

Short-Term Prospective Study of Hooking Up Among College Students

Jesse Owen · Frank D. Fincham · Jon Moore

Received: 10 March 2010 / Revised: 6 October 2010 / Accepted: 7 October 2010
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Abstract Hook ups are casual sexual encounters (ranging from kissing to intercourse) between two people with no clear mutual expectation of further interactions or a committed relationship. This study utilized a short-term prospective design to examine predictors of hooking up in a sample of young adults ($N = 394$). Hooking up over the past year, positive reactions to prior hook ups, alcohol use, and loneliness were associated with hooking up over a 4-month period. Alcohol use was a stronger predictor for women than men. Thoughtfulness about relationship transitions and religiosity were significant predictors of hooking up in univariate analyses, but were not significant in multivariate analyses. Young adults who reported more depressive symptoms and feelings of loneliness at Time 1 and subsequently engaged in penetrative hook ups reported fewer depressive symptoms and lower feelings of loneliness at Time 2 as compared to young adults who did not hook up. However, young adults who reported fewer depressive symptoms and were less lonely at Time 1 and engaged in penetrative hook ups over the 4 month period reported more depressive symptoms and greater feelings of loneliness at Time 2 as compared to young adults who did not hook up. Implications for relationship education programs are offered.

Keywords Casual sex · Hooking up · Depression · Loneliness

J. Owen (✉) · J. Moore
Education and Counseling Psychology Department, College of
Education University of Louisville, Louisville, KY 40292, USA
e-mail: jesse.owen@louisville.edu

F. D. Fincham
Family Institute, Florida State University, Tallahassee, FL, USA

Introduction

From the mass media to empirical studies, hooking up is a frequently used term to describe casual sexual encounters (ranging from kissing to intercourse) between two people with no clear mutual expectation of further interactions or a committed relationship (Glenn & Marquardt, 2001; Grello, Welsh, & Harper, 2006; Paul, McManus, & Hayes, 2000; Stepp, 2007). Hooking up is related to, yet different from, friends with benefits (FWB) relationships, where casual sex occurs between friends and typically the physical intimacy occurs on multiple occasions (Bisson & Levine, 2007; Glenn & Marquardt, 2001; Owen & Fincham, 2010a). Researchers have found that hooking up is common among young adults, with prevalence rates ranging from approximately 50–80% (e.g., Lambert, Kahn, & Apple, 2003; Owen, Rhoades, Stanley, & Fincham, 2010; Penhollow, Young, & Bailey, 2007). Most research on hooking up has used cross-sectional designs, making it difficult to infer direction of effects between hooking up and its documented correlates. The current study addressed this issue by including a temporal element in its design.

Predictors and Effects of Hooking Up

The decision to hook up is not trivial as such encounters have been linked to a variety of positive and negative psychological and physical consequences. Pearson, Stanley, and Kline (2005) and Stanley, Rhoades, and Markman (2006) have put forth a relationship decision-making model, wherein certain personal and situational factors can place individuals at greater risk for problems at the start of and at key transitions during the relationship (i.e., having sex, cohabitation). Specifically, individuals who are less thoughtful about relational encounters and transitions, may slide into hooking up, without making a more informed decision about their desires to do so and understanding

the potential outcomes (be they positive or negative). Moreover, they asserted that certain factors may “grease the slide” into certain transitions. For instance, young adults’ alcohol use—a robust predictor of engaging in hooking up encounters—likely lowers inhibitions and alters decision making processes (e.g., Fielder & Carey, 2010; Owen et al., 2010; Paul et al., 2000). Owen and Fincham (2010a) found young adults’ thoughtfulness about relationship decisions decreased the likelihood that alcohol use was associated with engaging in a FWB relationship. Given that hook ups typically involve encounters with two strangers or acquaintances that are spontaneous and not long lasting, which is notably different from two friends engaging in sexual intimacy as in FWB relationships, it is unclear whether this association extends to hooking up encounters (Paul et al., 2000). Thus, the degree to which relational decision making may influence young adults’ proclivity to hook up may be less salient (see Buss & Schmitt, 1993). Moreover, it is important to assess whether young adults’ thoughtfulness in relationship decision making predicts their future behaviors.

Young adults’ decisions to engage in hook ups and their reactions to hooking up may also vary based on their gender. Indeed, masculine norms may increase the pressure for men to hook up as compared to women (Mahalik, Good, & Englar-Carlson, 2003; Paul, 2006). For instance, men may receive approval or even accolades from peers for hooking up. They are also less likely to desire a committed relationship with their hooking up partner and are more likely to engage in sexual intimacy with limited relational investment as compared to women (Grello et al., 2006; Owen & Fincham, 2010a; Townsend, 1995). Although many studies have found that men and women hook up at similar rates (e.g., Fielder & Carey, 2010; Owen et al., 2010; Paul et al., 2000), it appears that gender interacts with other predictors and consequences of hooking up. For instance, researchers have found women’s alcohol use is a stronger predictor of engaging in casual sex and can influence their ability to negotiate or initiate condom use as compared to men (e.g., Owen & Fincham, 2010a; Scott-Sheldon et al., 2009). Moreover, Grello et al. (2006) found that men who were less psychologically distressed and women who were more psychologically distressed were both more likely to hook up, although research on this gender interaction has not always been replicated (e.g., Fielder & Carey, 2010; Owen et al., 2010).

Nonetheless, in several studies, psychological distress has been associated with hooking up (e.g., Owen et al., 2010; Paul et al., 2000). At the same time, the cross-sectional nature of these studies limits our ability to understand if psychological distress is a predictor and/or consequence of hooking up. As a predictor, hooking up may serve as a means for a distressed individual to feel better about him or herself or to achieve an intimate, albeit brief, connection with another person. On this point, there are limited longitudinal data that speak to direction of effects. Grello, Welsh, Harper, and Dickson (2003) studied adolescent virgins aged 12–21 and found that more depressive symptoms

and delinquent behaviors preceded casual sex behaviors. Grello et al. concluded that casual sex is “symptomatic of a constellation of problem behaviors” (p. 110), rather than a causal explanation for them. Similarly, Longmore, Manning, Giordano, and Rudolph (2004) found that depressive symptoms predicted the onset of sexual activity in an adolescent sample. In a study that investigated college students, Fielder and Carey (2010) found that the most prominent predictors for hooking up among college freshmen (109 women and 31 men) were prior sexual behaviors, peak intoxication levels, and situational triggers. They did not find an association between prior levels of psychological distress or self-esteem and future hook ups.

