Original Research

Journal of Interpersonal Violence
1–27

DOI: 10.1177/0886260520957691
journals.sagepub.com/home/jiv
SAGE

Appraisal and Coping Link Sexual Victimization History to Emotional Experience: A Multilevel Daily Diary Study*

Lucy Finkelstein-Fox,[1] Crystal L. Park[1] Tania B. Huedo-Medina[1]

Abstract

Sexual victimization (SV) history is common among college students and has many adverse effects on health, but little is known about whether these effects are explained by everyday stress and coping. Further, most studies conflate between- and within-person effects, limiting our understanding of distinct trait- versus state-level pathways. To address these gaps, we examined the multilevel association of SV history with contemporary positive and negative affect and somatic symptoms via daily control appraisals and coping (problem-focused, meaning-focused, and avoidance) with daily stressors. Online daily diary surveys assessed stress, appraisals, coping, affect, and somatization among 261 undergraduates with and without SV history over 11 consecutive days. Between- and within-person differences in appraisals, coping, affect, and somatic symptoms were examined using multilevel covariance modeling in a causal system, testing daily stressor type as a moderator of within-person effects. Across days, SV history was indirectly linked only to average positive affect via meaning-focused coping, with no other between-person indirect effects. At the within-person level,

[1]University of Connecticut, Storrs, CT, United States

*Portions of this study were presented at the 2018 Annual Meeting of the American Psychological Association.

Corresponding Author:
Lucy Finkelstein-Fox, Psychological Sciences Department, University of Connecticut, Bousfield Psychology Building, 406 Babbidge Road, Unit 1020, Storrs, CT 0629, United States.
Email: lucy.finkelstein-fox@uconn.edu

greater negative affect was experienced in the context of interpersonal stress, driven by greater problem-focused coping, greater positive affect was experienced in the context of academic stress, driven by greater control appraisals, and less positive and negative affect were experienced in the context of intrapersonal stress, driven by lower control appraisals and less problem-focused coping. SV may influence daily stress processes at multiple levels, depending on stressor type. Appraised control and active coping are potentially important but understudied ways in which SV history informs contemporary stress management.

Keywords
sexual victimization, appraisal, coping, affect, somatization, daily diary

Sexual victimization (SV), defined broadly as one or more experiences of unwanted sex, touching, or other unwelcome sexual contact, is far too common in early life. Approximately 27% of female and 5% of male children will experience at least one instance of sexual abuse perpetrated by either an adult or another child by the age of 17 (Finkelhor et al., 2014). Further, 26% of female, 23% of transgender, non-binary, genderqueer, gender questioning, or other gender, and 7% of male undergraduate students report experiencing unwanted sexual contact (Association of American Universities, 2020). SV is associated with negative psychological (Dworkin et al., 2017) and physical (e.g., Irish et al., 2010) sequelae, but much remains to be learned about daily effects of SV on emotional and physical experience in emerging adulthood. Several studies have also identified linkages between SV history and trait emotion dysregulation, (Walsh et al., 2012), but it remains unclear how SV is associated with day-to-day variability in stress appraisals and coping behavior. Thus, the existing literature is useful for informing clinical interventions for individuals with elevated psychopathology, but provides little information about specific patterns of coping that may shape the daily experience of SV survivors (see Gross & Jazaieri, 2014, for a discussion of similarities and differences between emotional reactivity, emotion regulation, and psychopathology).

Trauma and Daily Experience

Despite a notable lack of literature testing change in cognitive schema or event-level appraisals after victimization, existing research suggests that multiple aspects of situational appraised control are key in predicting SV survivors' daily functioning. Perceiving greater present-day control over

one's ability to recover from victimization appears to strongly predict adjustment (Frazier et al., 2005; Frazier et al., 2004), but research has yet to elucidate the effects of SV survivors' perceived control over contemporary stressors on daily well-being.

Coping, which is often categorized by higher-order descriptors such as adaptive versus maladaptive or approach versus avoidant (Skinner et al., 2003), describes an individual's response to the stressful demands of his or her environment. Whereas active attempts to change one's environment (e.g., problem-focused coping) are commonly associated with higher control appraisals and strong affective reactivity to stress, passive or avoidant strategies directed at one's emotional response to a stressor are linked to low appraised control and attempts to disengage from distressing emotional experience (Lazarus & Folkman, 1984). Meaning-focused coping, a class of strategies directed at changing appraisals (Park & Folkman, 1997), is generally considered to be an active, cognitive-oriented process used in both high- and low-controllability situations (Park, 2010). Although control appraisals conceptually precede coping, appraisal and coping likely exert multiple reciprocal effects on one another over the course of a single day. For example, problem-focused coping efforts may be initially prompted by one's perception that a situation presents opportunities for control, but coping efforts are subsequently modified in real time depending on ongoing feedback from one's environment about the extent to which problem-focused coping is, as intended, changing the stressful experience (Lazarus & Folkman, 1984). Thus, appraisal and coping are distinct, but intercorrelated, intermediaries of the association between personality and emotional outcomes of stressful experience.

The few studies that assess whether appraisal of and coping with everyday stressors differ between SV survivors and non-victimized controls have discrepant findings. Some suggest that the degree to which SV is associated with current ways of appraising and coping with other types of daily stressors is negligible (Futa et al., 2003; Nguyen-Feng et al., 2017), but one study of college students with heavy alcohol use demonstrated a significant positive association between sexual assault history and general preference for avoidance coping (Bedard-Gilligan et al., 2014).

Although the literature regarding effects of SV on future coping is inconclusive, coping is likely a key predictor of adjustment among SV survivors. Adaptive, approach-oriented coping (e.g., cognitive reappraisal) is an important, yet understudied, determinant of resilience following SV (Frazier et al., 2005). Conversely, greater maladaptive disengagement coping (e.g., social withdrawal) positively predicts distress (Filipas & Ullman, 2006; Frazier et al., 2005).

Variation in Daily Experience

Nearly all of the existing literature on coping among SV survivors has measured either ways of appraising and coping in relation to victimization (e.g., Filipas & Ullman, 2006; Frazier et al., 2005), dispositional coping (e.g., Bedard-Gilligan et al., 2014), or coping with daily stressors in general (e.g., Futa et al., 2003; Nguyen-Feng et al., 2017). However, appraisals and coping vary substantially from day to day, depending on interactions between personality and environment (e.g., Park et al., 2004). Studies that treat stress processes only as trait-like adaptive or maladaptive "styles," are misleading and cannot identify specific contexts in which SV survivors may respond to stress differently than their non-victimized peers (Walsh et al., 2010). Thus, examining how appraisals and coping vary according to daily stressor exposure may clarify discrepant findings regarding SV's effects on general appraisal and coping styles (Bedard-Gilligan et al., 2014; Futa et al., 2003; Nguyen-Feng et al., 2017).

In studying daily variation in appraisals and coping, one especially important consideration is the type of index daily stressor on which a participant reports focusing. Previous studies conducted with college student samples suggest that interpersonal stressors may be experienced at a significantly greater rate by students with history of childhood sexual abuse or other maltreatment, with no significant differences in perceived stress or negative affective reactivity to these stressors when they arise (Baker et al., 2020). Cross-sectional research has also suggested that an initial experience of SV is associated with increased interpersonal difficulty, which may lead to persistent distress and greater risk of revictimization (Cloitre et al., 1997). However, no existing studies have examined the degree to which SV history may influence diverse cognitive and affective *responses* to interpersonal stress reactivity, including perceived control, active versus avoidant coping, positive affect, and somatic symptoms. Further, no existing studies have fully tested an indirect effects model through which the effects of SV history on appraisals and coping associate with daily fluctuations in emotional experience.

