Table S1. Summary of measures examined in recursive partitioning models.

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| Measure category Variables | # of Variables | Response Scale | Items or Subscale Summarization |
| Marijuana user status (Model 1 and 2 outcome) | 1 | 0 = never used1 = any lifetime use | Adapted from the ACHA NCHA item “within the last thirty days, on how many days did you use marijuana (pot, weed, hashish, hash oil)?” Participants responded on an ordinal scale in which 1 = “never used”, 2 = “have used, but not in the last 30 days”, 3 = “1-2 days”, 4 = “3-5 days”, 5 = “6-9 days”, 6 = “10-19 days”, 7 = “20-29 days”, and 8 = “used daily.” |
| Demographics | 17 |  |  |
| Age |  | continuous | Age (in years), calculated from reported birthdate. |
| Gender identity |  | 1 = woman2 = man3 = other | Which term do you use to describe your gender identity?  |
| Sexual orientation |  | 0 = non-heterosexual1 = heterosexual | Adapted from “Which term best describes your sexual orientation?” Asexual, Bisexual, Gay, Lesbian, Pansexual, Queer, Questioning, Same Gender Loving, Straight/Heterosexual, Another identity  |
| Ethnicity | (7) | 0 = no1 = yes | How do you usually describe yourself?WhiteBlack or African AmericanHispanic or Latino/aAsian or Pacific IslanderAmerican Indian or AlaskanBiracial or MultiracialOther |
| Year in school |  | 1 = 1st year undergraduate2 = 2nd year undergraduate3 = 3rd year undergraduate4 = 4th year undergraduate5 = 5th year or more undergraduate 6 = graduate or professional 7 = not seeking a degree 8 = other | What is your year in school? |
| Relationship status |  | 1 = not in a relationship 2 = in relationship not living together3 = in relationship living together  | What is your relationship status? |
| Marital status |  | 1 = single2 = married/partnered3 = separated4 = divorced5 = other | What is your marital status?  |
| Fraternity/sorority affiliation |  | 0 = no1 = yes | Are you a member of a social fraternity or sorority? |
| International student status |  | 0 = no1 = yes | Are you an international student? |
| Body mass index classification |  | 1 = <18.5 underweight2 = 18.5-24.9 healthy weight3 = 25-29.9 overweight4 = 30-34.9 class I obesity5 = 35-39.9 class II obesity6 = ≥ 40 class III obesity | Calculated from reported height (in inched) and weight (in pounds). |
| Psychological well-being | 6 |  |  |
| The Flourishing Scale (Diener et al., 2009) 1 | (5) | 1 = strongly disagree5 = strongly agree | Analyses included five items from this eight-item scale:I am optimistic about my future/I tend to be an optimistic person.I am engaged and interested in my daily activities.I lead a purposeful and meaningful life.My social relationships are supportive and rewarding.I am competent and capable in the activities that are important to me. |
| Flourishing Scale score 1 |  | continuous | Sum of the above five items. |
| Athletics | 4 |  |  |
| Specific organized athletic participation | (3) | 0 = no1 = yes | In the last 12 months, have you participated in organized college athletics at any of the following levels? VarsityClub SportsIntramurals |
| Any organized athletic participation |  | 0 = no1 = yes | Participation in varsity, club sports, and/or intramurals in the last 12 months. |
| Weight Behaviors and Perceptions | 7 |  |  |
| Weight loss behaviors | (4) | 0 = no1 = yes | Within the last 30 days, did you do any of the following?Exercise to lose weightDiet to lose weightVomit or take laxatives to lose weightTake diet pills to lose weight |
| Total number of weight loss behaviors |  | continuous | Sum of the above four items. |
| Self-described weight |  | 1 = very underweight2 = slightly underweight 3 = about the right weight 4 = slightly overweight5 = very overweight  | How would you describe your weight? |
| Current weight goals |  | 1 = I am not trying to do anything 2 = stay the same weight3 = lose weight4 = gain weight  | Are you trying to do any of the following about your weight? |
| Academics | 23 |  |  |
| Self-reported approximate GPA |  | 1 = a2 = b3 = c4 = d/f5 = na |  |
| Academic impacts | (21) | 1 = no2 = yes experienced but didn't affect academics3 = yes experienced and affected academics | Within the last 12 months, have any of the following affected your academic performance?Alcohol useAllergies\*AnxietyAssault (physical)\*Assault (sexual)\*Attention Deficit/Hyperactivity DisorderCold/Flu/Sore throatConcern for a troubled friend or family member Chronic health problem or serious illnessChronic painDeath of a friend or family memberDepression Discrimination\*Drug use\*Eating disorder/problem\*FinancesGambling\*HomesicknessInjuryInternet use/computer gamesLearning disabilityParticipation in extracurricular activitiesPregnancy (yours or partner's)\*Relationship difficulties Roommate difficulties Sexually transmitted disease/infection (STD/I)\*Sinus infection/Ear infection/Bronchitis/Strep throatSleep difficultiesStressWorkOther\**\* Individual variable not included in analyses due to endorsement frequency N < 50 for third response level.* |
