

# Does Casual Sex Harm College Students' Well-Being? A Longitudinal Investigation of the Role of Motivation

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**Abstract** Engagement in casual sex (or hooking up) is generally feared to have negative well-being consequences; however, empirical evidence is inconclusive, pointing toward potential moderators. Using self-determination theory (SDT), we hypothesized that well-being following hookups would depend on the type and level of motivation for hooking up. A university-wide sample of 528 undergraduates completed online surveys at the beginning (T1) and end (T3) of one academic year. After controlling for demographics, personality traits (i.e., neuroticism and extraversion), prior casual and romantic sex, and T1 well-being, having genital hookups between T1 and T3 for non-autonomous reasons (i.e., due to self-imposed pressures, external contingencies and controls, or complete lack of intentionality) was linked to lower self-esteem, higher depression and anxiety, and more physical symptoms. Autonomous hookup motivation (i.e., emanating from one's self) was not linked to any outcomes. Compared to peers without hookups, those with high non-autonomy in their hookups typically had inferior well-being; this was not true of those with low non-autonomy hookups. Gender differences, implications for SDT and casual sex research, and implications for educational programs and clinical work are discussed.

**Keywords** Autonomous motivation · Casual sex · Hooking up · Psychological well-being · Self-determination theory

## Introduction

Casual sex, sexual behavior occurring outside of long-term romantic relationships, has gained substantial cultural salience among young people over the last two decades (Garcia, Reiber, Massey, & Merriwether, 2012). Although the majority of youth's sexual experiences occurs with romantic partners (Fielder, Carey, & Carey, 2013), up to 80 % of college students report some casual sex experience (Garcia & Reiber, 2008; Gute & Eshbaugh, 2008; Paul, McManus, & Hayes, 2000) and some have argued that hooking up is replacing dating as the primary context for establishing and maintaining intimate relationships on campuses (Bogle, 2008). In light of such data, many have raised concerns that, unlike sex with romantic partners, sex with casual partners could have detrimental consequences on youth's mental health (Paul, 2006; Townsend & Wasserman, 2011). Thus far, longitudinal evidence of such negative outcomes has been mixed (Fielder & Carey, 2010a; Grello, Welsh, Harper, & Dickson, 2003; Monahan & Lee, 2008; Owen, Fincham, & Moore, 2011), suggesting there may be important individual, social, or situational factors moderating that link. Grounded in self-determination theory (SDT) (Deci & Ryan, 2000), the current study explored one such potential factor—one's motivation for hooking up.

## Casual Sex and Well-Being

Partnered sexual activity has many health benefits, including increased cardiovascular, respiratory, immune, and reproductive functioning, longevity, and life satisfaction, and lower depression and anxiety (reviewed in Levin, 2007; Whipple, Knowles, & Davis, 2003). These benefits, however, are traditionally ascribed exclusively to romantic sex; casual sex is instead portrayed as leading to a host of negative physical and psychological outcomes (Paul, Wenzel, & Harvey, 2009;

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Townsend & Wasserman, 2011), health professionals (McIlhenny & Bush, 2008), and the media (Stepp, 2007) alike. The mechanisms by which casual sex might affect health have not been clearly formulated, but there are several potential explanations. For example, casual sex is often socially stigmatized (reviewed in Crawford & Popp, 2003; for more recent evidence, see Allison & Risman, 2013) and, compared to romantic sex, more likely to be enjoyed less, accompanied by heavy alcohol/drug use, and followed by regret or negative sexual health outcomes (Armstrong, England, & Fogarty, 2012; Bailey, Kirk, Zhu, Dunne, & Martin, 2000; Campbell, 2008; Coleman, Rue, Spence, & Coyle, 2008; Cooper, 2002; Eshbaugh & Gute, 2008; Fielder & Carey, 2010b). Casual sex, by definition, lacks commitment and thus fails to satisfy the innate human need for deep and lasting interpersonal connection (Baumeister & Leary, 1995). At the same time, even brief sexual contact creates neurochemical (Young & Wang, 2004) and experiential (Haselton & Buss, 2001) emotional bonds; the frequent dissolution of these bonds following casual sex (Manning, Giordano, & Longmore, 2006; Paul et al., 2000) may result in a sense of hurt and rejection (de Graaf & Sandfort, 2004).