Extending Nguyen-Feng and colleagues' (2017) findings regarding the nonsignificant direct effect of SV history on perceived control over and avoidance coping with non-specific daily stressors and Baker and colleagues' (2020) finding that SV history is not associated with greater interpersonal stress reactivity, a logical next step is to examine the extent to which SV's impact on control appraisals and coping responses to stress reactivity (i.e., active and avoidant coping) vary according to stressor type. In daily diary and other studies where participants provide more than one survey response, individual scores may be disaggregated into two components: between- (i.e.,

average across data points) and within-person (i.e., daily deviation from one's average). This is particularly relevant to studies of stress and coping, when individuals may deviate from their normal coping styles to respond to a certain type of stressor. As described by Preacher et al. (2016), repeated-measures studies that aggregate within- and between-person effects in a single score risk obscuring differences in effect sizes, or even directionality, at these two distinct levels. Previous studies of SV's effects on daily stress, coping, and well-being have relied on single-level analytic plans (i.e., 2–1–1 mediation; Preacher et al., 2016; Preacher et al., 2010), and so testing whether daily stress moderates within-person effects (i.e., 1 X 2–1–1 mediation; Preacher et al., 2016; Preacher et al., 2010) is a promising extension of previous work.

At a momentary level, stress-related cognitions are closely linked to within-person variation in positive and negative affect as well as perceptions of somatic distress (Park et al., 2004; Spink et al., 2018). Whereas active coping strategies have been positively associated with positive and negative mood (Park et al., 2004), avoidant forms of coping typically co-occur with emotional (Folkman et al., 1986; Park et al., 2004) and somatic (Folkman et al., 1986) distress. Unfortunately, little is known about how individuals with SV history may exhibit unique patterns of stress, coping, and adjustment at a daily level. The association of SV history with daily *positive* outcomes is especially understudied, despite prevailing theories that positive and negative affect represent distinct coping outcomes (Watson et al., 1988).

The Present Study

To build on the small body of research addressing processes of coping with contemporary stressors as a factor linking history of SV and well-being, we tested a multilevel moderated covariance model of interactions between SV history and daily stressors as they inform daily coping as well as affective and somatic well-being within a causal system (Figure S1). Given the novelty of the proposed multilevel analytic strategy, hypotheses aimed to build upon previous research by elucidating specific contexts when differences between participants with and without SV are strongest. Based on past research showing minimal between-group differences in average daily appraisal and coping between individuals with and without SV history (Baker et al., 2020; Futa et al., 2003; Nguyen-Feng et al., 2017), we hypothesized that: (a) Across all days, those with SV history will report minimally different average appraisals or coping than their non-victimized peers (between-person); (b) Daily stressor type will moderate SV-appraisal/coping relationships at the daily level, such that victimized participants will report lower control appraisals and greater maladaptive avoidant coping relative to their own averages when they are

coping with interpersonal stressors (within-person), thus enhancing differences between participants with and without SV; (c) At both the between- and within- person levels, control appraisals and active coping strategies will positively predict both positive and negative mood, whereas avoidant coping will predict negative mood and somatic symptoms at both levels; (d) On average, indirect effects of SV history on affect and somatic symptoms via appraisal and coping will be minimal (between-person); (e) Variation in daily stressor type will moderate within-person indirect pathways, such that indirect effects of SV history on affect and somatic symptoms via appraisals and coping will be stronger on days when coping with interpersonal stressors than when they are coping with academic or intrapersonal stressors (within-person). We anticipated that control appraisals and problem- and meaning-focused coping would drive indirect effects of SV history on positive and negative affect, whereas avoidance coping would mediate effects on negative affect and somatic symptoms.

Method

Participants

Participants were undergraduate students at a large public university in the northeastern United States, completing surveys in exchange for course credit. 30 of the 291 participants completing baseline surveys did not complete daily surveys and were excluded from further analysis; excluded participants did not significantly differ in demographics or SV history from those included in the present sample. Of the remaining 261 participants, the average participant was 18.9 years old; 74.3% of participants were female, 62.8% were White, 18.4% were Asian, 8.4% were Black or African-American, 6.9% reported more than one race, and less than 1% each were Native American/Alaska Native and Native Hawaiian/Pacific Islander. A total of 85% reported non-Hispanic identity. A total of 29% reported a household income below $70K while growing up. A priori multilevel power analyses suggested that $N = 250$ participants would provide at least 90% power to detect small ($d = 0.22$, ICC = 0.20; $d = 0.33$, ICC = 0.60) interaction effects, including planned covariates and using a two-tailed significance criterion of 0.05.

Procedure

Data were collected online over three academic semesters between 2016 and 2017. In order to oversample for participants with SV history, potential participants were initially pre-screened for trauma history using the Psychology

Department participant pool mass testing survey administered to all introductory psychology students at the semester start, using a modified item from the Trauma History Questionnaire (THQ; Hooper et al., 2011; "Have you ever experienced unwanted sexual contact?") Based on this initial screener, participants were recruited for a project described as examining the effects of aversive life experiences on daily well-being in two groups: (a) History of SV (with or without other traumatic events) and (b) Other traumatic events only or no trauma history.

After voluntarily enrolling in the study on the online participant pool portal, participants provided informed consent and completed an initial assessment of trauma history and a number of secondary personality measures not included in the present analysis. After completing this survey, participants were registered in an 11-day online daily diary study assessing variables related to daily experiences of stress and health outcomes. Participants were directed to complete emailed surveys each evening between 8 pm and 2 am, before going to sleep. In exchange for completing five-to ten-minute surveys each evening, participants received partial course credit for an introductory psychology course. To provide additional incentive for protocol adherence, participants who completed daily diary entries at all 11 timepoints had the option to enter into a raffle to win one of fifty $20 gift cards. However, participants were not withdrawn from the daily diary study period for missing one or more surveys. All study procedures were approved by the university Institutional Review Board. A certificate of confidentiality was obtained from NIAAA. Participants were provided with contact information for low-cost mental health resources at the close of each study survey.

Measures

Sexual Victimization History.

SV history was assessed at baseline using the Traumatic History Questionnaire, a self-report measure that has demonstrated good test-retest reliability and validity in comparison to other trauma measures (THQ; Hooper et al., 2011). Responses to three relevant items addressing unwanted sexual experiences (including intercourse, sexual touching, or other instances of forced or attempted unwanted sexual contact), rather than the initial pre-screening item, were used to divide participant trauma history into a categorical variable used for final analyses (yes/no SV history).[1] Because individual experiences of SV vary greatly in timeframe and severity, we chose to dichotomize this construct rather than using a continuous marker of total SV "amount," similar to other studies of early life trauma (Nguyen-Feng et al., 2017; Weltz et al., 2016).

Type and Appraisals of Daily Stressors.
On each daily diary survey, participants were presented with a list of 16 daily stressors common to undergraduate students (Dasch et al., 2008), and were first asked to select all stressors experienced and then to choose an index stressor that had been "worst or most bothersome."[2] As originally coded by Dasch and colleagues (2008), seven of these items were interpersonal in nature, five pertained to academics, and four addressed other intrapersonal events (e.g., illness, financial). In two separate items, participants were also asked to appraise the stressfulness and controllability of their worst daily stressor on a Likert scale ranging from 1 ("not at all") to 7 ("extremely"). These items have been used in previous research with college students (e.g., Park et al., 2004), and provide a clear summary of within-person appraisals of stressors as they vary day to day.