In support of hooking up being associated with negative consequences, Fielder and Carey (2010) found that women who engaged in penetrative hook ups during their first semester at college reported more distress than women who did not engage in penetrative hook ups, suggesting that hooking up may lead to psychological distress. However, it is also important to consider how other factors may also relate to young adults’ current psychological distress and engagement in a hook up, such as how young adults felt prior to hooking up. For instance, young adults who are more depressed and then hook up may feel better afterwards, which possibly indicates that hooking up is a viable solution especially when one considers that young adults report having more positive than negative emotional reactions after hooking up (Owen & Fincham, 2010b). Absent prospective studies, however, the direction of effects will remain unclear in the relationship between hooking up and psychological functioning.

Young adults’ emotional reactions to prior hook ups may also relate to their decision to engage in future hook ups. Based on learning theories, positive emotional reactions after prior hook ups would increase the likelihood of hooking up in the future whereas young adults with negative reactions after prior hook ups would decrease the likelihood of hooking up in the future. However, Paul (2006) conducted same gender focus groups with 86 college students and found that young adults’ negative hook up experiences motivated more hooking up in an attempt to erase unpleasant memories of hooking up; they reported that future hook ups could overshadow the previous negative feelings. Thus, we examined whether young adults’ emotional reactions to prior hook ups were predictive of their future hook ups.

Lastly, we examined two additional personal factors (i.e., loneliness and religiosity) that might influence young adults’ decisions to hook up. Young adults’ feelings of loneliness may increase their desire to be connected to others and potentially hook up as it may be a way to combat loneliness (Peterson & Muehlenhard, 2007). Alternatively, loneliness may reflect an introverted interpersonal style (Russell, 1996), which could reduce the likelihood of engaging in social interactions and engaging in hook ups. As such, young adults who have difficulty connecting with others and desire to hook up may turn to alcohol

to help alleviate anxiety, self-doubt, or shyness. Additionally, loneliness may be a consequence (as well as a predictor) of hooking up. Given the transient nature of hook ups, young adults may feel more disconnected with their hook up partner and potentially their peers afterwards. For instance, Paul (2006) found women reported having to deal with “jerky” guys who they believed act this way in order to reduce emotional attachment. Moreover, young adults who had a negative hooking up experience also felt estranged from their peers and were lonelier (Owen & Fincham, 2010b; Paul, 2006). However, these qualitative and cross-sectional associations need to be investigated in a longitudinal context.

There are also certain attitudes and beliefs that can increase thoughtfulness about relationship transitions and potentially decrease the likelihood of hooking up. One of these is religious beliefs. In most religions, pre-marital sex is discouraged and is often a sin. It follows that people higher in religiosity are less likely to engage in penetrative hook ups. For instance, religiosity variables, such as attendance at religious services, have been associated with a lower likelihood of ever hooking up previously (Penhollow et al., 2007); however, other studies have not replicated such findings (e.g., Fielder & Carey, 2010; Owen et al., 2010). Thus, more research is needed to better understand the role of religious beliefs in hooking up encounters.

Hypotheses

Within the context of a prospective study, we had three set of hypotheses:

Hypotheses for the Prediction of Hooking Up

We posited that there will be a greater likelihood of hooking up over the course of the semester if:

- 1a: Young adults had prior hooking up experiences
- 1b: Greater depressive symptoms
- 1c: Greater alcohol use
- 1d: Lower levels of thoughtfulness about relationships
- 1e: Lower levels of religiosity
- 1f: Previous positive emotional reactions after hooking up
- 1g: Previous negative emotional reactions after hooking up

Given the lack of empirical data examining the relationship between hooking up and loneliness, we did not make a formal prediction.

Hypotheses for Interaction Effects in the Prediction of Hooking Up

- 2a: Women’s alcohol use would be a stronger predictor of hooking up as compared to men.
- 2b: Thoughtfulness would moderate the relationship between alcohol use and hooking up

2c: Alcohol use would moderate any association between loneliness and hooking up

Hypotheses for Effects of Hooking Up

3a: Hooking up over the course of the semester would be associated with depressive symptoms, after controlling for prior levels of depressive symptoms.

3b: Hooking up over the course of the semester would be associated with loneliness at the end of the semester, after controlling for prior levels of loneliness.

3c: Depressive symptoms at the beginning of the semester will moderate the relationship between hooking up and depressive symptoms at the end of the semester

3d: Level of loneliness at the beginning of the semester will moderate the relationship between hooking up and level of loneliness at the end of the semester

Method

Participants

We recruited 856 students from a large southeastern university, in the U.S. We had three exclusion criteria. First, we excluded participants who were in a committed relationship for 12 months or longer at Time 1 (at the start of the semester), since our question about prior hooking up experiences included this time frame. Second, we excluded participants who were in a committed relationship over the course of the semester, since we were interested in examining hooking up and not infidelity. Third, we excluded participants older than 25 years of age, given that the study focused primarily on young or emerging adults. Thus, our final sample included 394 participants, which included 93 men and 301 women, with a median age of 19 (range, 17–25). The majority of the participants identified as Caucasian (75%), 14% identified as African American, 8% identified as Latino/a, 2% identified as Asian American, and 1% identified as Native American (2% did not indicate their race/ethnicity). The educational levels of the participants were 41% freshmen, 33% sophomores, 20% juniors, 6% seniors, and 1% did not indicate their educational level.

Procedure

Participants were recruited through an introductory course on families across the lifespan that fulfilled a social studies requirement and therefore attracted 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 (98% participated in the study). They completed informed consent and were told how to access the on-line surveys. They

were given a 5-day window in which to complete the surveys. Participants completed the measures within the first week of class (Time 1) and then at the end of the semester (Time 2). All procedures were approved by the university IRB. Some of the cross-sectional findings from Time 1 are described in Owen and Fincham (2010b).

