

Supplementary Material

Supplemental Text: Risks in Daily Life

To provide insight on the types of risks that participants engaged in during the daily diary protocol, we created a visualization of the network resulting from the cosine similarity analysis on the self-reported riskiest behaviors of the day (Figure 1). Nodes represent individual reports and edges represent the cosine similarity between reports. Twenty communities were identified by community detection. Seven communities contained only one risky behavior; these were highly idiosyncratic risk behaviors that occurred only once and included “dissected fetal pig” and “tanned”. The community allegiance of the nodes of the other thirteen communities is indicated by color. A list of the top five most frequent words associated with the self-reports within each community is shown. Below we name the communities and describe prototypical behaviors associated with each community.

The largest community, comprising 13.73% of risk reports, largely contains *school-related risks* and includes reports such as “Procrastinated on studying for exam by watching Netflix”, “Put off studying”, and “accepted my study abroad”. The second largest community comprises 11.85% of risks and contains a large proportion of reports associated with *engagement in novel experiences* and some associated with overindulgence, in particular those related to food. Reports include “trying new dance moves”, “I tried a new recipe”, “checked out a new city i [sic] might move to”, “watched a new tv show”, “took on a new volunteer opportunity”, and “Ate ice cream even though I’m probably lactose intolerant”. The third largest community comprising 11.61% of risk reports contains many reports of *social risks* such as: “speak to someone I feared”, “I told someone I didn’t know very well about personal information”, “Trusted someone who was untrustworthy in the past”, “Told someone on the bus to shut up”,

SENSATION-SEEKING AND RISK

“told my boss I wouldn’t be happy if he hired someone else”, “decided to break things off with someone I’ve been dating”, and “I gave my number to a boy I met at the Penn relays”. *Work risks* largely make up the next community comprising 11.45% of risk reports. Reports include: “I intentionally didn’t finish work I needed to, knowing I would miss a soft deadline”, “left work frequently for errands”, “took on a difficult work project”, “Try a different style of working at my job”, and “left work early”. The next largest community contains *exploratory risks* (11.33%) and consists of idiosyncratic forms of exploration: “went out drinking with strangers”, “I hiked in the woods”, “went on a whale watching tour”, “went to a new place”, and “went to a party where I knew only a few people”. The next largest community (9.88%) consists of *walking risks* on the theme of walking in the city, often at night: “walked home in the dark”, “walked across campus in a crazy nor-easter [sic]”, “Walked ten blocks during a hailstorm”, “walked in an unsafe are [sic] of town”, and “went for a walk despite injured leg”. The next largest community (9.12%) consists mainly of *transportation risks*, in particular risky driving and biking: “Ride my bike the wrong way on a one way street to get to work faster”, “Rode a bike without a helmet”, “drove while not paying attention”, “Drove very fast in order to get to an appointment that I was late for”, “I drove without a seatbelt”, and “I drove recklessly”. The next community (7.27%), *friend risks*, consists of behaviors involving experiences with friends and includes reports such as: “went last minute to meet friends for a drink”, “emotionally risky... made myself vulnerable with a friend”, “I lied to a friend and cancelled plans with her”, and “tell a friend she was wrong”. This community had similar social content to the *social risks* community but with greater emphasis on friends specifically. A *responsibilities* community (5.94%) encompasses instances in which responsibilities (in particular related to school) were not met: “didn’t go to a meeting I knew would be boring”, “Did not go into my lab when I was supposed to”, and “didn’t

SENSATION-SEEKING AND RISK

do class readings”. *Alcohol risks* make up the majority of the next community (2.93%) with reports such as: “drank too much”, “Drank champagne while sick”, “drank more wine than I typically do”, and “drank a beer outside on the street”. The next largest community entails *driving risks* (2.53%) and is highly similar to the *transportation risks* community, although with an almost exclusive focus on driving cars: “drive aggressively through a parade”, “almost missed a stop sign when driving and had to slam my breaks [sic]”, and “Glanced at my phone while driving”. A *jaywalking risks* community (1.37%) exclusively contains descriptions of jaywalking, often simply the word “jaywalk”. Finally, the last community (0.72%) is comprised of *smoking risks* and contains reports such as: “smoked weed”, “smoke hookah”, and “smoke”.

