcohol categories (from alwdvwky)
*-----------------------------------------------------

capture drop alc_cat

gen alc_cat = .
replace alc_cat = 0 if alwdvwky == 0
replace alc_cat = 1 if alwdvwky > 0   & alwdvwky <= 7
replace alc_cat = 2 if alwdvwky >= 8  & alwdvwky <= 20
replace alc_cat = 3 if alwdvwky >= 21

label define alc_cat_lbl ///
    0 "0 drinks/week" ///
    1 "1–7 drinks/week" ///
    2 "8–20 drinks/week" ///
    3 "21+ drinks/week"

label values alc_cat alc_cat_lbl


*-----------------------------------------------------
* 4. (Optional) Inspect and label control variables
*   Check the codebook or built-in labels before editing.
*-----------------------------------------------------

* Quick look at distributions & existing labels
codebook dhhgage DHH_SEX EHG2DVH3 incdgrca geogprv sdcdvfla sdcdvimm

* If you want to override / add simpler labels, UNCOMMENT and
* fill in according to the PUMF user guide:

* Example template (EDIT text & codes to match guide, then remove the *):
* label define agegrp 1 "12–17" 2 "18–34" 3 "35–49" 4 "50–64" 5 "65+"
* label values dhhgage agegrp
*
* label define sex_lbl 1 "Male" 2 "Female"
* label values DHH_SEX sex_lbl
*
```

```
* label define educ_lbl 1 "Less than HS" 2 "High school" 3 "Post-secondary"
* label values EHG2DVH3 educ_lbl
*
* label define inc_lbl 1 "<$20k" 2 "$20–39k" 3 "$40–59k" 4 "$60–79k" 5 "$80k+"
* label values incdgrca inc_lbl
*
* label define imm_lbl 1 "Canadian-born" 2 "Immigrant"
* label values sdcdvimm imm_lbl
*
* label define lang_lbl 1 "Speaks official language(s)" 2 "Does not speak official language(s)"
* label values sdcdvfla lang_lbl

*-----------------------------------------------------
* 5. Survey weighting
*-----------------------------------------------------

svyset [pweight = WTS_M]

*-----------------------------------------------------
* 6. Summary statistics for proposal table
*   - DV: gendvmhi
*   - Main IV: alwdvwky (continuous) + alc_cat (categorical)
*   - Controls: age group, gender, education, income, province,
*               language ability, immigrant status
*-----------------------------------------------------

* 6.1 Continuous variables: means (N, mean, SD)
display "===== CONTINUOUS VARIABLES (MENTAL HEALTH, WEEKLY ALCOHOL) ====="
svy: mean gendvmhi alwdvwky

* 6.2 Alcohol categories: percentage distribution
display "===== WEEKLY ALCOHOL CATEGORIES (alc_cat) ====="
svy: tab alc_cat, percent

* 6.3 Control variables: percentage distributions
display "===== AGE GROUP (dhhgage) ====="
svy: tab dhhgage, percent

display "===== GENDER (DHH_SEX) ====="
svy: tab DHH_SEX, percent

display "===== EDUCATION (EHG2DVH3) ====="
svy: tab EHG2DVH3, percent
```

```
display "===== INCOME (incdgrca) ====="
svy: tab incdgrca, percent

display "===== PROVINCE (geogprv) ====="
svy: tab geogprv, percent

display "===== VISIBLE MINORITY (sdcdvfla) ====="
svy: tab sdcdvfla, percent

display "===== IMMIGRANT STATUS (sdcdvimm) ====="
svy: tab sdcdvimm, percent

*-----------------------------------------------------
* 7. (Optional) Save cleaned analysis file
*-----------------------------------------------------
* save "cchs_201920_clean_analytic.dta", replace

* log close
exit
```

Regression - Do-File 2

```
*******************************************************
* CCHS 2019-20 PUMF – Logistic Regression Do-file
* Binary mental health DV + weighted logistic models
*******************************************************

version 17.0
clear all
set more off
set linesize 120

*-----------------------------------------------------
* 1. Set working directory and open data
*-----------------------------------------------------
cd "C:\Users\user\Downloads\research proposal\cchs 19-20\cchs_201920_stata_dta\stata"
use "cchs_201920_pumf.dta", clear

*-----------------------------------------------------
* 2. Define analytic sample
*-----------------------------------------------------

* Drop 12–17 (keep only adults)
```

```
drop if dhhgage == 1

* Clean mental health DV (0 is not valid)
recode gendvmhi (0 = .)