Measures

Time 1 and 2 Variables

Hooking Up Definition Participants were provided with a broad definition of hooking up: “Some people say that a hook up 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). Based on this definition, how many people have you hooked up with in the past 12 months?” At Time 2, the participants were again given the same definition but were asked: “Based on this definition how many people have you hooked up with since the beginning of the semester?” This definition was consistent with previous studies on hooking up (e.g., Glenn & Marquardt, 2001; Owen et al., 2010). The median number of hook ups was one at Time 1 ($M = 2.75$, $SD = 3.80$) and Time 2 ($M = 2.46$, $SD = 1.74$). We dichotomized the number of hook ups at both Time 1 (yes/no) and Time 2 (yes/no). There were 66% ($n = 258$) of participants who hooked up at Time 1 and 57% ($n = 223$) of participants who hooked up during the course of the semester (at Time 2).

Type of Physical Intimacy Participants who reported a hook up were asked to endorse the types of physical intimacy involved in their hook ups. The response options were: “kissing,” “petting,” “oral sex,” and “intercourse (vaginal, anal).” Participants were able to endorse more than one type of physical intimacy. Based on their responses, we coded penetrative hook ups (HU-penetrative) if the participants indicated “oral sex” or “intercourse (vaginal, anal)” (Time 1, $n = 141$, 55%; Time 2, $n = 122$, 55%) and non-penetrative hook ups (HU-non-penetrative) if the participants indicated “kissing” and/or “petting” only (Time 1, $n = 115$, 45%; Time 2, $n = 100$, 45%). Two participants at Time 1 and one participant at Time 2 did not list the type of physical intimacy involved in their hook ups.

Depressive Symptoms We utilized the Center for Epidemiologic Studies-Depression scale (CES-D; Radloff, 1977) to assess depressive symptoms. The CES-D has 10 items that are rated on a 4-point scale, with higher scores indicating more depressive symptoms. The CES-D is a commonly used measure of depressive symptoms in the hooking up literature (e.g., Fielder & Carey, 2010; Grello et al., 2003) and has demonstrated adequate reliability and validity estimates in numerous studies (see Cole, Rabin, Smith, & Kaufman, 2004). Cronbach alphas for Time 1 and Time 2 were .76 and .82, respectively.

Loneliness The UCLA Loneliness scale is a commonly used measure to assess individuals’ perceptions of how lonely they feel (Russell, 1996). The eight item version used required participants to make ratings on a 4-point scale, with the anchors 1 (*Never*) to 4 (*Often*). The UCLA Loneliness scale has demonstrated adequate reliability across samples and is commonly related to numerous indicators of psychological distress (e.g., depression, low self-esteem; see Vassar & Crosby, 2008). Cronbach alphas for Time 1 and Time 2 were .85 and .88, respectively.

Time 1 Only Measures

Emotional Reactions After Hooking Up At Time 1, participants who hooked up were asked to identify how they felt a day or so after their hooking up encounter. They were provided five positive (e.g., happy, desirable, adventuresome, pleased, and excited) and five negative emotions (e.g., empty, confused, used, awkward, and disappointed) and they rated these emotional reactions on a 5-point Likert scale ranging from 1 (*Not at all*) to 5 (*Very Much*). Higher scores indicate more positive and negative emotional reactions, respectively. One can experience both positive and negative emotions simultaneously; therefore, positive and negative emotional reactions cannot be viewed as a bipolar dimension (see Feldman Barrett & Russell, 1999). For positive and negative reactions to hooking up, the Cronbach alphas were .89 and .80, respectively.

Religiosity We measured participants’ religiosity using two items. The first item was “How often do you attend religious services?” and participants responded on a 4-point scale ranging from 1 (*Never, or almost never*) to 4 (*One or more times per week*). The second item was “All things considered, how religious would you say that you are?” and participants responded on a 4-point scale ranging from 1 (*Not at all*) to 4 (*Very*). These items are similar to previous studies examining the relationship between hooking up and religiosity (e.g., Fielder & Carey, 2010; Owen et al., 2010; Penhollow et al., 2007). The correlation between these two items was $r = .76$, so we created a composite score.

Relationship Awareness Scale: Thoughtfulness Subscale (RAS) We assessed participants’ thoughtfulness about relationship transitions based on the Thoughtfulness subscale on the RAS. Items were generated to reflect the earlier described Stanley et al. (2006) perspective on thoughtfulness regarding relationship decisions (see Owen & Fincham, 2010a). An example item is: “With romantic partners, I weigh the pros and cons before allowing myself to take the next step in the relationship (e.g., be physically intimate).” The original scale had 28 items rated on a 4-point scale ranging from 1 (*Totally Disagree*) to 4 (*Totally Agree*) and Owen and Fincham (2010a) reported a

four factor model, one of which was Thoughtfulness that has four items (Cronbach's alpha = .66).

Time 2 Measures

Alcohol Use We used three items to assess alcohol use. The first question, "Within the last 30 days, on how many days did you have a drink containing alcohol?", was rated on 7-point scale ranging from 1 (*Never drank all 30 days*) to 7 (20–30 days). The median number of days drinking was 3–5 days ($M = 3.58$, $SD = 1.73$). The second question, "How many drinks containing alcohol did you have on a typical day when you were drinking?", was rated on a 6-point scale ranging from 1 (*Never drank*) to 6 (10 or more). The median number of drinks was 3 (3 or 4 drinks) ($M = 2.72$, $SD = 1.29$). The last question, "How often in the last 30 days did you have five or more drinks on one occasion?", was rated on 9-point scale ranging from 1 (*Never happened*) to 9 (*More than 10 times*). The median number of times participants had drunk five or more drinks on one occasion was "one time" ($M = 2.91$, $SD = 2.38$). These items are commonly used in measures of alcohol use (e.g., Saunders, Aasland, Babor, Fuente, & Grant, 1993) and in the prediction of casual sex behaviors (e.g., Owen et al., 2010). These items were highly correlated ($r_s = .75-.80$), so we created a composite score. Cronbach's alpha for Alcohol Use in the current sample was .88.