SENSATION-SEEKING AND RISK

Table S1

Variance partitioning of the sensation-seeking items

Source of Variance	Variance (%)
Time ($\hat{\sigma}_T^2$)	0.02 (0.29)
Person ($\hat{\sigma}_P^2$)	3.43 (49.28)
Item ($\hat{\sigma}_I^2$)	0.002 (0.03)
Time*Person ($\hat{\sigma}_{TP}^2$)	2.55 (36.64)
Time*Item ($\hat{\sigma}_{TI}^2$)	0.00 (0.00)
Person*Item ($\hat{\sigma}_{PI}^2$)	0.16 (2.30)
Error ($\hat{\sigma}_{ERROR}^2$)	0.89 (12.79)
Total	6.96 (100.00)

SENSATION-SEEKING AND RISK

Table S2

Percent of entries within each risk category considered threatening to safety, health, or wellbeing

	Threatening	Non-Threatening	Percent Threatening
Social	7	282	2.42
Novelty	16	279	5.42
Smoking	17	1	94.44
Driving	12	51	19.04
Work	10	275	3.51
Walking	89	157	36.18
Friends	31	150	17.13
Transportation	76	151	33.48
Exploration	22	260	7.80
Alcohol	41	32	56.16
Responsibilities	4	144	2.70
School	12	330	3.51
Jaywalking	34	0	100.00
Other	0	7	0.00

SENSATION-SEEKING AND RISK

Table S3.

Results of the multilevel model examining associations between day's alcohol use and day's self-reported risk-taking

FIXED EFFECTS			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p-value</i>
Intercept	-9.39***	1.18	<0.001
Day's alcohol Use	-0.35	0.26	0.18
Weekend	1.73**	0.61	0.004
Day of study	0.14*	0.07	0.03
Usual alcohol use	1.92	1.53	0.21

Notes: 2737 nested in 167 participants.

SENSATION-SEEKING AND RISK

Table S4.

Results of the multilevel model examining associations between day's alcohol use (any versus none) and day's self-reported risk-taking

FIXED EFFECTS			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p-value</i>
Intercept	-10.10***	1.70	<0.001
Day's alcohol use (binary)	5.66***	1.10	<0.001
Weekend	1.09	0.59	0.06
Day of study	0.13	0.07	0.06
Usual alcohol use (binary)	-1.59	4.76	0.74

Notes: 2737 nested in 167 participants. The alcohol use variable was binarized to reflect days of no alcohol use (0) and days of any alcohol use (1).

SENSATION-SEEKING AND RISK

Table S5.

Results of the multiple regression analyses examining associations between the Brief Sensation-Seeking Scale and proportion threatening risks reported (top) and the UPPS sensation-seeking subscale and proportion threatening risks reported (below).

Proportion Threatening Risks and Brief Sensation-Seeking Scale			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p</i> -value
Intercept	-3.37***	0.58	<0.001
BSSS	0.29*	0.14	0.04
Age	0.03	0.02	0.08
Gender male	0.62*	0.28	0.03
Gender other	0.53	0.70	0.45
Number of days	0.03	0.02	0.10
Proportion Threatening Risks and UPPS Sensation-Seeking			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p</i> -value
Intercept	-2.91***	0.66	<0.001
UPPS-SS	0.16	0.18	0.37
Age	0.03	0.02	0.11
Gender male	0.62*	0.28	0.03
Gender other	0.42	0.61	0.49
Number of days	0.03	0.02	0.07

Notes: Age was sample-mean centered. Gender was a factor variable with female as the reference category. BSSS = brief sensation-seeking scale; UPPS = Urgency, Premeditation, Perseverance, and Sensation-Seeking Scale; SS = sensation-seeking. *** $p < 0.001$, * $p < 0.05$. $N = 167$.

SENSATION-SEEKING AND RISK

Table S6.

Results of the multilevel model examining associations with day's alcohol use with participants reporting no alcohol use throughout the study excluded

CONDITIONAL SUBMODEL			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p-value</i>
Intercept	0.29***	0.08	<0.001
Day's sensation seeking	0.03	0.03	0.33
Weekend	0.32***	0.07	<0.001
Day of study	0.01	0.01	0.22
Usual sensation seeking	0.09*	0.04	0.02
ZERO-INFLATION SUBMODEL			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p-value</i>
Intercept	1.17***	0.12	<0.001
Day's sensation seeking	-0.08*	0.04	0.02
Weekend	-0.73***	0.11	<0.001
Day of study	-0.01	0.01	0.34
Usual sensation seeking	-0.03	0.06	0.55

Notes: N = 2140 days nested within 131 participants.

SENSATION-SEEKING AND RISK

Table S7.

Results of the multilevel model examining associations with alcohol use controlling for previous day's sensation-seeking and alcohol use

CONDITIONAL SUBMODEL			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p-value</i>
Intercept	0.23*	0.09	0.02
Day's sensation seeking	0.04	0.03	0.21
Weekend	0.33***	0.07	<0.001
Day of study	0.01	0.01	0.06
Usual sensation seeking	0.09*	0.04	0.04
Previous day's sensation seeking	-0.01	0.02	0.53
Previous day's alcohol use	-0.01	0.02	0.56
ZERO-INFLATION SUBMODEL			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p-value</i>
Intercept	1.95***	0.17	<0.001
Day's sensation seeking	-0.09*	0.05	0.04
Weekend	-0.77***	0.12	<0.001
Day of study	-0.01	0.01	0.30
Usual sensation seeking	-0.02	0.08	0.76
Previous day's sensation seeking	-0.01	0.03	0.83
Previous day's alcohol use	-0.03	0.04	0.43

Notes: N = 2140 days nested within 131 participants.

