Supporting Information for "A longitudinal study examining the associations between interpersonal trauma and romantic relationships among college students"

1. Representativeness Analyses

Two analytic samples were derived from the first four cohorts of the S4S sample (N = 9,911). Follow-up data for the fifth cohort (2017) were unavailable at the time of data analysis and were thus not included in the representativeness analyses. The first sample included individuals who were part of the analyses focused on relationship status as an outcome (n = 1,132). The second sample included those who were part of the analyses focused on relationship satisfaction and partner alcohol use as outcomes. This sample was limited to those individuals who were in a relationship at one or more assessments and were thus eligible to answer questions about their relationships (n = 1,913). Our second sample of individuals in a relationship at one or more time points is larger than our first sample in which relationship status was the outcome of interest. We used generalized estimating equation (GEE) models to assess the associations between IPT and relationship status, which requires complete information on all variables at all time points for cases to be included in the model. The linear mixed models used to assess the associations between IPT and relationship satisfaction and partner alcohol use does not have this stringent requirement.

Using a series of t-tests for continuous variables and chi-square tests for categorical variables, we then compared participants in each sample to participants excluded from each respective sample in terms of age, sex, race/ethnicity, precollege IPT, and college-onset IPT. Several differences, each of small effect measured via Cohen's d (all ds < .25), emerged between participants in the analytic samples and those excluded from the analytic subsamples. Demographic variables were measured at baseline, and all other variables were measured during spring of freshman year.

Participants included in the first analytic sample were slightly younger (t(1749) = -4.45, M_{diff} = -0.05, p < .001, d = .14) and were more likely to be female (71.5% versus 60.2%, χ^2(1) = 53.07, p < .001, d = .15). Participants in the first sample were less likely to be White (44.7% versus 49.8%, χ^2 (5) = 29.51, p < .001, d = .11) than participants who were excluded from the first sample. There were also more participants in this sample who reported precollege IPT (35.1% versus 28.8%, χ^2 (1) = 5.44, p = .020, d = .05). In contrast, there were no differences in college-onset IPT or relationship status during their freshman year between those in the first analytic sample and those excluded from this sample.

Participants included the second analytic sample were slightly younger (t(7908) = -3.21, p = .001, M_{diff} = -0.04, d = .08) and were more likely to be female (73.6% versus 57.9%, χ^2 (1) = 146.00, p < .001, d = .25) than those excluded from this sample. Participants in this sample were more likely to report college-onset IPT during freshman year (21.1% versus 12.4%, χ^2(1) = 18.20, p < .001, d = .09) than those who were excluded. In contrast, there were no differences in race/ethnicity or precollege IPT between those in the first analytic sample and those excluded from this sample.

We also compared participants in each analytic sample to each other.[1] We used a series of t-tests for continuous variables and chi-square tests for categorical variables to compare the two

[1] Not all of the participants in the second analytic sample were also included in the first analytic sample. This is again because of the stringent requirement of GEE models that all cases need to have complete information on all variables at all time points to be included in the model. Seven-hundred thirty participants were in both analytic samples.

samples in terms of age, sex, race/ethnicity, precollege IPT, and college-onset IPT. Participants in the second analytic sample were more likely to be White (53.6% versus 44.7%, $\chi^2(5) = 28.50$, $p < .001$, $d = .11$) and to report college-onset IPT during freshman year (23.6% versus 17.8%, $\chi^2(1) = 8.37$, $p = .004$, $d = .06$). There were no significant differences between the two analytic samples in terms of age, sex, and precollege IPT exposure.