Data Analysis

Based on young adults hooking up status, we created three groups: No hook up, Non-penetrative hook up (i.e., kissing and petting), and Penetrative hook up (i.e., oral and vaginal/anal sex). We made the decision to combine oral sex with vaginal/anal sex (instead of including oral sex with kissing and petting) due to the increased risk for sexually transmitted infections associated with oral sex as compared to kissing/petting. Due to the number of predictions we set the p -value at .01 for the hypotheses; however, we retained a p -value of .05 in the models with interaction effects due to reduced power in these analyses (Aiken & West, 1991).

Results

Predictors of Hooking Up

We first examined the univariate associations between the predictor variables and hooking up (see Table 1). Generally, young adults who did not hook up at Time 1 were less likely to hook up over the course of the semester. This pattern was consistent for young adults who engaged in non-penetrative and penetrative hook ups at Time 1 (supporting Hypothesis 1a). There were no

Table 1 Univariate predictions of hooking up over the course of the semester

Time 1 predictors: categorical	No hook up $n = 172$ %	Hook up: non-penetrative $n = 100$ %	Hook up: penetrative $n = 122$ %	χ^2 (df = 2)
Sex (women/men)	47.2/32.3	26.2/22.6	26.6/45.2	11.92**
HU: no hook up	51.9	29.7	18.3	–
HU: non-penetrative	26.1	50.4	23.5	54.59***
HU: penetrative	22.0	19.9	58.2	78.69***
Time 1 predictors: continuous	M (SD)	M (SD)	M (SD)	F (2,391)
Loneliness ^g	2.08 ^b (0.63)	1.87 ^b (0.54)	1.93 (0.58)	4.94**
Depressive symptoms ^g	1.81 (0.49)	1.77 (0.45)	1.87 (0.45)	1.51
Alcohol use ^a	2.11 ^c (1.30)	3.37 ^c (1.37)	4.19 ^c (1.54)	82.62***
Thoughtfulness ^g	3.48 ^{bd} (0.58)	3.31 ^d (0.53)	3.06 ^{bd} (0.55)	19.48***
Religiosity ^g	2.79 ^e (0.95)	2.35 ^e (0.86)	2.19 ^e (0.85)	17.92***
Positive emotional reactions ^f	3.19 ^b (1.07)	3.32 (1.06)	3.71 ^b (.76)	7.14***
Negative emotional reactions ^f	2.59 (1.01)	2.49 (0.86)	2.25 (0.92)	3.09

** $p < .01$, *** $p < .001$

^a Alcohol use was measured at Time 2 (absolute range, 1–7.33)

^b The two groups with the same subscript were statistically different at $p < .01$

^c All groups were statistically different from one another at $p < .001$

^d Penetrative hook up group had lower thoughtfulness scores than the other two groups

^e No hook up group had higher religiosity scores than the other two groups

^f $N = 257$ (absolute range for both measures, 1–5)

^g Absolute range, 1–4

Table 2 Effect sizes for continuous variables based on hooking up status

	No-HU vs. Non-penetrative HU	No hook up vs. Penetrative HU	Non-penetrative HU vs. Penetrative HU
Loneliness	0.35	0.25	-0.11
Depressive symptoms	0.08	-0.13	-0.22
Alcohol use	-0.95	-1.49	-0.56
Thoughtfulness	0.30	0.74	0.46
Religiosity	0.48	0.66	0.19
Positive emotional reactions	-0.12	-0.55	-0.43
Negative emotional reactions	0.11	0.35	0.27

The values reflect Cohen's *d* where 0.30 = small-sized effect, 0.50 = medium-sized effect, and 0.80 = large-sized effect

significant differences among the hook up groups in their depressive symptoms at Time 1; thus, there was no support for Hypothesis 1b. Young adults who engaged in penetrative hook ups over the course of the semester reported more alcohol use than young adults who engaged in non-penetrative hook ups and young adults who did not hook up (supporting Hypothesis 1c). Further, young adults who engaged in penetrative hook ups over the course of the semester reported lower thoughtfulness about relationship transitions than young adults in the other two groups (partially supporting Hypothesis 1d). Young adults who did not hook up over the course of the semester reported higher religiosity as compared to young adults who did hook up (partially supporting Hypothesis 1e). Lastly, young adults who did not hook up over the course of the semester reported more loneliness than young adults who engaged in non-penetrative hook ups. The effect sizes for the continuous variables are presented in Table 2.

To determine whether these relationships emerged in a multivariate context, we conducted a multinomial logistic regression predicting hooking up status (no hook up, non-penetrative hook up, penetrative hook up) from prior hook ups, alcohol use, depressive symptoms, thoughtfulness, religiosity, and loneliness, while controlling for gender. The results for the overall model were statistically significant, $\chi^2(16, N = 394) = 233.35$, $p < .001$. The model successfully predicted 77.3%, 50.0%, and 68.9% of young adults who reported no hook ups, non-penetrative hook ups, and penetrative hook ups, respectively. Compared to young adults who did not hook up over the course of the semester, those who engaged in non-penetrative and penetrative hook ups were more likely to report they hooked up in the prior 12 months and had greater alcohol use, but were less lonely. Young adults' depressive symptoms, religiosity, or thoughtfulness about relationship transitions were not related to hooking up status over the course of the semester, after controlling for the variance in the other predictors. Although none of the predictors distinguished non-penetrative from penetrative hook ups based on our criterion *p*-value of .01, there was a trend such that penetrative sex was associated with more alcohol use as compared to non-penetrative hooking up. Further, young adults who engaged in non-penetrative hooking up over the past 12 months were more likely to engage in non-penetrative hook ups than penetrative sex over the course of the semester (see Table 3).

