ONLINE APPENDIX

Peer Effects in Adolescent Mental Health

Hussain Hadah

Web.A Tables

Table Online Appendix Table A.1: Mental Health Question

Variable	Question
S60I	How often have you had a poor appetite?
S46B	Since school started this year, how often have you had trouble paying attention in school?
S60J	How often have you had trouble falling asleep or staying asleep?
S60L	How often have you had trouble relaxing?
S60K	How often was the following true during the past week [or month]? You felt depressed.
S60O	How often have you felt fearful?
S60N	How often have you cried frequently?
S60M	How often have you been moody?
S62A	Do you agree or disagree with the following statement? You have a lot of energy.
S62N	Do you agree or disagree with the following statement? You feel like you are doing everything just about right.
S62P	Do you agree or disagree with the following statement? You feel loved and wanted.
S62O	Do you agree or disagree with the following statement? You feel socially accepted.
S62H	Do you agree or disagree with the following statement? You have a lot of good qualities.
S62K	Do you agree or disagree with the following statement? You have a lot to be proud of.
S62M	Do you agree or disagree with the following statement? You like yourself just the way you are.

[1] These are the questions used to construct the depression index. The 15 items questions roughly translates to the 20 Center for Epidemiologic Studies Depression (CES-D) scale (Radloff 1977). To construct my mental health measure, I summed the responses to the negative questions and subtracted the responses to the positive. The final mental health measure is a normalized score with a mean of 0 and a standard deviation of 1.

Table Online Appendix Table A.2: Summary Statistics of the Full Sample, Friends, and Friends of Friends

	Full Sample	Friends	Friends of Friends
Demographic			
Age	15.02	14.98	14.98
Female	0.50	0.51	0.51
White	0.61	0.62	0.62
Black	0.19	0.19	0.19
Asian	0.07	0.07	0.07
Native American	0.05	0.05	0.05
Other	0.10	0.09	0.09
Married (w5)	0.41	0.43	0.43
Educational Outcomes			
GPA	2.86	2.88	2.88
Number of Friends	6.20	6.52	6.57
Health Outcomes			
Poor Health	0.07	0.07	0.07
Feel Sick	0.30	0.30	0.30
Feel Tired	0.55	0.56	0.56
Miss School for Health Reasons	0.45	0.44	0.44
Ever Saw a Therapist	0.63	0.64	0.64
Miss School	0.45	0.44	0.44
Behavioral Risk Outcomes			
Skip School	0.30	0.29	0.29
During the last 12 months			
Smoke	0.36	0.36	0.36
Get Intoxicated	0.31	0.31	0.31
Freq. Drink Alcohol	1.69	1.74	1.75
Freq. High on Drugs	0.12	0.12	0.12
During the last month			
Freq. marijuana (w1)	1.92	1.76	1.74
Freq. marijuana (w3)	2.66	2.69	2.71
Freq. marijuana (w4)	0.46	0.46	0.46
Freq. Hang Out w/ Frnds	2.96	3.04	3.05

Table Online Appendix Table A.2: Summary Statistics of the Full Sample, Friends, and Friends of Friends *(continued)*

	Full Sample	Friends	Friends of Friends
Hurt Others b/c Drunk Including Unprot. Sex (w4)	0.61	0.61	0.61
Hurt Others b/c High Including Unprot. Sex (w4)	0.24	0.24	0.24
Hurt Others b/c Drugs Including Unprot. Sex (w4)	0.43	0.42	0.43
Paid for Sex (w4)	0.02	0.02	0.02

[1] Data source is the Add Health survey. Questions regarding skipping school without an excuse, frequency of smoking cigarettes, getting intoxicated, drinking alcohol, and getting high on drugs were asked over a 12 month period. For example, the question on frequency of smoking was 'During the past 12 months, how often did you smoke cigarettes?'. Questions regarding missing school for health reasons and frequency of consuming marijuana, and frequency of hanging out with friends were asked over a 30 day period. For example, the question on frequency of consuming marijuana 'During the past 30 days, on how many days did you use marijuana?'

Table Online Appendix Table A.3: Spillover Effect of Peers' Mental Unwellness on Own Mental Unwellness: Trimmed

	Mental Unwellness (1) OLS (Reduced Form)	Friends Mental Unwellness (2) First Stage	Mental Unwellness (3) 2SLS
Friends of Friends Mental Unwellness	0.229***	0.272***	
	(0.022)	(0.018)	
Friends Mental Unwellness			0.839***
			(0.061)
Observations	41,868	41,868	41,868
First Stage F-statistic			1,422.54

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[1] This table presents the 2SLS estimation of the regression (Equation **??**) with school fixed effects. Column (1) displays the estimation of the reduced form equation using own mental unwellness as the dependent variable. Moving on to column (2), I present the results of the first stage analysis using the average friends' depression as the dependent variable. Column (3) includes the results of the instrumental variable (2SLS) estimation. The control variables include sex, race, age, parental education, parental employment, parental occupation, and number of friends.

[2] Students that used all of there friendship nominations were trimmed from the analysis.

[3] Standard errors are clustered on the school level.

[4] Data source is the Add Health in-school survey.

Table Online Appendix Table A.4: Spillover Effect of Peers' Mental Unwellness on Own Mental Unwellness

	Mental Unwellness (1) OLS (Reduced Form)	Friends Mental Unwellness (2) First Stage	Mental Unwellness (3) 2SLS
Friends of Friends Mental Unwellness	0.159***	0.238***	
	(0.018)	(0.020)	
Friends Mental Unwellness			0.669***
			(0.057)
Observations	53,508	53,508	53,508
School x Grade FE	X	X	X
First Stage F-statistic			1,386.2

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[1] This table presents the 2SLS estimation of the regression (Equation **??**) with school x grade fixed effects. Column (1) displays the estimation of the reduced form equation using own mental unwellness as the dependent variable. Moving on to column (2), I present the results of the first stage analysis using the average friends' depression as the dependent variable. Column (3) includes the results of the instrumental variable (2SLS) estimation. The control variables include sex, race, age, parental education, parental employment, parental occupation, and number of friends.

[2] Standard errors are clustered on the school level.

[3] Data source is the Add Health in-school survey.

Table Online Appendix Table A.5: Spillover Effect of Reciprocated-Friends Mental Unwellness on Own Mental Unwellness

	Mental Unwellness (1) OLS (Reduced Form)	Friends Mental Unwellness (2) First Stage	Mental Unwellness (3) 2SLS
Reciprocated Friends of Friends Mental Unwellness	0.105***	0.178***	
	(0.013)	(0.013)	
Reciprocated Friends Mental Unwellness			0.590***
			(0.078)
Observations	27,848	27,848	27,848
First Stage F-statistic			685.49

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[1] This table presents the 2SLS estimation of the regression (Equation **??**) with school fixed effects. Column (1) displays the estimation of the reduced form equation using own mental unwellness as the dependent variable. Moving on to column (2), I present the results of the first stage analysis using the average friends' depression as the dependent variable. Column (3) includes the results of the instrumental variable (2SLS) estimation. The control variables include sex, race, age, parental education, parental employment, parental occupation, and number of friends.

[2] Standard errors are clustered on the school level.

[3] Data source is the Add Health in-school survey.

Table Online Appendix Table A.6: Spillover Effect of Peers' Mental Unwellness on Own Mental Unwellness: Adding Peers' Characteristics for Contextual Effects

	Mental Unwellness (1) OLS (Reduced Form)	Friends Mental Unwellness (2) First Stage	Mental Unwellness (3) IV
Friends of Friends Mental Unwellness	0.183***	0.240***	
	(0.021)	(0.021)	
Friends Mental Unwellness			0.723***
			(0.058)
Observations	37,154	37,154	38,365
First Stage F-statistic			1,215.62

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[1] This table presents the 2SLS estimation of the regression (Equation **??**) with school fixed effects. Column (1) displays the estimation of the reduced form equation using own mental unwellness as the dependent variable. Moving on to Column (2), I present the results of the first stage analysis using the average friends' depression as the dependent variable. Column (3) includes the results of the instrumental variable (IV) estimation. The control variables include sex, race, age, parental education, parental employment, parental occupation, and number of friends. I also include contextual effects of friends' characteristics, such as the gender, race, age, and parental background of friends. This helps to control for the contextual effects of friends' characteristics on the mental unwellness of the respondent.

[2] Standard errors are clustered on the school level.

[3] Data source is the Add Health in-school survey.

Table Online Appendix Table A.7: Spillover Effect of Peers' Mental Unwellness on Own Mental Unwellness: With Mutual and Non-mutual Friends of Friends

	Mental Unwellness (1) OLS (Reduced Form)	Friends Mental Unwellness (2) First Stage	Mental Unwellness (3) IV
Friends Mental Unwellness			1.559***
			(0.052)
Friends of Friends Mental Unwellness	0.868***	0.557***	
	(0.021)	(0.024)	
Observations	54,258	54,258	54,258
First Stage F-statistic			7,886.53

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

[1] This table presents the 2SLS estimation of the regression (Equation **??**) with school fixed effects, but this sample includes mutual and non-mutual friends of friends. Column (1) displays the estimation of the reduced form equation using own mental unwellness as the dependent variable. Moving on to column (2), I present the results of the first stage analysis using the average friends' mental unwellness as the dependent variable. Finally, column (3) includes the results of the instrumental variable (IV) estimation. The control variables include sex, race, age, parental education, parental employment, parental occupation, and number of friends.

