Archives of Sexual Behavior (2019) 48:1829–1845
https://doi.org/10.1007/s10508-018-1330-4

ORIGINAL PAPER

A Short-Term Longitudinal Investigation of Hookups and Holistic Outcomes Among College Students

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Received: 10 November 2017 / Revised: 25 July 2018 / Accepted: 5 October 2018 / Published online: 13 March 2019

Abstract

Majority of college students hook up at least once during their time in school. The literature on casual sex encounters among college students is growing, though most studies are cross-sectional and individual studies focus on few outcomes at a time, leaving piecemeal and mixed results. The current longitudinal study clarifies prior work by analyzing how post-event process (PEP), an understudied construct within the hookup literature, and emotional (i.e., positive or negative) hookup reactions interact to predict a breadth of outcomes, representing holistic student well-being. The inclusion of PEP reframes the current literature to consider PEP as a predictor variable of hookup outcomes, as moderated by emotional hookup reactions. This is consistent with literature indicating emotional experiences affect PEP across a variety of incidents. Participants ($N = 377$, 87.6% female) completed self-report measures at 2-month intervals. We tested relationships between the main and interaction effects of PEP and emotional hookup reactions as a moderation regression analyses on anxiety, academic engagement, religious coping, and psychological flourishing. The main effect of PEP predicted more anxiety and less negative religious coping, negative hookup reactions predicted more anxiety, and positive hookup reactions predicted more flourishing. Regarding interaction effects, high levels of positive hookup reactions and PEP were associated with less anxiety, less academic engagement, more negative religious coping, and less psychological flourishing; high levels of negative hookup reactions and PEP were associated with less anxiety and more negative religious coping and were unrelated to academic engagement or flourishing over two months.

Keywords Hookup reactions · Post-event processing · Anxiety · Academic engagement · Religious coping · Casual sex

Introduction

Hooking up is a phrase describing casual sexual encounters (ranging from kissing to intercourse) between two people with no clear mutual expectation of further interactions or a committed relationship (Grello, Welsh, & Harper, 2006; Owen, Fincham, & Moore, 2011). Hooking up is a normative experience for many college students; some researchers reported as many as 70–85% of undergraduate students hookup at some point during college (Garcia & Reiber, 2008; Garcia, Reiber, Massey, & Merriwether, 2012). The literature indicates mixed findings on student reactions to hooking up. Some studies find that hookups result in positive outcomes, such as positive emotional reactions and a reduction of depressive and loneliness symptoms after a hookup (Lewis, Granato, Blayney, Lostutter, & Kilmer, 2012; Owen, Rhoades, Stanley, & Fincham, 2010; Owen et al., 2011; Strokoff, Owen, & Fincham, 2015). Others report negative consequences such as diminished self-esteem and poorer academic performance (Fielder & Carey, 2010; Fisher, Worth, Garcia, & Meredith, 2012; Furman & Collibee, 2014). Although there has been speculation on how individuals interpret and make meaning of their hookup experiences, there is scant empirical evidence. Researchers and practitioners remain uncertain of understanding the extent to which student interpretations of their hookup experience(s) affect different psychosocial outcomes, such as psychological flourishing, mental health, religious/spiritual coping, and academics. The current study analyzed student cognitive and emotional responses to hookups as an interaction effect, where students' emotional responses moderate the effect of

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post-hookup cognitive (interpretive) processes on an array of psychosocial and academic outcomes.

Post-Event Processing and Emotional Reactions

Post-event processing (PEP) is a cognitive process involving the repeated consideration, interpretation, and potential reconstruction of behavior subsequent to a social situation (Brozovich & Heimberg, 2008). Following a social or performance event, such as a hookup, individuals engage in PEP, conducting a detailed "postmortem analysis" of their experience (Rachman, Grüter-Andrew, & Shafran, 2000; Wong, McEvoy, & Rapee, 2016). Researchers typically conceptualize PEP within cognitive frameworks of social anxiety, implicating it is a contributing factor to the maintenance of symptoms in individuals with social anxiety disorder diagnoses. However, PEP also promotes beneficial reflection of how to maximize positive outcomes in related future events—across individual levels of anxiety (Rachman et al., 2000). Rachman et al. have suggested that the extent to which PEP is a wholly separate construct from emotional processing is unclear. Regardless, there are established, positive associations between PEP and negative affect (emotional reactions), while the association between PEP and positive affect remains less clear (Brozovich & Heimberg, 2008; Mor & Winquist, 2002).

Hookup experiences can evoke a variety of reactions. Emotional reactions to hookups have been analyzed by valence, suggesting students can have positive hookup reactions (e.g., happy, pleased, excited) and/or negative hookup reactions (e.g., empty, confused, disappointed; Lewis et al., 2012; Owen et al., 2010; Strokoff et al., 2015). Owen and Fincham (2011) found for those who engaged in coital hookup, positive reactions are associated with less condom use, lower loneliness, less alcohol use, and more hope for the hook up to transition to a committed relationship. Negative reactions have been associated with more condom use and increased alcohol use. Positive and negative emotional reactions exist on two distinct spectra, inferring individuals can simultaneously feel positive and negative emotions.

Emotional responses to an event affect engagement in PEP, thereby affecting the relations between PEP and outcomes. PEP combined with negative affect is related to negative outcomes such as lower well-being, less concentration and higher levels of anxiety (Mor & Winquist, 2002). Less is known of the relationship between PEP and positive affect and it is undetermined if this association influences psychosocial outcomes. Field, Psychol, and Morgan (2004) found that stimulating PEP made individual's positive memories less positive, though we expect PEP combined with positive affect would lead to more adaptive outcomes. Moreover, unlike Field et al.'s (2004) study, we considered emotional reactions to events to be a moderator rather than a predictor, It is also possible that positive emotional reactions dampen the relationship between PEP and negative outcomes, such as low concentration or anxiety, rather than magnifying it the way negative emotional reactions might.

Gender differences in PEP and emotional reactions to hookups may exist, though past findings are unclear. While some forms of repetitive thought, such as rumination, have established gender differences (for a review, see Watkins, 2008), gender differences in PEP are unclear. Fehm, Schneider, and Hoyer (2007) found no gender differences in levels of PEP in a clinical sample of participants with social phobia. Contrarily, Battista, Pencer, and Stewart (2014) found gender moderated the relationship between alcohol consumption and later PEP in a sample of college students, where women reported lower PEP after drinking and men reported higher PEP after drinking. Regarding emotional reactions, women experience depression at higher rates than men (Vázquez, Torres, López, Blanco, & Otero, 2008), and women are more likely to experience negative emotional reactions to hookups (Owen et al., 2010, 2011). Women are also more likely to be socially punished for hookups compared to men (Penhollow, Young, & Nnaka, 2017). Thus, whether gender differences exist in PEP is unclear, and in general gender differences have been largely unexamined for both PEP and emotional reactions.

Although the relationship between PEP and alcohol use in college students has been investigated (Battista & Kocovski, 2010), to our knowledge PEP combined with emotional reactions following a hooking up has not. University stakeholders will benefit from better understanding the effect of post-hookup cognitive and emotional processes in college students on psychological, academic, and religious/spiritual functioning (Griffin et al., 2016; Lewis et al., 2012). This knowledge could advance educational opportunities on healthy sexual relationships and appropriate sex education. Most prevention and psychoeducational programming on college campuses analyze psychosocial functioning through one's behaviors, cognitions, and emotions. Increasing program facilitators' knowledge of typical post-hookup cognitive and emotional reactions could improve their influence on helping students understand healthy sexual relationships. Sex education programming could not only address not only behaviors, cognitions, and emotions while engaging in a hookup (e.g., appropriate condom use), but also discuss healthy ways for students to process or cope after engaging in a hookup. This approach could lead to decreasing negative outcomes in well-being, thereby inhibiting one pathway to students' psychological, academic, or religious/spiritual distress.

Hookup Reactions and Anxiety

Anxiety, particularly generalized anxiety, commonly refers to a syndrome characterized by repetitive thinking while experiencing negative-valence emotions (Ehring & Watkins, 2008). Research on anxiety and hooking up is limited. Vrangalova (2015a) noted that both men and women reported feeling

anxious after hooking up; however, no significant relationship was detected between anxiety and intercourse for either sex. However, Vrangalova's (2015b) results indicated men who had a penetrative hookup over the course of the academic semester reported higher anxiety levels than their peers who did not hookup at all. Follow-up tests for women indicated no significant differences in anxiety between those who did and did not hookup. Vrangalova's studies did not assess students' cognitive or emotional reactions in relation to hooking up; therefore her findings may be combining two groups of students: those who reacted positively to their hookup and those who reacted negatively, thus obscuring more detailed and nuanced relationships among these constructs.