Table 3 Multinomial logistic regression predicting hooking up over the course of the semester

	<i>B</i>	<i>SE</i>	Odds ratio	95% CI
Non-penetrative vs. No hookups				
Sex	0.32	.38	1.38	0.65–2.90
HU non-penetrative	2.29**	.39	9.82	4.59–21.01
HU penetrative	1.28**	.43	3.60	1.56–8.32
Loneliness	-0.82**	.32	0.44	0.24–0.83
Depressive symptoms	-0.03	.39	0.98	0.46–2.09
Alcohol use ^a	0.43**	.12	1.54	1.22–1.94
Thoughtfulness	-0.11	.30	0.90	0.51–1.61
Religiosity	-0.21	.17	0.81	0.58–1.14
Penetrative vs. No hookups				
Sex	0.74*	.37	2.09	1.02–4.31
HU non-penetrative	1.34**	.44	3.82	1.61–9.07
HU penetrative	1.93**	.41	6.92	3.09–15.47
Loneliness	-0.99**	.33	0.37	0.19–0.71
Depressive symptoms	0.54	.39	1.72	0.80–3.69
Alcohol use ^a	0.68**	.12	1.98	1.57–2.50
Thoughtfulness	-0.45	.30	0.64	0.36–1.14
Religiosity	-0.20	.18	0.82	0.57–1.17
Non-penetrative vs. Penetrative				
Sex	-0.42	.35	0.66	0.33–1.30
HU non-penetrative	0.95*	.47	2.57	1.02–6.52
HU penetrative	-0.65	.47	0.52	0.21–1.32
Loneliness	0.17	.32	1.19	0.64–2.20
Depressive symptoms	-0.57	.38	0.57	0.27–1.20
Alcohol use ^a	-0.25*	.11	0.78	0.63–0.96
Thoughtfulness	0.35	.29	1.41	0.81–2.47
Religiosity	-0.01	.18	1.00	0.70–1.42

CI Confidence interval, *SE* Standard error

* $p < .05$, ** $p < .01$

^a Measured at Time 2

For those young adults who reported prior hook ups and reported their emotional reactions after hooking up at Time 1 ($n = 257$), we tested whether previous positive and negative emotional reactions after hooking up (measured at Time 1) were associated with hooking up over the course of the semester, after

controlling for the other predictor variables listed above (Hypothesis 1f and 1g). The multinomial logistic regression was statistically significant, $\chi^2(18, N=257) = 111.43, p < .001$. Young adults who engaged in penetrative sex over the course of the semester were more likely to report that they had positive previous emotional reactions to hooking up as compared to those who did not hook up, $B = 0.67, SE = .23, p = .003$, odds ratio = 1.96 (95% CI = 1.26, 3.06). However, previous positive emotional reactions to hooking up did not differentiate young adults who engaged in non-penetrative hook ups and no hook ups. Further, young adults' negative emotional reactions to prior hook ups did not differentiate young adults who engaged in penetrative, non-penetrative, or no hook ups ($ps > .05$). Thus, our results partially support Hypothesis 1f (positive emotional reactions) but there was no support for Hypothesis 1g (negative emotional reactions).

Interaction Effects in Prediction of Hooking Up

Next, we tested three interaction effects: whether women's alcohol use was a stronger predictor of hooking up as compared to men (Hypothesis 2a), whether thoughtfulness would moderate the relationship between alcohol use and hooking up (Hypothesis 2b), and whether alcohol use would moderate the association between loneliness and hooking up (Hypothesis 2c). To do so, we replicated the multinomial logistic model for hooking up status as described above, but added the interaction effects for alcohol use by gender, alcohol use by thoughtfulness, and alcohol by loneliness. The results demonstrated that alcohol use by gender significantly differentiated young adults who engaged in non-penetrative and penetrative hook ups from those who did not hook up over the course of the semester, $B = -0.82, SE = .39, p = .04$, odds ratio = 0.44 (95% CI = 0.21, 0.94) and $B = -0.94, SE = .38, p = .01$, odds ratio = 0.39 (95% CI = 0.19, 0.82), respectively. There was no significant alcohol by gender interaction between non-penetrative and penetrative hook ups

($p > .05$). These results partially support Hypothesis 2a. The results for the interaction effects for thoughtfulness by alcohol use and loneliness by alcohol were not statistically significant in any of the comparisons between hooking up statuses ($ps > .05$). Thus, there was no support for Hypotheses 2b or 2c.

Effects of Hooking Up

Lastly, we tested whether hooking up over the course of the semester was associated with depressive symptoms and loneliness at Time 2, after controlling for prior levels of depressive symptoms and loneliness (measured at Time 1), respectively (Hypotheses 3a and 3b). Further, we tested whether the relationship between hooking up and depressive symptoms and loneliness at the end of the semester varied based on young adults' depressive symptoms and loneliness at the start of the semester (Hypothesis 3c and 3d), respectively. To examine these associations, we conducted two hierarchical linear regressions with depressive symptoms and loneliness at Time 2 as the dependent variables, respectively. The predictor variables were hooking up over the course of the semester (measured at Time 2), depressive symptoms and loneliness at Time 1, respectively, and the interaction effects between hooking up and depressive symptoms and loneliness, respectively (introduced in the second step of the regression models). We also controlled for gender in these analyses.

The results for the linear regressions predicting depressive symptoms and loneliness were statistically significant, $F(6, 387) = 31.62, p < .001, R^2 = .32, F(6, 387) = 59.77, p < .001, R^2 = .48$, respectively (see Table 4). Young adults' depressive symptoms and loneliness at Time 2 were not related to their engagement in penetrative or non-penetrative hook ups over the course of the semester; thus, there was no support for Hypothesis 3a or 3b. However, there was a significant interaction effect for depressive symptoms and loneliness at Time 1 and engaging in penetrative hook ups over the course of the semester, supporting

Table 4 Linear regression predicting depressive symptoms and loneliness at Time 2 by depressive symptoms and loneliness at Time 1 and hooking up over the course of the semester

	Depressive symptoms Time 2				Loneliness Time 2			
	<i>B</i>	<i>SE</i>	β	<i>p</i>	<i>B</i>	<i>SE</i>	β	<i>p</i>
Sex	−0.05	.03	−.08	.08	−0.01	.03	−.01	.76
HU: penetrative	−0.04	.05	−.03	.49	−0.08	.05	−.06	.15
HU: non-penetrative	−0.09	.05	−.08	.09	−0.01	.06	−.01	.81
Depressive symptoms	0.73	.07	.66	<.001	–	–	–	–
Loneliness	–	–	–	–	0.80	.05	.78	<.001
Depressive × Penetrative	−0.26	.11	−.13	.02	–	–	–	–
Depressive × Non-penetrative	−0.21	.12	−.09	.07	–	–	–	–
Loneliness × Penetrative	–	–	–	–	−0.27	.09	−.14	.003
Loneliness × Non-penetrative	–	–	–	–	−0.12	.10	−.05	.24