[2] Standard errors are clustered on the school level.

[3] Data source is the Add Health in-school survey.

Table Online Appendix Table A.8: Spillover Effect of Peers' Mental Health on Own Mental Unwellness: Different Indices

	Mental Unwellness (1) IV	Mental Unwellness (2) IV
Friends Mental Unwellness	0.739***	0.706***
	(0.053)	(0.139)
Observations	53,725	6,434
School FE		X

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

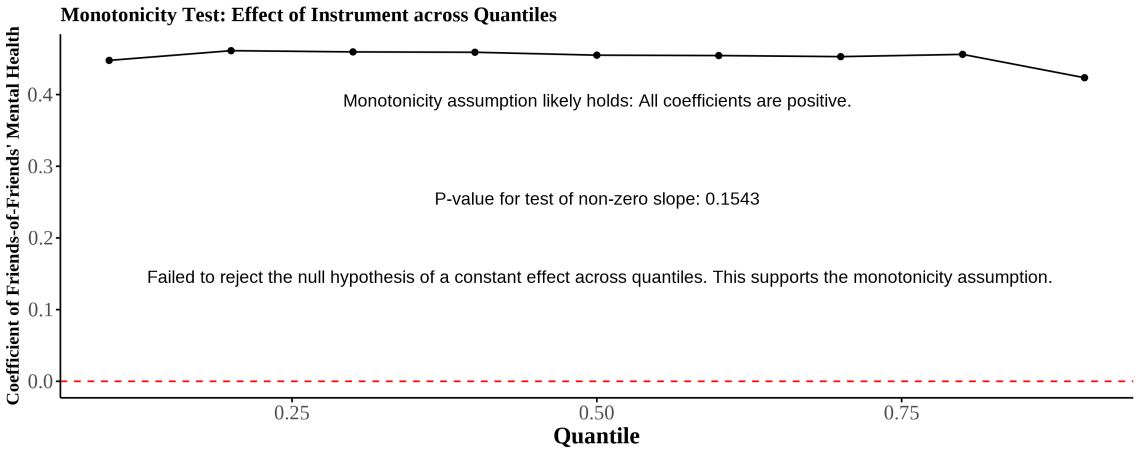
[1] This table presents the 2SLS estimation of the regression (Equation **??**) with school fixed effects. Column (1) displays the 2SLS estimation with the 15 question CES-D from the in-school survey. Column (2) displays the 2SLS estimation with the 19 question CES-D from the in-home survey in wave I. The control variables include sex, race, age, parental education, parental employment, parental occupation, and number of friends.

[2] Standard errors are clustered on the school level.

[3] Data source is the Add Health in-school and in-home surveys.

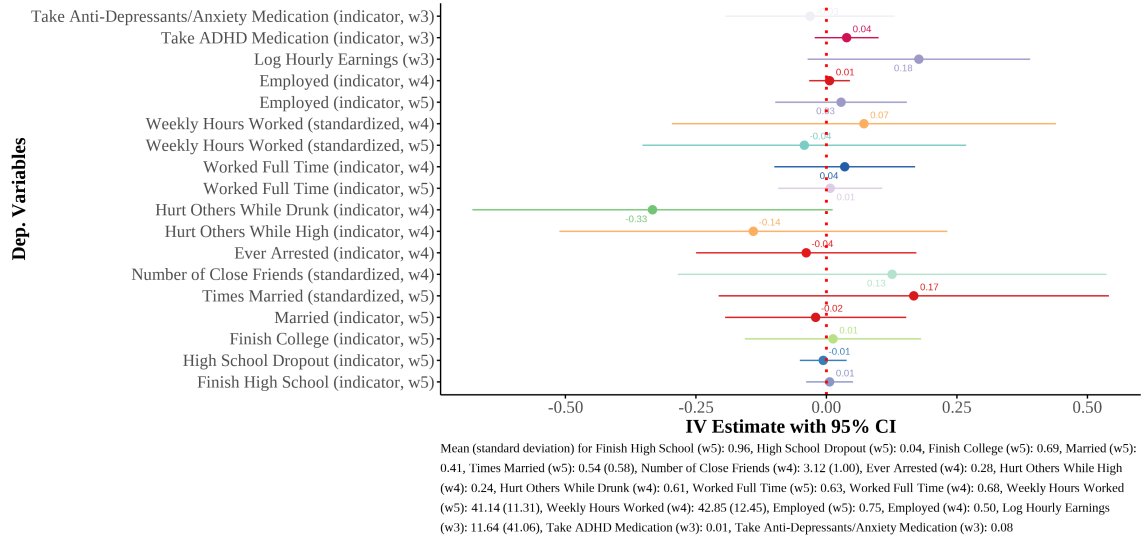
Web.B Figures

Figure Online Appendix Figure A.1: Monotonicity Test



Note: This plot demonstrates the test for the monotonicity assumption in our instrumental variable approach. The y-axis shows the estimated effect of the instrument (friends-of-friends' mental unwellness) on the treatment (friends' mental unwellness) across different quantiles of the data. Monotonicity holds if the effect is consistently positive or negative across all quantiles. The dashed red line at y=0 aids in assessing sign consistency. I also conduct a formal test of whether the slope of these quantile effects differs significantly from zero; a non-significant result ($p > 0.05$) supports the monotonicity assumption. Violations of monotonicity may indicate the presence of 'defiers' in the sample, potentially biasing IV estimates.

Figure Online Appendix Figure A.2: Spillover Effect of Peers' Mental Unwellness on Long Run Outcomes



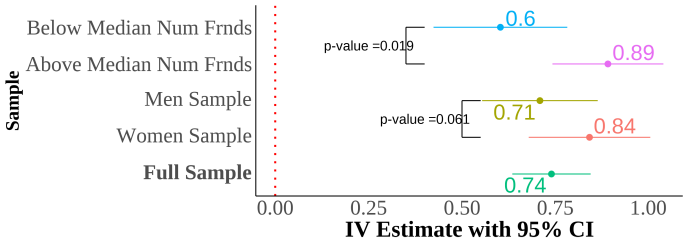
Mean (standard deviation) for Finish High School (w5): 0.96, High School Dropout (w5): 0.04, Finish College (w5): 0.69, Married (w5): 0.41, Times Married (w5): 0.54 (0.58), Number of Close Friends (w4): 3.12 (1.00), Ever Arrested (w4): 0.28, Hurt Others While High (w4): 0.24, Hurt Others While Drunk (w4): 0.61, Worked Full Time (w5): 0.63, Worked Full Time (w4): 0.68, Weekly Hours Worked (w5): 41.14 (11.31), Weekly Hours Worked (w4): 42.85 (12.45), Employed (w5): 0.75, Employed (w4): 0.50, Log Hourly Earnings (w3): 11.64 (41.06), Take ADHD Medication (w3): 0.01, Take Anti-Depressants/Anxiety Medication (w3): 0.08

Note: See the notes in Figure **??**. Each row on the y-axis is a separate regression with a different dependent variable. The x-axis is the coefficient of the mental unwellness of peers on the dependent variable. The dependent variables are (from bottom to the top): the probability of finishing high school in wave five, the probability of dropping out of high school in wave five, the probability of finishing college in wave five, the probability of being marries in wave five, the number of times married in wave five (standardized), the probability of ever getting arrested in wave four, the probability of hurting others while on the influence of drugs in wave four, the probability of hurting others while on the influence of alcohol in wave four the probability of working full time in wave five, the probability of working full time in wave four, the number of weekly hours worked in wave five (standardized), the number of weekly hours worked in wave four (standardized), the probability of being employed in wave five, the probability of being employed in wave four. log hourly earnings in wave three, and log total personal earnings in wave four.

Source: The data source is the Add Health in-school and in-home surveys.

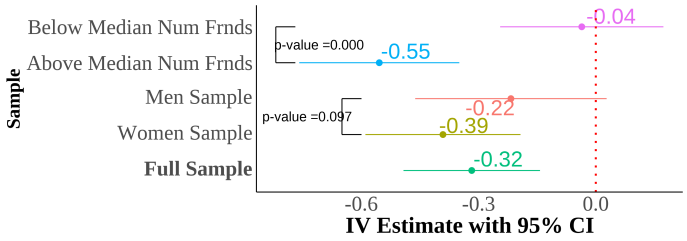
Figure Online Appendix Figure A.3: Spillover Effect of Peers' Mental Unwellness on Own Unwellness Health, Academic and Behavioral Outcomes

(a) Own Mental Unwellness



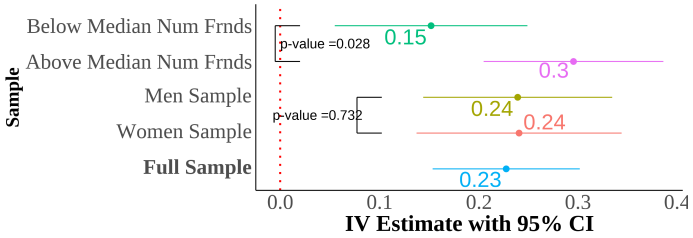
Averages (SD): Full sample 21.170 (11.000), Women 23.940 (10.960), Men 18.590 (10.090), Above Median Num Frnds 22.330 (10.340), Below Median Num Frnds 20.040 (11.480).