Increased PEP leads to anxiety (Brozovich & Heimberg, 2008). Lewis et al. (2012) suggested negative hookup reactions will lead to greater anxiety among college students; one can reasonably assume, therefore, that positive hookup reactions are unrelated or inversely related to anxiety. PEP combined with negative affect has been shown to predict greater levels of anxiety (Mor & Winquist, 2002). Thus, PEP and negative hookup reactions likely increase anxiety, while positive hookup reactions would decrease anxiety. Negative hookup reactions should magnify the relation between PEP and anxiety, while positive emotional hookup reactions may dampen, or lead to a null relationship. For example, such an interaction may represent individuals replaying the hookup as a way of bolstering their sense of self.

Hookup Reactions and Academic Engagement

Academic engagement comprises of students' behavioral engagement at school (e.g., studying, attending class), emotional engagement toward school (e.g., feeling good while engaging in academic pursuits), and cognitive engagement (e.g., self-regulation; Wang & Eccles, 2013). Previous longitudinal research has focused on poor academic behavior prediction high-risk sexual behavior (Bailey, Fleming, Henson, Catalano, & Haggerty, 2008), with little emphasis on the how hookup behaviors predict academic performance. In a cross-sectional study, women in college who reported higher negative hookup reactions also reported lower levels of academic engagement (Owen, Quirk, & Fincham, 2014). This outcome could be due to increased distraction as they are trying to analyze the hookup for signs of increased intimacy. Thus, it is reasonable to expect positive hookup reactions would be either not predict academic engagement or would increase academic engagement. No research on PEP and academic engagement exists, though PEP likely would distract students from other tasks, including academics.

Given Owen et al.'s (2014) findings, negative emotional reactions will likely predict less academic engagement; it is less clear how positive emotional hookup reactions would affect academic engagement. Perhaps positive reactions about hookups, and one's sexual or social self, could generalize to feelings of efficacy in other domains, such as academics, thereby leading to higher academic engagement. If these main effect predictions were accurate, then both negative and positive emotional reaction would moderate both the direction and magnitude of PEP—promoting either a ruminative state in the case of negative affect, or a distracted, fantasizing state in the case of positive affect.

Hookup Reactions and Religious Coping

Students want to explore their spirituality while in college (Astin, Astin, & Lindholm, 2011) and perceive college as a time to explore and challenge spiritual beliefs (Parks, 2000). Universities cannot promote holistic well-being without an integration of spiritual and religious well-being, and religious coping is a critical component of holistic well-being often overlooked in research.[1] Religious coping involves a "search for significance in times of stress" (Pargament, 1997) and can include meaning-making, taking or releasing control of a situation, and seeking comfort from a higher power. Religious coping can be positive or negative: positive religious coping involves relying on a god-figure in a trusting manner and negative religious coping involves fear and uncertainty about whether a god-figure is a protector (Pargament, 1997). Negative religious coping is a stronger predictor of outcomes than positive religious coping (e.g., Pargament, Feuille, & Burdzy, 2011) and shares construct similarities with spiritual struggles (Exline, Pargament, Grubbs, & Yali, 2014), and therefore we only considered negative religious coping styles in the current study.

Most researchers have focused on whether different religious behaviors predict the likelihood and/or frequency of hooking up. In a cross-sectional study, students' perceived incongruence between their sexual behaviors and religious/spiritual values predicted higher levels of spiritual struggle (e.g., wondering if God had abandoned them, wondering if they were being punished; Griffin et al., 2016). Very little literature exists on associations among religious coping and emotional reactions or PEP related to hookups.

Religious coping as meaning-making implies that the individual will replay the hookup, thereby engaging in PEP, suggesting a positive relationship between PEP and negative religious coping. If religiosity tends to predict fewer sexual acts, it is likely that at least some religious students may see hooking up as inconsistent with their religious identity (Griffin et al., 2016). Negative hookup reactions would likely lead to more negative religious coping, while positive hookup reactions would either

[1] Religious coping does assume individuals have some engagement with a power greater than themselves, but does not preclude atheist and agnostic students from consideration. Indeed, Wilkinson and Coleman (2010) found that the presence of any belief system, including atheism, results in better coping and functioning than the absence of a belief system.

have an inverse or null relation to negative religious coping. If students experience a negative emotional reaction to hooking up it would magnify the positive relationship between PEP and negative religious coping. On the other hand, students who report positive hookup reactions may use fewer religious coping approaches in general or may see their sexual behaviors and religious identity and values as congruent (Murray-Swank, Pargament, & Mahoney, 2005). Thus, positive hookup reactions may weaken associations between PEP and negative religious coping or may nullify any associations.

Hookup Reactions and Psychological Flourishing

Psychological flourishing, described as "social-psychological prosperity" (Diener et al., 2010), represents fulfillment across universal human needs (Ryan & Deci, 2001), including relatedness, competence, and self-acceptance. Development of one's psychological flourishing can act as a buffer against risk factors (e.g., stress) for the onset or progression of mental illness. Hookup reactions may affect psychological flourishing, leading to students feeling much more or less fulfilled. There is some indication that positive outcomes are stronger than negative outcomes for most young adults' hookups (Lewis et al., 2012; Manthos, Owen, & Fincham, 2014; Owen et al., 2014). Understanding how PEP combined with hookup reactions affects flourishing would allow sex educators and counselors to explore both constructs with their clients to promote flourishing Moreover, failing to account for potential positive hookup outcomes may inadvertently cast hookups in a sex-negative manner. Most studies demonstrate no gender differences on flourishing among young adults (Bariola, Lyons, & Lucke, 2017; Keyes, 2007; Momtaz, Hamid, Haron, & Bagat, 2016; Nosratabadi, Joshanloo, Mohammadi, & Shahmohammadi, 2010; Venning, Wilson, Kettler, & Eliott, 2013).

In a cross-sectional study, Owen et al. (2014) found that hookups were associated with positive emotions in a sample of college student women. There are few studies on how PEP about a hookup might affect psychological flourishing at a later time point, though Owen et al. (2010) found negative hookup reactions were associated with lower levels of well-being. However, Field et al. (2004) found that increased PEP led to memories originally identified as positive becoming less positive in a sample of socially anxious and non-anxious individuals, which suggests that higher levels of PEP likely leads to lower levels of psychological flourishing.

We expect that higher levels of PEP and negative hookup reactions would each predict lower levels of psychological flourishing. We also expected positive hookup reactions would either have no relation or an positive relation to flourishing. We expected negative hookup reactions would magnify the relation between PEP and flourishing, and anticipated the relationship between PEP and psychological flourishing would continue to be inverse, but perhaps weaker, after positive hookup reactions were included.

Current Study

The current study investigated how PEP combined with emotional (i.e., positive or negative) hookup reactions predicted a breadth of psychosocial outcomes, representing holistic student well-being. We used longitudinal data to determine how young adults' PEP and emotional reactions to hookups predicted their level of anxiety, academic engagement, negative religious coping, and psychological flourishing, thereby measuring outcomes in a holistic sense.

We expected that PEP and negative emotional reactions would each predict more anxiety, less academic engagement, more negative religious coping, and less flourishing. Conversely, we expected positive emotional reactions to predict less anxiety, more academic engagement, and more flourishing and to either have no relationship or, or predict less, negative religious coping. Negative emotional reactions to hookups were expected to magnify the positive relationships between PEP and anxiety and negative religious coping. Negative emotional reactions also were expected to magnify the inverse relationship between PEP and academic engagement and flourishing. However, these hypotheses were exploratory, as positive emotional reactions could heighten or dampen the inverse relationship between PEP and academic engagement and negative religious coping.

We anticipated gender differences might exist within some study variables and relationships between variables, but because very little is known about outcomes of post-hookup PEP and emotional reactions, gender was treated as a control variable. These analyses, as noted above, give a clearer picture of how hookup reactions affect a range of student outcomes.

Method

Participants

The original sample had 511 participants; we removed participants who did not answer the validity checks correctly ($n = 134$). Participants removed due to incorrect validity checks were not different from retained participants in terms of year in college ($p = .242$), family income level ($p = .390$), or religious affiliation ($p = .157$). There was a statistical trend indicating retained participants were more likely to be female ($\chi^2 = 3.73$, $p = .053$) and retained participants were more likely to identify as white compared to other ethnic/racial identities ($\chi^2 = 12.62$, $p = .049$).

In the remaining sample ($N = 377$; mean age = 19.77 years, SD 2.20 years), the majority of participants were female (87.6%) and white (72.3%). Nearly half of the participants were sophomores (45.2%) and juniors (24.5%). Almost all of the participants identified as heterosexual (96.5%). The majority of participants lived on-campus or off-campus with friends, a small minority lived with their parents (9.3%). The average

grade point average (GPA) of participants was 3.33 (SD .52) out of 4.0. Of participants who reported hooking up, participants reported engaging in hookups with between 1 and 22 individuals over the past 4 months (19% kissing; 5.8% petting/manual stimulation; 16.5% oral sex; 58.7% vaginal/anal sex). About half of participants who had hooked up reported being intoxicated during their most recent hookup (52.9%).