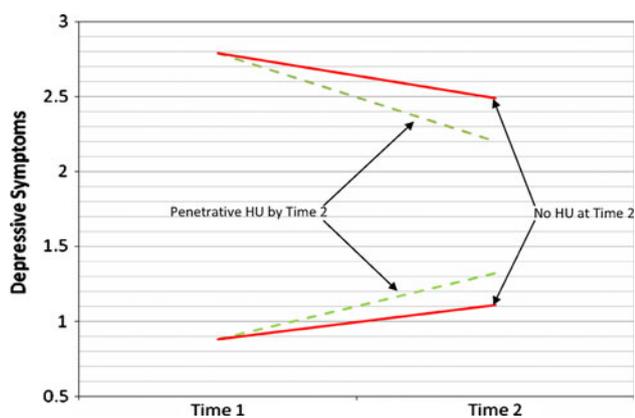


Fig. 1 Changes in depressive symptoms by hooking up status as a function of initial level of depressive symptoms. *Note:* The top two lines reflect young adults' depressive symptoms at Time 2 for those who had more depressive symptoms (+2 SD) at Time 1 and engaged in penetrative hook ups (or not). The bottom two lines show young adults' depressive symptoms at Time 2 for those who had fewer depressive symptoms (−2 SD) at Time 1 and engaged in penetrative hook ups (or not)

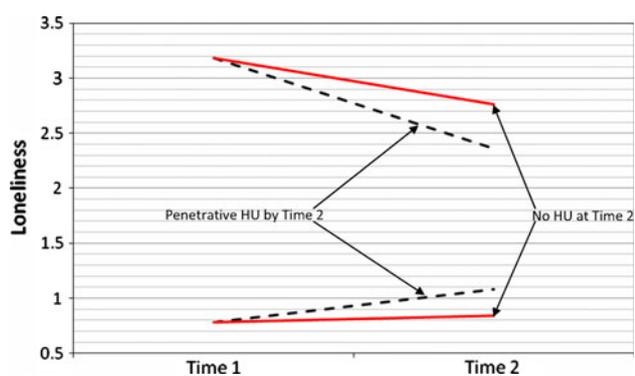


Fig. 2 Changes in feelings of loneliness by hooking up status. *Note:* The top two lines reflect young adults' loneliness at Time 2 for those who reported being lonelier (+2 SD) at Time 1 and engaged in penetrative hook ups (or not). The bottom two lines show young adults' loneliness at Time 2 for those who reported being less lonely (−2 SD) at Time 1 and engaged in penetrative hook ups (or not)

Hypotheses 3c and 3d. Figures 1 and 2 show the predicted scores at Time 2 for depressive symptoms and loneliness for young adults at +2 SD or −2 SD depressive symptoms and loneliness at Time 1 and penetrative hook ups (or not), respectively. Young adults who reported more depressive symptoms and greater feelings of loneliness at Time 1 and then subsequently engaged in penetrative hook ups over the course of the semester had fewer depressive symptoms and lower feelings of loneliness at Time 2 as compared to young adults who did not hook up. However, young adults who reported fewer depressive symptoms and felt less lonely at Time 1 and subsequently engaged in penetrative hook ups reported more depressive symptoms and higher feelings of loneliness as compared to young adults who did not hook up.

Discussion

The purpose of the current study was to examine potential predictors of hooking up in a short-term prospective study with young adults. Over the course of the semester, 56.6% of young adults hooked up and, of those, nearly 55% engaged in penetrative hook ups and approximately 45% engaged in non-penetrative hook ups. Our findings showed that, by far, the best predictor of future hooking up behavior was previous hooking up behavior. This is consistent with a body of psychological research in which past behavior predicted future behavior independently of attitudes, intentions norms, and other relevant factors (see Ouellette & Wood, 1998). For instance, young adults who engaged in penetrative hook ups over the prior 12 months were approximately 600% more likely to repeat this behavior over the course of the semester as compared to young adults who did not hook up in the prior year. Indeed, only 26.1% and 22.0% of young adults who engaged in non-penetrative and penetrative hook ups in the prior year did not hook up over the course of the semester, respectively. Additionally, young adults who hooked up and had more positive emotional reactions after their prior hook ups were more likely to engage in penetrative hook ups over the course of the semester as compared to those who did not hook up. However, their negative emotional reactions to prior hook ups were not associated with future hook ups. Collectively, our findings suggest that prior hooking up experiences, especially positive ones, are likely to inform the decision to hook up in the future. Thus, some young adults may have learned, and continue to select, sexual strategies that are focused on short-term encounters as a means of exploration and pleasure (see Buss & Schmitt, 1993; Hofer et al., 2010).

Beyond previous hooking up behaviors, we also found that young adults' alcohol use was associated with engaging in non-penetrative and penetrative hook ups, which is consistent with prior studies (e.g., Grello et al., 2006; Paul et al., 2000). Moreover, young adults who engaged in penetrative hook ups reported the greatest alcohol use, with young adults who engaged in non-penetrative hook ups reporting less alcohol use, and those who did not hook up reporting the least alcohol use. Exploration of physical intimacy may be normative for young adults; however, it appears that alcohol use increases the likelihood that the physical exploration will include penetrative encounters. Conceptually, young adults' alcohol use may decrease inhibitions to approach potential partners, making hooking up more likely as well as influence their decisions to become more physically intimate. Alcohol use for women was a stronger predictor of engaging in hook up encounters (both non-penetrative and penetrative hook ups) as compared to men, which is consistent with previous research examining gender effects on the relationship between alcohol use and casual sex behaviors (e.g., Owen & Fincham, 2010a; Scott-Sheldon et al., 2009).

One possible explanation is that women may rely on alcohol more as a facilitative agent to engage in hook ups as compared to

men. Traditionally, it is socially more acceptable for a young male to be sexually promiscuous while females are led to believe they should only have sex within a committed relationship, also known as the “double standard” for women (Buss & Schmitt, 1993; Mahalik et al., 2003). Consistently, women’s sense of responsibility has been related to less favorable attitudes about casual sex (Hofer et al., 2010). Thus, alcohol may reduce the pressure women feel to not hook up. This, in conjunction with the ambiguous use of what a hook up is (anywhere from kissing to intercourse), may allow them to avoid any negative appraisals from peers and society. An alternative explanation could be that women may be more vulnerable to effects of alcohol in their ability to make decisions to hook up. It is unclear in the current study whether young adults had a clear intention to hook up and subsequently used alcohol as a facilitative mechanism to do so or if their decision making process was altered by their alcohol use. Future research is needed to clarify this process.