| Total number of academic impacts |  | continuous | Sum of the above 31 academic impacts items. |
| Sleep | 6 |  |  |
| Past-week feeling rested |  | numeric, 0-7 days | On how many of the past 7 days did you get enough sleep so that you felt rested when you woke up in the morning?  |
| Past-week sleepiness |  | 1 = no problem at all2 = a little problem3 = more than a little problem4 = a big problem5 = a very big problem | In the past 7 days, how much of a problem have you had with sleepiness during your daytime activities? |
| Past-week sleep issues | (4) | numeric, 0-7 days | In the past 7 days, how often have you:Awakened too early in the morning and couldn't get back to sleep? Felt tired, dragged out, or sleepy during the day? Gone to bed because you could not stay awake any longer? Had an extremely hard time falling asleep?  |
| Physical Health | 18 |  |  |
| Past 12-month medical conditions | (14) | 0 = no1 = yes | Within the last 12 months, have you been diagnosed or treated by a professional for the following?AllergiesAsthma Back painBroken bone/Fracture/Sprain BronchitisChlamydia\*Diabetes\*Ear infectionEndometriosis\*Genital herpes\*Genital warts/HPV\*Gonorrhea\*Hepatitis B or C\*High blood pressureHigh cholesterolHIV infection\*Irritable Bowel SyndromeMigraine headacheMononucleosis\*Pelvic Inflammatory Disease\*Repetitive stress injurySinus infectionStrep throatTuberculosis\*Urinary tract infection*\* Individual variable not included in analyses due to endorsement frequency N < 50.* |
| Total number of past 12-month medical conditions |  | continuous | Sum of the above 25 medical condition items. |
| Other physical health conditions | (3) | 0 = no1 = yes | Do you have any of the following?Chronic illness (e.g., cancer, diabetes, auto-immune disorders)Deafness/Hearing loss Partial sightedness/Blindness? |
| Mental Health | 26 |  |  |
| Past 12-month mental health conditions | (9) | 0 = no1 = yes | Within the last 12 months, have you been diagnosed or treated by a professional for any of the following?Anorexia\*AnxietyAttention Deficit and Hyperactivity Disorder Bipolar DisorderBulimia\*DepressionInsomniaOther sleep disorderObsessive Compulsive DisorderPanic attacksPhobia\*Schizophrenia\*Substance abuse or addiction\*Other addiction\*Other mental health condition *\* Individual variable not included in analyses due to endorsement frequency N < 50.* |
| Total number of past 12-month mental health conditions |  | continuous | Sum of the above 15 mental health condition items. |
| Any mental health condition in past 12-months |  | 0 = no mental health condition1 = ≥ 1 mental health condition | Adapted from the above 15 mental health condition items. |
| Lifetime presence of depression diagnosis |  | 0 = no1 = yes | Have you ever been diagnosed with depression? |
| Other mental health conditions | (3) | 0 = no1 = yes | Do you have any of the following?Psychiatric conditionLearning disabilityAttention Deficit and Hyperactivity Disorder |
| Reported mental health symptoms | (8) | 0 = no, never1 = no, not in the past 12-months2 = yes, in the past 12-months | Have you ever felt:Things were hopeless?Overwhelmed by all you had to do?Exhausted (not from physical activity)?Very lonely?Very sad?So depressed that it was difficult to function?Overwhelming anxiety?Overwhelming anger? |
| Suicidal ideology and self-injurious behaviors | (3) | 0 = no, never1 = no, not in the past 12-months2 = yes, in the past 12-months | Have you ever:Intentionally cut, burned, bruised, or otherwise injured yourself?Seriously considered suicide?Attempted suicide? |
| Mental Health Services | 7 |  |  |
| Specific past mental health services | (4) | 0 = no1 = yes | Have you ever received psychological or mental health services from any of the following? Counselor/Therapist/PsychologistPsychiatristOther medical provider (e.g., physician, nurse practitioner)Minister/Priest/Rabbi/other clergy |
| Current university’s counseling services |  | 0 = no1 = yes | Have you ever received psychological or mental health services from your current college/university's Counseling or Health Service?  |
| Any past mental health services |  | 0 = never received services1 = ever received services | Adapted from above five mental health service provider items. |