Measures

Post-Event Processing

We used a modified version of the post-event processing scale (PEPS; Rachman et al., 2000) to assess participants' cognitive reactions to hooking up. The PEPS is a 13-item visual analogue scale (0–100) which measures how frequently participants thought repeatedly about a particular event (e.g., "After the event was over, did you find yourself thinking about it a lot?;" "Did you find it difficult to forget about the event?;" "If you did think about the event, over and over again, did your feelings about the event get worse and worse?"). In this study, participants reported how often they thought repeatedly about their most recent hookup. The PEPS demonstrated the concurrent validity with self-report measures of social anxiety in a sample of university students and good internal reliability (Rachman et al., 2000). In the current sample, the PEPS had adequate internal consistency at Time 1 ($\alpha = .82$).

Emotional Reactions to Hookups

We adapted the emotional reaction after hooking up measure used by Owen et al. (2010) for the current study. Participants were asked to indicate the extent to which they felt five positive emotions (happy, desirable, adventuresome, pleased, and excited) and five negative emotions (empty, confused, used, awkward, and disappointed) a day after their most recent hookup. Participants rated their experience of each emotion on a 5-point Likert scale (1 = *not at all*; 5 = *very much*). We calculated two subscales: one for positive emotions and one for negative emotions. Higher scores indicate more positive and negative emotional reactions, respectively. In the current study, the internal consistency was adequate for positive reactions ($\alpha = .88$) and negative reactions ($\alpha = .84$) at Time 1.

Anxiety

We used a 10-item version of the Beck Anxiety Inventory scale (BAI, Beck, Epstein, Brown, & Steer, 1988) to measure anxiety symptoms. The items on the BAI largely describe somatic symptoms of anxiety, and so only a small to moderate correlation between the BAI and PEP was expected ($r = .38$, $p < .01$, df = 119). Participates indicate how frequently they experience each symptom (e.g., "unable to relax" and "fear of losing control") on a 4-point Likert scale (0 = *not at all*; 3 = *severely*) with overall scores ranging from 0 to 30. Example items include "unable to relax" and "fear of losing control." Researchers commonly use the BAI with college samples (e.g., Trenz, Ecklund-Flores, & Rapoza, 2015; Vaughn, Drake, & Haydock, 2016). In the current study, the BAI had good internal consistency at Time 1 ($\alpha = .89$) and Time 2 ($\alpha = .92$).

Academic Well-Being

We assessed academic engagement using the Utrecht Work Engagement Scale–Student Survey (UWES–S; Schaufeli, Salanova, González-Romá, & Bakker, 2002b) that consists of 14 items. Students indicated the frequency with which they felt various experiences associated with academic engagement (e.g., "When I'm doing my work as a student, I feel bursting with energy") on a 7-point Likert scale (0 = *never*, 7 = *every day*). The validation of the UWES-S has been done internationally (Schaufeli, Martínez, Marques Pinto, Salanova, & Bakker, 2002a). The scale had good internal consistency at Time 1 ($\alpha = .92$) and Time 2 ($\alpha = .94$).

Religious Coping Style

We used the brief Religious Coping Activity (R-COPE) measure to assess students' negative religious coping. The brief R-COPE is a 14-item measure with two subscales, positive and negative coping (Pargament et al., 2011). For this study, only the Negative Religious Coping subscale (NRC) was used to measure participants' religious coping. The subscale has 7 items, which include "wondering if God abandoned me," "felt punished by God," and "questioning God's love for me." Items were scored on a 4-point Likert scale (1 = *never*; 4 = *very often*). The brief R-COPE has been found to be a reliable and valid measure for college students (Pargament et al., 2011) and in non-Christian samples (Khan & Watson, 2006). The NRC has demonstrated the concurrent validity and correlates with indicators of poor function, such as anxiety and depression (Cole, 2005; Van Dyke, Glenwick, Cecero, & Kim, 2009). Within the current study, the scale exhibited good internal consistency at Time 1 ($\alpha = .91$) and Time 2 ($\alpha = .93$).

Psychological Flourishing

We used the 14-item Flourishing Scale (FS; Diener et al., 2010). Participants answered statements about their flourishing on a 7-point Likert scale (1 = *strongly disagree*; 7 = *strongly agree*; "I lead a purposeful and meaningful life"). The FS has been shown to be appropriate across gender, with scores having been shown to correlate with autonomy, positive and negative feelings, life satisfaction, level of happiness, and psychological need satisfaction (Diener et al., 2010; Howell & Buro 2015;

Silva & Caetano, 2013). In the current sample, the FS had good internal consistency at Time 1 ($\alpha = 91$) and Time 2 ($\alpha = .94$).

Hookups

Participants were provided with the following definition of hooking up: "Some people say that a 'hookup' is when two people get together for a physical encounter and don't necessarily expect anything further (e.g., no plan or intention to do it again)." This prompt was used in previous studies with similar populations (see Olmstead, Pasley, & Fincham, 2013; Owen et al., 2010). Participants then answered the question, ''Based on this definition, how many different people did you 'hookup' with over the last 4 months?" Participants were also asked to indicate which of the following sexual behaviors they engaged in during their most recent hookup: kissing, petting/manual stimulation, oral sex, intercourse (vaginal/anal sex), and how intoxicated they were during their most recent hookup (1 = *not at all*; 5 = *blackout drunk*).

Religious Importance (R/S Importance)

Participants were asked, "How important is religion/spirituality in your life?" and indicated their answer on a 4-point Likert scale (1 = *not important*; 4 = *very important*).

Validity Checks

At each time point, participants were asked to answer two validity check items to determine whether participants were responding randomly. The checks were interspersed within other scales and asked participants to endorse a particular Likert scale score (e.g., Please check "strongly disagree" here). If a participant answered either validity check incorrectly at either time point, they were removed from further analysis.

Procedure

We recruited participants through a general education course offered at a public university in the southeast of the U.S. This course attracts students from across the university. Students were offered multiple options to obtain extra credit for the class, one of which comprised the surveys used in this study. They completed informed consent forms, were given a link and a 7-day window in which to complete the online surveys. Participants completed measures in the second week of class and 2 months later. The university IRB approved all procedures.

Data Analysis

All analyses were conducted in SPSS 24.0. We tested the effects of PEP and emotional hookup reactions on each outcome, separately, as a moderation regression analysis using PROCESS (Hayes, 2018). For each regression, we first entered the main effects of PEP and hookup reactions at Time 1, as well as the interaction effect at Time 1. We also entered the outcome variable in question at Time 1, along with the hookup reaction not assessed in the interaction effect, as controls, as positive and negative hookup reactions are separate spectra, rather than bipolar ends of the same spectra. For example: when testing the effects of PEP combined with negative emotional reactions to hooking up at Time 1 on flourishing at Time 2, we entered PEP, negative emotional reactions (HURN), positive emotional reactions (HURP), and flourishing at Time 1, and then the interaction between PEP and HURN. This allowed us to understand how the interaction of PEP combined with negative emotional reactions to hookups predicts changes in the outcome beyond the effects of other emotional reactions and the baseline level of the outcome variable. We also entered gender, school year, level of intoxication during hookup, and level of sexual intimacy occurring in the hookup as controls for each analysis, and controlled for participants' self-endorsed religious/spiritual importance when testing negative religious coping as an outcome.

Next, we used the Johnson-Neyman technique (Hayes & Matthes, 2009) on significant interactions to examine the simple slopes of PEP on each outcome variable at different values of the moderator (HURN or HURP). Finally, to evaluate effect sizes we focused on R^2. R^2 is a standardized measure of effect size, whereas the regression weights are not. PEP has a large range in values (range: −90 to 950; HURP range = 5–25; HURN range = 5–24) compared to the other variables, meaning that a regression weight did not account for discrepancies between the variables' ranges. The R^2 values were assessed based on values for Cohen's d (.02, .15, and .30 for small, medium, and large effects, respectively).