2. Sensitivity Analyses

IPT exposure

In the present study, IPT exposure was coded as a binary, time-varying predictor. However, a robust body of research (e.g., Anda et al., 2006; Fergusson et al., 2013; Norman et al., 2012) demonstrates that the cumulative effect of repeated IPT confers greater risk than a single event. We thus conducted a set of sensitivity analyses to determine if our pattern of results changed when including a cumulative count of IPT exposure. We first recoded our IPT variables into count variables. The cumulative count of precollege IPT included the number of times participants endorsed potentially traumatic events (physical assault, sexual assault, or other unwanted/uncomfortable sexual experiences) before college. Similarly, the cumulative count of college-onset IPT included the number of the endorsed potentially traumatic events at each timepoint and was treated as a time-varying predictor. After recoding, we reran all of our analyses using our cumulative precollege and college-onset IPT predictors (see Table S1). In Table S1, models 1, 2, and 3 correspond to the models examining the associations between cumulative IPT and relationship status, relationship satisfaction, and partner alcohol use, respectively. We largely observed the same pattern of results as we did when using binary measures of IPT. There was one exception, in that the lagged effect of cumulative college-onset IPT on relationship satisfaction was attenuated ($\beta = -0.03$, $p = .381$) relative to that which was reported in the manuscript ($\beta = -0.11$, $p = .018$). In view of these largely parallel patterns of effects, we opted to retain the original presentation of results in the manuscript.

Relationship status

In the present study, relationship status was coded in a binary fashion, such that individuals were categorized as being in a committed romantic relationship if they were dating one person exclusively, engaged, or married, regardless of the length of the relationship and without consideration of recent breakups. To determine the robustness of our results to these possible confounders, relationship length and recent breakup, we ran a series of sensitivity analyses. First, we reran our analyses including relationship length, measured in months, as a continuous, time-varying covariate (see Table S2). (We note that we were unable to test the association between IPT and relationship status while controlling for relationship length because participants who were single did not have data on relationship length.) In Table S2, models 1 and 2 correspond to the models examining the associations between IPT and relationship satisfaction and partner alcohol use, respectively. Relationship length was negatively associated with partner alcohol use, but was not significantly associated with relationship satisfaction. We largely observed the same pattern of results as we did in our primary analyses. We largely observed the same pattern of results with the inclusion of this covariate. There was one exception, in which the association between precollege IPT and partner alcohol use became significant ($\beta = 0.21$, $p = .006$) relative to that which was reported in the primary analyses ($\beta = 0.08$, $p = .193$).

Next, in light of research suggesting that ending a romantic relationship (i.e., a breakup) is associated with changes in alcohol use (Fleming et al., 2010; Larson & Sweeten, 2012;

McKiernan et al., 2018; Salvatore et al., 2014), we reran our analyses including experiencing a breakup in the past 12 months as a binary, time-varying covariate (see Table S3). In Table S3, models 1, 2, and 3 correspond to the models examining the associations between IPT and relationship status, relationship satisfaction, and partner alcohol use, respectively. None of our parameters of interest changed with the inclusion of this covariate. These supplementary analyses attenuate concerns that breakups and relationship length confound the associations reported in the manuscript.

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Supplemental Tables

Table S1

Associations between cumulative precollege and college-onset IPT exposure and relationship status, relationship satisfaction, and partner alcohol use.