Coping with Daily Stressors.
On each daily diary survey, participants were also presented with a list of 14 types of coping selected from subscales of the Brief COPE (Carver, 1997) that loaded highly onto higher-order factors in the original validation study of the COPE (Carver et al., 1989). Participants rated the extent to which they used each coping strategy to deal with the worst stressor that day on a scale from 1 ("I haven't been doing this at all") to 4 ("I've been doing this a lot"). Exploratory principal components analysis (PCA) with promax rotation was used to select nine coping items comprising three distinct coping factors: problem-focused (i.e., approach-oriented strategies attempting to change one's stressor; Lazarus & Folkman, 1984), meaning-focused (i.e., approach-oriented cognitive re-processing of one's stressor; Park & Folkman, 1997), and avoidance coping (i.e., attempts to cognitively and behaviorally disengage from one's stressor; Vitaliano et al., 1985). The problem-focused coping scale comprised active coping, planning, and instrumental support (factor loadings range from 0.59 (instrumental support) to 0.88 (planning)); meaning-focused coping comprised positive reframing, acceptance, and religious coping (factor loadings range from 0.52 (acceptance) to 0.77 (religious coping)), and avoidance coping comprised behavioral disengagement, denial, and substance use (factor loadings range from 0.70 (behavioral disengagement) to 0.79 (denial)). No cross-loadings were greater than 0.30. Total scores for each coping subscale ranged from 3 to 12. Omega estimates of composite reliability were calculated within a confirmatory factor analysis framework separately at the between- and within-person levels (Geldhof et al., 2014). Omega reliability was 0.87 (between-person) and 0.71 (within-person) for problem-focused coping, 0.58 (between-person) and 0.50 (within-person) for meaning-focused coping, and 0.82 (between-person) and 0.41 (within-person) for avoidance coping.

Daily Affect.
On each daily diary survey, participants were shown a list of 20 emotions from the Positive and Negative Affect Scale (PANAS; Watson et al., 1988) and asked to rate the extent to which they felt each emotion that day on a scale ranging from 1 (very slightly or not at all) to 5 (extremely). Ten of the 20 emotions shown were positive and ten were negative. The PANAS demonstrates good reliability and validity in undergraduate samples at the between-person (Watson et al., 1988) and daily (Merz & Roesch, 2011) levels. Omega reliability was 0.94 (between-person) and 0.82 (within-person) for positive affect and 0.91 (between-person) and 0.79 (within-person) for negative affect.

Daily Physical Symptoms.
In each daily diary survey, participants also completed a modified version of the Somatic Symptom Scale-8 (SSS-8; Gierk et al., 2014), which measures stress-related physical symptoms such as stomach or bowel problems, headaches, tiredness, and low energy. The SSS-8 has demonstrated good reliability and validity in a large non-clinical sample (Gierk et al., 2014). In the present study, participants rated the extent to which they had experienced each of eight items that day on a scale ranging from 1 (not at all) to 5 (very much). One item addressing "trouble sleeping" was removed for analysis in order to minimize problems with temporality of the study hypotheses (i.e., sleep problems occurring the night before would precede that day's reported stress and coping); thus, the present analyses use a seven-item scale. Omega reliability was 0.85 (between-person) and 0.63 (within-person).

Analysis

Preliminary cleaning, descriptive analyses, and cross-sectional bivariate correlation were conducted in SPSS (version 26). Responses were closely inspected for duplicates, completeness, unusual response patterns, and completion within the appropriate time frame. Within-person bivariate correlations were analyzed using the rmcorr package (Bakdash & Marusich, 2017) in R (version 3.4.3) and regression models were analyzed using mixed-effects linear models (lme4; Bates et al., 2015) in R, including random intercepts for person ID to account for the clustering of standard errors (Bolger & Laurenceau, 2013). Maximum likelihood estimation was used to incorporate all available datapoints regardless of item-level missingness.

Intraclass correlations (ICCs) were calculated for all daily diary variables in order to determine the proportion of variance accounted for by person- (i.e., higher ICC, closer to 1) versus daily-level (i.e., lower ICC, closer to 0) predictors. To fully capitalize on the nested structure of the data, intermediary

variables (i.e., appraisals and coping) were disaggregated into within- (i.e., person-centered, relative to the mean of each person's cluster) and between- (i.e., person/cluster average across days) components for regression models predicting affect and somatic symptoms (Preacher et al., 2016). To test multilevel effects of SV history, daily stressors, and their interaction as predictors of coping (Hypotheses 1 and 2), we examined four cross-level interaction (i.e., 1 X 2–1; Preacher et al., 2016) models in which a dummy-coded no(0)/yes(1) SV variable was multiplied with two dummy-coded variables representing interpersonal(0)-to-academic(1) and interpersonal(0)-to- intrapersonal(1) stressors. Raw (i.e., within- and between-person components combined) scores were used for exogenous control and coping outcomes in models testing SV X daily stressor interactions. Significant interaction effects suggest that the size of group differences (i.e., SV versus NSV) in appraisal and coping is significantly different in the context of academic or intrapersonal stress than on a day when interpersonal stressors are worst. Post-hoc *t*-tests at the aggregate (i.e., between- and within- combined) and within-only levels probed multilevel group differences in appraisal and coping. Interactions were plotted for predicted values using an online tool (Preacher et al., 2006).

Between-person covariance models in a causal linear regression framework, using average scores for intermediary and outcome variables, tested the degree to which average appraisals/coping accounted for indirect effects of SV history on well-being (i.e., affect and somatic symptoms; Hypothesis 4). Within-person covariance models in a causal framework extended these findings by testing the degree to which daily within-person variation in appraisal and coping with each of the three stressor types accounted for indirect effects of SV on well-being (Hypothesis 5). Bootstrapped indirect effects were generated by the mediation package in R, with significance testing based on 95% confidence intervals (Tingley et al., 2014). Within-person indirect paths were estimated separately for each of the three daily stressor types, as indicated by significant interaction effects.[3]

Covariates for all models predicting raw scores or between-person variables included study cohort (i.e., timing of survey administration in the academic year) and gender; time was included as a fixed and random covariate in all models predicting within-person-only variables to control for unintended intervention effects or other predictors of change not accounted for by the model (Bolger & Laurenceau, 2013). Finally, stress appraisals were covariates in all models linking appraisals/coping and affect/somatic symptoms, to account for the fact that greater perceived stress might confound their cross-sectional correlation (Park et al., 2004). Detailed equations for all multilevel mixed-effects models are provided in the Supplemental Material.

Results

A total of 2,560 unique daily surveys were completed across 261 participants, for an average of 9.8 of 11 surveys (89%) provided by each person. Data were closely examined to determine whether failure to complete all study surveys was random or related to some measured variable; individuals who completed all 11 daily diary surveys did not differ from non-completers on any demographic, SV, appraisal, coping, affective, or somatic indicator (ps > 0.05). Descriptive analyses of completed surveys revealed that participants selected a "worst or most bothersome" daily stressor on 2,238 occasions (nested within 255 participants), or 87% of all completed daily surveys. Given the focus of the present study on stressor-specific appraisals and ways of coping, only responses with an index stressor selected were relevant and used for the analyses described later. Indeed, missingness for study-relevant variables was high among cases with no daily stressor selected (ranging from 5.9% missing for affect to 80.1% missing for appraisals). After removing 322 responses without a worst daily stressor selected, less than 2% of data were missing from the 2,238 cases retained. Based on the ICCs of all repeated-measures variables (0.24 –0.65; see Table 1), the data varied significantly at both the within- and between-person level.