Results

The correlations and descriptive data for all measures are shown in Table 1. Men reported high levels of sexual intimacy during their most recent hookups compared to women ($t = 3.31$, $p < .001$, df = 293). Women reported higher levels of psychological flourishing at Times 1 and 2 ($t = -2.55$, $p < .05$, df = 297, $t = -2.57$, $p < .05$, df = 240, respectively) and anxiety at Time 1 ($t = -2.80$, $p < .01$, df = 240) compared to men. Time 1 control variables year in school, level of sexual intimacy, R/S importance, and level of intoxication during their most recent hookup each correlated with one or more of the outcome variables at

Table 1 Descriptive statistics and correlations among the variables

	RC-T1	RC-T2	F-T1	F-T2	AE-T1	AE-T2	Anx-T1	Anx-T2	HURN-T1	HURP-T1	PEP-T1
RC-T1	–										
RC-T2	.54**	–									
F-T1	−.20**	−.14*	–								
F-T2	−.23**	−.35**	.58**	–							
AE-T1	−.03	−.01	.36**	.25**	–						
AE-T2	−.17*	−.11	.34**	.46**	.65**	–					
Anx-T1	.24**	.22**	−.22**	−.15*	−.15*	−.15*	–				
Anx-T2	.15*	.23**	−.20**	−.24**	−.16*	−.16*	.63**	–			
HURN-T1	.16	.27**	−.20*	−.22*	.03	−.15	.29**	.18	–		
HURP-T1	−.19*	−.07	.22*	.25*	.10	.18	−.11	−.17	−.47**	–	
PEP-T1	.23*	.24*	−.09	−.16	−.12	−.25*	.38**	.17	.57**	−.35**	–
Mean	.40	.32	5.86	5.78	4.77	4.71	.99	.91	2.03	3.48	33.20
SD	.55	.55	.86	.95	1.12	1.10	.69	.72	.98	1.03	16.74
Range	0–2.57	0–2.14	1.42–7	2.25–7	1–6.92	1.46–7	0–3	0–2.9	1–4.8	1–5	7.86–82.14

*$p < .05$; **$p < .01$; RC = brief R-COPE, negative subscale; F = Flourishing Scale; AE = Utrecht Work Engagement Scale—Student Survey; Anx = Beck Anxiety Inventory; HURN = emotion reaction after hooking up—negative; HURP = emotion reaction after hooking up—positive; PEP = Post-Event Processing Scale; T1 = Time 1; T2 = Time 2

Time 2. Interestingly, R/S importance and year in school did not correlate with predictor variables (PEP, HURN, and HURP). PEP was positively associated with negative emotional hookup reactions, and negatively associated with positive emotional hookup reactions.

Participants' positive emotional reactions (HURP) negatively correlated with negative religious coping at Time 1 and positively correlated with flourishing at Time 1 and flourishing at time 2 as expected. Participants who endorsed negative emotional reactions to their hookup (HURN) also endorsed more religious coping at Time 2 and anxiety at Time 1, and endorsed lower levels of flourishing at Times 1 and Time 2, also as expected. Finally, participants' post-event processing (PEP) positively correlated with negative religious coping at Time 1 and Time 2, anxiety at Time 1, and negatively correlated with academic engagement at Time 2, all as expected. Graphs of the interaction effects for each model are shown in Figs. 1, 2, 3, 4, 5, and 6.

Anxiety (Table 2)

Regarding the effects of PEP on anxiety as moderated by negative hookup reactions (HURN), the overall model for the moderation analysis was significant, $F(10, 81) = 7.12$, $p < .001$, $R^2 = .48$; Fig. 1. The main effects of HURN, PEP, and level of intoxication during the hookup at Time 1 significantly predicted anxiety at T2. Moreover, the interaction between PEP and HURN at Time 1 significantly predicted anxiety Time 2 (Fig. 1). Investigation of the Johnson-Neyman Technique indicated that, after controlling for anxiety at Time 1 and positive hookup reactions, when participants scored 3.28 or higher on negative reactions to hookups (28.26% of the sample), more PEP predicted lower levels of anxiety at Time 2. Overall, the interaction explained 3% of the variance in anxiety reported at Time 2.

Regarding the effects of PEP on anxiety as moderated by positive hookup reactions (HURP), the overall model for the moderation analysis was significant, $F(10, 81) = 7.12$, $p < .001$, $R^2 = .47$. Neither HURP nor PEP predicted anxiety at Time 2 as main effects; though level of intoxication during the hookup did. The interaction between PEP and HURP at Time 1 significantly predicted anxiety at Time 2 (Fig. 2). After controlling for anxiety at Time 1 and negative hookup reactions, when participants scored 4.91 or higher on positive reactions to hookups (4.92% of the sample), more PEP predicted lower levels of anxiety at Time 2. Overall, the interaction explained 3% of the variance in anxiety reported at Time 2.

Academic Engagement (Table 3)

Regarding the effects of PEP on academic engagement as moderated by HURN, the overall model analysis was significant, $F(10, 82) = 5.01$, $p < .001$, $R^2 = .38$, but the main effects and interaction effects of HURN and PEP were non-significant, therefore no further analyses were conducted with this model.

Regarding the effects of PEP on academic engagement as moderated by HURP, the overall model for the moderation analysis was significant, $F(10, 82) = 5.09$, $p < .001$, $R^2 = .38$. The interaction between PEP and HURP at Time 1 approached significance in predicting academic engagement at Time 2 (Fig. 3); however, neither the main effect of PEP

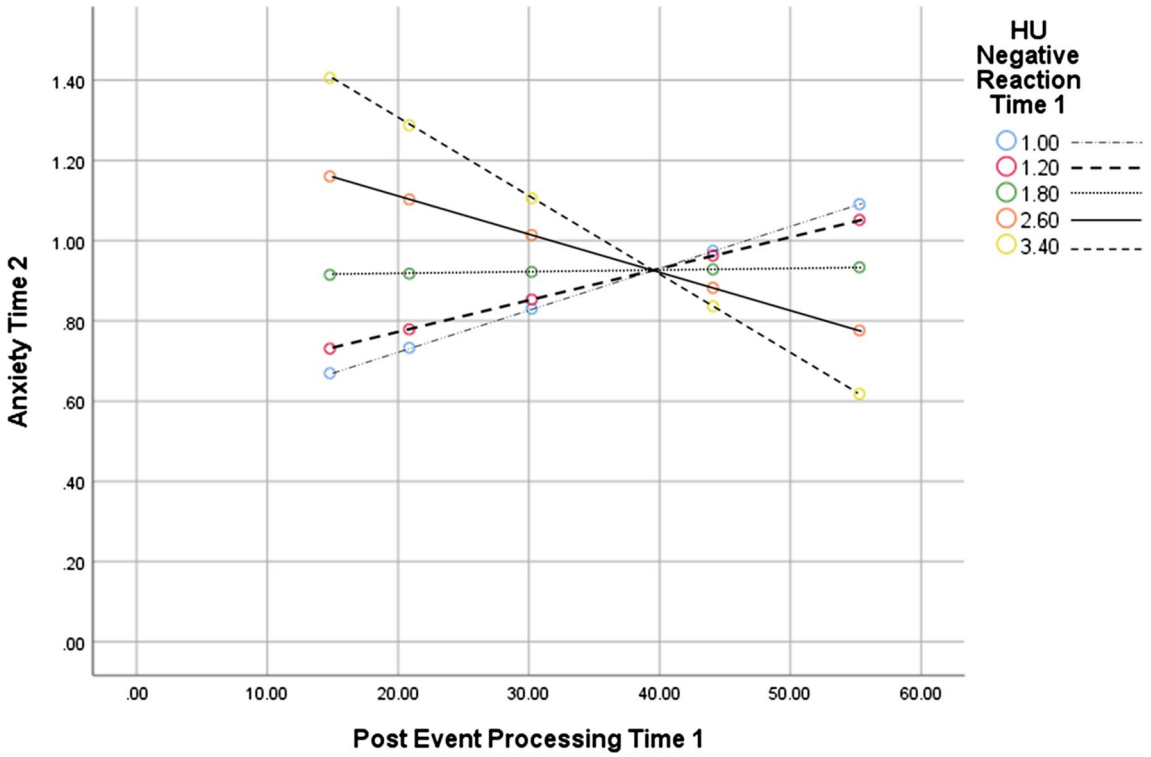

Fig. 1 Negative hookup reactions as a moderator of the relationship between post-event processing at Time 1 and anxiety at Time 2. *Note*. *HU* hookup

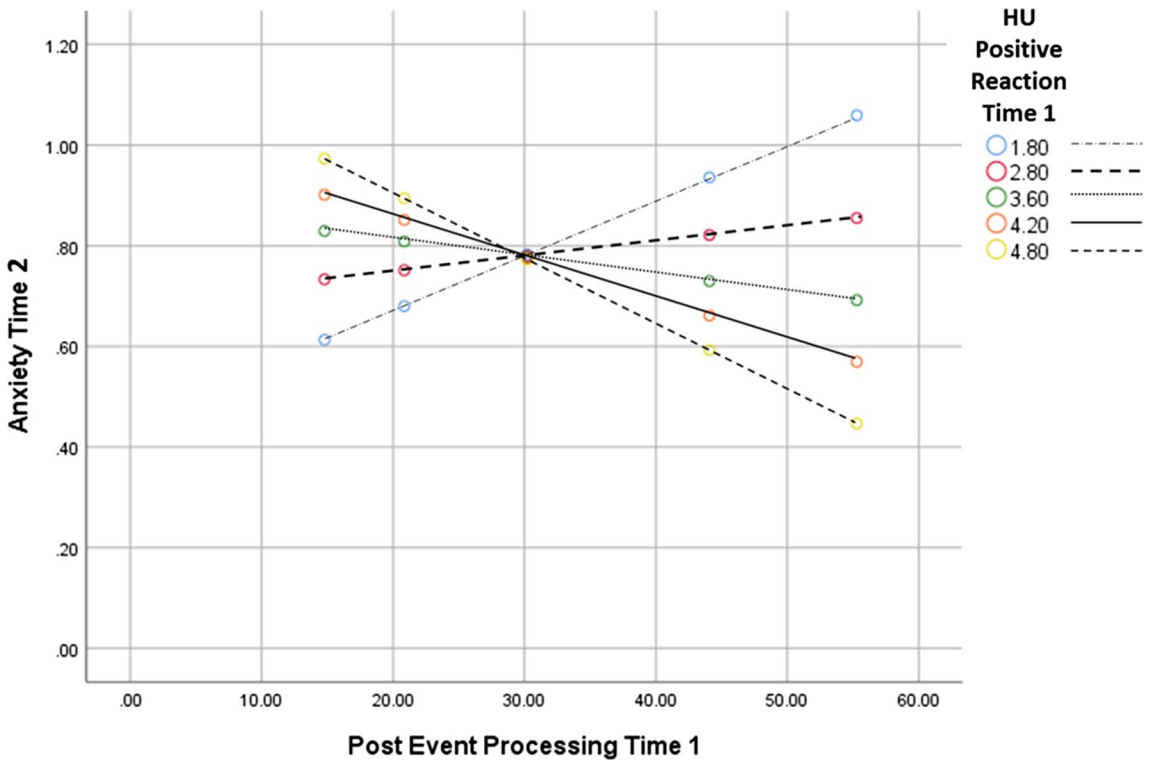

Fig. 2 Positive hookup reactions as a moderator of the relationship between post-event processing at Time 1 and anxiety at Time 2. *Note*. *HU* hookup