| Future mental health services |  | 0 = no1 = yes | If in the future you were having a personal problem that was really bothering you, would you consider seeking help from a mental health professional?  |
| Exercise, Nutrition, and Preventative Healthcare | 17 |  |  |
| Weekly exercise | (3) | numeric, 0-7 days | On how many of the past 7 days did you:Do moderate intensity cardio or aerobic exercise for at least 30 minutes?Do vigorous intensity cardio or aerobic exercise for at least 20 minutes?Do 8-10 strength training exercises for 8-12 repetitions each? |
| ACSM and AHA physical activity guidelines met or not met |  | 0 = not met1 = met | “From the American College of Sports Medicine and the American Heart Association (2007): Moderate-intensity cardio or aerobic exercise for at least 30 minutes on 5 or more days per week, or vigorous-intensity cardio or aerobic exercise for at least 20 minutes on 3 or more days per week (ACHA NCHA, 2016).” |
| Fruit and vegetable consumption |  | 1 = 0 servings per day2 = 1-2 servings per day3 = 3-4 servings per day4 = 5 or more servings per day  | How many servings of fruits and vegetables do you usually have per day? |
| Vaccines | (6) | 1 = no2 = yes3 = don't know  | Have you received the following vaccinations (shots or series of shots)?Hepatitis B Human Papillomavirus/HPV (cervical cancer vaccine) Influenza (the flu) in the last 12 months (shot or nasal mist) Measles, Mumps, Rubella Meningococcal disease (meningococcal meningitis) Varicella (chicken pox)  |
| Other preventative healthcare | (6) | 1 = no2 = yes3 = don't know  | Have you had a dental exam and cleaning in the last 12 months? Have you (Males) performed testicular self-exam in the last 30 days?Have you (Females) performed breast self-exam in the last 30 days? Have you (Females) had a routine gynecological exam in the last 12 months? Have you used sunscreen regularly with sun exposure? Have you ever been tested for Human Immunodeficiency Virus (HIV) infection? |
| Stress and Adverse Experiences | 26 |  |  |
| Past 12-month stress levels |  | 1 = no stress2 = less than average stress 3 = average stress4 = more than average stress 5 = tremendous stress | Within the last 12 months, how would you rate the overall level of stress you have experienced?  |
| Past-12 month traumatic and/or difficult to handle events | (12) | 1 = no2 = yes | Within the last 12 months, has any of the following been traumatic or very difficult for you to handle?Academics Career related issue Death of a family member or friend Family problems Intimate relationships Other relationships FinancesHealth problem of a family member or partner Personal appearance Personal health issue Sleep difficulties Other |
| Total number of past-12 month traumatic and/or difficult to handle events |  | continuous | Sum of the above 12 events that were traumatic or very difficult to handle. |
| Past 12-month violence, abusive relationships and personal safety | (10) | 1 = no2 = yes | Within the last 12 months: Were you in a physical fight? Were you physically assaulted (do not include sexual assault)? Were you verbally threatened? Were you sexually touched without your consent? Was sexual penetration attempted (vaginal, anal, oral) without your consent? Were you sexually penetrated (vaginal, anal, oral) without your consent?Were you a victim of stalking (e.g., waiting for you outside your classroom, residence hall, or office: repeated emails/phone calls)? Have you been in an intimate (coupled/partnered) relationship that was: Emotionally abusive? (e.g., called derogatory names, yelled at, ridiculed) Have you been in an intimate (coupled / partnered) relationship that was: Physically abusive? (e.g., kicked, slapped, punched) Have you been in an intimate (coupled / partnered) relationship that was: Sexually abusive? (e.g., forced to have sex when you didn't want it, forced to perform or have an unwanted sexual act performed on you)  |
| Total number of past 12-month violent and/or abusive experiences |  | continuous | Sum of the above 10 violent and/or abusive experiences. |
| Total number of past 12-month traumatic, difficult to handle, violent, and/or abusive experiences |  | continuous | Sum of the above 12 events that were traumatic or very difficult to handle plus the above 10 violent and/or abusive experience items. |
| Sexual Behavior | 17 |  |  |
| Past 12-month number of sexual partners |  | continuous | Within the last 12 months, with how many partners have you had oral sex, vaginal intercourse or anal intercourse?  |
| Lifetime presence of sexual behaviors | (3) | 1 = no, never done this sexual activity2 = no, have, but not in last 30 days3 = yes | Within the last 30 days, did you have: Oral sex?Vaginal intercourse?Anal intercourse? |