Characteristics of SV History

Of the 255 participants selecting a worst daily stressor, 68 (26.7%) endorsed one or more instances of SV on the baseline survey. Among these 68 individuals, the age of first victimization ranged from 4 to 21 (mean = 15.60, SD = 3.47). Years passed since first instance to completion of the study prescreen ranged from 0 to 15 (mean = 3.68, SD = 3.42). Average number of victimization instances ranged from 1 to 100 (median = 2). SV and NSV groups differed significantly on gender, such that more women (31%) than men (13%) reported a history of SV; $\chi^2(2) = 10.23$, $p < 0.01$), with no other significant group differences in demographics (ps > 0.05). Descriptive statistics and bivariate correlations of daily study variables are presented in Table 1.

Between-person effects of SV history on control appraisals, coping, and well-being

In main effects models without an interaction term (Table 2), individuals with SV history reported less meaning-focused coping ($\beta = 0.09$, $p = 0.04$) than NSV peers, with no significant difference in control appraisals or problem-focused or avoidance coping (ps > 0.22; Figure 1). Victimization history was also associated with greater average somatic symptoms ($\beta = 0.12$, $p = 0.02$), with nonsignificant group differences in positive and negative affect (ps > 0.06; Table S1).[4]

Table 1. Descriptives and Multilevel Correlations of Daily Variables.

	Possible Range	ICC	Mean (*SD*)	1	2	3	4	5	6	7	8
1. Stress appraisal	1–7	0.27	4.08 (1.80)	1	–0.10×	0.29	0.14*	0.27	–0.14*	0.54	0.34
2. Control appraisal	1–7	0.24	3.54 (1.86)	0.06**	1	0.07×	0.07×	–0.10×	0.18**	–0.08×	–0.12×
3. Problem-focused coping	3–12	0.28	7.00 (2.48)	0.28	0.12	1	0.60	0.13*	0.27	0.28	0.08×
4. Meaning-focused coping	3–12	0.33	6.39 (2.02)	0.08	0.11	0.39	1	0.10×	0.34	0.12×	0.03×
5. Avoidance coping	3–12	0.47	4.33 (1.74)	0.15	0.004×	0.03×	0.13	1	–0.03×	0.59	0.48
6. Positive affect	10–50	0.65	24.22 (9.00)	–0.10	0.13	0.16	0.19	–0.001×	1	–0.04×	–0.17**
7. Negative affect	10–50	0.59	20.65 (8.10)	0.43	0.08	0.21	0.07	0.24	–0.11	1	0.53
8. Somatic symptoms	7–35	0.54	11.85 (4.59)	0.17	0.01×	0.10	0.09	0.17	–0.03×	0.29	1

Notes. ICC = Intraclass correlation. All correlations significant at $p < 0.001$ unless noted. Within-person correlations are below the diagonal; between-person correlations are above the diagonal. Between-person correlation coefficients were calculated using person-average variables and within-person correlation coefficients control for within-person clustering. Analyses of daily variables include only days when a worst daily stressor was identified ($n = 2{,}238$; $N = 255$).
**$p < 0.01$. *$p < 0.05$. $^{\times}p > 0.05$.

SV X daily stressor interactions to predict appraisals and coping

SV history significantly interacted with stressor type such that SV and NSV groups exhibited significantly different variation in perceived control over intrapersonal (versus interpersonal) stressors ($\beta = -0.06$, $p = 0.03$). Participants with and without SV history also exhibited different variation in problem-focused coping on intrapersonal (versus interpersonal) stressor days ($\beta = -0.10$, $p < 0.001$). No other interactions between SV history and stressor type predicting aggregate appraisal and coping reached significance (ps > 0.10; Table 2).

Post-hoc bivariate t-tests, not controlling for time, gender, and study cohort as covariates, probed specific SV versus NSV group differences in aggregate and within-person components of control appraisal and coping on each of the three stressor days, based on significant interaction effects reported earlier. T-tests revealed that relative to NSV peers, those with SV history appraised greater control over academic stress (aggregate $t(504) = -1.81$, $d = -0.19$, $p = 0.07$, within-only $t(504) = -2.81$, $d = -0.30$, $p = 0.01$) and less control over intrapersonal stress ($t(796) = 3.10$, aggregate $d = 0.25$, $p = 0.002$, within-only $t(796) = 2.01$, $d = 0.16$, $p = 0.05$), with no significant differences in control over interpersonal stressors (aggregate $t(923) = 0.27$, $d = 0.02$, $p = 0.78$, within-only $t(923) = -1.37$, $d = -0.10$, $p = 0.17$). Those with SV history also reported greater problem-focused coping with interpersonal stress (aggregate $t(917) = -0.41$, $d = -0.03$, $p = 0.68$, within-only $t(917) = -2.01$, $d = -0.15$, $p = 0.04$) and less problem-focused coping with intrapersonal stress (aggregate $t(790) = 3.58$, $d = 0.28$, $p < 0.001$, within-only $t(790) = 2.12$, $d = 0.17$, $p = 0.03$), with no significant group differences in the context of academic stress (aggregate $t(503) = -0.41$, $d = -0.04$, $p = 0.68$, within-only $t(503) = -0.71$, $d = -0.08$, $p = 0.48$). Results of these models are plotted in Figure 1.[5]

Within- and between-person effects of appraisal and coping on well-being

Results of models predicting affect and somatic symptoms from control appraisal and coping, holding constant the effects of time and stress appraisal, are in Table S2. Briefly, control appraisals, problem-focused, and meaning-focused coping all positively predicted positive affect at both between- and within-person levels, problem-focused and avoidance coping positively predicted negative affect at both between- and within-person levels, and avoidance coping positively predicted somatic symptoms at both between- and within-person levels.