Social commentators and scholars have shown particular concern for the well-being of women following casual sex. Sexual strategies theorists have argued that short-term mating (i.e., casual sex) is comparatively less evolutionarily advantageous and costlier for women (Buss & Schmitt, 1993; Schmitt, Shackelford, & Buss, 2001) and women's lower desire for casual sex is one of the largest gender differences in sexuality (Oliver & Hyde, 1993; Petersen & Hyde, 2010). Some scholars have even suggested that short-term mating is never advantageous for women and thus they never truly desire it, even when they might think they do (Paul, 2006; Townsend & Wasserman, 2011). Furthermore, the social costs that women incur for engaging in casual sex and other forms of unrestricted sexuality are higher than those of men, a phenomenon known as the "sexual double standard" (reviewed in Baumeister & Twenge, 2002; Crawford & Popp, 2003; for more recent evidence, see Kreager & Staff, 2009; Marks, 2008; Vrangalova, Bukberg, & Gerulf, 2013). Women are also likely disproportionately more affected by negative reproductive outcomes (e.g., unwanted pregnancy) and may be more susceptible to forming attachment bonds following casual sex (de Graaf & Sandfort, 2004; Townsend & Wasserman, 2011), perhaps due to differential effects of oxytocin (Young & Wang, 2004).

Despite the seemingly harm-producing characteristics of casual sex, in both sexes positive reactions following hookups are stronger and more common than negative reactions, including sexual satisfaction, confidence and self-esteem, self-knowledge, and better social and academic engagement (Campbell, 2008; Fielder & Carey, 2010b; Owen & Fincham, 2011; Owen, Quirk, & Fincham, 2013). Furthermore, a decade of research into mental health consequences of casual sex has produced inconclusive results. Although some cross-sectional

studies have found links between casual sex and decreased well-being, particularly among women (Bersamin et al., 2013; Grello, Welsh, & Harper, 2006; Mendle, Ferrero, Moore, & Harden, 2013; Paul et al., 2000), the most frequent finding for both sexes is one of no significant relationship (Bancroft, Janssen, Carnes, Goodrich, & Strong, 2004; Gentzler & Kerns, 2004; Owen, Rhoades, Stanley, & Fincham, 2010; Sakaguchi, Sakai, Ueda, & Hasegawa, 2007; Schmitt, 2005; Schmitt, Shackelford, Duntley, Tooke, & Buss, 2001). Similarly, longitudinal studies typically find no significant effects of casual sex on depression, loneliness, body image, or self-esteem after controlling for pre-existing well-being differences in adolescents (Grello, Welsh, Harper, & Dickson, 2003; Meier, 2007; Monahan & Lee, 2008; Shulman, Walsh, Weisman, & Schelyer, 2009) or college students and young adults (Eisenberg, Ackard, & Neumark-Sztainer, 2009; Fielder & Carey, 2010a; Owen et al., 2011).

Such non-significant or contradictory results often point to the presence of moderators (Baron & Kenny, 1986)—it is likely that not all casual sex encounters have the same potential to harm or benefit well-being and not all those engaging in them are equally susceptible to that potential. Yet, with the exception of biological sex, inquiry into potential individual, social, and situational moderators of the link between casual sex and well-being has been limited. Some previously examined factors include level of physical intimacy (intercourse vs. no intercourse) in a hookup (Fielder & Carey, 2010a; Paul et al., 2000), casual sex onset (early, on-time, and late) relative to demographically similar others (Meier, 2007), and initial levels of well-being (Owen et al., 2011). Cross-sectional studies have also found that, among those with at least one hookup, lower psychological well-being was linked to negative or mixed reactions to or regret after their hookups (Grello et al., 2006; Owen & Fincham, 2011; Owen et al., 2010). However, these studies did not compare the well-being of those with different reactions following their hookups to the well-being of those without hookups. It is, therefore, not clear whether "good" hookups increase and "bad" ones decrease well-being relative to no hookups or all hookups decrease well-being compared to no hookups, only some do so less than others. Furthermore, no study to date has examined an individual-level factor that is both specific to and precedes, rather than follows, the hookup experience.