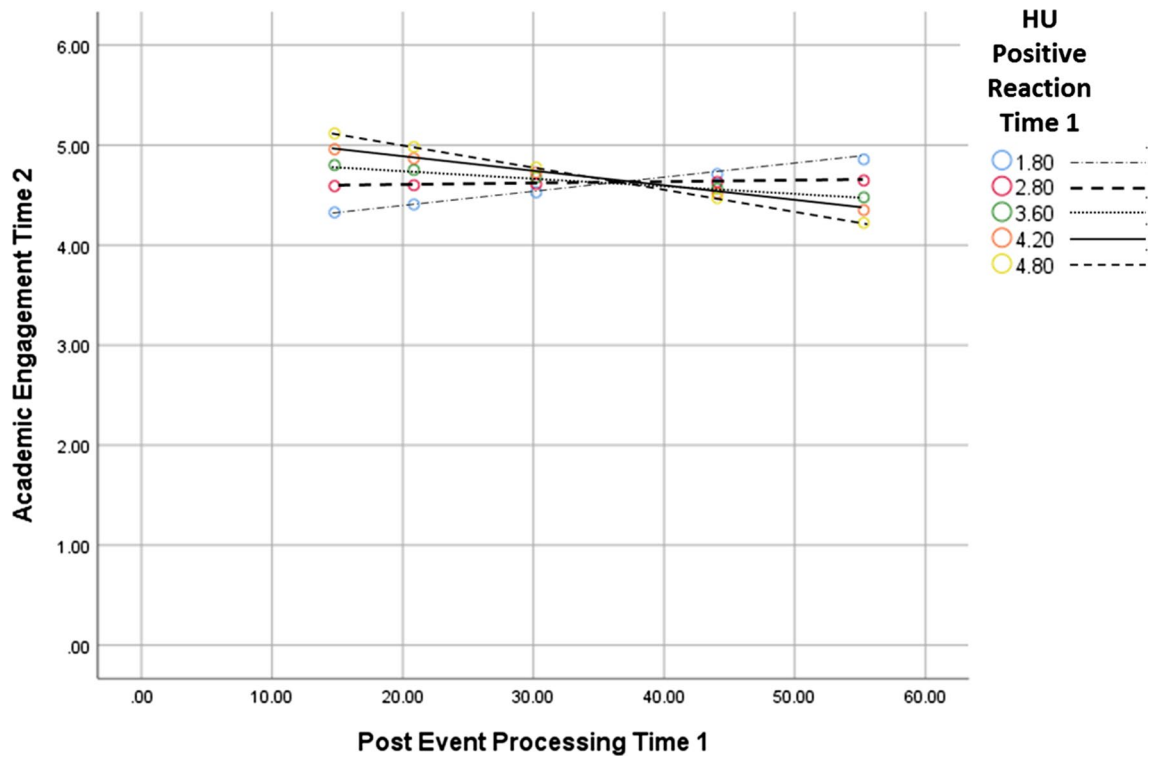

Fig. 3 Positive hookup reactions as a moderator of the relationship between post-event processing at Time 1 and academic engagement at Time 2. *Note*. *HU* hookup

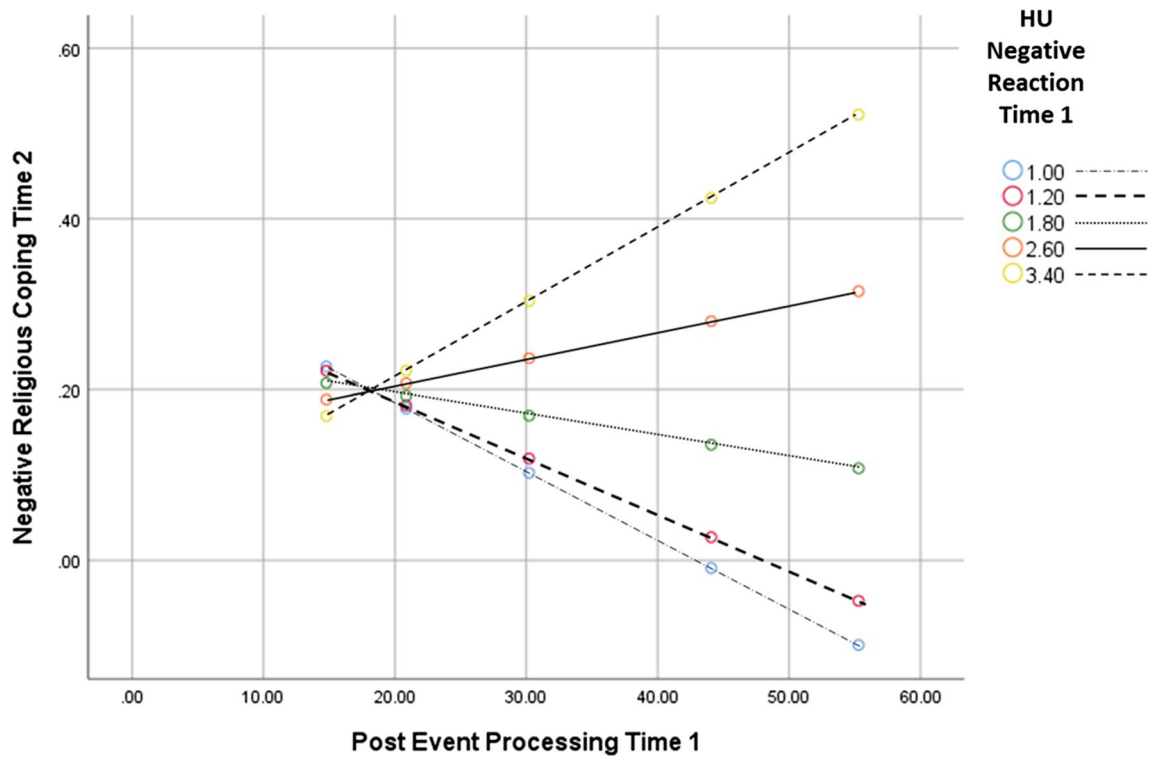

Fig. 4 Negative hookup reactions as a moderator of the relationship between post-event processing at Time 1 and negative religious coping at Time 2. *Note*. *HU* hookup