	Model 1		**Model 2**		**Model 3**	
	Relationship Status		Relationship Satisfaction		Partner Alcohol Use	
Predictors	*OR*	*CI*	*β*	*CI*	*β*	*CI*
(Intercept)	0.98	[0.01, 161.29]	1.46	[-0.44, 3.56]	***3.80***	***[0.94, 6.67]***
Time	***1.10***	***[1.02, 1.17]***	-0.04	[-0.08, 0.00]	***0.14***	***[0.08, 0.19]***
Cohort						
Cohort 2	0.97	[0.76, 1.23]	***-0.19***	***[-0.30, -0.08]***	0.04	[-0.12, 0.20]
Cohort 3	1.05	[0.83, 1.32]	***-0.21***	***[-0.32, -0.10]***	0.09	[-0.07, 0.25]
Cohort 4	-	-	***-0.23***	***[-0.36, -0.10]***	-0.05	[-0.23, 0.13]
Race/Ethnicity (0 = White)						
African American/Black	***0.56***	***[0.43, 0.72]***	***-0.22***	***[-0.34, -0.11]***	***-0.41***	***[-0.57, -0.25]***
Asian	***0.62***	***[0.48, 0.81]***	***-0.03***	***[-0.14, 0.09]***	***-0.45***	***[-0.62, -0.28]***
More than one race	1.25	[0.83, 1.87]	-0.09	[-0.26, 0.08]	-0.19	[-0.44, 0.06]
Hispanic/Latino	1.18	[0.74, 1.89]	-0.03	[-0.20, 0.14]	-0.23	[-0.47, 0.02]
Other race/ethnicity	1.25	[0.60, 2.58]	0.04	[-0.30, 0.39]	-0.29	[-0.78, 0.20]
Sex (0 = Male)	***1.46***	***[1.18, 1.81]***	0.04	[-0.06, 0.13]	***0.20***	***[0.07, 0.34]***
Age	0.97	[0.74, 1.28]	-0.06	[-0.17, 0.04]	0.00	[-0.15, 0.16]
Cumulative Precollege IPT	***1.21***	***[1.07, 1.36]***	***-0.12***	***[-0.17, -0.07]***	0.05	[-0.03, 0.12]
Cumulative Concurrent College-Onset IPT	***0.78***	***[0.66, 0.91]***	***-0.19***	***[-0.26, -0.12]***	***0.20***	***[0.11, 0.28]***
Cumulative Lagged College-Onset IPT	0.99	[0.87, 1.13]	-0.03	[-0.09, 0.04]	***0.12***	***[0.04, 0.21]***
Observations	3,336		2,692		3,128	

Note. IPT = interpersonal trauma. **Bold** type indicates $p < .05$. ***Bold italic*** type indicates $p < .01$. Model 1 corresponds to the model examining the associations between cumulative IPT and relationship status. Model 2 corresponds to the model examining the associations between cumulative IPT and relationship satisfaction. Model 3 corresponds to the model examining the associations between cumulative IPT and partner alcohol use. Relationship satisfaction and partner alcohol use were standardized.

Table S2

Associations between IPT and relationship characteristics, with the additional covariate of relationship length.

	Model 1 Relationship Satisfaction		**Model 2 Partner Alcohol Use**	
Predictors	*β*	*CI*	*β*	*CI*
(Intercept)	1.09	[-1.19, 3.37]	***4.51***	***[1.16, 7.85]***
Time	-0.02	[-0.07, 0.04]	***0.20***	***[0.14, 0.27]***
Cohort				
Cohort 2	***-0.20***	***[-0.33, -0.07]***	-0.00	[-0.19, 0.19]
Cohort 3	***-0.23***	***[-0.36, -0.11]***	0.07	[-0.11, 0.26]
Cohort 4	***-0.23***	***[-0.38, -0.08]***	-0.02	[-0.23, 0.19]
Race/Ethnicity (0 = White)				
African American/Black	**-0.16**	**[-0.30, -0.03]**	***-0.47***	***[-0.66, -0.27]***
Asian	-0.01	[-0.14, 0.12]	***-0.48***	***[-0.68, -0.28]***
More than one race	-0.12	[-0.32, 0.07]	-0.19	[-0.47, 0.09]
Hispanic/Latino	0.07	[-0.12, 0.26]	-0.13	[-0.41, 0.15]
Other race/ethnicity	-0.14	[-0.53, 0.25]	**-0.59**	**[-1.19, -0.00]**
Sex (0 = Male)	0.08	[-0.03, 0.19]	**0.19**	**[0.03, 0.36]**
Age	-0.05	[-0.17, 0.08]	-0.04	[-0.22, 0.14]
Relationship Length	0.01	[0.00, 0.02]	***-0.02***	***[-0.03, -0.01]***
Precollege IPT	**-0.13**	**[-0.23, -0.03]**	***0.21***	***[0.06, 0.35]***
Concurrent College-Onset IPT	***-0.31***	***[-0.43, -0.19]***	**0.16**	**[0.00, 0.31]**
Lagged College-Onset IPT	***-0.17***	***[-0.29, -0.05]***	***0.22***	***[0.08, 0.37]***
Observations	1,920		2,118	