Identifying moderating factors is an important next step toward a conceptual understanding of the boundary conditions under which casual sex may lead to poor mental health outcomes and the psychological processes that may account for this effect. Beyond its theoretical significance, such nuanced knowledge could have important practical implications for sex education, public policy, and clinical work. Identifying individual-level factors that are specific to and precede the hookup experience may be particularly relevant in this regard, as such factors may be under conscious control of the individual and

thus manipulated toward a healthier outcome. Guided by SDT, an established macro-theory of human motivation and personality (Deci & Ryan, 1985, 2000), the present study examined motivation for casual sex as one such potential factor.

### Self-Determination Theory and Well-Being

Self-determination theory (SDT) proposes that behaviors vary with respect to how self-determined (i.e., intentional) they are and that different levels of self-determination lead to different psychological outcomes (Deci & Ryan, 1985, 2000). According to SDT, three broad types of motivation represent this continuum of self-determination. *Autonomous motivation* is experienced as emanating from one's self and reflecting one's values and interests or, in attributional terms, has an internal perceived locus of causality (Ryan & Connell, 1989). Examples of autonomous motives include doing something because it is pleasurable or because one believes it is an important experience to have. *Controlled motivation* is experienced as emanating either from self-imposed pressures (e.g., managing feelings of shame or pride) or from external contingencies and controls (e.g., receiving rewards or avoiding punishments); in attributional terms, controlled behaviors have an externally perceived locus of causality. In contrast to autonomous and controlled motives, both of which represent intentional behaviors, SDT also theorizes a state of *amotivation*, or a complete lack of intentionality for a specific behavior (e.g., being forced into a behavior one did not wish to engage in).

Extensive cross-sectional, longitudinal, and experimental research has demonstrated that engaging in behaviors for autonomous reasons leads to greater psychological health and more sustained and effective performance while the opposite is true of controlled and amotivated engagement. The benefits of self-determination extend across a variety of domains of human activity, including close relationships, education, work, health behaviors, and therapy (for reviews, see Gagné, & Deci, 2005; Guay, Ratelle, & Chantal, 2008; La Guardia & Patrick, 2008; Ryan & Deci, 2008; Teixeira, Carraça, Markland, Silva, & Ryan, 2012). Well-being benefits were also found in the only two studies that have applied SDT to the area of sexual motivation: Higher self-determination in students' partnered sexual experiences was positively associated with better sexual well-being (higher sexual pleasure, satisfaction, and orgasm frequency, and fewer feelings of sexual guilt and regret), general well-being (higher self-esteem, vitality, life satisfaction, and fewer depression and physical health symptoms); and relationship functioning (Brunell & Webster, 2013; Jenkins, 2004). However, these studies either did not distinguish between relational contexts of participants' sexual experiences (Jenkins, 2004) or focused exclusively on sex in dating relationships (Brunell & Webster, 2013). To our knowledge, no study to date has examined self-determination specifically in the context of casual sex.

### Self-Determination in Casual Sex

Although casual sex motivation has not been studied from an SDT perspective, research on motives for casual sex reveals the full spectrum of self-determination postulated by SDT. Some of the most frequently cited reasons for casual sex by both sexes can be considered autonomous, including sexual desire, pleasure, physical attraction, experimenting and exploring, and novelty and excitement (Fielder & Carey, 2010b; Garcia & Reiber, 2008; Greiling & Buss, 2000; Kenney, Thadani, Ghaidarov, & LaBrie, 2013; Regan & Dreyer, 1999). Controlled motives, such as low self-esteem, need for self-affirmation, peer pressure, social status, or material rewards are cited regularly by a significant minority of participants (Fielder & Carey, 2010b; Garcia & Reiber, 2008; Greiling & Buss, 2000; Kenney et al., 2013; Regan & Dreyer, 1999). Unintentional engagement or amotivation such as being coerced or tricked into it is relatively rare but experienced by a non-trivial number of individuals, particularly women (Lewis, Granato, Blayney, Lostutter, & Kilmer, 2012; Regan & Dreyer, 1999). Unintentional or otherwise non-autonomous engagement due to intoxication with alcohol or drugs, on the other hand, is one of the most frequently cited reasons for engaging in casual sex by both men and women (Fielder & Carey, 2010b; Garcia & Reiber, 2008; Regan & Dreyer, 1999) and this factor is sometimes a stronger predictor of casual sex behaviors than youth's own intentions (Apostolopoulos, Sönmez, & Yu, 2002).