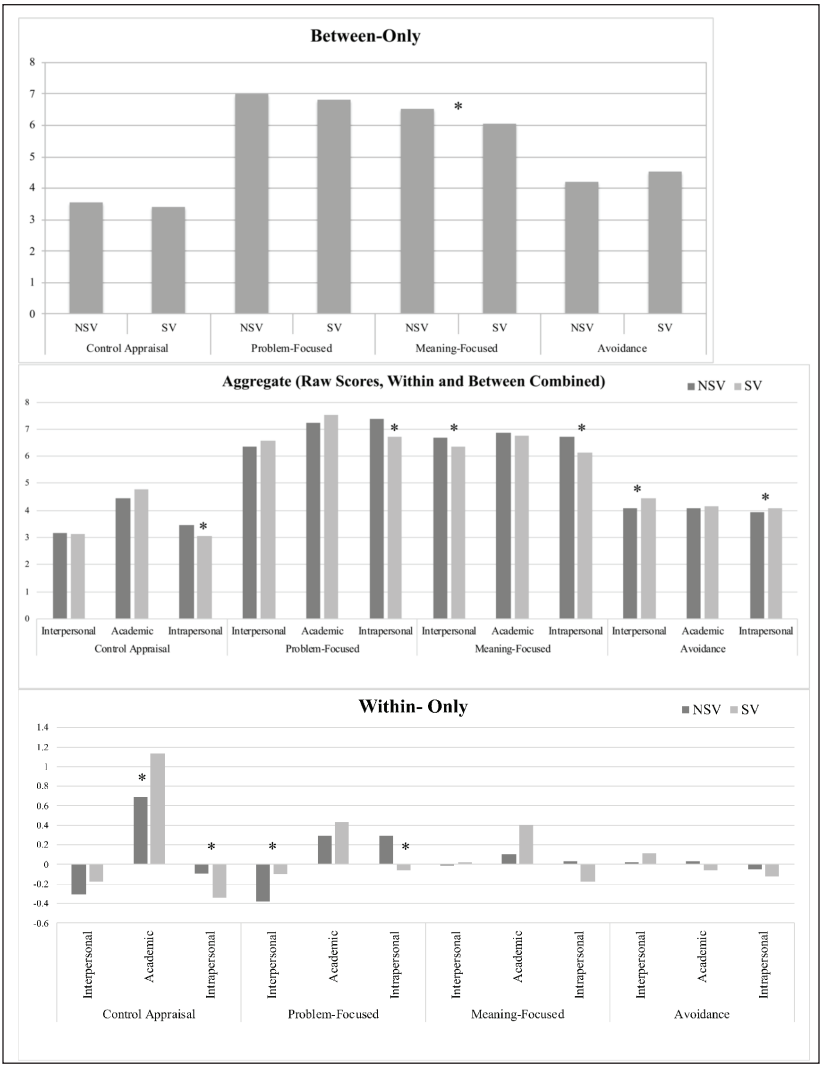

Figure 1. Between-only, aggregate, and within-only plots predicting control and coping.

Note. NSV = No sexual victimization; SV = Sexual victimization.

For illustration of differences in multilevel effects, plots include aggregate (within and between combined), within-only, and between-only components of control appraisals and coping as outcomes.

*indicates significant group difference (NSV versus SV), based on exploratory post-hoc *t*-tests (not including time, gender, and study cohort as covariates).

Table 2. Regression Models Predicting Appraisal and Coping from SV and Daily Stressors.

	Main Effects Model		Interaction Terms Model	
	B (*SE*)	Beta	*B* (*SE*)	Beta
Control appraisal on				
Within-person				
Daily stressor (academic)[a]	1.35 (0.09)***	0.30	1.28 (0.11)***	0.29
Daily stressor (intrapersonal)	0.20 (0.08)*	0.05	0.31 (0.10)**	0.08
Time[b]	–0.05 (0.01)***	–0.09	–0.05 (0.01)***	–0.09
SV X stressor (academic)	–	–	0.35 (0.21)	0.04
SV X stressor (intrapersonal)	–	–	–0.39 (0.18)*	–0.06
Between-person				
SV History (yes)	–0.08 (0.16)	–0.02	–0.02 (0.18)	–0.00
Gender (not male)	0.13 (0.16)	0.03	0.14 (0.16)	0.03
Intercept	3.18 (0.20)***	–	3.16 (0.20)***	–
Random effects[c]				
Intercept	0.80 (0.90)	–	0.80 (0.90)	–
Time	0.00 (0.06)	–	0.00 (0.06)	–
Problem-focused coping on				
Within-person				
Daily stressor (academic)	0.81 (0.12)***	0.14	0.85 (0.14)***	0.14
Daily stressor (intrapersonal)	0.77 (0.11)***	0.15	1.02 (0.13)***	0.20
Time	–0.08 (0.02)***	–0.11	–0.08 (0.02)***	–0.11
SV X stressor (academic)	–	–	–0.10 (0.28)	–0.01
SV X stressor (intrapersonal)	–	–	–0.87 (0.25)***	–0.10
Between-person				
SV history (yes)	–0.13 (0.22)	–0.02	0.20 (0.25)	0.04
Gender (not male)	–0.02 (0.22)	–0.00	–0.03 (0.22)	–0.00
Intercept	6.45 (0.28)***	–	6.37 (0.28)***	–
Random effects				
Intercept	1.65 (1.29)	–	1.65 (1.28)	–
Time	0.02 (0.15)	–	0.02 (0.15)	–

(*continued*)

Table 2. continued

	Main Effects Model		Interaction Terms Model	
	B (*SE*)	Beta	*B* (*SE*)	Beta
Meaning-focused coping on				
Within-person				
Daily stressor (Academic)	0.22 (0.10)*	–0.04	0.17 (0.11)	0.04
Daily stressor (Intrapersonal)	–0.00 (0.09)	–0.00	0.08 (0.11)	0.02
Time	–0.10 (0.01)***	–0.16	–0.10 (0.01)***	–0.16
SV X stressor (Academic)	–	–	0.23 (0.23)	–0.02
SV X stressor (Intrapersonal)	–	–	–0.29 (0.20)	–0.04
Between-person				
SV history (yes)	–0.40 (0.19)*	–0.09	–0.35 (0.22)	–0.08
Gender (not male)	–0.19 (0.20)	–0.04	–0.19 (0.20)	–0.04
Intercept	6.70 (0.25)***	–	6.69 (0.25)***	–
Random effects				
Intercept	1.32 (1.15)	–	1.33 (1.15)	–
Time	0.02 (0.13)	–	0.02 (0.13)	–
Avoidance coping on				
Within-person				
Daily stressor (academic)	–0.08 (0.08)	–0.02	–0.01 (0.09)	–0.00
Daily stressor (intrapersonal)	–0.20 (0.07)**	–0.05	–0.14 (0.08)	–0.04
Time	–0.00 (0.01)	–0.00	–0.00 (0.01)	–0.00
SV X stressor (academic)	–	–	–0.28 (0.18)	–0.04
SV X stressor (intrapersonal)	–	–	–0.22 (0.16)	–0.04
Between-person				
SV history (yes)	0.21 (0.18)	0.05	0.35 (0.20)	0.09
Gender (not male)	0.00 (0.19)	0.00	–0.00 (0.19)	–0.00
Intercept	4.12 (0.24)***	–	4.09 (0.24)***	–

(*continued*)

Table 2. continued

	Main Effects Model		Interaction Terms Model	
	B (*SE*)	Beta	*B* (*SE*)	Beta
Random effects				
Intercept	1.34 (1.16)	–	1.34 (1.16)	–
Time	0.01 (0.10)	–	0.01 (0.10)	–

Note. [a]Interpersonal stressors are coded as the comparison group; thus, coefficients can be interpreted as differences between the indicated stressor type and interpersonal stressors, holding all other variables in the model constant.

[b]Time is mean centered; thus, intercepts should be interpreted as representing predicted levels of affect and somatic symptoms at the middle of the study.

All between-person predictors are grand-mean centered. Analyses of daily variables include only days when a worst daily stressor was identified (n = 2,238; N = 255). Although all models control for between-person cohort effects (timing of study group), these coefficients are not reported here for parsimony.

[c]Random effects are reported in the format Variance (*SD*).

***$p < 0.001$. **$p < 0.01$. *$p < 0.05$.

Between-person indirect effects of SV on well- being via appraisals and coping

SV history demonstrated a significant indirect effect on lower average positive affect via lower average meaning-focused coping compared to NSV participants (ab = –0.75, 95% CI[–1.52, –0.03], p = 0.06; Table S3). Based on previous models, no indirect effects connecting SV history with average negative affect or somatic symptoms were indicated.