Note. IPT = interpersonal trauma. **Bold** type indicates $p < .05$. ***Bold italic*** type indicates $p < .01$. Model 1 corresponds to the model examining the associations between IPT and relationship satisfaction. Model 2 corresponds to the model examining the associations between IPT and partner alcohol use. Relationship length was included as a continuous time-varying covariate. Relationship satisfaction and partner alcohol use were standardized. We were unable to test the associations between IPT and relationship status while controlling for relationship length because participants who were single did not have data on relationship length.

Table S3

Associations between IPT and relationship characteristics, with the additional covariate of past-year breakup.

	Model 1 Relationship Status		**Model 2 Relationship Satisfaction**		**Model 3 Partner Alcohol Use**	
Predictors	*OR*	*CI*	*β*	*CI*	*β*	*CI*
(Intercept)	1.00	[0.01, 169.77]	1.80	[-0.20, 3.80]	***4.08***	***[1.22, 6.94]***
Time	***1.10***	***[1.02, 1.17]***	-0.03	[-0.07, 0.01]	***0.14***	***[0.09, 0.20]***
Cohort						
Cohort 2	0.98	[0.77, 1.25]	***-0.19***	***[-0.30, -0.07]***	0.03	[-0.13, 0.20]
Cohort 3	1.05	0.83, 1.32]	***-0.21***	***[-0.32, -0.10]***	0.09	[-0.07, 0.25]
Cohort 4	-	-	***-0.23***	***[-0.36, -0.11]***	-0.02	[-0.20, 0.16]
Race/Ethnicity (0 = White)						
African American/Black	***0.56***	***[0.43, 0.72]***	***-0.26***	***[-0.37, -0.14]***	***-0.40***	***[0.56, -0.24]***
Asian	***0.63***	***[0.48, 0.82]***	-0.04	[-0.16, 0.08]	***-0.44***	***[-0.60, -0.27]***
More than one race	1.24	[0.82, 1.86]	-0.11	[-0.28, 0.06]	-0.16	[-0.41, 0.09]
Hispanic/Latino	1.21	[0.76, 1.93]	-0.01	[-0.18, 0.16]	-0.20	[-0.44, 0.05]
Other race/ethnicity	1.24	[0.60, 2.60]	0.00	[-0.35, 0.35]	-0.35	[-0.84, 0.15]
Sex (0 = Male)	***1.48***	***[1.19, 1.84]***	0.06	[-0.04, 0.16]	***0.18***	***[0.05, 0.32]***
Age	0.97	[0.74, 1.28]	-0.08	[-0.18, 0.03]	-0.02	[-0.17, 0.14]
Past-Year Breakup	0.95	[0.51, 1.77]	-0.04	[-0.12, 0.04]	***0.15***	***[0.05, 0.26]***
Precollege IPT	***1.44***	***[1.17, 1.77]***	***-0.16***	***[-0.25, -0.07]***	0.08	[-0.05, 0.21]
Concurrent College-Onset IPT	***0.72***	***[0.59, 0.89]***	***-0.31***	***[-0.41, -0.21]***	***0.31***	***[0.19, 0.44]***
Lagged College-Onset IPT	0.98	[0.81, 1.18]	**-0.11**	**[-0.20, -0.01]**	***0.25***	***[0.14, 0.37]***
Observations	3,336		2,621		3,048	

Note. IPT = interpersonal trauma. **Bold** type indicates $p < .05$. ***Bold italic*** type indicates $p < .01$. Model 1 corresponds to the model examining the associations between IPT and relationship status. Model 2 corresponds to the model examining the associations between IPT and relationship satisfaction. Model 3 corresponds to the model examining the associations between IPT and partner alcohol use. Past-year breakup was included as a binary time-varying covariate. Relationship satisfaction and partner alcohol use were standardized.