**Research Question**

Does household income, education, religious attendance, and gender predict self-rated life satisfaction in Canada?

**Software and Computing Environment**

RStudio: 2025.09.0 Build 387, “Cucumberleaf Sunflower” Release (af5fc22a, 2025-09-11) for Windows

R: version 4.5.1 (2025-06-13 ucrt)

Quarto: 1.7.32

Required packages**:** tidyverse, survey, broom

**Program:**

1. Load packages and import the GSS 2017 data in RStudio.
2. Generate unweighted counts for selected variables (pre-cleaning).
3. Clean and recode outcome, predictors, and covariates.
4. Create the survey design with person weights and bootstrap replicate weights.
5. Produce weighted descriptive statistics for the analytic variable
6. Run regressions:
   * Bivariate linear regression (life satisfaction ~ income).
   * Multiple regression (life satisfaction ~ income + education + religious attendance + gender).
7. Save cleaned data and analysis outputs for reproducibility.

**Steps**

1. Load data and environment

* Opened RStudio 2025.09.0 Build 387 (“Cucumberleaf Sunflower” Release) on Windows, running R version 4.5.1 (2025-06-13 ucrt).
* Loaded the GSS 2017 file (gss-12M0025-E-2017-c-31\_F1.csv) into RStudio.
* Loaded required packages: tidyverse, survey, broom.

2. Unweighted counts (pre-cleaning)

* Examined raw frequencies of life satisfaction, household income, education, religious attendance, and gender.
* This step showed distributions before any missing codes or recoding were applied.

**3**. Clean and recode variables

* Outcome: Life satisfaction (SLM\_01) was kept as a continuous 0–10 scale; special codes (96–99) were treated as missing.
* Predictor: Household income (FAMINCG2) recoded into six categories: < $25k, $25–49,999, $50–74,999, $75–99,999, $100–124,999, $125k+.
* Covariates:
  + Education (EHG3\_01B) recoded into seven categories: *Less than HS, HS diploma/equiv (reference), Trade/Tech diploma, College/CEGEP, Univ < Bachelor, Bachelor’s, Postgrad*.
  + Religious attendance (REE\_03) recoded into six categories: *Not at all (reference), 1–2x/year, 3x/year, Monthly, Weekly, Daily*.
  + Gender (SEX) recoded into two categories: *Male (reference), Female*.
* All cases with missing data on these variables were excluded.
* Final unweighted analytic sample size: N = 19,772.
* Save cleaned dataset and outputs
  + Saved model objects for reproducibility (2017\_GSS\_models.Rds).

4. Define survey design

* Applied Statistics Canada’s survey weights to make results nationally representative.
* Created a survey design object with:
  + Person weight (WGHT\_PER).
  + Bootstrap replicate weights (WTBS\_001 … WTBS\_500).
* Allowed descriptive statistics and regressions were weighted properly.

5. Weighted descriptives (Table 1)

* Generated table for weighted mean and SD for life satisfaction.
* Generated table for weighted proportions and 95% confidence intervals for income, education, religious attendance, and gender.

6. Regression analyses

* Bivariate regression: Modeled life satisfaction as a function of household income (Table 2).
* Multivariate regression: Modeled life satisfaction as a function of household income, education, religious attendance, and gender (Table 3).

**Table 1**

Weighted Descriptive Statistics for Household Income, Education, Religious Attendance, and Gender (Unweighted N = 19,772)