(b) GPA



Averages (SD): Full sample 2.860 (0.790), Women 2.940 (0.760), Men 2.780 (0.810), Above Median Num Frnds 2.910 (0.770), Below Median Num Frnds 2.800 (0.810).

(c) Skipping School

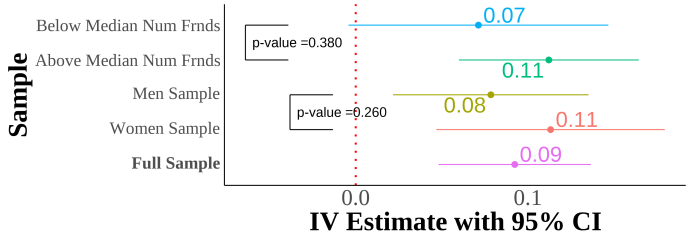


Averages: Full sample 0.300, Women 0.290, Men 0.320, Above Median Num Frnds 0.300, Below Median Num Frnds 0.300.

This plot presents the 2SLS estimation of the regression (equation **??**) with school fixed effects on mental unwellness, academic, and behavioral outcomes. Additionally, separate 2SLS estimations of equation (**??**) are provided for different samples. In panel (A), the 2SLS estimation is presented for own mental unwellness. Panel (B) shows the 2SLS estimation for GPA. Panel (C) displays the 2SLS estimation for skipping school without an excuse. The control variables in the analysis include sex, race, age, parental education, parental employment, parental occupation, and number of friends. Standard errors are clustered at the school level. The data source is the Add Health in-school survey.

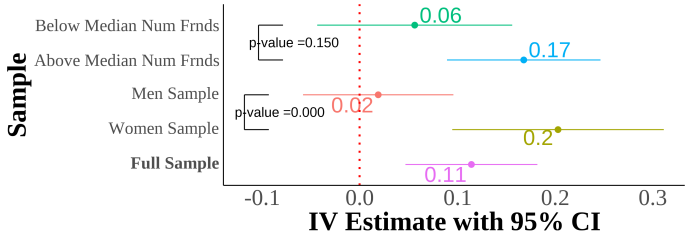
Figure Online Appendix Figure A.4: Spillover Effect of Peers' Mental Unwellness on Health Outcomes

(a) Poor Health



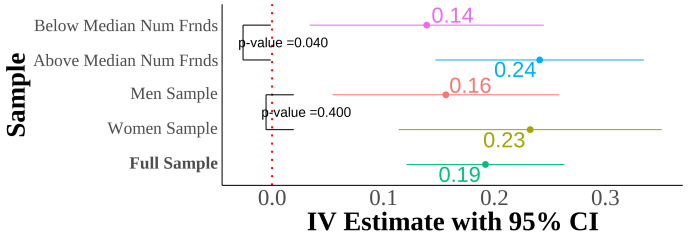
Averages: Full sample 0.070, Women 0.080, Men 0.060, Above Median Num Frnds 0.060, Below Median Num Frnds 0.080.

(b) Feel Sick



Averages: Full sample 0.300, Women 0.370, Men 0.220, Above Median Num Frnds 0.310, Below Median Num Frnds 0.280.

(c) Feel Tired

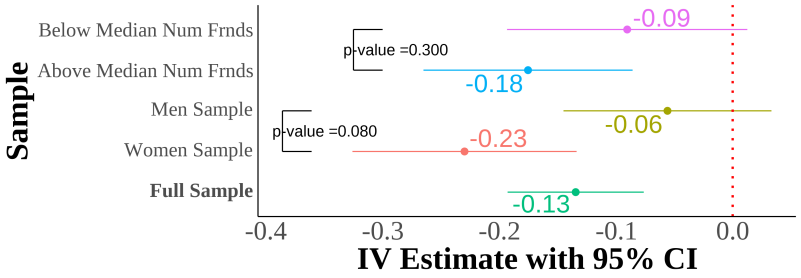


Averages: Full sample 0.550, Women 0.580, Men 0.530, Above Median Num Frnds 0.570, Below Median Num Frnds 0.530.

See the notes in Figure Online Appendix Figure A.3. I have conducted separate 2SLS estimations for different samples. In panel (A), the 2SLS estimation is presented for the effect of equation (**??**) on self-reported poor health. Panel (B) provides the 2SLS estimation for the impact of equation (**??**) on feeling sick. In panel (C), the 2SLS estimation pertains to the effect of equation (**??**) on feeling tired. The control variables used in the analysis include sex, race, age, parental education, parental employment, parental occupation, and number of friends. Standard errors are clustered at the school level. The data source for this study is the Add Health in-school survey.

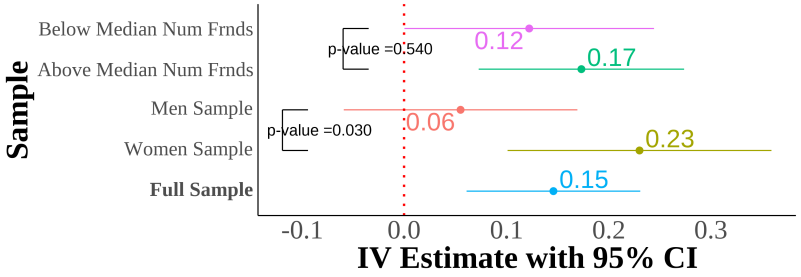
Figure Online Appendix Figure A.5: Spillover Effect of Peers' Mental Unwellness on Health Outcomes

(a) Never Seen a Therapist



Averages: Full sample 0.630, Women 0.640, Men 0.630,
Above Median Num Frnds 0.640, Below Median Num Frnds 0.620.

(b) Miss School due to Health

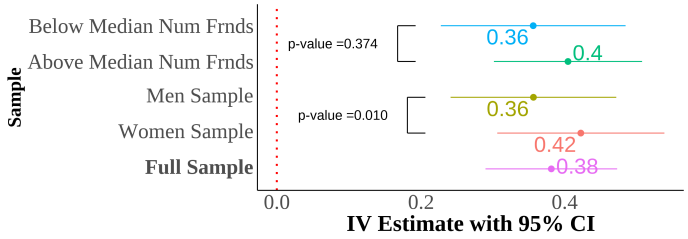


Averages: Full sample 0.450, Women 0.480, Men 0.420,
Above Median Num Frnds 0.440, Below Median Num Frnds 0.460.

See the notes in Figure Online Appendix Figure A.3.I have conducted separate 2SLS estimations for different samples. Panel (A) shows the 2SLS estimation for the influence of equation (**??**) on never seeing a therapist. Finally, in panel (B), the 2SLS estimation is presented for the relationship of equation (**??**) with missing school due to health reasons. The control variables used in the analysis include sex, race, age, parental education, parental employment, parental occupation, and number of friends. Standard errors are clustered at the school level. The data source for this study is the Add Health in-school survey.

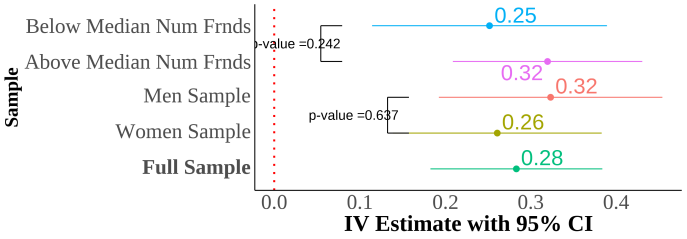
Figure Online Appendix Figure A.6: Spillover Effect of Peers' Mental Unwellness on Behavioral Outcomes

(a) Smoking Cigarettes



Averages: Full sample 0.360, Women 0.350, Men 0.360, Above Median Num Frnds 0.380, Below Median Num Frnds 0.320.

(b) Intoxication

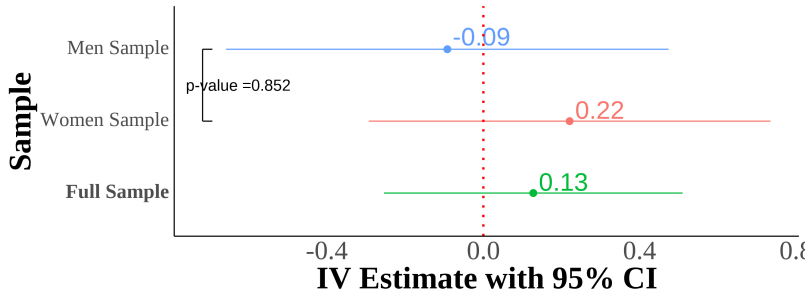


Averages: Full sample 0.310, Women 0.290, Men 0.330, Above Median Num Frnds 0.340, Below Median Num Frnds 0.270.

See the notes in Figure Online Appendix Figure A.3. In panel (A) demonstrates the 2SLS estimation for smoking, while Panel (B) covers intoxication. The control variables in the analysis include sex, race, age, parental education, parental employment, parental occupation, and number of friends. Standard errors are clustered at the school level. The data source is the Add Health in-school survey.

