Supplementary material

S1 Supplementary file 1 — Figures

Figure S1: Figure A1. Region map

Figure S2: Average frequency of consumption by gender, substance and year
Table S1: Human Development Index by intervention region

| Region                                      | Population        | HDI  |
|---------------------------------------------|-------------------|------|
| Iguazu River Mouth– Parana, Brazil          | 264,044 inhab.    | 0.751|
| Coronel Oviedo – Caaguazu, Paraguay         | 117,514 inhab.    | 0.521|
| Puerto Iguazu – Misiones, Argentina         | 80,020 inhab.     | 0.817|

Table S2: Number of adolescents by institution

| Inst. Code | Action area       | Country | Total enrolled | Participants |
|------------|-------------------|---------|----------------|--------------|
| 1          | Social services   | Brazil  | 818            | 84           |
| 2          | Social services   | Brazil  | 38             | 4            |
| 3          | Social services   | Brazil  | 140            | 14           |
| 4          | Social services   | Brazil  | 10             | 1            |
| 5          | Social services   | Brazil  | 38             | 4            |
| 6          | Education         | Brazil  | 400            | 41           |
| 7          | Education         | Brazil  | 327            | 34           |
| 8          | Education         | Brazil  | 403            | 41           |
| 9          | Education         | Brazil  | 200            | 21           |
| 10         | Education         | Brazil  | 291            | 27           |
| 11         | Education         | Brazil  | 187            | 19           |
| 12         | Education         | Brazil  | 66             | 7            |
| 13         | Justice           | Brazil  | 59             | 6            |
| 14         | Education         | Brazil  | 326            | 33           |
| 15         | Sports            | Brazil  | 40             | 4            |
| 16         | Health            | Brazil  | 351            | 36           |
| 17         | Health            | Brazil  | 20             | 9            |
| 18         | Education         | Brazil  | 320            | 144          |
| 19         | Social services   | Argentina | 20         | 9            |
| 20         | Social services   | Argentina | 20         | 9            |
|            | Justice           | Argentina | 90         | 41           |
|            | Health            | Argentina | 170        | 42           |
|            | Justice           | Argentina | 186        | 46           |
| 21         | Social services   | Paraguay | 100        | 25           |
| 22         | Sports            | Paraguay | 610        | 150          |
| 23         | Education         | Paraguay | 120        | 29           |
| Total      |                   |         | 5350          | 880          |
Table S3: Alcohol, tobacco and consumption by gender and year

|                | 0 consump. | 1 - 9 days consump. | 10 - 30 days consump. |
|----------------|------------|---------------------|-----------------------|
|                | (1)        | (2)                 | (3)                   |
| Post-treat.    | 0.00       | -0.09***            | 0.04*                 |
| (0.04)         | (0.05)     | (0.02)              | (0.02)                |
| Treatment      | -0.01      | -0.01               | 0.01                  |
| (0.02)         | (0.03)     | (0.01)              | (0.01)                |
| DiD            | 0.08***    | 0.17                | -0.03***              |
| (0.02)         | (0.10)     | (0.04)              | (0.02)                |
| Peer           | -0.03***   | 0.01***             | 0.02**                |
| (0.01)         | (0.00)     | (0.01)              | (0.02)                |
| Post-treat x Peer | 0.01       | -0.01               | 0.00                  |
| (0.00)         | (0.00)     | (0.00)              | (0.00)                |
| Treatment x Peer | -0.00     | 0.00                | 0.00                  |
| (0.00)         | (0.01)     | (0.01)              | (0.01)                |
| DiD x Peer     | -0.03      | 0.01                | 0.02                  |
| (0.03)         | (0.01)     | (0.02)              | (0.02)                |

|                | 10 - 30 days consump. |
|----------------|-----------------------|
| (4)            | (5)                   | (6)                   |
| Post-treat.    | -0.00                 | 0.06*                 |
| (0.04)         | (0.03)                | (0.03)                |
| Treatment      | 0.01                  | -0.02                 |
| (0.03)         | (0.02)                | (0.02)                |
| DiD            | -0.03***              | -0.05***              |
| (0.02)         | (0.10)                | (0.07)                |
| Peer           | -0.03***              | 0.02***               |
| (0.01)         | (0.00)                | (0.01)                |
| Post-treat x Peer | -0.01             | -0.10                 |
| (0.01)         | (0.01)                | (0.01)                |
| Treatment x Peer | 0.01                | 0.00                  |
| (0.00)         | (0.01)                | (0.01)                |
| DiD x Peer     | -0.03                 | 0.02                  |
| (0.03)         | (0.01)                | (0.02)                |