Up to half of all participants in research on casual sex motivation note intimacy and relationship motives (e.g., increasing probability of long-term relationship and commitment) as reasons for engaging in casual sex and these motives may be more prevalent among women than men (Garcia & Reiber, 2008; Regan & Dreyer, 1999). Although such motives can be considered autonomous in the context of romantic sex (Brunell & Webster, 2013; Jenkins, 2004), this is likely not the case with most instances of casual sex. Casual sex is by definition devoid of deep emotional involvement and commitment and casual sex encounters rarely progress to romantic relationships (Manning et al., 2006; Paul et al., 2000). Engaging in this behavior for relationship motives would often create false hopes and unrealistic expectations leaving the person vulnerable to disappointment and emotional hurt. Thus, we expected relationship motivation to be predominantly non-autonomous in the context of casual sex.

Given this motivational milieu of casual sex engagement, self-determination processes can be expected to operate similarly with casual sex behaviors as with other behaviors in the way they affect well-being—increasing well-being with increasing self-determination among those who engage in this behavior. Moreover, self-determination in hookups may be relevant to well-being comparisons between individuals with and without hookups. If hooking up is a generally stressful event that compromises well-being (i.e., significant main effect), self-

determination in hookups may buffer against this negative effect, bringing the well-being of those with highly determined hookups to a similar level as those without any hookups. On the other hand, if the effects of hookups depend on the specific qualities of the hookup or the individual (i.e., no significant main effect), those with highly self-determined hookups may report higher well-being than those without any hookups. Such individuals may be uniquely positioned to capitalize on the positive qualities of their hookups unlike some in the no-hookup group who may have genuinely desired a hookup yet failed to engage in one.

### Current Study

The current study employed a longitudinal design to examine the impact of hooking up and self-determination in hookups on four aspects of well-being (self-esteem, depression, anxiety, and physical health symptoms) in a large, university-wide sample of undergraduate students followed over a period of one academic year (9 months). Based on mixed prior evidence, we expected the main effect of hooking up on well-being over the year to be largely non-significant, after controlling for prior levels of well-being (H1). Our two main hypotheses were based on SDT. Our second hypothesis was that, among those who engaged in at least one hook up over the course of the year, self-determination in hookups would be associated with higher well-being after controlling for prior levels of well-being (H2); specifically, that autonomous motivation would be linked to higher well-being (H2a) and non-autonomous (controlled motivation and amotivation) motivation would be linked to lower well-being (H2b). Our third hypothesis was that high self-determination for hooking up would be consequential in comparisons with those who do not engage in hookups over the course of the year (H3). Specifically, we hypothesized that individuals with high hookup self-determination (high autonomy and/or low nonautonomy) would not differ from or may surpass in well-being those without hookups (H3a). Those with low hookup self-determination (low autonomy and/or high nonautonomy), on the other hand, would exhibit lower well-being than their hookup-inexperienced peers (H3b).

Given prior theory and research on sex differences in motivations for casual sex, we expected women to have lower absolute levels of autonomous (H4a) and higher levels of non-autonomous hookup motivation compared to men (H4b). However, given mixed evidence of sex differences in well-being outcomes of casual sex, and general lack of evidence for sex differences in SDT processes, we made no predictions regarding sex differences in the first three hypotheses. In order to explore this possibility, however, we tested for moderation by sex in all analyses.