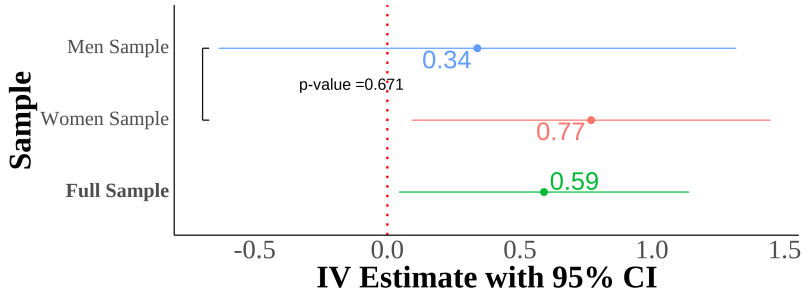
Figure Online Appendix Figure A.7: Spillover Effect of Peers' Mental Unwellness on Alcohol Consumption

(a) Frequency of Drinking (Wave 4)



Averages: Full sample 1.690 (1.840), Women 1.510 (1.680), Men 1.870 (1.980).

(b) Frequency of Drug Use (Wave 3)

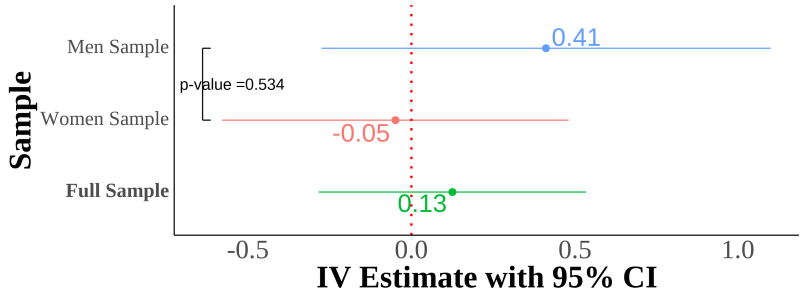


Averages: Full sample 0.120 (0.620), Women 0.070 (0.470), Men 0.180 (0.740).

See the notes in Figure Online Appendix Figure A.3. All dependent variables are normalized to have a mean of zero and a standard deviation of one. Panel (A) the 2SLS estimation is presented for the frequency of alcohol use in wave 4. In panel (B), the 2SLS estimation is presented for the frequency of drug use in wave 3. For the analysis using in-home survey wave 3, control variables include sex, race, age, parental education, parental employment, parental health, and number of friends. For the analysis using in-home survey waves 4 , control variables include sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered at the school level. The data source for this study is the Add Health in-home survey.

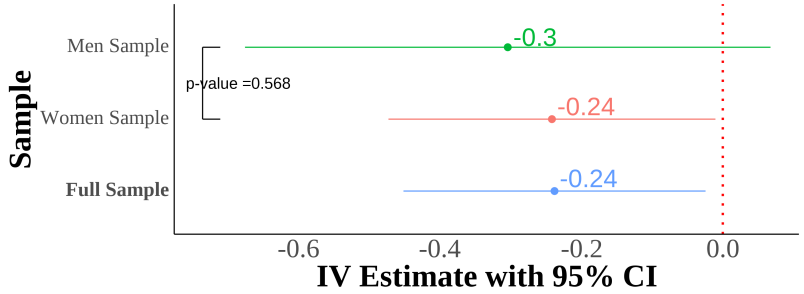
Figure Online Appendix Figure A.8: Spillover Effect of Peers' Mental Unwellness on Socialization

(a) Number of Close Friends



Averages: Full sample 3.120 (1.000), Women 3.050 (0.950), Men 3.190 (1.050).

(b) Freq. Hang Out w/ Frnds

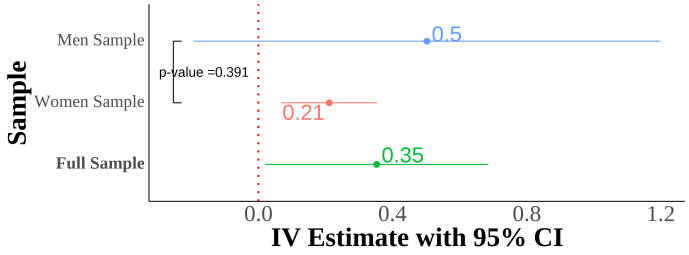


Averages: Full sample 2.960 (2.690), Women 3.300 (2.620), Men 2.610 (2.720).

See the notes in Figure Online Appendix Figure A.3. All dependent variables are normalized to have a mean of zero and a standard deviation of one. In panel (A), the 2SLS estimation is presented for the number of close friends in wave 4. Panel (B) shows the 2SLS estimation is presented for the frequency a person hangs out with their friends in wave 5. For the analysis using in-home survey waves 4 and 5, control variables include sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered at the school level. The data source for this study is the Add Health in-home survey.

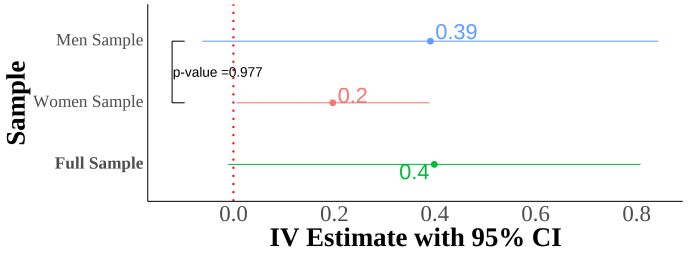
Figure Online Appendix Figure A.9: Spillover Effect of Peers' Mental Unwellness on Drug Consumption

(a) Frequency of Marijuana Use (Wave 1)



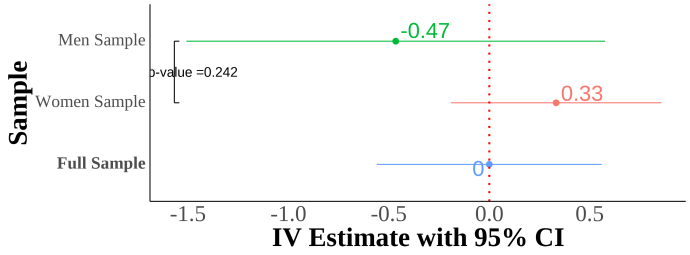
Averages: Full sample 1.920 (17.440), Women 1.010 (5.480), Men 2.850 (24.140).

(b) Frequency of Marijuana Use (Wave 3)



Averages: Full sample 2.660 (17.070), Women 1.520 (7.830), Men 3.820 (22.880).

(c) Frequency of Marijuana Use (Wave 4)

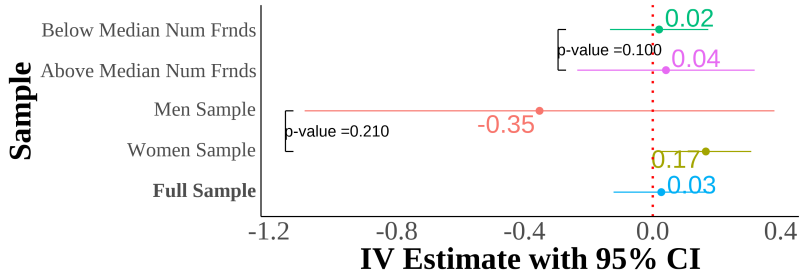


Averages: Full sample 0.460 (1.410), Women 0.340 (1.220), Men 0.570 (1.570).

See the notes in Figure Online Appendix Figure A.3. All dependent variables are normalized to have a mean of zero and a standard deviation of one. Panels (A), (B), and (C) present the 2SLS estimation is presented for the frequency of marijuana use during the last 30 days in waves 1, 3, and 4, respectively. For the analysis using in-home survey waves 1 to 3, control variables include sex, race, age, parental education, parental employment, parental health, and number of friends. For the analysis using in-home survey waves 4 and 5, control variables include sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered at the school level. The data source for this study is the Add Health in-home survey.

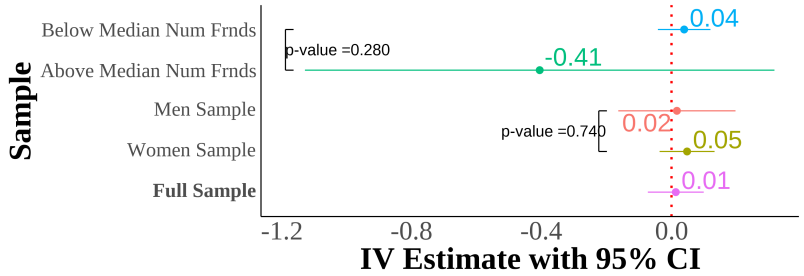
Figure Online Appendix Figure A.10: Spillover Effect of Peers' Mental Unwellness on Sexual Behavior

(a) Sexual Intercourse



Averages: Full sample 0.920, Women 0.910, Men 0.920, Above Median Num Frnds 0.920, Below Median Num Frnds 0.920.

(b) Intimate Touching

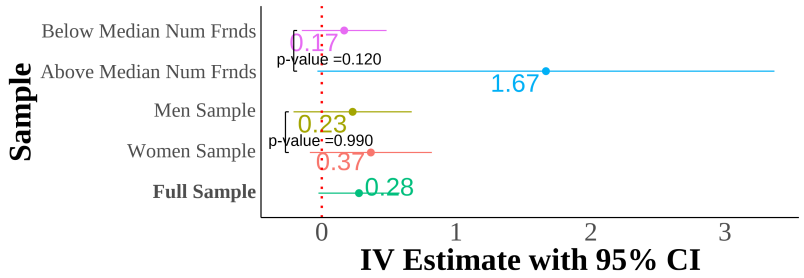


Averages: Full sample 0.970, Women 0.960, Men 0.980, Above Median Num Frnds 0.970, Below Median Num Frnds 0.970.