* Keep only observations with mental health + alcohol data
drop if missing(gendvmhi, alwdvwky)

*--------------------------------------------------
* 3. Create binary mental health DV
*--------------------------------------------------

gen mh_good = .
replace mh_good = 0 if gendvmhi >= 4 & gendvmhi != .
replace mh_good = 1 if gendvmhi <= 3 & gendvmhi != .

label define mh_good_lbl 0 "Poor/fair mental health" 1 "Good/very good/excellent"
label values mh_good mh_good_lbl
label var mh_good "Good mental health (1=yes)"

*--------------------------------------------------
* 4. Alcohol variable(s)
*--------------------------------------------------

label var alwdvwky "Weekly alcohol consumption (drinks)"

capture drop alc_cat

gen alc_cat = .
replace alc_cat = 0 if alwdvwky == 0
replace alc_cat = 1 if alwdvwky > 0   & alwdvwky <= 7
replace alc_cat = 2 if alwdvwky >= 8  & alwdvwky <= 20
replace alc_cat = 3 if alwdvwky >= 21

label define alc_cat_lbl ///
    0 "0 drinks/week" ///
    1 "1–7 drinks/week" ///
    2 "8–20 drinks/week" ///
    3 "21+ drinks/week"

label values alc_cat alc_cat_lbl


*--------------------------------------------------
```

```
* 5. Label controls (variables already clean)
*-----------------------------------------------------

label var dhhgage   "Age group"
label var DHH_SEX   "Sex at birth"
label var EHG2DVH3  "Education (3 levels)"
label var incdgrca  "Income quintile (national)"
label var geogprv   "Province"
label var sdcdvfla  "Visible minority flag"
label var sdcdvimm  "Immigrant status"

*-----------------------------------------------------
* 6. Survey weighting
*-----------------------------------------------------

svyset [pweight = WTS_M]

*-----------------------------------------------------
* 7. BASELINE MODEL
*-----------------------------------------------------

display "===== BASELINE MODEL: mh_good on weekly alcohol ====="

svy: logistic mh_good c.alwdvwky, or

*-----------------------------------------------------
* 8. EXTENDED MODEL (with controls)
*   Ontario (35) set as reference: ib35.geogprv
*-----------------------------------------------------

display "===== EXTENDED MODEL: add controls ====="

svy: logistic mh_good ///
    c.alwdvwky ///
    i.dhhgage ///
    i.DHH_SEX ///
    i.EHG2DVH3 ///
    i.incdgrca ///
    ib35.geogprv ///
    i.sdcdvfla ///
    i.sdcdvimm, or


*-----------------------------------------------------
```

```
* Weighting
*-----------------------------------------------------
svyset [pweight = WTS_M]

*-----------------------------------------------------
* Install estout if needed
*-----------------------------------------------------
capture ssc install estout

*-----------------------------------------------------
* BASELINE MODEL
*-----------------------------------------------------
svy: logistic mh_good c.alwdvwky, or
estimates store baseline

*-----------------------------------------------------
* EXTENDED MODEL
*-----------------------------------------------------
svy: logistic mh_good ///
    c.alwdvwky ///
    i.dhhgage ///
    i.DHH_SEX ///
    i.EHG2DVH3 ///
    i.incdgrca ///
    ib35.geogprv /// Ontario base
    i.sdcdvfla ///
    i.sdcdvimm, or
estimates store extended

*-----------------------------------------------------
* EXPORT TABLE (THIS IS WHAT YOU NEED)
*-----------------------------------------------------
esttab baseline extended using "mh_logit_results.rtf", ///
    replace ///
    eform ///
    b(3) se(3) ///
    star(* 0.10 ** 0.05 *** 0.01) ///
    stats(N, fmt(0) labels("N")) ///
    label ///
    title("Weighted Logistic Regression: Good Mental Health (Odds Ratios)")
log close

exit
```