SENSATION-SEEKING AND RISK

Table S8.

Results of the multilevel model examining associations with day's self-reported risk-taking controlling for previous day's sensation-seeking and risk-taking

FIXED EFFECTS			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p-value</i>
Intercept	-7.26***	0.97	<0.001
Day's sensation seeking	0.81**	0.27	0.003
Weekend	0.91	0.58	0.12
Day of study	0.15**	0.05	0.003
Previous day's sensation seeking	-0.49**	0.18	0.007
Previous day's risk-taking	0.22***	0.02	<0.001

SENSATION-SEEKING AND RISK

Table S9.

Results of the multilevel hurdle model examining associations with alcohol use excluding age

CONDITIONAL SUBMODEL			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p-value</i>
Intercept	0.29***	0.08	<0.001
Day's sensation seeking	0.03	0.03	0.33
Weekend	0.32***	0.07	<0.001
Day of study	0.01	0.01	0.22
Usual sensation seeking	0.09*	0.04	0.02
ZERO-INFLATION SUBMODEL			
	<i>Estimate</i>	<i>Standard Error</i>	<i>p-value</i>
Intercept	1.90***	0.16	<0.001
Day's sensation seeking	-0.09*	0.04	0.02
Weekend	-0.74***	0.11	<0.001
Day of study	-0.01	0.01	0.35
Usual sensation seeking	-0.04	0.08	0.57
FIT INDICES			
AIC	4819.30		
BIC	4914.00		

Notes: N = 2737 days nested within 167 participants.

SENSATION-SEEKING AND RISK

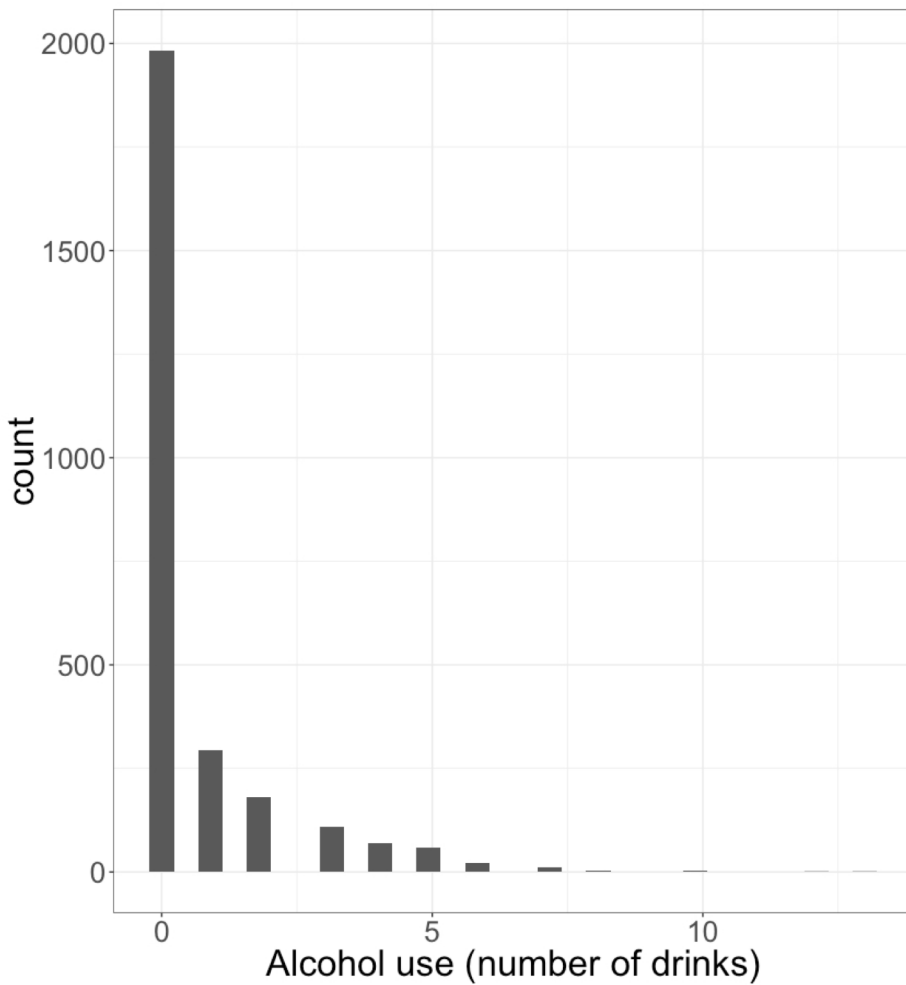


Figure S1. Distribution of the alcohol use variable. The count (y-axis) of number of alcohol drinks consumed (x-axis) each day is positively skewed and has many zero entries, motivating the use of a hurdle model in the present study.