See the notes in Figure Online Appendix Figure A.3. Panel (A) provides the 2SLS estimation is presented for having sex (wave 1). Panel (B) shows the 2SLS estimation is presented for intimate touching (wave 1). For the analysis using in-home survey wave 1, control variables include sex, race, age, parental education, parental employment, parental health, and number of friends. Standard errors are clustered at the school level. The data source for this study is the Add Health in-home survey.

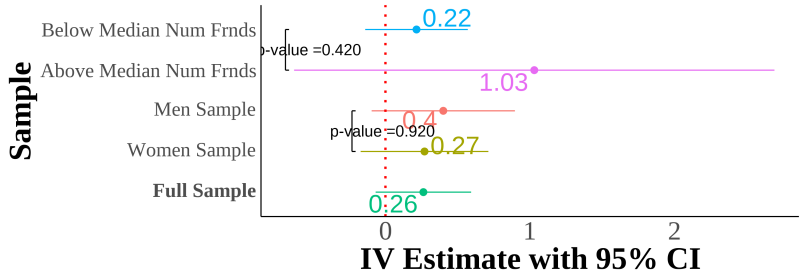
Figure Online Appendix Figure A.11: Spillover Effect of Peers' Mental Unwellness on BMI During Adolescents

(a) BMI (w1)



Averages: Full sample 22.550 (4.450), Women 22.340 (4.450), Men 22.760 (4.450), Above Median Num Frnds 22.580 (4.410), Below Median Num Frnds 22.510 (4.490).

(b) BMI (w2)

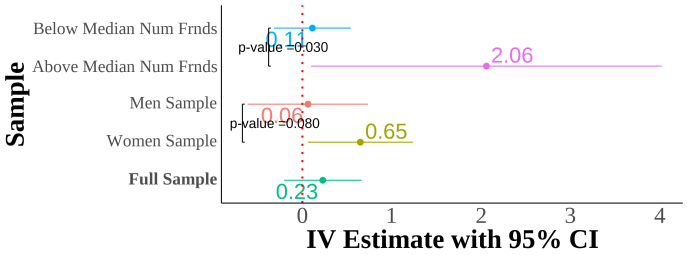


Averages: Full sample 22.940 (4.700), Women 22.700 (4.800), Men 23.190 (4.590), Above Median Num Frnds 22.970 (4.630), Below Median Num Frnds 22.890 (4.730).

See the notes in Figure Online Appendix Figure A.3. All the dependent variables are standardized with a mean of zero and a standard deviation of one. In panel (A), the 2SLS estimation is presented for BMI in wave 1. In panel (B), the 2SLS estimation is presented for BMI in wave 2. For the analysis that uses the in-home survey waves 1 to 3, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.

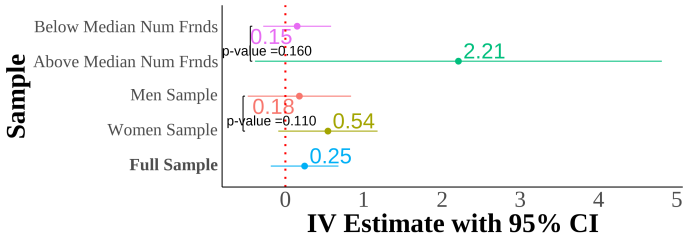
Figure Online Appendix Figure A.12: Spillover Effect of Peers' Mental Unwellness on BMI During Adulthood

(a) BMI (w3)



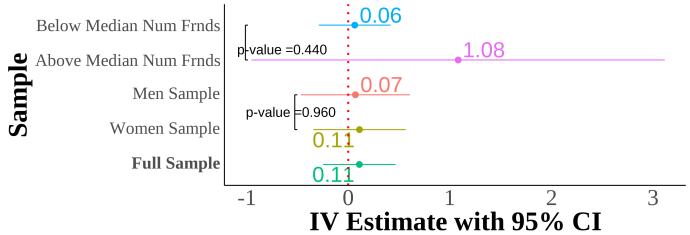
Averages: Full sample 25.800 (5.860), Women 25.590 (6.340), Men 26.020 (5.260), Above Median Num Frnds 25.830 (5.840),

(b) BMI (w4)



Averages: Full sample 28.300 (6.900), Women 28.320 (7.540), Men 28.270 (6.090), Above Median Num Frnds 28.310 (6.860), Below Median Num Frnds 28.280 (6.930).

(c) BMI (w5)

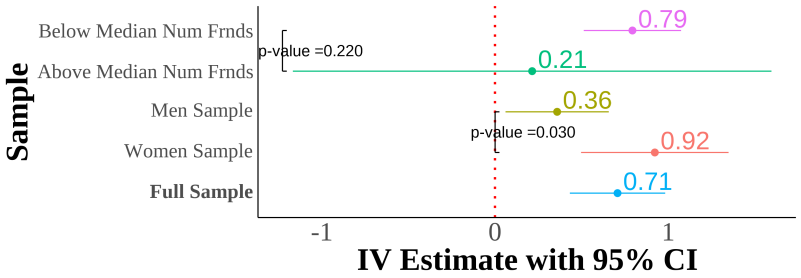


Averages: Full sample 29.710 (7.420), Women 29.770 (8.030), Men 29.620 (6.540), Above Median Num Frnds 29.670 (7.420), Below Median Num Frnds 29.770 (7.440).

See the notes in Figure Online Appendix Figure A.3. All the dependent variables are standardized with a mean of zero and a standard deviation of one. In panel (A), the 2SLS estimation is presented for BMI in wave 3. In panel (B), the 2SLS estimation is presented for BMI in wave 4. In panel (C), the 2SLS estimation is presented for BMI in wave 5. For the analysis that uses the in-home survey wave 3, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. For the analysis that uses the in-home survey waves 4 and 5, I control for sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.

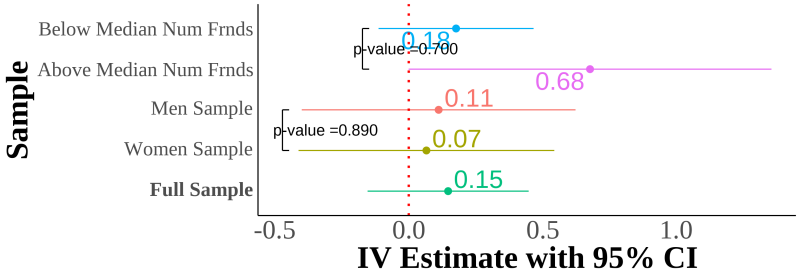
Figure Online Appendix Figure A.13: Spillover Effect of Mental Unwellness on Own Mental Unwellness During Adolescents

(a) Own Mental Unwellness (w1)



Averages: Full sample 21.650 (10.930), Women 24.100 (10.890), Men 19.100 (10.390), Above Median Num Frnds 22.130 (10.840), Below Median Num Frnds 21.500 (11.020).

(b) Own Mental Unwellness (w2)

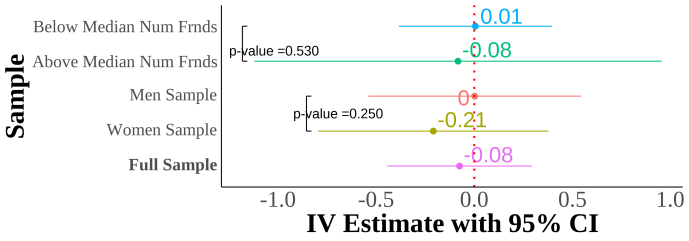


Averages: Full sample 8.050 (8.270), Women 8.790 (8.860), Men 7.300 (7.550), Above Median Num Frnds 8.190 (8.290), Below Median Num Frnds 7.750 (8.170).

See the notes in Figure Online Appendix Figure A.3. All the dependent variables are standardized with a mean of zero and a standard deviation of one. In panel (A), I provide the 2SLS estimation is presented for mental unwellness score in wave 1. In panel (B), I provide the 2SLS estimation is presented for mental unwellness score in wave 2. For the analysis that uses the in-home survey waves 1 to 3, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.

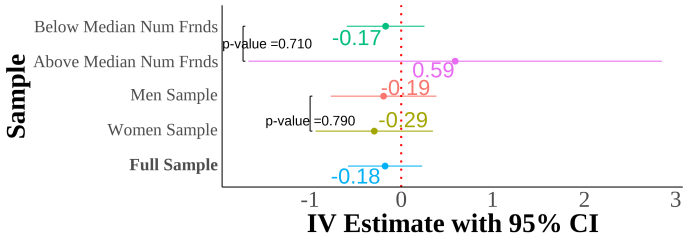
Figure Online Appendix Figure A.14: Spillover Effect of Mental Unwellness on Own Mental Unwellness During Adulthood

(a) Own Mental Unwellness (w3)



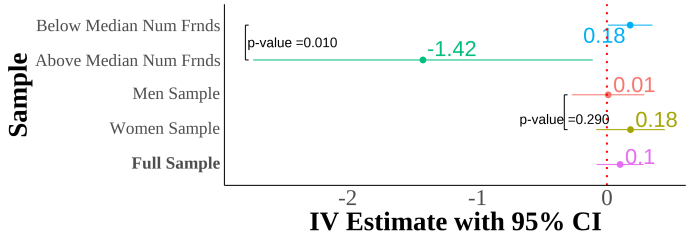
Averages: Full sample 3.440 (4.120), Women 3.900 (4.420), Men 2.970 (3.730), Above Median Num Frnds 3.470 (4.120), Below Median Num Frnds 3.340 (4.050).