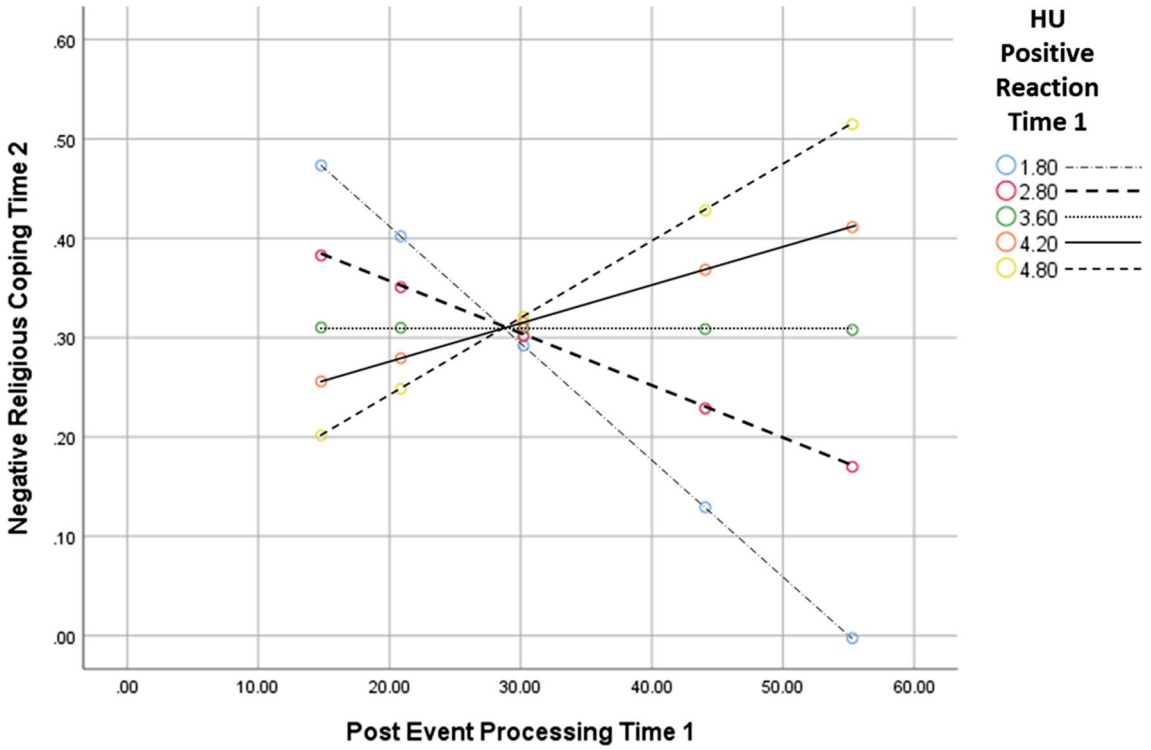

Fig. 5 Positive hookup reactions as a moderator of the relationship between post-event processing at Time 1 and negative religious coping at Time 2. *Note*. *HU* hookup

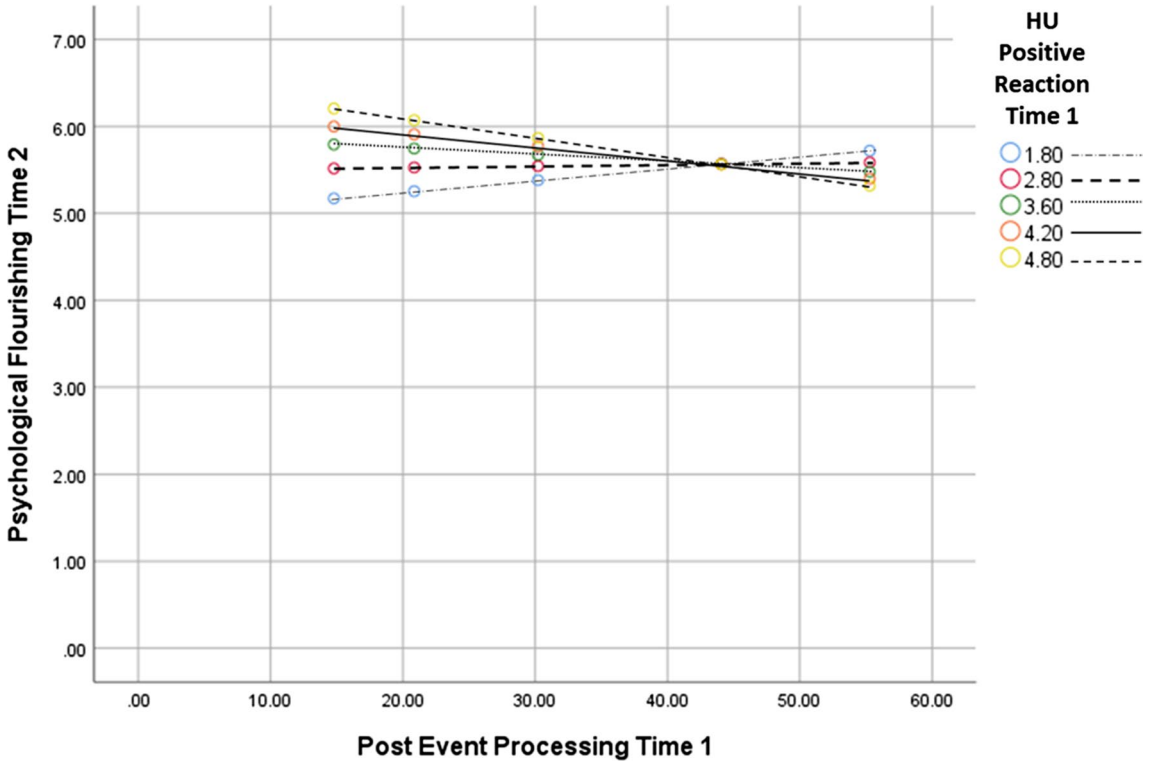

Fig. 6 Positive hookup reactions as a moderator of the relationship between post-event processing at Time 1 and flourishing at Time 2. *Note*. *HU* hookup

Table 2 Models predicting anxiety at Time 2

	b	S.E.	*t*	*p*	95% CI
HURN model					
HURN-T1	.491	.186	2.64	.010	.121 to .861
PEP-T1	.023	.011	2.14	.035	.002 to .044
HURN-T1*PEP-T1	−.012	.004	−2.91	.005	−.021 to .004
Anx-T1	.629	.094	6.68	<.001	.442 to .816
HURP-T1	−.027	.064	−.429	.669	−.154 to .099
HURP-T1*PEP-T1	−.138	.064	−2.14	.035	−.265 to .010
Gender	.287	.164	1.74	.084	−.039 to .613
HU Intox.-T1	.190	.069	2.72	.008	.050 to .327
HU Level-T1	.081	.055	1.47	.145	−.029 to .190
Sch. Year	−.021	.072	−.285	.777	−.164 to .123
HURP Model					
HURP-T1	.238	.149	1.60	.114	−.058 to .535
PEP-T1	.025	.014	1.84	.070	−.002 to .053
HURP-T1*PEP-T1	−.008	.004	−2.14	.035	−.015 to −.001
Anx-T1	.629	.094	6.68	< .001	.442 to .816
HURN-T1	.078	.085	.912	.364	−.091 to 0247
HURN-T1*PEP-T1	−.205	.070	−2.91	.005	−.345 to .065
Gender	.287	.164	1.75	.084	−.039 to .613
HU Intox.-T1	.189	.069	2.72	.008	.050 to .327
HU Level-T1	.081	.055	1.47	.145	−.029 to .190
Sch. Year	−.021	.072	−.285	.777	−.164 to .123

*$p<.05$; **$p<.01$; HU Intox.="during your most recent hookup, how intoxicated (drunk) were you?;" HU Level=level of sexual intimacy during hookup; Sch. Year=school year; RC=brief R-COPE, negative subscale; F=Flourishing Scale; AE=Utrecht Work Engagement Scale—Student Survey; Anx=Beck Anxiety Inventory; HURN=emotion reaction after hooking up—negative; HURP=emotion reaction after hooking up—positive; PEP=Post-Event Processing Scale; T1=Time 1; T2=Time 2

Table 3 Models predicting academic engagement at Time 2

	b	S.E.	*t*	*p*	95% CI
HURN model					
HURN-T1	.062	.301	.206	.837	−.537 to .662
PEP-T1	.004	.017	.207	.837	−.031 to .038
HURN-T1*PEP-T1	−.005	.007	−.725	.471	−.019 to .0087
AE-T1	.481	.098	4.89	<.001	.286 to .677
HURP-T1	.048	.105	.454	.651	−.161 to .256
HURP-T1*PEP-T1	−.201	.105	−1.92	.056	−.410 to .007
Gender	−.236	.266	−.888	.377	−.764 to .292
HU Intox.-T1	.064	.112	.571	.56=70	−.159 to .287
HU Level-T1	−.002	.087	−.027	.978	−.176 to .171
Sch. Year	−.294	.118	−2.50	.015	−.529 to −.060
HURP model					
HURP-T1	.436	.249	1.75	.084	−.060 to .932
PEP-T1	.034	.022	1.53	.130	−.010 to .000
HURP-T1*PEP-T1	−.012±	.006	−1.92	.059	−.024 to .000
AE-T1	.481***	.098	4.89	> .001	.286 to .677
HURN-T1	−.104	.136	−.760	.450	−.375 to .168
HURN-T1*PEP-T1	−.082	.113	−.725	.471	−.308 to .143
Gender	−.236	.266	−.888	.377	−.764 to .292
HU Intox.-T1	.064	.112	.571	.570	−.159 to .287
HU Level-T1	−.002	.087	−.027	.978	−.176 to .171
Sch. Year	−.294*	.119	−2.498	.016	−.529 to −.060

*$p<.05$; **$p<.01$; HU Intox.="during your most recent hookup, how intoxicated (drunk) were you?;" HU Level=level of sexual intimacy during hookup; Sch. Year=school year; RC=brief R-COPE, negative subscale; F=Flourishing Scale; AE=Utrecht Work Engagement Scale—Student Survey; Anx=Beck Anxiety Inventory; HURN=emotion reaction after hooking up—negative; HURP=emotion reaction after hooking up—positive; PEP=Post-Event Processing Scale; T1=Time 1; T2=Time 2

nor HURP predicted academic engagement. Of the control variables entered, school year predicted academic engagement. After controlling for academic engagement at Time 1 and negative hookup reactions, when participants scored 4.80 or higher on positive reactions to hookups (11.83% of the sample), more PEP predicted less academic engagement. Overall, the interaction explained nearly 3% of the variance in academic engagement reported at Time 2.