|                | 10 - 30 days consump. |
|----------------|-----------------------|
| (5)            | (6)                   |
| Post-treat.    | -0.00                 | -0.01                 |
| (0.04)         | (0.03)                | (0.03)                |
| Treatment      | 0.01                  | -0.02                 |
| (0.03)         | (0.02)                | (0.02)                |
| DiD            | -0.03***              | -0.04***              |
| (0.02)         | (0.10)                | (0.07)                |
| Peer           | -0.03***              | 0.01**                |
| (0.01)         | (0.00)                | (0.00)                |
| Post-treat x Peer | -0.01             | 0.01                  |
| (0.01)         | (0.01)                | (0.01)                |
| Treatment x Peer | 0.01                | 0.00                  |
| (0.00)         | (0.01)                | (0.01)                |
| DiD x Peer     | -0.02                 | 0.01                  |
| (0.02)         | (0.01)                | (0.01)                |

|                | 10 - 30 days consump. |
|----------------|-----------------------|
| (6)            |
| Post-treat.    | 0.00                  |
| (0.04)         |
| Treatment      | 0.01                  |
| (0.03)         |
| DiD            | -0.03***              |
| (0.02)         |
| Peer           | -0.03***              |
| (0.01)         |
| Post-treat x Peer | -0.01             |
| (0.01)         |
| Treatment x Peer | 0.01                |
| (0.00)         |
| DiD x Peer     | -0.02                 |
| (0.02)         |

|                | Observations |
|----------------|--------------|
|                | 1.982        |

Note: Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1
Table S4: Probit estimation – light vs. heavy consumers

|                  | Tobacco | Cannabis | Alcohol |
|------------------|---------|----------|---------|
|                  | (1)     | (2)      | (3)     | (4)     | (5)     | (6)     |
| Post-treat.      | -0.17***| -0.16*** | -0.15***| -0.11** | -0.00   |         |
|                  | (0.05)  | (0.03)   | (0.05)  | (0.05)  | (0.10)  |         |
| Treatment        | -0.02   | 0.04     | -0.01   | -0.03   | -0.05   | 0.02    |
|                  | (0.05)  | (0.10)   | (0.03)  | (0.05)  | (0.05)  | (0.11)  |
| DiD              | -0.02   | -0.16    | 0.01    | 0.07    | -0.15** | -0.18   |
|                  | (0.07)  | (0.14)   | (0.05)  | (0.08)  | (0.09)  | (0.15)  |
| Peer             | 0.02*   | 0.03***  | 0.06*** |         |         |         |
|                  | (0.01)  | (0.01)   | (0.02)  |         |         |         |
| Post-treat x Peer| 0.02    | 0.03**   | 0.01    |         |         |         |
|                  | (0.02)  | (0.01)   | (0.03)  |         |         |         |
| Treatment x Peer | -0.01   | 0.00     | -0.02   |         |         |         |
|                  | (0.02)  | (0.01)   | (0.02)  |         |         |         |
| DiD x Peer       | 0.03    | -0.02    | -0.00   |         |         |         |
|                  | (0.03)  | (0.02)   | (0.04)  |         |         |         |
| Woman            | 0.10*** | 0.08**   | -0.06** | -0.05** | -0.01   | 0.01    |
|                  | (0.04)  | (0.04)   | (0.03)  | (0.02)  | (0.04)  | (0.04)  |
| Age              | 0.10*** | 0.07***  | 0.09*** | 0.03*   | 0.10*** | 0.03    |
|                  | (0.02)  | (0.02)   | (0.01)  | (0.02)  | (0.02)  | (0.03)  |
| Brazilian        | -0.33***| -0.25*** | -0.05*  | 0.02    | 0.03    | 0.08*   |
|                  | (0.04)  | (0.04)   | (0.03)  | (0.03)  | (0.05)  | (0.05)  |
| BMI_{under}      | 0.24    | 0.27*    | -       | -       | -       | -       |
|                  | (0.15)  | (0.15)   |         |         |         |         |
| BMI_{over}       | -0.14***| -0.12*** | -0.03   | -0.01   | -0.04   | -0.03   |
|                  | (0.04)  | (0.04)   | (0.03)  | (0.02)  | (0.04)  | (0.04)  |
| Early sex exposure| 0.13*** | 0.12**   | -0.04   | -0.04   | 0.15*** | 0.12*** |
|                  | (0.05)  | (0.05)   | (0.03)  | (0.03)  | (0.05)  | (0.05)  |
| Observations     | 627     | 627      | 773     | 773     | 371     | 371     |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Table S5: Ordered Probit results for tobacco consumption