(b) Own Mental Unwellness (w4)



Averages: Full sample 4.700 (4.930), Women 5.280 (5.220), Men 4.110 (4.550), Above Median Num Frnds 4.770 (4.930), Below Median Num Frnds 4.630 (4.900).

(c) Own Mental Unwellness (w5)

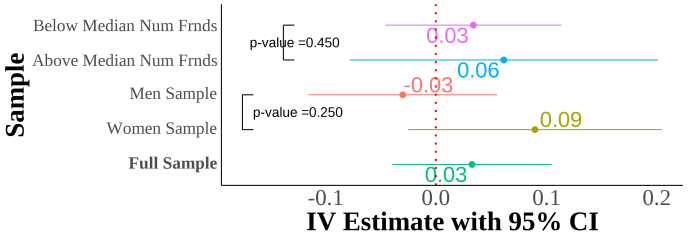


Averages: Full sample 10.870 (9.710), Women 12.330 (9.580), Men 9.380 (9.610), Above Median Num Frnds 11.010 (9.680), Below Median Num Frnds 10.900 (9.720).

See the notes in Figure Online Appendix Figure A.3. All the dependent variables are standardized with a mean of zero and a standard deviation of one. In panel (A), I provide the 2SLS estimation is presented for mental unwellness score in wave 3. In panel (B), I provide the 2SLS estimation is presented for mental unwellness score in wave 4. In panel (C), I provide the 2SLS estimation is presented for mental unwellness score in wave 5. For the analysis that uses the in-home survey wave 3, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. For the analysis that uses the in-home survey waves 4 and 5, I control for sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.

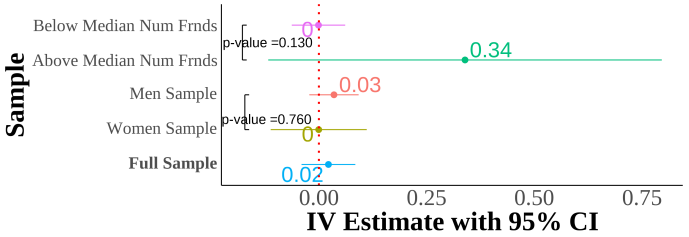
Figure Online Appendix Figure A.15: Spillover Effect of Mental Unwellness on Welfare Programs take-up

(a) Received Food Stamps (w3)



Averages: Full sample 0.040, Women 0.060, Men 0.010, Above Median Num Frnds 0.040, Below Median Num Frnds 0.040.

(b) Received Welfare Payments (w3)

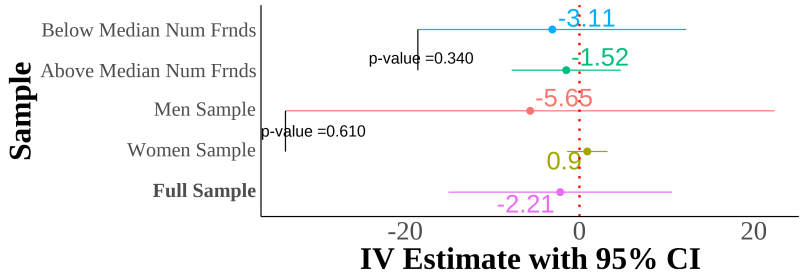


Averages: Full sample 0.030, Women 0.050, Men 0.010, Above Median Num Frnds 0.030, Below Median Num Frnds 0.030.

See the notes in Figure Online Appendix Figure A.3. In panel (A), I provide the 2SLS estimation is presented for receiving income from disability, unemployment, and social security benefits in wave 3. In panel (B), I provide the 2SLS estimation is presented for receiving food stamps in wave 3. In panel (C), I provide the 2SLS estimation is presented for receiving welfare payments in wave 3. For the analysis that uses the in-home survey wave 3, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. For the analysis that uses the in-home survey waves 4 and 5, I control for sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.

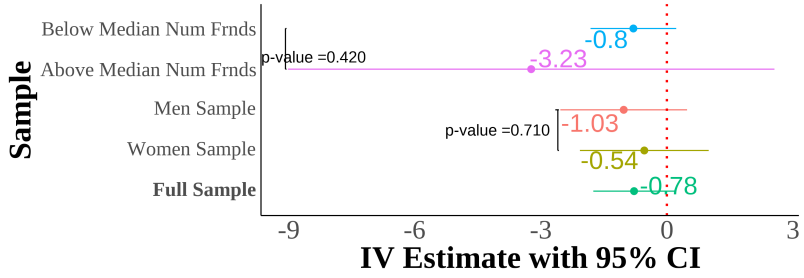
Figure Online Appendix Figure A.16: Spillover Effect of Mental Unwellness on Earnings

(a) Hourly Earnings (w3)



Averages: Full sample 11.640 (41.060), Women 10.860 (38.820), Men 12.460 (43.260), Above Median Num Frnds 11.420 (38.920), Below Median Num Frnds 11.110 (37.410).

(b) Log Total Personal Earnings (w4)

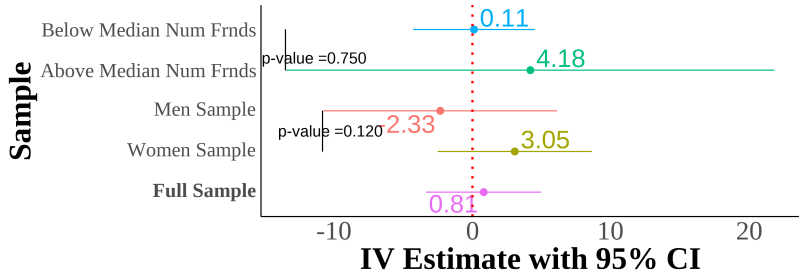


Averages: Full sample 35292.710 (44976.270), Women 29370.380 (38364.930), Men 41984.550 (50615.050), Above Median Num Frnds 36060.850 (46329.160), Below Median Num Frnds 34842.610 (44311.460).

See the notes in Figure Online Appendix Figure A.3. In panel (A), I provide the 2SLS estimation is presented for hourly earnings in wave 3. In panel (B), I provide the 2SLS estimation is presented for log total personal earnings in wave 4. For the analysis, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.

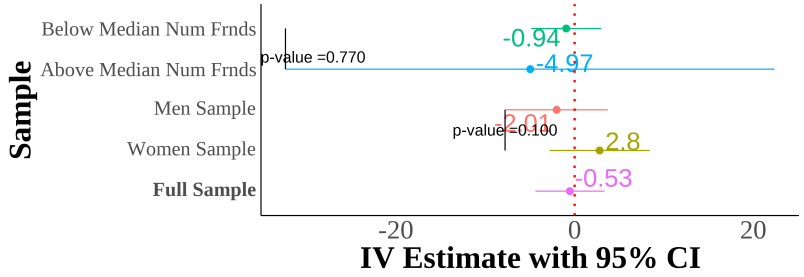
Figure Online Appendix Figure A.17: Spillover Effect of Mental Unwellness on Weekly Hours Worked

(a) Weekly Hours Worked (w4)



Averages: Full sample 41.140 (11.310), Women 38.760 (10.380), Men 43.830 (11.720), Above Median Num Frnds 41.220 (11.400), Below Median Num Frnds 41.120 (11.320).

(b) Weekly Hours Worked (w5)

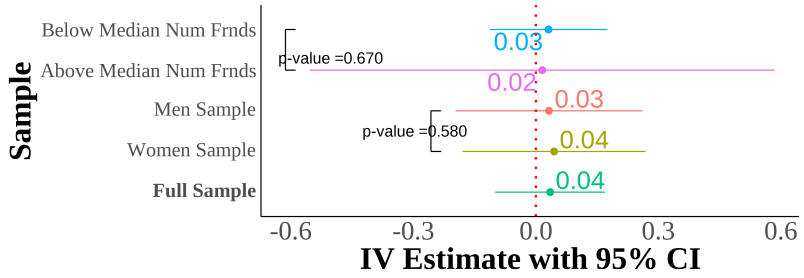


Averages: Full sample 42.850 (12.450), Women 39.960 (11.950), Men 46.300 (12.150), Above Median Num Frnds 42.880 (12.430), Below Median Num Frnds 42.900 (12.370).

See the notes in Figure Online Appendix Figure A.3. In panel (A), I provide the 2SLS estimation is presented for weekly hours worked in wave 4. In panel (B), I provide the 2SLS estimation is presented for weekly hours worked in wave 5. For the analysis, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.

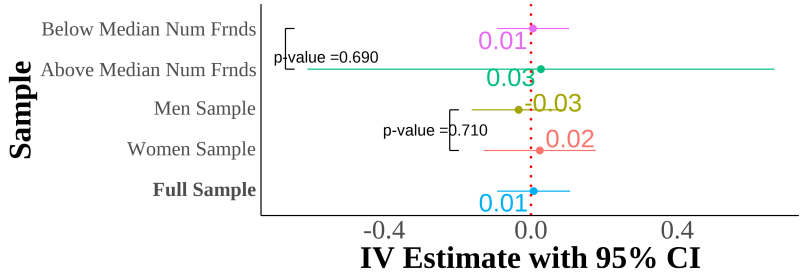
Figure Online Appendix Figure A.18: Spillover Effect of Mental Unwellness on Full Time Work

(a) Worked Full Time (w4)



Averages: Full sample 0.630, Women 0.630, Men 0.630, Above Median Num Frnds 0.640, Below Median Num Frnds 0.630.