| Condom/protective barrier use frequency | (3) | 1 = n/a, never did this sexual activity2 = have not during last 30 days3 = never4 = rarely5 = sometimes6 = most of the time7 = always  | Within the last 30 days, how often did you or your partner(s) use a condom or other protective barrier (e.g., male condom, female condom, dam, glove) during: Oral sex?Vaginal intercourse?Anal intercourse? |
| Birth control use |  | 1 = yes 2 = no, did not use any method of birth control3 = don’t know | D id you or your partner(s) use a method to prevent pregnancy the last time you had vaginal intercourse?  |
| Birth control methods | (10) | 0 = no1 = yes | What method of birth control did you or your partner use to prevent pregnancy the last time you has vaginal intercourse? Birth control pills (monthly or extended cycle) Birth control shotsBirth control implantsBirth control patch Vaginal ring\*Intrauterine deviceMale condomFemale condom\*Diaphragm or cervical cap\*Contraceptive sponge\*Spermicide (foam, jelly, cream)Fertility awareness (calendar, mucous, basal body temperature) WithdrawalSterilization (hysterectomy, tubes tied, vasectomy)\*Other method *\* Individual variable not included in analyses due to endorsement frequency N < 50.* |
| Emergency contraception |  | 0 = na, have not had vaginal intercourse in the last 12 months1 = no2 = yes3 = don’t know | Within the last 12 months, have you or your partner(s) used emergency contraception (“morning after pill”)? |
| Alcohol Use | 28 |  |  |
| Alcohol use frequency |  | ordinal; 1 = never used2 = have used, but not in last 30 3 = 1 - 2 days4 = 3 - 5 days5 = 6 - 9 days6 = 10 - 19 days7 = 20 - 29 days8 = used daily | Within the last thirty days, on how many days did you use alcohol (beer, wine, liquor)? |
| Number of drinks consumed last time participant partied/socialized |  | continuous | The last time you "partied"/socialized, how many alcoholic drinks did you have?  |
| Number of hours spent drinking last time participant partied/socialized |  | continuous | The last time you "partied"/socialized, how many hours did you drink alcohol?  |
| Driving and driving | (2) |  | Within the last thirty days, did you drive after:Drinking any alcohol at all?Having five or more drinks? |
| Past two-week binge drinking frequency |  | continuous | Over the last two weeks, how many times have you had five or more drinks of alcohol at a sitting?  |
| Past 12-month protective behavioral strategies | (11) | 1 = not applicable/don't drink 2 = never3 = rarely4 = sometimes 5 = most of the time 6 = always | During the last 12 months, when you "partied"/socialized, how often did you: Alternate non-alcoholic with alcoholic beverages?Avoid drinking games?Choose not to drink alcohol?Determine in advance not to exceed a set number of drinks?Eat before and/or during drinking?Have a friend let you know when you have had enough? Keep track of how many drinks being consumed?Pace drinks to one or fewer an hour?Stay with the same group of friends the entire time drinking?Stick with only one kind of alcohol when drinking?Use a designated driver? |
| Total protective behavioral strategies score |  | continuous | Sum of the above 11 protective behavioral strategy items. |
| Past 12-month negative consequences from use | (9) | 1 = n/a, don't drink2 = no3 = yes | Within the last 12 months, have you experienced any of the following when drinking alcohol? Did something you later regrettedForgot where you were or what you didGot in trouble with the policeSomeone had sex with me without my consent Had sex with someone without their consent Had unprotected sexPhysically injured yourselfPhysically injured another personSeriously considered suicide  |
| Total number of negative consequences from use |  | continuous | Sum of the above nine negative consequences items. |
| Other Past 12-month Safety Behaviors | 4 | 1 = NA didn't do this last in last 12 months2 = never3 = rarely 4 = sometimes 5 = most of the time6 = always  | Within the last 12 months, how often did you: Wear a seatbelt when you rode in car?Wear a helmet when you rode a bicycle?Wear a helmet when you rode a motorcycle?Wear a helmet when you were inline skating? |

*Note:* Unless indicated, all variables are ACHA NCHA survey items. 1 Denotes items that authors added to the standard ACHA NCHA battery.

**References**

American College Health Association. (2016). *American College Health Association-National College Health Assessment II: Reference Group Executive Summary Fall 2015*. Hanover, MD: American College Health Association.

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