Within-person moderated indirect effects of SV on well-being via appraisals and coping

Full results of all tested within-person moderated covariance models in a causal system are in Table S4 and are summarized below. No moderated indirect effects of SV on somatic symptoms via daily appraisals and coping were tested, based on previous models.

Positive Affect.

SV history did not demonstrate significant indirect effects on positive affect via control appraisals and problem-focused coping on interpersonal stressor days. On academic stressor days, greater within-person control appraisals, relative to within-person control reported by NSV participants, accounted for a positive indirect effect of SV history on positive affect (ab = 0.18, 95% CI[0.05, 0.31], $p < 0.001$; Figure S2). When coping with intrapersonal

stressors, participants with SV history experienced less positive affect via lower within-person control (ab = –0.10, 95% CI[–0.21, –0.02], $p < 0.001$; Figure S3) and less problem-focused coping than NSV peers (ab = –0.16, 95% CI[–0.30, –0.03], $p = 0.04$; Figure S4).

Negative Affect.
When coping with interpersonal stressors, participants with SV history experienced greater negative affect via greater within-person problem-focused coping than NSV peers (ab = 0.06, 95% CI[0.01, 0.14], $p <.001$; Figure S5). When coping with intrapersonal stressors, participants with SV history experienced less negative affect via less within-person problem-focused coping (ab = –0.07, 95% CI[–0.15, –0.02], $p < 0.001$; Figure S6) than NSV peers.

Discussion

Holding constant gender, study cohort, and within-person variation over time, group comparisons across all days indicated that SV participants differed from NSV peers in experiencing more somatic symptoms but not significantly different positive or negative affect. Moderated multilevel models indicated that daily stressors may influence the degree to SV history associates with within-person stress and coping processes, highlighting contextually bound differences between young adults with and without victimization history.

Effects of SV on Daily Appraisal and Coping

Partially supporting Hypothesis 1, SV survivors appear, on average, less likely to utilize meaning-focused coping to manage daily stressors than their NSV peers. No other between-person effects of SV on appraisal or coping were significant. Contrary to our expectation that students with SV history would differ the most from NSV peers in terms of lower control appraisals and greater avoidance coping with interpersonal stress (Hypothesis 2), participants with SV history reported significantly greater within-person problem-focused coping with interpersonal stress, greater within-person control appraisals over academic stress, and lower within-person control appraisals and problem-focused coping in the context of intrapersonal stress, compared to NSV participants. Thus, group differences in appraisals and coping processes with contemporary stressors may be most salient in for control and approach-oriented, rather than avoidant, coping. Our finding that SV and NSV participants differed in use of problem- and meaning-focused coping (at within- and

between-person levels, respectively) contrasts with previous literature that found no significant difference in approach-oriented coping between participants with and without SV history (e.g., Futa et al., 2003), perhaps due to measurement, sample variation, or social norms around SV disclosure during the time of data collection. Whereas Futa and colleagues (2003) focused on SV experienced in childhood, many of the participants included in the present report experienced more proximal instances of unwanted sexual contact that may have more strongly informed their daily stress and coping processes at the time of data collection. Further, this largely White, wealthy, college student sample likely exhibited higher levels of daily functioning and self-regulation abilities than other groups with greater cumulative stress exposure, fewer financial resources, and less access to supportive institutional structures for intrapersonal hassles (e.g., on-campus medical care and dining hall services), which may have bolstered their regulatory capacity to actively engage with the types of daily hassles queried for this study.

The lack of support for significant effects of SV history on avoidance coping when tested at both between- and within-person levels is consistent with previous between-only and aggregate findings in undergraduate samples (Futa et al., 2003; Nguyen-Feng et al., 2017). Although Bedard-Gilligan and colleagues (2014) found that students with sexual assault history reported greater general avoidance coping than their non-victimized peers, their sample differs from ours both in excluding participants with *any* trauma history from the comparison group and temporally non-specific assessment of avoidance coping. Further, exploratory *t*-tests for the present study revealed that aggregate (but not separate within- or between-person) SV versus NSV group differences were statistically significant for avoidance coping in the context of interpersonal and intrapersonal stress, but were negligible for academic stressors (Figure 1). Study design and low statistical power unfortunately precluded our ability to formally test a continuous (i.e., dose) effect of SV frequency or severity on appraisal and coping, but future studies that include participants with higher, more varied levels of SV exposure may be better suited to detect between-person effects of SV history on average avoidance coping.

Indirect Effects of SV on Well-Being via Appraisal and Coping

Hypothesis 3 was largely supported; control appraisals and active (i.e., problem- and meaning-focused) coping positively predicted positive affect at both the within- and between-person levels. Although negative affect was not significantly linked to control at either level, positive effects of problem-focused and avoidant coping on negative affect were evidenced as

anticipated. As expected, avoidance coping was strongly associated with somatic symptoms.

Support for hypotheses regarding between- (Hypothesis 4) and within- (Hypothesis 5) person indirect effects of SV on affect and somatic symptoms via appraisal and coping was mixed. First, we expected that between-person effects of SV on well-being via average appraisals and coping would be minimal, but found one significant between-person indirect effect linking SV history to lower positive affect via lower average meaning-focused coping. Although individual differences in emotional experience are not necessarily indicators of psychopathology, persistent, unremitting patterns of blunted positive psychological processes may be a transdiagnostic risk factor for mood disorders such as persistent depressive disorder, major depressive disorder, or PTSD (Gross & Jazaieri, 2014). The between-person effect of SV history on meaning-focused coping was small in the present study, but average effects of SV on in self-regulatory process, and thus psychopathology, may be greater in samples with more varied SV exposure.

However, adding to previous findings that SV history has minimal effects on stress appraisals and negative affective reactivity to daily interpersonal events (Baker et al., 2020) and general stress (Weltz et al., 2016), our findings suggest that SV may have a small within-person indirect effect on negative affective reactivity in interpersonal contexts, driven by problem-focused coping. One potential explanation is that problem-focused coping represents an attempt to gain agency in interpersonal conflict after previous experiences of invalidation (Walsh et al., 2010). Independent of initial stress appraisals, individuals with SV history may react to interpersonal stressors with greater problem-solving attempts and greater negative affect than do their non-victimized peers. Importantly, engaging actively with stress and experiencing momentary increases in negative affect are not indicative of a mood disorder; instead, these findings likely indicate that early life SV predicts the extent to which interpersonal stress elicits active regulatory responses for generally high-functioning young adults, above and beyond what is required in other contexts. Of particular relevance to a college student sample, these analyses also show that SV survivors respond to academic stressors using coping that positively correlates with positive affect, pointing to a specific aspect of regulatory resilience that merits future study.