In addition to basic demographics and initial levels of well-being, the current study controlled for several covariates that may confound the link between casual sex and well-being. We

controlled for hooking up experience prior to the study, as some evidence indicates that people become more skilled at dealing with the emotional and social challenges that may arise from casual sex (Gilmartin, 2006; Townsend, 1995). We also controlled for romantic sex engagement, as any links between casual sex and well-being may, in fact, be due to having sex in general rather than casual sex in particular (Grello et al., 2003; Monahan & Lee, 2008). Finally, we controlled for two personality characteristics—extraversion and neuroticism—that previous studies of casual sex and well-being have not considered. Higher neuroticism and lower extraversion are known to correlate with poorer well-being (Costa & McCrae, 1980), lower self-determination (Deci & Ryan, 1985), and lower engagement in casual sex (Gute & Eshbaugh, 2008; Olmstead, Pasley, & Fincham, 2013; Schmitt, 2005). Accounting for these traits is thus critical for excluding any links between casual sex, motivation, and well-being as spurious relationships.

To our knowledge, this is the first study to apply SDT to the casual sex context and the first to examine motivation for casual sex as a potential determinant of well-being. Although typologies of and approaches to motivation and sexual motivation other than the one provided by SDT have been developed (e.g., Cooper, Shapiro, & Powers, 1998; Hill & Preston, 1996; Meston & Buss, 2007), none has been used to determine its links to general well-being in the context of casual sex. This is also one of the first studies to examine any moderators of the relationship between casual sex and well-being, particularly in a longitudinal design. In this way, the study contributes to shifting research and applied work towards a more nuanced understanding of casual sex and its health consequences. To our knowledge, this is also the first attempt to apply SDT to a behavior that many deem socially unacceptable (Allison & Risman, 2013; Marks & Fraley, 2005) and harmful (Paul, 2006; Stepp, 2007). This provides an opportunity to evaluate the boundaries of SDT, which is typically applied to pursuits considered useful and healthy (e.g., academic, health, work, prosocial, or romantic behaviors). If self-determined motivation has the power to foster well-being or buffer against its deterioration in the face of social disapproval or other harm-potential, this would be evidence for a broader application of SDT than the current literature allows for.

### Method

#### Participants and Procedure

Using the Cornell University registrar, an email was sent to all registered freshmen and juniors (approximately 6,500 students) at the beginning of the 2009 Fall semester (September 2009), inviting them to participate in a longitudinal study about sexuality on campus that would require completing two similar 35-min long, on-line questionnaires at the beginning (T1) and the

end (T2) of the academic semester. A total of 872 students (59 % female) completed T1 (13.4 % response rate), and 669 students (63 % female) completed T2 (77 % retention rate). At the end of the academic year in May 2010, all initial participants were contacted again for a Time 3 (T3) follow-up; 560 students (64 % female) completed T3 (64 % retention rate). As an incentive for participation in T1 and T2, students were offered either two research credits (if eligible) or a chance to win one of 25 \$30 lottery prizes; all participants in T3 received compensation of \$5. Only T1 and T3 data were used in the present study.

After excluding students with incomplete responses and those over 24 years old (as atypical college students), the final T3 sample consisted of 528 students. Demographic information is shown in Table 1. The sample distribution across colleges and racial/ethnic background closely mirrored Cornell University's enrollment rates. Compared to those who completed T3, those who dropped out were more likely to be male,  $\chi^2(1) = 17.63$ ,  $p < .001$ , and non-White,  $\chi^2(1) = 20.25$ ,  $p < .001$ . The groups did not differ significantly in terms of school year, SES, self-esteem, depression, anxiety, somatic symptoms, or romantic and casual partners, all  $ps > .10$ .