Negative Religious Coping (Table 4)

Regarding the effects of PEP on negative religious coping as moderated by HURN, the overall model for the moderation analysis was significant, $F(11, 80) = 4.92$, $p < .001$, $R^2 = .40$. The main effect of PEP approached significance in predicting negative religious coping, while the main effect of HURN was nonsignificant. The control variable of religious/spiritual importance also significantly predicted negative religious coping. The interaction between PEP and HURN reactions at Time 1 predicted negative religious coping at Time 2. After controlling for negative religious coping at Time 1 and positive hookup reactions, when participants scored 3.74 or higher on negative reactions to hookups (9.78% of the sample), more PEP predicted more negative religious coping. Overall, the interaction explained nearly 4% of the variance in negative religious coping reported at Time 2.

Regarding the effects of PEP on negative religious coping as moderated by HURP, the overall model was significant, $F(11, 80) = 4.92$, $p < .001$, $R^2 = .40$. PEP and religious-spiritual importance predicted negative religious coping at Time 2, while the effect of HURP was nonsignificant. The interaction between PEP and HURP at Time 1 significantly predicted negative religious coping at Time 2 ($R^2 = .05$; see Fig. 5). After controlling for negative religious coping at Time 1 and negative hookup reactions, participants who

Table 4 Models predicting negative religious coping at Time 2

	b	S.E.	*t*	*p*	95% CI
HURN model					
HURN-T1	−.127	.135	−.944	.348	−.400 to .141
PEP-T1	−.015	.008	−1.91	.059	−.031 to .001
HURN-T1*PEP-T1	.007	.003	2.24	.028	.001 to .013
RC-T1	.358	.083	4.324	<.001	.193 to .523
HURP-T1	.029	.047	.620	.537	−.064 to .122
HURP-T1*PEP-T1	.112	.047	2.38	.020	.018 to .205
Gender	−.049	.120	−.411	.682	−.290 to .189
HU Intox.-T1	−.017	.051	−.326	.745	−.117 to .084
HU Level-T1	.063	.041	1.55	.125	−.078 to .144
Sch. Year	−.040	.052	−.774	.441	−.145 to .064
RS Imp.-T1	.114	.045	2.57	.012	.026 to .203
HURP model					
HURP-T1	−.190	.110	−1.70	.093	−.405 to .032
PEP-T1	−.023	.010	−2.32	.023	−.044 to −.003
HURP-T1*PEP-T1	.007	.003	2.38	.020	.001 to .012
RC-T1	.358	.083	4.32	< .001	.193 to .523
HURN-T1	.105	.061	1.71	.092	−.017 to .227
HURN-T1*PEP-T1	.115	.051	2.24	.028	.013 to .217
Gender	−.050	.120	−.411	.682	−.289 to .189
HU Intox.-T1	−.017	.051	−.326	.745	−.117 to .084
HU Level-T1	.063	.041	1.55	.125	−.078 to .144
Sch. Year	−.040	.052	−.774	.441	−.145 to .064
RS Imp.-T1	.114	.045	2.57	.012	.026 to .203

*$p < .05$; ** $p < .01$; RS Imp. = "how important is religion/spirituality in your life?;" HU Intox. = "during your most recent hookup, how intoxicated (drunk) were you?;" HU Level = level of sexual intimacy during hookup; Sch. Year = school year; RC = brief R-COPE, negative subscale; F = Flourishing Scale; AE = Utrecht Work Engagement Scale—Student Survey; Anx = Beck Anxiety Inventory; HURN = emotion reaction after hooking up—negative; HURP = emotion reaction after hooking up—positive; PEP = Post-Event Processing Scale; T1 = Time 1; T2 = Time 2

Table 5 Models predicting flourishing at Time 2

	b	S.E.	*t*	*p*	95% CI
HURN model					
HURN-T1	.194	.283	.69	.492	−.367 to .757
PEP-T1	.006	.016	.38	.708	−.026 to .038
HURN-T1*PEP-T1	−.006	.007	−.94	.350	−.019 to .007
F-T1	.416***	.097	4.35	<.001	.224 to .609
HURP-T1	.127	.097	1.31	.193	−.066 to .320
HURP-T1*PEP-T1	−.203*	.096	−2.11	.038	−.394 to .012
Gender	.136	.248	.55	.584	−.356 to .629
HU Intox.	.053	.106	.51	.615	−.157 to .264
HU Level	.026	.083	.32	.753	−.138 to .190
Sch. Year	−.274*	.109	−2.50	.014	−.492 to −.056
HURP model					
HURP-T1	.519	.225	2.31	.023	.072 to .966
PEP-T1	.035	.021	1.67	.098	−.007 to .076
HURP-T1*PEP-T1	−.012*	.006	−2.11	.037	−.023 to .001
F-T1	.416***	.097	4.30	< .001	.224 to .609
HURN-T1	−.007	.128	−.056	.955	−.262 to .248
HURN-T1*PEP-T1	−.100	.107	−.940	.350	−.312 to .112
Gender	.136	.248	.550	.584	−.356 to .629
HU Intox.	.053	.106	.505	.615	−.160 to .264
HU Level	.026	.083	.315	.753	−.138 to .190
Sch. Year	−.274*	.109	−2.50	.014	−.492 to −.056

*$p < .05$; **$p < .01$; RS Imp. = "how important is religion/spirituality in your life?;" HU Intox. = "during your most recent hookup, how intoxicated (drunk) were you?;" HU Level = level of sexual intimacy during hookup; Sch. Year = school year; RC = brief R-COPE, negative subscale; F = Flourishing Scale; AE = Utrecht Work Engagement Scale—Student Survey; Anx = Beck Anxiety Inventory; HURN = emotion reaction after hooking up—negative; HURP = emotion reaction after hooking up—positive; PEP = Post-Event Processing Scale; T1 = Time 1; T2 = Time 2

scored below 1.98 on positive hook up reactions (9.78% of the sample), more PEP predicted lower levels of negative religious coping. Overall, the interaction explained 4% of the variance in negative religious coping reported at Time 2.

Psychological Flourishing (Table 5)

For the effects of PEP on psychological flourishing as moderated by HURN, the overall model was significant, $F(10, 81) = 4.85$, $p < .001$, $R^2 = .37$. However, the main effects and interaction effect of PEP and HURN were not significant, and so we did not analyze this model further.

Regarding the effects PEP on psychological flourishing as moderated by HURP, the overall model for the moderation analysis was significant, $F(10, 81) = 4.85$, $p < .001$, $R^2 = .37$. The main effect of HURP significantly predicted flourishing at Time 2, as did school year. PEP alone did not predict flourishing. However, the interaction of PEP and HURP at Time 1 significantly predict flourishing at Time 2 (Fig. 6). After controlling for flourishing at Time 1 and negative reactions to hookups, when participants scored 4.2 or higher on positive reactions to hookups (21.74% of the sample), more PEP predicted less flourishing. Overall, the interaction explained about 3% of the variance in psychological flourishing well-being reported at Time 2.

Discussion

Given the breadth of hypothesis and complexity of the findings, we first discuss the results by individual outcomes and then synthesize the findings. We predicted that the main effects of PEP and negative hookup reactions would predict higher levels of anxiety and that negative hookup reactions would magnify the relationship between PEP and anxiety. The main effects of PEP and negative emotional reactions did predict

higher levels of anxiety, as did the interaction effect. However, while low PEP and high negative hookup reactions led to high anxiety, as did high PEP and low negative hookup reactions, the combination of high PEP and high negative reactions did not. PEP may function in different ways depending on whether it occurs alongside high or low negative emotionality. When negative emotions are high, young adults may use PEP as a means of coping, wherein replaying and reinterpreting the hookup allows them to mitigate their negative emotional reactions. However, when negative emotions are low, PEP may be disruptive, as the individual is replaying the hookup without any need for regulating emotions. PEP may inadvertently bring up concerns about the hookup that did not previously exist for the individual. However, we controlled for positive hookup reactions when assessing negative reactions. Thus, this builds on prior work suggesting PEP, when not needed for regulating high levels of negative emotion, may actually increase negative emotion, in addition to reducing positive emotions (Brozovich & Heimberg, 2008; Field et al., 2004). In other words, PEP is only an effective coping mechanism when existing negative emotions are high.

We predicted the main effect of positive reactions to hooking up would predict less anxiety and would moderate PEP to nullify or invert its relationship to anxiety. Positive emotional reactions did not significantly predict anxiety, but the interaction effect was significant: high levels of PEP and high positive reactions led to lower anxiety, indicating that when paired with positive emotionality, PEP becomes a means of heightening enjoyment and reliving positive hookup experiences. However, there was no identifiable level of positive hookup reaction that led to this inverse relation between PEP and anxiety. This suggests a potential ceiling effect on the positive emotional reaction measure. In this case, the level of positive emotional reaction needed to create this inverse relationship between PEP and anxiety is likely beyond what most individuals would experience and, as the small effect size indicates, would have minimal effects. It may be that motives behind reimagining or assessing an event determine outcomes more than the act of PEP itself: if one is using PEP deliberately to heighten a particular experience, rather than repetitively thinking with little insight into what they are doing, they may have more positive outcomes (though only if their emotions are very positive).