|  |  |  |
| --- | --- | --- |
|  | **%** | **95% CI** |
| **Household income** |  |  |
| < $25k | 10.3 | 9.8–10.9 |
| $25–49,999 | 17.9 | 17.3–18.6 |
| $50–74,999 | 16.4 | 15.8–17.1 |
| $75–99,999 | 14.5 | 13.9–15.2 |
| $100–124,999 | 11.6 | 11.0–12.2 |
| $125k+ | 29.2 | 28.3–30.0 |
| **Education** |  |  |
| Less than HS | 14.5 | 13.9–15.1 |
| HS diploma/equivalent | 24.9 | 24.1–25.7 |
| Trade cert/diploma | 6.7 | 6.3–7.1 |
| College/CEGEP non-univ | 22.3 | 21.5–23.1 |
| Univ < Bachelor | 3.3 | 2.9–3.6 |
| Bachelor’s | 19.4 | 18.6–20.1 |
| Univ > Bachelor | 8.9 | 8.4–9.4 |
| **Religious attendance** |  |  |
| Not at all | 44.9 | 44.0–45.8 |
| At least once a day | 23.6 | 22.8–24.4 |
| At least once a week | 13.4 | 12.8–14.0 |
| At least once a month | 7.8 | 7.3–8.4 |
| At least 3 times/year | 4.6 | 4.2–5.0 |
| Once or twice/year | 5.7 | 5.3–6.1 |
| **Gender** |  |  |
| Male | 49.3 | 49.1–49.5 |
| Female | 50.7 | 50.5–50.9 |

**Table 2**  
*Survey-Weighted Linear Regression Predicting Life Satisfaction from Household Income (Unweighted N = 19,772)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Income** | **b** | **SE** | **t** | **p** |
| Intercept (< $25k) | 7.54 | 0.05 | 143.13 | < .001 |
| $25–49k | 0.38 | 0.06 | 6.09 | < .001 |
| $50–74k | 0.54 | 0.06 | 8.54 | < .001 |
| $75–99k | 0.61 | 0.06 | 9.62 | < .001 |
| $100–124k | 0.78 | 0.07 | 11.55 | < .001 |
| $125k+ | 0.77 | 0.06 | 13.17 | < .001 |

**Note.** Estimates are from survey-weighted linear regression with bootstrap replicate weights. Reference category = Household income < $25k.  
Omnibus Wald test for income: *F*(5, 494) = 45.99, *p* < .001.

**Table 3**

*Survey-Weighted Linear Regression Predicting Life Satisfaction from Household Income, Education, Religious Attendance, and Gender (Unweighted N = 19,772)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Predictor** | **b** | **SE** | **t** | **p** |
| **Intercept** | 7.38 | 0.07 | 112.39 | <.001 |
| **Household income** |  |  |  |  |
| $25–49k | 0.38 | 0.06 | 6.10 | < .001 |
| $50–74k | 0.55 | 0.06 | 8.71 | < .001 |
| $75–99k | 0.64 | 0.06 | 10.00 | < .001 |
| $100–124k | 0.81 | 0.07 | 11.65 | < .001 |
| $125k+ | 0.80 | 0.06 | 13.45 | < .001 |
| **Education** |  |  |  |  |
| Less than HS | 0.20 | 0.06 | 3.62 | < .001 |
| Trade/Technical diploma | 0.14 | 0.06 | 2.44 | .015 |
| College/CEGEP | 0.06 | 0.04 | 1.36 | .175 |
| Univ < Bachelor | 0.22 | 0.08 | 2.73 | .007 |
| Bachelor’s | 0.06 | 0.05 | 1.40 | .163 |
| Postgraduate | 0.07 | 0.06 | 1.20 | .231 |
| **Religious attendance** |  |  |  |  |
| Daily | 0.09 | 0.04 | 2.40 | .017 |
| Weekly | 0.07 | 0.04 | 1.70 | .089 |
| Monthly | 0.04 | 0.06 | 0.75 | .454 |
| 3 times/year | -0.08 | 0.08 | -1.06 | .288 |
| 1-2 times/year | -0.03 | 0.06 | -0.54 | .588 |
| **Gender** |  |  |  |  |
| Female | 0.07 | 0.03 | 2.17 | .031 |

**Note.** Reference group: Household income < $25k, Education = HS diploma/equivalent, Religious attendance = Not at all, Gender = Male. Omnibus Wald test for income, education, and religion combined: *F*(16, 482) = 17.22, *p* < .001.