(b) Worked Full Time (w5)

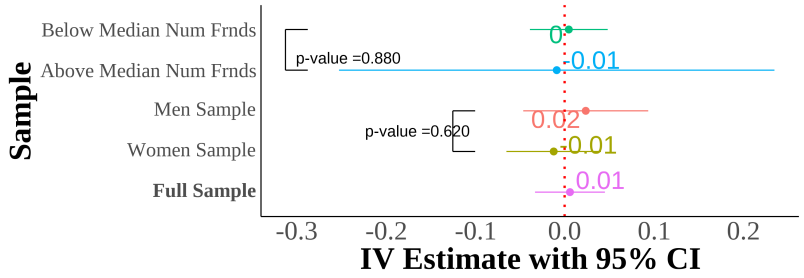


Averages: Full sample 0.680, Women 0.700, Men 0.660, Above Median Num Frnds 0.690, Below Median Num Frnds 0.680.

See the notes in Figure Online Appendix Figure A.3. In panel (A), I provide the 2SLS estimation is presented for working full time in wave 4. In panel (B), I provide the 2SLS estimation is presented for working full time in wave 5. For the analysis, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.

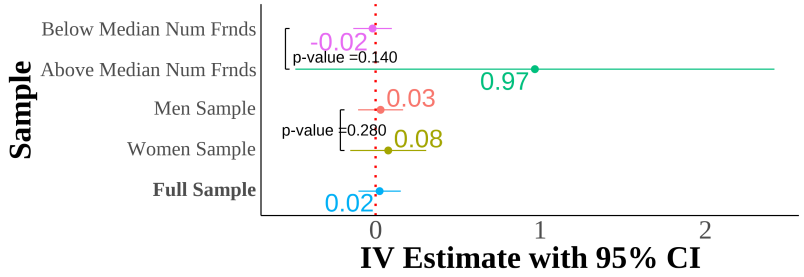
Figure Online Appendix Figure A.19: Spillover Effect of Mental Unwellness on Employment Status

(a) Employment Status (w4)



Averages: Full sample 0.750, Women 0.780, Men 0.710,
Above Median Num Frnds 0.760, Below Median Num Frnds 0.740.

(b) Employment Status (w5)

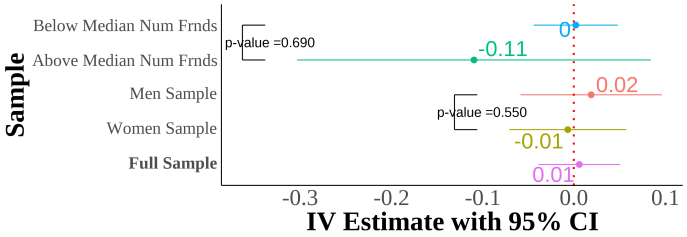


Averages: Full sample 0.840, Women 0.810, Men 0.880,
Above Median Num Frnds 0.840, Below Median Num Frnds 0.840.

See the notes in Figure Online Appendix Figure A.3. In panel (A), I provide the 2SLS estimation is presented for employment status in wave 4. In panel (B), I provide the 2SLS estimation is presented for employment status in wave 5. For the analysis, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.

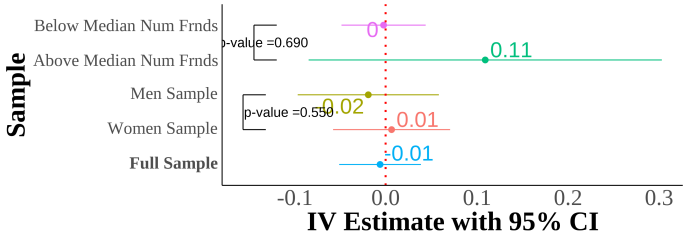
Figure Online Appendix Figure A.20: Spillover Effect of Peers' Mental Unwellness on Schooling

(a) High School



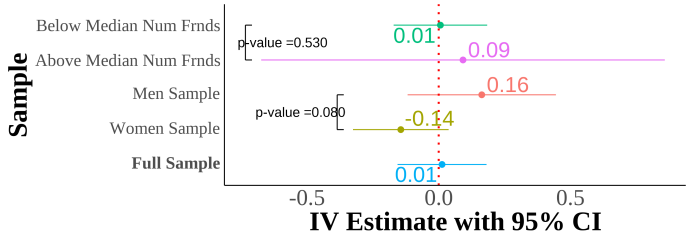
Averages: Full sample 0.960, Women 0.970, Men 0.950,
Above Median Num Frnds 0.960, Below Median Num Frnds 0.960.

(b) High School Dropout



Averages: Full sample 0.040, Women 0.030, Men 0.050,
Above Median Num Frnds 0.040, Below Median Num Frnds 0.040.

(c) Finish College

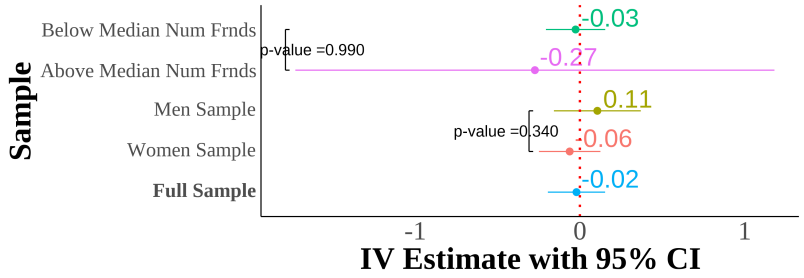


Averages: Full sample 0.690, Women 0.730, Men 0.650,
Above Median Num Frnds 0.700, Below Median Num Frnds 0.700.

See the notes in Figure Online Appendix Figure A.3. In panel (A), the 2SLS estimation is presented for finishing high school. In panel (B), the 2SLS estimation is presented for dropping out of high school. In panel (C), the 2SLS estimation is presented for finishing college. The control variables include sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey. The dependent variables in panels A to C are constructed from wave 5.

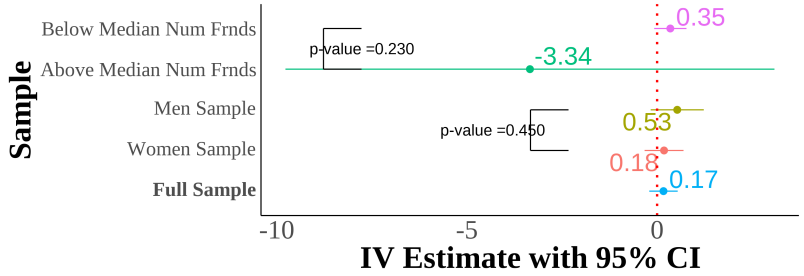
Figure Online Appendix Figure A.21: Spillover Effect of Peers' Mental Unwellness on Marriage

(a) Marital Status



Averages: Full sample 0.410, Women 0.470, Men 0.360,
Above Median Num Frnds 0.430, Below Median Num Frnds 0.410.

(b) Times Married

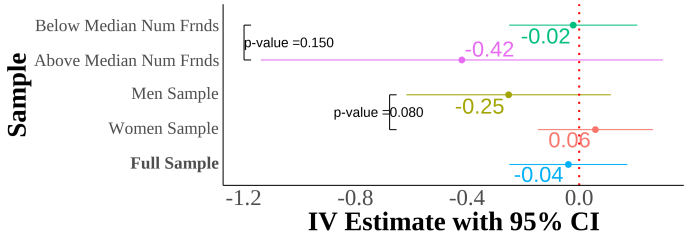


Averages: Full sample 0.540 (0.580), Women 0.580 (0.590), Men 0.490 (0.570),
Above Median Num Frnds 0.550 (0.580), Below Median Num Frnds 0.530 (0.580).

See the notes in Figure Online Appendix Figure A.3. The dependent variable times married is normalized with a mean of zero and standard deviation of one. In panel (A), the 2SLS estimation is presented for being married in wave 5. In panel (B), the 2SLS estimation is presented for times married. The control variables include sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey. The dependent times married dependent variable is constructed using wave 4 data, while marital status is constructed using data from wave 5.

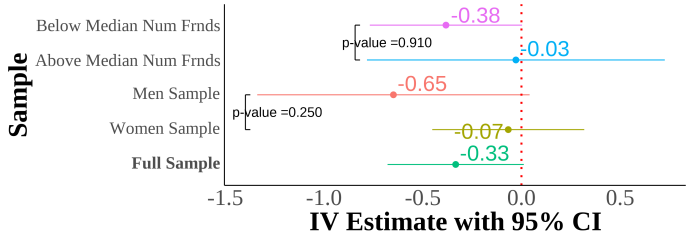
Figure Online Appendix Figure A.22: Spillover Effect of Peers' Mental Unwellness on Criminal Behavior

(a) Ever Arrested



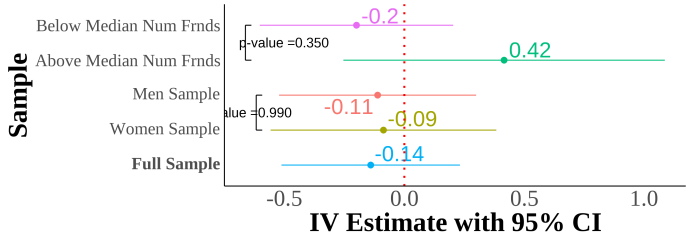
Averages: Full sample 0.280, Women 0.170, Men 0.410, Above Median Num Frnds 0.290, Below Median Num Frnds 0.280.