Neither PEP nor negative emotional reactions predicted academic engagement, and negative hookup reactions did not moderate the relationship between PEP and academic engagement, all of which contradicted our hypotheses and prior work by Owen et al. (2014). However, the Owen et al. study investigated cross-sectional associations among women only; it is possible that the effect of negative hookup reactions and PEP on academics has an immediate, rather than extended, effect.

Positive hookup reactions also did not predict academic engagement, but positive hookup reactions did approach significance in moderating the relationship between PEP and academic engagement: one-fifth of the sample experienced high enough positive hookup reactions that their PEP led to less academic engagement. This tentatively suggests that positive hookup experiences create an environment where students become more distracted from their work, rather than feeling more motivated about their work. Students with positive hookup experiences who think of their hookups often may routinely prioritize socializing over academics and sleep (which further hinders academic progress; Adams et al., 2017).

PEP approached significance in predicting negative religious coping, showing possible support for our hypothesis, while negative emotional reactions' relationship to religious coping was nonsignificant, contrary to our expectations. The control variable R/S importance did predict negative religious coping, suggesting that any relationships between the study variables and negative religious coping are stronger for individuals with more salient religious or spiritual identities. The interaction effect did approach significance, wherein negative emotional hookup reactions led to a positive relationship between PEP and religious coping, suggesting that negative emotional hookup reactions may in part derive from an interpretation that one's sexual behaviors did not align with their religious or spiritual values (Griffin et al., 2016). However, the practical applications of this are negligible, as so few individuals endorsed negative hookup reactions strongly enough for the relationship between PEP and negative religious coping to emerge (less than 2% of the sample). It is possible that in a sample of students who endorse more orthodox or dogmatic religious values, rather than a general sample, this result will be stronger, as these students may be more likely to experience negative hookup reactions given their values.

We expected positive emotional reactions to have either an inverse or null relationship to negative religious coping, and results indicated a null relationship. However, the interaction of PEP combined with positive emotional reactions significantly predicted negative religious coping, where low positive emotions led to PEP predicting lower levels of religious coping. Our interpretation is predicated on the assumption that hooking up is antithetical to the majority of traditional religious values; students who had a negative hookup reaction likely confirmed preexisting values that hooking up is not exciting or pleasurable. Thus, they felt no need to engage in negative religious coping (e.g., wondering if a higher power had punished or abandoned them), as there was no conflict. Importantly, having low positive reactions to a hookup is not the same as having high negative reactions: one can feel equally positive and negative about the same event. Moreover, all analyses controlled for the opposing emotional reaction—findings that low positive hookup reactions lead to less negative religious coping, regardless of negative hookup reactions. Combined with our findings on negative hookup reactions and religious coping, this suggests that both negative and positive reactions can affect religious outcomes simultaneously in unique ways.

We expected PEP and negative emotional reactions would predict lower levels of psychological flourishing and that positive emotional reactions would predict higher levels of psychological flourishing. However, neither PEP nor negative emotional reactions to hooking up predicted psychological flourishing as main effects, and negative hookup reactions did not moderate the relationship, all of which was unexpected. High positive emotional reactions to hooking up (nearly 28% of the sample) did moderate an inverse relationship between PEP and flourishing, which ran in opposition to our hypotheses. Individuals who scored very low on positive hookup reactions and engaged in high levels of PEP reported greater levels of flourishing later. It is possible that participants who did not feel positively about their hookups reflected on it more, and became more proactive in their future behaviors, thereby leading to increased flourishing at a later time point. This interpretation follows a tenant of self-determination theory: being proactive in behaviors leads to greater flourishing (Ryan & Deci, 2001). Conversely, individuals who felt very positively about a hookup and had high PEP reported low flourishing at a later time point, suggesting too much self-reflection leads to discomfort (Field et al., 2004). Interestingly, this contradicts our other finding around high PEP combined with high positive hookup reactions, which we found led to lower levels of anxiety. This emphasizes the importance of accounting for multiple outcome variables, as reactions to hookups appear to spark complex outcomes for individuals.

Despite strengths, such as a longitudinal design, this study had limitations, most of which center on the generalizability of the sample. The majority of participants were white and women, and all were university students. Moreover, removal of participants due to non-valid answers resulted in an even more female and white sample. Thus, these results may not generalize to other groups, such as young adults not in college. Given the sample size and the prevalence of women participants, testing for gender differences among variables was unrealistic. Future studies should test for gender differences. Nonetheless, findings that women had higher levels of psychological flourishing and anxiety compared to men suggests gender differences should be pursued, particularly since the current gender differences are inconsistent with the literature (Keyes, 2007).

Additionally, almost the entire sample was heterosexual. The results therefore do not generalize to LGB-identified individuals. This is a significant limitation, as consideration of LGB-identified individuals' holistic well-being during young adulthood warrants more research, particularly around how LGB young adults react to hookups, as there may be more implications for their sexual schemas and identities after hooking up (particularly around their religious coping style and religious identity, if applicable). Researchers may want to recruit LGB-identified college students or young adults to pursue these questions around hookup reactions and well-being. While the study is longitudinal, the 2-month interval is short when determining outcomes and a replication of the current analyses with a longer interval would be more compelling. Additionally, we used the R-COPE to measure negative religious coping, which frames related experiences in a Judeo-Christian framework and therefore may lead to differential findings for students of different faith or non-faith identities. Griffin et al. (2016) used the Spiritual Struggles scale (Exline et al., 2014), rather than negative religious coping. While there is significant overlap in the items on the negative religious coping subscale of the R-COPE, and the spiritual struggles scale, as well as overlap in the construct and definition of negative religious coping and spiritual struggles, it may be that spiritual struggles is a more precise outcome variable to be assessed. Moreover, the spiritual struggles scale uses broader terms related to religion and spirituality that are more inclusive of a more diverse group of faith identities compared to the R-COPE. Finally, our definition for hooking up was "getting together for a physical encounter," which may be too broad to operationally define hookups in a concise and valid manner. However, this broad definition allowed students to self-identify, which is important as students' reactions were analyzed, rather than the hookup itself.

Emotional hookup reactions and PEP interacted to predict students' anxiety, academic engagement, negative religious coping, and psychological flourishing at a later time point. PEP combined with positive hookup reactions led to less anxiety, less academic engagement, and less overall well-being. At face value, these findings appear somewhat disjointed, perhaps due to oversimplification in assuming all students in the sample will have the same pathways between the predictor, moderator, and outcome variables. Students differ in their motives and reactions to hookups based on a variety of variables, including depression and attachment (Manthos et al., 2014; Strokoff et al., 2015). Future work should integrate cluster analyses into longitudinal models to unpack these relationships further.

PEP combined with negative hookup reactions led to less anxiety and more negative religious coping and were unrelated to academic engagement or well-being. The outcomes of less anxiety and less overall well-being were similar regardless of whether the emotional hookup reaction was negative or positive—the intensity of the emotional reaction mattered more than the valence. This suggests that emotional reactivity may be a stronger predictor of hookup outcomes than the type of emotion, which parallels literature indicating that emotional reactivity and dysregulation is associated with poorer outcomes (Wei, Vogel, Ku, & Zakalik, 2005). Further study should compare students high in emotional reactivity to students low in emotional reactivity on these same predictors

and outcomes to see if emotional reactivity itself is a more accurate moderator.

Implications for University Stakeholders

Researchers and university stakeholders emphasize promotion of holistic student development and health (Burdette et al., 2009; Owen et al., 2014; Vrangalova, 2015a). Our investigation incorporated cognitive (PEP) and emotional hookup reactions to understand their effect on multiple student outcomes. Sex educators and health professionals on campus should introduce PEP combined with emotional reactions as interacting to produce outcomes should fit well. Interventions should heighten students' awareness of how their reactions affect their future behaviors. Finally, sex educators, therapists, and student affairs personnel should consider integrating religious and faith identity exploration into sexual education programming, with the recognition that students engage in hookups that may or may not align with religious values and may require guidance in how to process said events.

Notably, in each analysis the outcome variable was controlled for at baseline, as was the opposing emotional reaction at baseline (i.e., if positive hookup reactions were the moderator, then negative hookup reactions were a control) and several demographic variables. The effect sizes in the study are small, though this was expected given the time lag between time points and the high number of control variables that decreased statistical power. This study is significant in addressing meaning-making about hookups through PEP combined with emotional reactions to predicting students' holistic well-being, rather than relying on a single outcome, and doing so with a short-term longitudinal design. Future directions for research include analyses of gender differences, longer waves between time points, and more rigorous and nuanced testing of religious/spiritual coping for students of all faith or non-faith identities.

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