## Measures

### Sex Partners

At T1, participants provided their total lifetime number of three types of sex partners: romantic partners (i.e., partners they considered boyfriend/girlfriend); longer casual partners such as friends-with-benefits or fuck-buddies (i.e., partners they interacted with sexually more than once, but were never in a romantic relationship with); and one-time partners (i.e., partners they interacted sexually with only once). For each partner type, they specified the number of different partners with whom they had engaged in any kind of genital stimulation (i.e., genital touching, oral, vaginal, or anal sex). At T3, participants provided the same information about all sex partners they had since T1. For this study, one-time and longer casual partners were combined into one variable—hookup partners. Based on this information, we constructed several relevant variables. One's total lifetime number of genital hookup partners at T1 (log-transformed to reduce non-normality) and whether a participant had any romantic genital sex by T3 served as control variables. Whether a participant had a genital hookup between T1 and T3 was the main behavior of interest. Both romantic sex by T3 and hookups between T1 and T3 were dichotomized due to low variability in the number of partners (in both cases, 82 % of all participants had between 0 and 2 partners).

### Hookup Motivation

Participants who reported at least one genital hookup between T1 and T3 ( $n = 196$ ) were asked to report on their motivations

**Table 1** Demographic and sexual behavior characteristics of students who completed T1 and T3

Variable	<i>n</i>	%	Variable	<i>n</i>	%
Sex			College		
Women	338	64.0	Agricultural & life sciences	131	25.0
Men	190	36.0	Architecture, art, & planning	15	2.8
Sex orient			Arts & sciences	175	33.1
Heterosexual	418	79.2	Engineering	112	21.2
Mostly heterosexual	55	10.4	Hotel administration	18	3.4
Bisexual	21	4.0	Human ecology	53	10.0
Mostly gay/lesbian	14	2.7	Industrial & labor relations	21	4.0
Gay/lesbian	18	3.4	School year		
Other	2	0.4	Freshman	231	43.8
Race			Junior	296	56.1
White	370	70.1	Relationship status		
Asian	73	13.8	Not dating or seeing anyone	250	47.3
Latino	22	4.2	Casually dating or seeing 1 or more people	71	13.4
Black	20	3.8	In a romantic relationship, engaged, or married	207	39.2
Other	6	1.1	Perceived socioeconomic class		
Multiracial	37	7.0	Lower-middle or lower	83	15.7
Religion			Middle	176	33.3
Agnostic/Atheist	227	43.5	Upper-middle or higher	269	50.9
Catholic	108	20.7	Parents education (highest)		
Protestant	80	15.3	Less than BA	64	12.1
Jewish	50	9.5	Bachelor's degree	119	22.6
Other	57	10.3	Graduate/professional	344	65.3
Genital romantic sex by T3	401	76.1	Genital hookup	246	46.7
Variable			<i>M</i>	<i>SD</i>	Range
No. of hookup partners—genital			2.21	4.48	0–35

Due to missing data, Ns range between 522 and 528. All variables were assessed at T1 unless noted otherwise

for hooking up during this period. Based on SDT (Deci & Ryan, 2000), previous SDT-based studies (e.g., helping motivation) (Weinstein & Ryan, 2010), and past research on motivation for casual sex (Garcia & Reiber, 2008; Reagan & Dryer, 1999; Weaver & Herold, 2000), an eight-item motivation scale was constructed specifically for this study. Three items assessed autonomous motives (“I wanted the fun and enjoyment,” “I wanted to explore and learn about my sexuality and myself in general,” and “I believe it is an important experience to have”), three assessed controlled motives (“I wanted to feel better about myself, for example, more desirable or more confident, or to avoid other unpleasant feelings,” “I wanted to please someone else, such as my partner or my friends, or because the situation



seemed to compel it,” and “I wanted to get a favor or some kind of material reward from someone, or get revenge against someone”), and one assessed amotivation (“I was somehow tricked or coerced into it, or otherwise unable to make a responsible decision, for example, due to alcohol or drugs; I did not actually want to hook up”). An additional item asked about relationship reasons (“I was hoping it would lead to a long-term relationship”). Participants identified how frequently each reason led them to hook up between T1 and T3 on a scale of 1 (*none of my hookups*) to 7 (*all of my hookups*).