(b) Hurt Others (Drunk)



Averages: Full sample 0.610, Women 0.580, Men 0.630, Above Median Num Frnds 0.610, Below Median Num Frnds 0.600.

(c) Hurt Others (High)

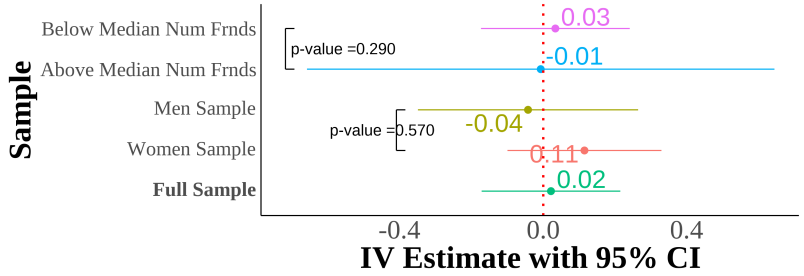


Averages: Full sample 0.240, Women 0.210, Men 0.260, Above Median Num Frnds 0.240, Below Median Num Frnds 0.240.

See the notes in Figure Online Appendix Figure A.3. Panel (A) presents the 2SLS estimation is presented for if they have ever been arrested (wave 4). Panels (B) and (C) provide the 2SLS estimation is presented for if they ever hurt others while drunk or high—including unprotected sex (wave 4). For the analysis using in-home survey waves 1 to 3, control variables include sex, race, age, parental education, parental employment, parental health, and number of friends. For the analysis using in-home survey waves 4 and 5, control variables include sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered at the school level. The data source for this study is the Add Health in-home survey.

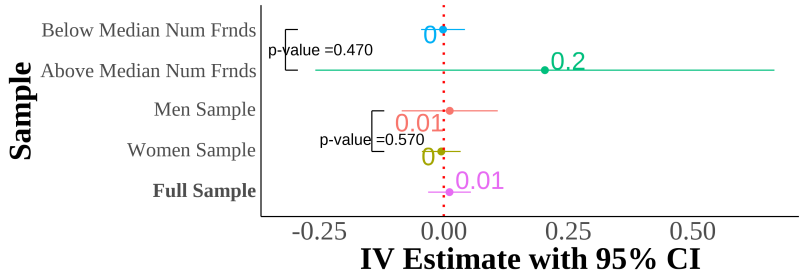
Figure Online Appendix Figure A.23: Spillover Effect of Peers' Mental Unwellness on Sexually Risky Behavior

(a) Multiple Partners



Averages: Full sample 0.160, Women 0.120, Men 0.200, Above Median Num Frnds 0.160, Below Median Num Frnds 0.160.

(b) Paid for Sex

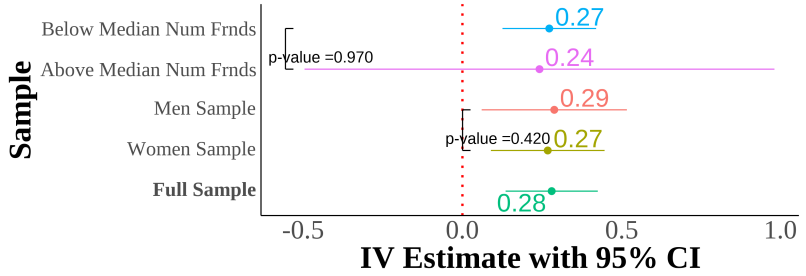


Averages: Full sample 0.020, Women 0.010, Men 0.040, Above Median Num Frnds 0.020, Below Median Num Frnds 0.020.

See the notes in Figure Online Appendix Figure A.3. Panel (A) shows the 2SLS estimation is presented for having multiple sexual partners (wave 4). Panel (B) presents the 2SLS estimation is presented for if they ever paid for sex (wave 4). For the analysis using in-home survey waves 4, control variables include sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered at the school level. The data source for this study is the Add Health in-home survey.

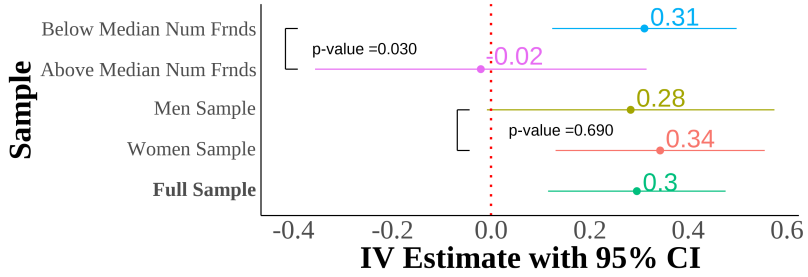
Figure Online Appendix Figure A.24: Spillover Effect of Mental Unwellness on Smoking Cigarettes During Adolescents

(a) Smoking Cigarettes (w1)



Averages: Full sample 0.260 (0.440), Women 0.250 (0.430), Men 0.260 (0.440), Above Median Num Frnds 0.280 (0.450), Below Median Num Frnds 0.240 (0.430).

(b) Smoking Cigarettes (w2)

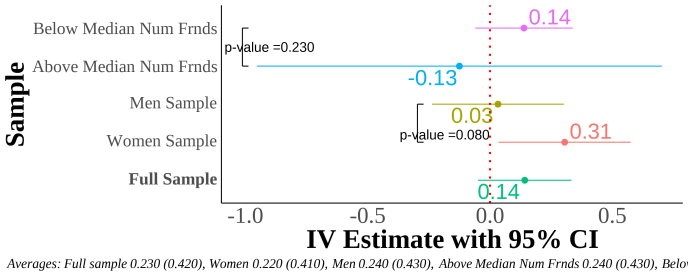


Averages: Full sample 0.220 (0.420), Women 0.220 (0.420), Men 0.230 (0.420), Above Median Num Frnds 0.240 (0.430), Below Median Num Frnds 0.210 (0.410).

See the notes in Figure Online Appendix Figure A.3. In panel (A), I provide the 2SLS estimation is presented for smoking cigarettes in wave 1. In panel (B), I provide the 2SLS estimation is presented for smoking cigarettes in wave 2. For the analysis that uses the in-home survey waves 1 to 3, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.

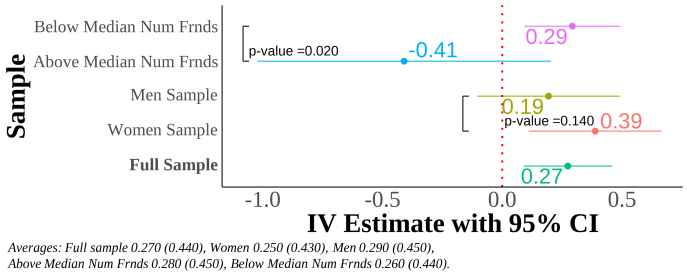
Figure Online Appendix Figure A.25: Spillover Effect of Mental Unwellness on Smoking Cigarettes During Adulthood

(a) Smoking Cigarettes (w3)



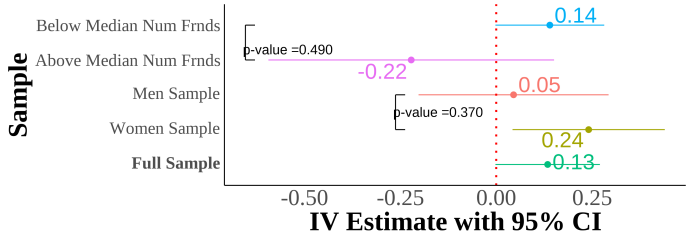
Averages: Full sample 0.230 (0.420), Women 0.220 (0.410), Men 0.240 (0.430), Above Median Num Frnds 0.240 (0.430), Belo

(b) Smoking Cigarettes (w4)



Averages: Full sample 0.270 (0.440), Women 0.250 (0.430), Men 0.290 (0.450), Above Median Num Frnds 0.280 (0.450), Below Median Num Frnds 0.260 (0.440).

(c) Smoking Cigarettes (w5)



Averages: Full sample 0.140 (0.350), Women 0.140 (0.350), Men 0.140 (0.350), Above Median Num Frnds 0.150 (0.350), Below Median Num Frnds 0.140 (0.350).

See the notes in Figure Online Appendix Figure A.3. In panel (A), I provide the 2SLS estimation is presented for smoking cigarettes in wave 3. In panel (B), I provide the 2SLS estimation is presented for smoking cigarettes in wave 4. In panel (C), I provide the 2SLS estimation is presented for smoking cigarettes in wave 5. For the analysis that uses the in-home survey wave 3, I control for sex, race, age, parental education, parental employment, parental health, and number of friends. For the analysis that uses the in-home survey waves 4 and 5, I control for sex, race, age, educational attainment, parental education, parental employment, parental health, and number of friends. Standard errors are clustered on the school level. Data source is the Add Health in-home survey.