Limitations

Despite contributing in several important ways to our knowledge of how SV history may impact daily stress and coping processes in an emerging adult population, it should be noted that this study included a limited, dichotomous

view of victimization history. We were unable to account for a broader range of individual differences in victimization severity or salience due to a high degree of skew in the number of SV instances reported as well as the limitations of brief survey questions used in this study, but it will be important for future research to replicate these analyses in diverse populations with different types of life experience and higher average levels of SV exposure. In addition, in light of the large number of statistical tests performed to evaluate exploratory hypotheses, the findings reported here merit replication in samples with greater within-person variation in adjustment (i.e., lower ICC), which will increase statistical power to detect small effects. A third limitation is the correlational, non-causal nature of analyses; this study design was observational and necessitated that participants complete daily assessments of stressful events, coping, and outcomes in the same brief survey. Further, low-reliability coefficients for the within-person components of coping subscales used in this study warrant caution in interpretation. Since very little research has examined reliability within a true multilevel context, it is difficult to compare these results to other studies. Even at a single level, low reliability is typical of the COPE, perhaps because scales comprise multiple distinct acts rather than measuring a single latent construct (Carver et al., 1989). Simulation studies also document that repeated-measures scales originally validated using cross-sectional design may have significantly biased reliability estimates if the measure is actually much more reliable at the between-person level (Geldhof et al., 2014). Multilevel factor analysis represents an ongoing field of study beyond the scope of the present paper, and so we retained these brief coping scales to maximize conceptual interpretability. Finally, the present sample was largely female, White, and college educated. We probed demographic covariates, but the types of stressors experienced by these participants may still not be relevant for samples with greater socioeconomic variation. Individuals from different cultural backgrounds may vary in their appraisals of trauma and stressful events (Bernardi et al., 2019). Further, the average participant in our college student sample likely had access to a number of supportive resources for stress management that are not available to individuals from less privileged backgrounds. Although the present findings contribute meaningfully to theory, additional cross-cultural and community-based research is needed to understand cognitive-affective correlates of post-SV adjustment.

Conclusion

Taken together, the findings of this study represent an important step toward better identifying contexts in which alterations in coping processes associate with differences in daily emotional experience for SV survivors at the within-person level. The

results described here also highlight the importance of considering contemporary control appraisals and approach-oriented coping in future research on post-trauma self-regulation. These findings suggest that SV history shapes daily responses to stress that place SV survivors at risk for emotion dysregulation and long-term negative outcomes. As such, future research will benefit from examining multiple aspects of emotion regulation, including both stress reactivity and *in vivo* coping responses, to fully understand the impact of SV on self-regulatory processes. Across settings, there is also a critical need for research on individual, social, and structural factors that facilitate stress appraisals and coping resources for SV survivors, as these variables may be key predictors of long-term resilient outcomes.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was funded by the American Psychological Association of Graduate Students Nancy B. Forest and L. Michael Honaker Master's Scholarship for Research in Psychology.

ORCID iD

Lucy Finkelstein-Fox https://orcid.org/0000-0001-7799-9164

Supplemental Material

Supplemental material for this article available online.

Notes

1. In responding to more detailed trauma questionnaires, 73% (44 of 60) of participants who initially indicated experiencing "unwanted sexual contact" endorsed one or more of the SV items. Further, 88% (176 of 201) of individuals who initially denied experiencing "unwanted sexual contact" subsequently denied experiencing any of the relevant items.
2. One of Dasch et al.'s (2008) original items addressing "refused help by a friend, family member, or partner" was inadvertently omitted due to a typographical error in the online study forms.
3. Parallel mixed effect models were determined to be preferable to a single complex structural equation model based on *a priori* hypotheses regarding the independent effects of control appraisals and distinct coping strategies. Multiple groups analysis (i.e., separate mediation paths for each type of stressor) was used in place of

an index of moderated mediation to facilitate interpretability and maximize clinical relevance.

4. Time since first instance of victimization was not significantly associated with any the appraisal, coping, or well-being variables for individuals with SV history ($ps > 0.38$), and so this predictor was excluded from the main study models.
5. Although planned SV X stressor interaction effects did not reach significance, exploratory *t*-tests (not controlling for covariates) revealed that significant group differences in meaning-focused coping also occurred at the aggregate, but not within-person level, on interpersonal (aggregate $t(917) = 2.71$, $d = 0.20$, $p = 0.01$, within-only $t(917) = –0.61$, $d = –0.04$, $p = 0.54$) and intrapersonal (aggregate $t(790) = 3.67$, $d = 0.29$, $p < 0.001$, within-only $t(790) = 1.50$, $d = 0.12$, $p = 0.13$) stressor days. Group differences in meaning-focused coping fell short of significance on academic days (aggregate $t(502) = 1.55$, $d = 0.17$, $p = 0.12$, within-only $t(502) = –1.64$, $d = –0.18$, $p = 0.10$). Further, group differences in aggregate, but not within-person avoidance coping were significant on interpersonal (aggregate $t(918) = –3.19$, $d = 0.23$, $p = 0.001$, within-only $t(918) = –1.05$, $d = –0.08$, $p = 0.29$) and intrapersonal (aggregate $t(796) = –2.51$, $d = –0.20$, $p = 0.01$, within-only $t(796) = 0.57$, $d = 0.05$, $p = 0.57$) stressor days, with no significant differences on academic stressor days (aggregate $t(503) = –0.10$, $d = –0.01$, $p = 0.92$, within-only $t(503) = 0.82$, $d = 0.09$, $p = 0.41$). These patterns of significance for avoidance coping correspond with study hypotheses, but are not considered to statistically support hypotheses due to lack of significance in formal interaction test in multivariable models (i.e., difference in the effects of SV on avoidance coping is not significantly different on interpersonal versus academic or interpersonal versus intrapersonal days). Significance in aggregate multiple groups analysis is likely explained by small, statistically nonsignificant between-person differences in avoidance coping across days ($t(253) = –1.54$, $d = –0.22$, $p = 0.12$).

References

Association of American Universities. (2020). *Report on the AAU campus survey on sexual assault and misconduct*. https://www.aau.edu/key-issues/campus-climate-and-safety/aau-campus-climate-survey-2019

Bakdash, J. Z., & Marusich, L. R. (2017). Repeated measures correlation. *Frontiers in Psychology*, *456*. https://doi.org/10.3389/fpsyg.2017.00456

Baker, M. R., Nguyen-Feng, V. N., Nilakanta, H., & Frazier, P. A. (2020). Childhood maltreatment predicts daily stressor exposure in college but not perceived stress or stress reactivity. *Journal of Counseling Psychology*, *67*, 79–89. https://doi.org/10.1037/cou0000359

Bates, D., Machler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*, 1–48. https://doi.org/10.18637/jss.v067.i01

Bedard-Gilligan, M., Cronce, J. M., Lehavot, K., Blayney, J. A., & Kaysen, D. (2014). The relationship between assault and physical health complaints in a sample of

female drinkers: Roles of avoidant coping and alcohol use. *Journal of Interpersonal Violence*, *29*, 1359–1379. https://doi.org/10.1177/0886260513507139

Bernardi, J., Engelbrecht, A., & Jobson, L. (2019). The impact of culture on cognitive appraisals: Implications for the development, maintenance, and treatment of posttraumatic stress disorder. *Clinical Psychologist*, *23*, 91–102. https://doi.org/10.1111/cp.12161

Bolger, N., & Laurenceau, J-P. (2013). *Intensive Longitudinal Methods: An introduction to diary and experience sampling research*. Guilford.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine*, *4*, 92–100. https://doi.org/10.1207/s15327558ijbm0401_6

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*, 267–283. https://doi.org/10.1037/0022-3514.56.2.267

Cloitre, M., Scarvalone, P., & Difede, J. A. (1997). Posttraumatic stress disorder, self- and interpersonal dysfunction among sexually retraumatized women. *Journal of Traumatic Stress*, *10*, 437–452. https://doi.org/10.1023/A:1024893305226

Dasch, K. B., Cohen, L. H., Sahl, J. C., & Gunthert, K. C. (2008). Moderating effects of sociotropy and autonomy on affective and self-esteem reactivity to daily stressors. *Cognitive Therapy and Research*, *32*, 177–195. https://doi.org/10.1007/s10608-007-9126-1