| Tobacco        | 0 consumption | 1 to 9 days | 10 days or more |
|----------------|---------------|-------------|-----------------|
|                | (1)           | (2)         | (3)             | (4)             | (5)           | (6)           |
| Post-treat     | 0.00          | -0.09*      | -0.00           | 0.04*           | -0.00         | 0.06*         |
|                | (0.04)        | (0.05)      | (0.01)          | (0.02)          | (0.02)        | (0.03)        |
| Treatment      | -0.01         | -0.01       | 0.00            | 0.01            | 0.01          | 0.01          |
|                | (0.02)        | (0.03)      | (0.01)          | (0.01)          | (0.01)        | (0.02)        |
| DiD            | 0.08***       | 0.17        | -0.03***        | -0.06*          | -0.05***      | -0.10         |
|                | (0.02)        | (0.10)      | (0.01)          | (0.04)          | (0.02)        | (0.07)        |
| Peer           | -0.03***      | 0.01***     | 0.02***         |                 |               |               |
|                | (0.01)        | (0.00)      | (0.01)          |                 |               |               |
| Post-treat x Peer | 0.01         | -0.01       | -0.01           |                 |               |               |
|                | (0.02)        | (0.01)      | (0.01)          |                 |               |               |
| Treatment x Peer | -0.00   | 0.00        | 0.00            |                 |               |               |
|                | (0.00)        | (0.00)      | (0.00)          |                 |               |               |
| DiD x Peer     | -0.03         | 0.01        | 0.02            |                 |               |               |
|                | (0.03)        | (0.01)      | (0.02)          |                 |               |               |
| Woman          | 0.01          | 0.02        | -0.00           | -0.01           | -0.01         | -0.01         |
|                | (0.05)        | (0.06)      | (0.02)          | (0.02)          | (0.03)        | (0.04)        |
| Age            | -0.07***      | -0.03***    | 0.02**          | 0.01**          | 0.04***       | 0.02**        |
|                | (0.02)        | (0.01)      | (0.01)          | (0.01)          | (0.01)        | (0.01)        |
| Brazilian      | 0.07          | 0.01        | -0.03           | -0.01           | -0.04         | -0.01         |
|                | (0.05)        | (0.05)      | (0.02)          | (0.02)          | (0.03)        | (0.03)        |
| BMI_{under}    | 0.09          | 0.05        | -0.03           | -0.02           | -0.05         | -0.03         |
|                | (0.11)        | (0.10)      | (0.04)          | (0.04)          | (0.07)        | (0.06)        |
| BMI_{over}     | 0.07***       | 0.06***     | -0.03***        | -0.02***        | -0.04***      | -0.04***      |
|                | (0.02)        | (0.02)      | (0.01)          | (0.01)          | (0.01)        | (0.01)        |
| Early sex exposure | -0.14*      | -0.14*      | 0.05*           | 0.06*           | 0.09**        | 0.09**        |
|                | (0.08)        | (0.07)      | (0.03)          | (0.03)          | (0.04)        | (0.04)        |
| Observations   | 1,983         | 1,983       | 1,983           | 1,983           | 1,983         | 1,983         |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Dependent variable is an ordered variable indicating the frequency of consumption in the last 30 days - with the value 0 for 0 days; value 1 if consumed between 1 and 9 days; value 2 if consumed more than 10 days. DiD is the difference-in-differences coefficient. Peer is the (leave one out) average group consumption in days. BMI under and over are binary variables indicating whether each individual has an unhealthy BMI (by deficiency or excess) or not.
Table S6: Ordered Probit results for cannabis consumption

| Drugs            | 0 consumption | 1 to 9 days consumption | 10 days or more |
|------------------|---------------|-------------------------|-----------------|
|                  | (1)           | (2)                     | (3)             |
| Post-treat.      | 0.05***       | -0.01                   | -0.03***        |
|                  | (0.01)        | (0.02)                  | (0.01)          |
| Treatment        | 0.03          | -0.00                   | -0.02           |
|                  | (0.02)        | (0.03)                  | (0.02)          |
| DiD              | 0.08***       | 0.12***                 | -0.06***        |
|                  | (0.02)        | (0.02)                  | (0.02)          |
| Peer             | -0.04***      | 0.03***                 | 0.01***         |
|                  | (0.01)        | (0.00)                  | (0.00)          |
| Post-treat x Peer| -0.01         | 0.01                    | 0.00            |
|                  | (0.01)        | (0.01)                  | (0.01)          |
| Treatment x Peer | 0.01          | -0.01                   | -0.00           |
|                  | (0.01)        | (0.01)                  | (0.01)          |
| DiD x Peer       | -0.01         | 0.02                    | 0.01            |
|                  | (0.02)        | (0.01)                  | (0.01)          |
| Woman            | -0.04         | -0.04                   | 0.03            |
|                  | (0.04)        | (0.04)                  | (0.03)          |
| Age              | -0.08***      | -0.04***                | 0.05***         |
|                  | (0.01)        | (0.01)                  | (0.01)          |
| Brazilian        | 0.16**        | 0.12*                   | -0.11**         |
|                  | (0.07)        | (0.07)                  | (0.05)          |
| BMI_{under}      | -0.01         | -0.03                   | 0.01            |
|                  | (0.06)        | (0.06)                  | (0.04)          |
| BMI_{over}       | 0.00          | 0.01                    | -0.00           |
|                  | (0.03)        | (0.03)                  | (0.02)          |
| Early sex exposure| -0.09*       | -0.09**                 | 0.06*           |
|                  | (0.05)        | (0.04)                  | (0.03)          |
| Observations     | 1.982         | 1.982                   | 1.982           |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Dependent variable is an ordered variable indicating the frequency of consumption in the last 30 days - with the value 0 for 0 days; value 1 if consumed between 1 and 9 days; value 2 if consumed more than 10 days. DiD is the difference-in-differences coefficient. Peer is the (leave one out) average group consumption in days. BMI under and over are binary variables indicating whether each individual has an unhealthy BMI (by deficiency or excess) or not.
Table S7: Ordered Probit results for alcohol consumption