There are competing theories about how young adults’ feelings of loneliness might relate to their decision to hook up. For instance, young adults’ loneliness may be associated with a greater likelihood of hooking up due to a desire to be more connected to others. Alternatively, loneliness may reflect a lack of social skills or an introverted interpersonal style, thus reducing the likelihood of hooking up. We found support for the latter. That is, young adults who were lonelier were less likely to hook up over the course of the semester, suggesting that they might not be able, willing, or in social settings to engage in hooking up encounters. Consistent with this view, being a young adult who is more shy and less likely to socialize has been associated with having less favorable attitudes towards casual sex and being less likely to hook up (Fielder & Carey, 2010; Penke & Asendorpf, 2008). Given that loneliness is strongly related to the personality factor of introversion (Russell, 1996), our results suggest young adults’ feeling of loneliness may be reflective of their social skills or desire to participate in social engagements, including hooking up.

We posited that young adults’ decision to hook up might be influenced by their level of depressive symptoms, thoughtfulness about relationship transitions, and religiosity. The lack of association between depressive symptoms at the beginning of the semester and hooking up over the course of the semester, while consistent with Fielder and Carey (2010), was notably different from previous studies with adolescent samples (e.g., Grello et al., 2003). Moreover, young adults’ thoughtfulness and religiosity were associated with hooking up in our univariate analyses, but they were no longer associated with hooking up over the course of the semester after controlling for the effects of prior hooking up behaviors, feelings of loneliness, and alcohol use. Accordingly, some predictors may be more strongly connected to the experience of hooking up and others may simply share common variance with them. In concert with previous research, the factors that appear to be more strongly related to

young adults’ decision to hook up appear to include prior positive hook ups, desire to hook up, alcohol use, as well as personal and situational factors, such as loneliness (e.g., Fielder & Carey, 2010; Grello et al., 2006; Owen et al., 2010; Paul et al., 2000).

Effects of Hooking Up

Possibly because of its perceived effects, the association between hooking up and psychological functioning has been a central concern in the mass media as well as scholarly articles (e.g., Fielder & Carey, 2010; Owen et al., 2010; Paul, 2006; Stepp, 2007). In our study, we found young adults who reported more depressive symptoms and greater feelings of loneliness at the beginning of the semester and who subsequently engaged in penetrative hook ups reported less depressive symptoms and feelings of loneliness as compared to young adults who did not hook up. That is, for those young adults who were most distressed, penetrative hook ups were associated with an increase in their psychological well-being. Given the stress that many college students face (Owen & Rodolfa, 2009), it is likely that engaging in penetrative hook ups may be one way of coping. Similarly, Owen and Fincham (2010b) found that young adults’ reactions after hooking up was more positive than negative, suggesting that hooking up can be a positive encounter for some young adults. However, for young adults who reported feeling less depressed and less lonely at the beginning of the semester, this was not the case. In fact, for these young adults, engaging in penetrative hook ups was related to more depressive symptoms and greater feelings of loneliness at the end of the semester as compared to young adults who did not hook up. It is unclear why this pattern emerged differentially for these young adults, but it could be that their hooking up experiences did not meet their expectations, resulting in disappointment. While there was evidence for regression towards the mean in young adults’ depressive and loneliness scores, the magnitude of the regression towards the mean were different based on hooking up status, suggesting that something unique about hooking up influences young adults’ depressive symptoms and feelings of loneliness. Further, we do not know how long the positive or negative effects of hooking up are when it comes to their impact on young adults’ depressive symptoms or feelings of loneliness; however, our study suggests that the short-term effects can be meaningful. What is clear, however, is that hooking up is not uniformly positive or negative in emerging adulthood in regards to psychological distress. Hooking up appears to alleviate such distress for those experiencing it but to lead to distress among those who were not previously experiencing it.

Limitations

The results presented here should be interpreted in the light of several methodological limitations. Our prospective design,

while a strength, did not meet all the requirements for determining causality (e.g., no randomization). Further, there may have been other third variable explanations for our findings that we did not assess. Our sample was large, approximately three times as large as the Fielder and Carey (2010) prospective study examining hooking up among young adults. Yet, the sample was drawn from a university wide course on families; thus, there may be some selection bias. Further, women outnumbered men in our sample by 3–1. While this ratio was similar to Fielder and Carey's (2010) study, it does highlight an inherent problem in studying college students where females now outnumber males. Common method bias might have emerged as all the measures used were self-reports. Additionally, we do not have information regarding the time between their hook up over the course of the semester and when they completed the measures. Although we know that the hook up occurred in the past 4 months, there could be different reactions to hooking up over time versus more immediate reactions. This also suggests possible bias in the emotional reactions measure because as time elapses participants' recall of their reactions could have been compromised by other factors. Another measure that had a questionable contribution to some of the data was the Relationship Awareness Scale. It had a low alpha level which may have affected our ability to detect statistical significance. Also, the current study did not assess the intention to hook up among the participants, which in some cases could affect whether the emotional reaction was positive or negative.

Implications

Notwithstanding these limitations, our findings may inform relationship education programs, which attempt to assist young adults to develop self-awareness, knowledge, and skills to navigate the complexities of relationships (see Fincham, Stanley, & Rhoades, 2011). First, young adults need to know that their decision to hook up may be inherently linked with their alcohol use. Although exploring physical intimacy is normative for young adults, alcohol use may increase the likelihood of engaging in penetrative hook ups. As such, young adults should consider prior to hooking up the level of physical intimacy they feel comfortable with, be cognizant that their alcohol use may impact their decisions, and make a decision accordingly. Second, the impact of hooking up on their psychological functioning may also vary. For instance, young adults who are more distressed may seek out hook ups to cope and these encounters can have a potential positive effect on psychological distress. However, we do not know whether hooking up will have a long lasting effect on their psychological functioning or truly address the reasons they are distressed in the first place. Moreover, hooking up was not always linked with decreases in distress as seen in young adults who were initially less distressed and subsequently became more distressed after hooking up. These findings suggest that the expectations and possible interactions after the

hooking up encounter may influence their psychological functioning. Accordingly, young adults should consider their motivations for hooking up and the potential consequences on their well-being and peer relationships (cf. Paul, 2006). Ultimately, relationship education programs can promote young adults' awareness of their decision making processes and their potential consequences (be them positive or negative).