As expected, principal component analysis identified three factors with eigenvalues greater than 1.0. The first factor (eigenvalue = 2.32) explained 29 %, the second factor (eigenvalue = 1.33) explained 17 %, and the third factor (eigenvalue = 1.03) explained 13 % of the variance in the items. Following varimax rotation, the three items constructed to assess autonomous motivation loaded on the first factor with an average loading of .75, the four items designed to assess controlled motivation (including relationship motivation) loaded on the second factor with an average loading of .65, and the sole amotivation item loaded on the third factor with a loading of .87. No items cross-loaded above .36. Two mean scores per participant were computed based on these ratings. The three items loading on the first factor were averaged into an autonomous motivation score. Controlled motivation and amotivation are both theorized to be similarly—negatively—linked to well-being outcomes (Deci & Ryan, 2000) and that was the case in the current study with all four well-being outcomes in preliminary zero-order correlations (data available on request). Therefore, the items loading on the second and the third factor were averaged into one non-autonomous motivation score.<sup>1</sup>

### Outcome Variables

All well-being outcomes were assessed at T1 and T3. The variables are constructed as means of all the items, with higher scores indicating greater presence of the variable.

**Depression and Anxiety** Depression and anxiety were assessed using the corresponding subscales of the Brief Symptom Inventory (Derogatis, 1993). Participants rated the extent to which they were distressed in the past week by five indicators of depression (e.g., “feeling blue”) and six indicators of anxiety (e.g., “spells of terror or panic”) on a five-point Likert scale from 1 (*not at all*) to 5 (*extremely*). Cronbach’s  $\alpha$  at T1 and T3 were .85 and .84 for depression and .86 and .89 for anxiety, respectively.

**Self-Esteem** The 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965) was used to measure general self-esteem.

<sup>1</sup> The results were virtually identical, albeit somewhat weaker, when the amotivation item was excluded from the non-autonomous motivation score or when controlled motivation and amotivation were treated as separate variables (data available on request).

Participants rated their agreement with each statement (e.g., “I take a positive attitudes toward myself”) on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach’s  $\alpha$  was .91 at both T1 and T3.

**Physical Symptoms** Physical health-related issues were assessed using an adapted version of the Emmons’ (1991) checklist. Using a scale from 0 (*not once*) to 7 (*every day*), participants noted on how many days in the previous week they experienced five different physical symptoms, including cold and flu symptoms, aches and pains, digestive problems, allergies, and sleeping difficulties. Items were standardized before constructing mean scores. Cronbach’s  $\alpha$  was .50 at T1 and .64 at T3.

### Control Variables

**Extraversion and Neuroticism** At T1, participants completed the Neuroticism and Extraversion subscales of the Mini IPIP Scale (Donelan, Oswald, Baird, & Lucas, 2006) with four items for extraversion (e.g., “I am the life of the party”) and four items for neuroticism (e.g., “I get upset easily”). Participants rated the extent to which each item described their usual behavior on a scale of 1 (*very inaccurate*) to 5 (*very accurate*). Cronbach’s  $\alpha$  was 0.77 for neuroticism and 0.85 for extraversion.

**Socioeconomic Status (SES)** SES was assessed by mother’s and father’s education level on a seven-point scale from 1 (*did not finish high school*) to 7 (*doctoral or professional degree*) and participants’ perceived economic class their family belonged to on a seven-point scale from 1 (*poverty class*) to 7 (*wealthy class*). The three items were positively correlated,  $r$ s ranging from .40 to .51, and were standardized and averaged into one composite SES score (Cronbach’s  $\alpha$  = .70).

## Results

### Descriptive Information

Descriptive data and zero-order correlations between well-being outcomes at T3, genital hookups between T1 and T3, and autonomous and controlled hookup motivation are shown in Table 2. Over the course of the academic year, 37 % of all participants had at least one genital hookup and these percentages were similar in both sexes. Among those with at least one genital hookup ( $n = 196$ ), autonomous hookup motivation was significantly higher than non-autonomous hookup motivation, paired  $t(195) = 20.09, p < .001$ . Our fourth hypothesis was not confirmed: Both sexes had similar levels of autonomous and non-autonomous hookup motivation.