Dworkin, E. R., Menon, S. V., Bystrynski, J., & Allen, N. E. (2017). Sexual assault victimization and psychopathology: A review and meta-analysis. *Clinical Psychology Review*, *56*, 65–81. https://doi.org/10.1016/j.cpr.2017.06.002

Filipas, H. H., & Ullman, S. E. (2006). Child sexual abuse, coping responses, self-blame, posttraumatic stress disorder, and adult sexual revictimization. *Journal of Interpersonal Violence*, *21*, 652–672. https://doi.org/10.1177/0886260506286879

Finkelhor, D., Turner, H. A., Shattuck, A., & Hamby, S. L. (2014). The lifetime prevalence of child sexual abuse and sexual assault assessed in late adolescence. *Journal of Adolescent Health*, *55*, 329–333. https://doi.org/10.1016/j.jadohealth.2013.12.026

Folkman, S., Lazarus, R. S., Gruen, R. J., & DeLongis, A. (1986). Appraisal, coping, health status, and psychological symptoms. *Journal of Personality and Social Psychology*, *50*, 571–579. https://doi.org/10.1037/0022-3514.50.3.571

Frazier, P. A., Mortensen, H., & Steward, J. (2005). Coping strategies as mediators of the relations among perceived control and distress in sexual assault survivors. *Journal of Counseling Psychology*, *52*, 268–278. https://doi.org/10.1037/0022-0167.52.3.267

Frazier, P., Steward, J., & Mortensen, H. (2004). Perceived control and adjustment to trauma: A comparison across events. *Journal of Social and Clinical Psychology*, *23*, 303–324. https://doi.org/10.1521/jscp.23.3.303.35452

Futa, K. T., Nash, C. L., Hansen, D. J., & Garbin, C. P. (2003). Adult survivors of childhood abuse: An analysis of coping mechanisms used for stressful childhood

memories and current stressors. *Journal of Family Violence*, *18*, 227–239. https://doi.org/10.1023/A:1024068314963

Geldhof, G. J., Zyphur, M. J., & Preacher, K. J. (2014). Reliability estimation in a multilevel confirmatory factor analysis framework. *Psychological Methods*, *19*, 72–91. https://doi.org/10.1037/a0032138

Gierk, B., Kohlmann, S., Kroenke, K., Spangenberg, L., Zenger, M., Brahler, E., & Lowe, B. (2014). The Somatic Symptom Scale-8 (SSS-8): A brief measure of somatic symptom burden. *JAMA Internal Medicine*, *174*, 399–407. https://doi.org/10.1001/jamainternmed.2013.12179

Gross, J. J., & Jazaieri, H. (2014). Emotion, emotion regulation and psychopathology: An affective science perspective. *Clinical Psychological Science*, *2*, 387–401. https://doi.org/10.1177/2167702614536164

Hooper, L. M., Stockton, P., Krupnick, J. L., & Green, B. L. (2011). Development, use, and psychometric properties of the Trauma History Questionnaire. *Journal of Loss and Trauma*, *16*, 258–283. https://doi.org/10.1080/15325024.2011.572035

Irish, L., Kobayashi, I., & Delahanty, D. L. (2010). Long-term physical health consequences of childhood sexual abuse: A meta-analytic review. *Journal of Pediatric Psychology*, *35*, 450–461. https://doi.org/10.1093/jpepsy/jsp118

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.

Merz, E. L., & Roesch, S. C. (2011). Modeling trait and state variation using multilevel factor analysis with PANAS daily diary data. *Journal of Research in Personality*, *45*, 2–9. https://doi.org/10.1016/j.jrp.2010.11.003

Nguyen-Feng, V., Baker, M. R., Merians, A. N., & Frazier, P. A. (2017). Sexual victimization, childhood emotional abuse, and distress: Daily coping and perceived control as mediators. *Journal of Counseling Psychology*, *64*, 672–683. https://doi.org/10.1037/cou0000244

Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life experiences. *Psychological Bulletin*, *156*, 257–301. https://doi.org/10.1037/a0018301

Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of General Psychology*, *1*, 115–144. https://doi.org/10.1037/1089-2680.1.2.115

Park, C. L., Armeli, S., & Tennen, H. (2004). Appraisal-coping goodness of fit: A daily internet study. *Personality & Social Psychology Bulletin*, *30*, 558–569. https://doi.org/10.1177/0146167203262855

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interaction effects in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics*, *31*, 437–448. https://doi.org/10.3102/10769986031004437

Preacher, K. J., Zyphur, M. J., & Zhang, Z (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods*, *15*, 209–233. https://doi.org/10.1037/a0020141

Preacher, K. J., Zhang, Z., & Zyphur, M. J. (2016). Multilevel structural equation models for assessing moderation within and across levels of analysis. *Psychological Methods*, *21*, 1–17. https://doi.org/10.1037/met0000052

Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin*, *129*, 216–269. https://doi.org/10.1037/0033-2909.129.2.216

Spink, G. L., Jr. Jorgensen, R. S., & Cristiano, S. (2018). Cognitive and affective factors predicting daily somatic complaints in college students. *Journal of Counseling Psychology*, *65*, 110–119. https://doi.org/10.1037/cou0000229

Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). Mediation: R Package for Causal Mediation Analysis. *Journal of Statistical Software*, *59*, 1–38. http://www.jstatsoft.org/v59/i05/

Vitaliano, P. P., Russo, J., Carr, J. E., Maiuro, R. D., & Becker, J. (1985). The ways of coping checklist: Revision and psychometric properties. *Multivariate Behavioral Research*, *20*, 3–26. https://doi.org/10.1207/s15327906mbr2001_1

Walsh, K., DiLillo, D., & Messman-Moore, T. L. (2012). Lifetime sexual victimization and poor risk perception: Does emotion dysregulation account for the links? *Journal of Interpersonal Violence*, *27*, 3054–3071. https://doi.org/10.1177/0886260512441081

Walsh, K., Fortier, M. A., & DiLillo, D. (2010). Adult coping with childhood sexual abuse: A theoretical and empirical review. *Aggression and Violent Behavior*, *15*, 1–13. https://doi.org/10.1016/j.avb.2009.06.009

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

Weltz, S. M., Armeli, S., Ford, J. D., & Tennen, H. (2016). A daily process examination of the relationship between childhood trauma and stress-reactivity. *Child Abuse & Neglect*, *60*, 1–9. https://doi.org/S0145-2134(16)30179-X

Author Biographies

Lucy Finkelstein-Fox, MS, is a doctoral candidate in Clinical Psychology in the Department of Psychological Sciences at the University of Connecticut. Her research focuses on stress and coping models of adjustment to potentially traumatic life experiences and chronic medical problems. In particular, her work emphasizes positive psychological interventions for stress management.

Crystal L. Park, PhD, is a professor of psychology in the Department of Psychological Sciences at the University of Connecticut. She has published nearly 300 articles and chapters on stress and coping, focusing on religion, stress-related growth, and meaning-making in the context of trauma and life-threatening illness. Her recent research also addresses the scientific underpinnings and effectiveness of integrative health modalities, particularly yoga.

Tania B. Huedo-Medina, PhD, is an associate professor in the Department of Allied Health Sciences at the University of Connecticut. Her research has focused on health promotion applying her expertise on psychology and biostatistics, more specifically developing multilevel and causal models. Her research has been continuously funded by NIH and other national and international sources.