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Bisson, M. A., & Levine, T. R. (2007). Negotiating a friends with benefits relationship. *Archives of Sexual Behavior*, *38*, 66–73.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, *100*, 204–232.
- Cole, J. C., Rabin, A. S., Smith, T. L., & Kaufman, A. S. (2004). Development and validation of a Rasch-derived CES-D Short Form. *Psychological Assessment*, *16*, 360–372.
- Feldman Barrett, L., & Russell, J. A. (1999). The structure of current affect: Controversies and emerging consensus. *Current Directions in Psychological Science*, *8*, 10–14.
- Fielder, R. L., & Carey, M. P. (2010). Predictors and consequences of sexual “hookups” among college students: A short-term prospective study. *Archives of Sexual Behavior*, *36*, 346–359.
- Fincham, F. D., Stanley, S. M., & Rhoades, G. (2011). Relationship education in emerging adulthood: Problems and prospects. In F. D. Fincham & M. Cui (Eds.), *Romantic relationships in emerging adulthood* (pp. 293–316). New York: Cambridge University Press.
- Glenn, N., & Marquardt, E. (2001). *Hooking up, hanging out, and hoping for Mr. Right: College women on dating and mating today*. New York: Institute for American Values.
- Grello, C. M., Welsh, D. P., & Harper, M. S. (2006). No strings attached: The nature of casual sex in college students. *Journal of Sex Research*, *43*, 255–267.
- Grello, C. M., Welsh, D. P., Harper, M. S., & Dickson, J. W. (2003). Dating and sexual relationship trajectories and adolescent functioning. *Adolescent & Family Health*, *3*, 103–112.
- Hofer, J., Busch, H., Bond, M. H., Campos, D., Li, M., & Law, R. (2010). The implicit power motive and sociosexuality in men and women: Pancultural effects of responsibility. *Journal of Personality and Social Psychology*, *99*, 380–394.
- Lambert, T. A., Kahn, A. S., & Apple, K. J. (2003). Pluralistic ignorance and hooking up. *Journal of Sex Research*, *40*, 129–133.
- Longmore, M. A., Manning, W. D., Giordano, P. C., & Rudolph, J. L. (2004). Self-esteem, depressive symptoms, and adolescents' sexual onset. *Social Psychological Quarterly*, *67*, 279–295.
- Mahalik, J. R., Good, G. E., & Englar-Carlson, M. (2003). Masculinity scripts, presenting concerns and help-seeking: Implications for practice and training. *Professional Psychology: Research & Practice*, *34*, 123–131.
- Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. *Psychological Bulletin*, *124*, 54–74.
- Owen, J., & Fincham, F. D. (2010a). Effects of gender and psychosocial factors on “friends with benefits” relationships among young adults. *Archives of Sexual Behavior*. doi:10.1007/s10508-010-9611-6.
- Owen, J., & Fincham, F. D. (2010b). Young adults' emotional reactions after hooking up. *Archives of Sexual Behavior*. doi:10.1007/s10508-010-9652-x.

- Owen, J. J., Rhoades, G. K., Stanley, S. M., & Fincham, F. (2010). "Hooking up" among college students: Demographic and psychosocial correlates. *Archives of Sexual Behavior, 39*, 653–663.
- Owen, J., & Rodolfa, E. (2009). Prevention through connection: Creating a campus climate of care. *Planning in Higher Education, 37*, 26–33.
- Paul, E. L. (2006). Beer goggles, catching feelings, and the walk of shame: The myths and realities of the hookup experience. In D. C. Kirkpatrick, S. Duck, & M. K. Foley (Eds.), *Relating difficulty: The process of constructing and managing difficult interaction* (pp. 141–160). Mahwah, NJ: Lawrence Erlbaum Associates.
- Paul, E. L., McManus, B., & Hayes, A. (2000). "Hookups": Characteristics and correlates of college students' spontaneous and anonymous sexual experiences. *Journal of Sex Research, 37*, 76–88.
- Pearson, M., Stanley, S. M., & Kline, G. H. (2005). *Within my reach*. Greenwood, CO: PREP for Individuals, Inc.
- Penhollow, T., Young, M., & Bailey, W. (2007). Relationship between religiosity and "hooking up" behavior. *American Journal of Health Education, 38*, 338–345.
- Penke, L., & Asendorpf, J. B. (2008). Beyond global sociosexual orientations: A more differentiated look at sociosexuality and its effects on courtship and romantic relationships. *Journal of Personality and Social Psychology, 95*, 1113–1135.
- Peterson, Z. D., & Muehlenhard, C. L. (2007). What is sex and why does it matter? A motivational approach to exploring individuals' definitions of sex. *Journal of Sex Research, 44*, 256–268.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385–401.
- Russell, D. (1996). The UCLA Loneliness Scale (Version 3): Reliability, validity and factor structure. *Journal of Personality Assessment, 66*, 20–40.
- Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction, 88*, 791–804.
- Scott-Sheldon, L. A. J., Carey, M. P., Venable, P. A., Senn, T. E., Coury-Doniger, P., & Urban, M. A. (2009). Alcohol consumption, drug use, and condom use among STD clinic patients. *Journal of Studies on Alcohol and Drugs, 70*, 762–770.
- Stanley, S. M., Rhoades, G. K., & Markman, H. J. (2006). Sliding versus deciding: Inertia and the premarital cohabitation effect. *Family Relations, 55*, 499–509.
- Stepp, L. S. (2007). *Unhooked: How young women pursue sex, delay love, and lose at both*. New York: Riverhead Books.
- Townsend, J. M. (1995). Sex without emotional involvement: An evolutionary interpretation of sex differences. *Archives of Sexual Behavior, 24*, 173–206.
- Vassar, M., & Crosby, J. W. (2008). The reliability generalization study of coefficient alpha for the UCLA Loneliness Scale. *Journal of Personality Assessment, 90*, 601–607.