| Alcohol                  | 0 consumption | 1 to 9 days consumption | 10 days or more |
|--------------------------|---------------|-------------------------|-----------------|
|                          | (1)           | (2)                     | (3)             | (4)           | (5)           | (6)           |
| Post-treat.              | 0.06***       | -0.04***                | -0.03           | -0.02***      | -0.01         |              |
|                          | (0.02)        | (0.02)                  | (0.04)          | (0.01)        | (0.02)        |              |
| Treatment                | 0.01          | 0.03                    | -0.01           | -0.02         | -0.00         | -0.01        |
|                          | (0.03)        | (0.03)                  | (0.02)          | (0.02)        | (0.01)        | (0.01)       |
| DiD                      | 0.11***       | 0.10*                   | -0.07***        | -0.07*        | -0.03**       | -0.03*       |
|                          | (0.03)        | (0.05)                  | (0.04)          | (0.01)        | (0.02)        |              |
| Peer                     | -0.03***      | 0.02***                 | 0.01**          |              |              |              |
|                          | (0.01)        | (0.00)                  | (0.00)          |              |              |              |
| Post-treat x Peer        | -0.02         | 0.01                    |                | 0.01          |              |              |
|                          | (0.01)        | (0.01)                  |                | (0.00)        |              |              |
| Treatment x Peer         | -0.01         | 0.00                    |                |              | 0.00          |              |
|                          | (0.01)        | (0.00)                  |                |              | (0.00)        |              |
| DiD x Peer               | -0.00         | 0.00                    |                |              |              | 0.00         |
|                          | (0.02)        | (0.01)                  |                |              | (0.00)        |              |
| Woman                    | -0.02         | -0.03                   | 0.02            | 0.02          | 0.01          | 0.01         |
|                          | (0.07)        | (0.07)                  | (0.05)          | (0.05)        | (0.02)        | (0.02)       |
| Age                      | -0.13***      | -0.09***                | 0.09***         | 0.06***       | 0.04***       | 0.03***      |
|                          | (0.01)        | (0.01)                  | (0.01)          | (0.01)        | (0.01)        | (0.00)       |
| Brazilian                | 0.04          | 0.01                    | -0.03           | -0.01         | -0.01         | -0.00        |
|                          | (0.04)        | (0.05)                  | (0.03)          | (0.03)        | (0.01)        | (0.01)       |
| BMI_{under}              | 0.03          | 0.00                    | -0.02           | -0.00         | -0.01         | -0.00        |
|                          | (0.11)        | (0.11)                  | (0.07)          | (0.07)        | (0.04)        | (0.03)       |
| BMI_{over}               | 0.00          | -0.01                   | -0.00           | 0.00          | -0.00         | 0.00         |
|                          | (0.03)        | (0.03)                  | (0.02)          | (0.02)        | (0.01)        | (0.01)       |
| Early sex exposure       | -0.12*        | -0.11                   | 0.08            | 0.08          | 0.04**        | 0.04*        |
|                          | (0.07)        | (0.07)                  | (0.05)          | (0.05)        | (0.02)        | (0.02)       |
| Observations             | 1.983         | 1.983                   | 1.983           | 1.983         | 1.983         | 1.983        |

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Dependent variable is an ordered variable indicating the frequency of consumption in the last 30 days - with the value 0 for 0 days; value 1 if consumed between 1 and 9 days; value 2 if consumed more than 10 days. DiD is the difference-in-differences coefficient. Peer is the (leave one out) average group consumption in days. BMI under and over are binary variables indicating whether each individual has an unhealthy BMI (by deficiency or excess) or not.