### Hooking Up and Well-Being

To examine the main effects of hooking up on well-being (H1), we conducted a MANCOVA with the four well-being variables

at T3 (depression, anxiety, physical symptoms, and self-esteem) as outcomes, genital hookups between T1 and T3 (yes vs. no), biologic sex (male vs. female), and their interaction as predictors. School year (freshman vs. junior), SES, neuroticism, extraversion, any genital romantic sex by T3, number of lifetime genital hookup partners at T1 (log-transformed), and the three well-being scores at T1 served as covariates.<sup>2</sup> The MANCOVA revealed no significant multivariate main effect for hookups between T1 and T3, Wilks'  $\lambda = 0.99$ ,  $F(4, 496) = 1.30$ , but a significant multivariate interaction between biologic sex and T1-T3 hookups, Wilks'  $\lambda = 0.98$ ,  $F(4, 496) = 2.48$ ,  $p = .043$ , partial  $\eta^2 = .02$ . To examine this interaction further, we conducted separate ANCOVAs for each of the four T3 outcome variables, controlling for the respective T1 well-being and all other controls.<sup>3</sup>

As hypothesized, hooking up was not related to depression,  $F(1, 506) < 1$ , physical symptoms,  $F(1, 507) < 1$ , or self-esteem,  $F(1, 514) < 1$ . Non-significant interactions with sex for all three outcomes,  $F(1, 506) = 1.58$ ,  $F(1, 507) = 1.28$ , and  $F(1, 514) = 1.02$ , respectively, indicated this was true of both women and men. For anxiety, a non-significant main effect of hooking up,  $F(1, 504) = 2.20$ , was moderated by a significant interaction with sex,  $F(1, 504) = 11.00$ ,  $p < .001$ . Follow-up tests indicated no significant difference in anxiety between women who had hooked up (HU) or not hooked up (No-HU),  $d = -0.14$ . HU men, on the other hand, had significantly higher anxiety than No-HU men,  $p < .01$ ,  $d = 0.44$ .

#### Hookup Motivation and Well-Being Among the Hookup Experienced

The second set of analyses examined the role of self-determination in hookup motivation on well-being among those who hooked up between T1 and T3. Hierarchical linear regressions were conducted for each T3 well-being outcome among those who had at least one genital hookup between T1 and T3 ( $n = 196$ ). Control variables (same as in the first set of analyses) were entered at Step 1, autonomous and non-autonomous hookup motivation (both centered) were entered at Step 2, and their interaction terms with biological sex were entered at Step 3. Results are shown in Table 3.

The second hypothesis that self-determined hookup motivation would be associated with higher well-being was confirmed regarding nonautonomy (H2b), but not autonomy (H21). As Table 3 shows, the effects of autonomous hookup

motivation were not significant for any of the four well-being outcomes in either sex. Non-autonomous hookup motivation, on the other hand, showed significant main effects to all four outcomes in the expected direction: Higher nonautonomy was linked to lower self-esteem, higher depression and anxiety, and more physical symptoms. None of the interactions with sex were significant, indicating this was equally true of both women and men. Autonomous and non-autonomous hookup motivation together explained between 3 and 6 % of the variance in well-being.

#### Hookup Motivation and Well-Being: Comparisons with the Hookup Inexperienced

The third set of analyses tested whether hookup motivation moderated the link between hooking up and well-being (H3). Because autonomous motivation did not play a role (positive or negative) in well-being, we focused solely on the negative effects of non-autonomous motivation. We divided participants into three groups based on their genital hookup experience between T1 and T3 and, among the experienced, their level of non-autonomous hookup motivation: No-HU (those without any hookups,  $n = 331$ ), HU-Low Nonautonomy (those with at least one hookup and a below-median score on non-autonomous motivation,  $n = 101$ ), and HU-High Nonautonomy (those with at least one hookup and an above-median score on non-autonomous motivation,  $n = 95$ ). We hypothesized that HU-High Nonautonomy would have lower well-being than No-HU peers (H3a), but that HU-Low Nonautonomy students would not differ from or would surpass in well-being No-HU peers (H3b).

To test these hypotheses, we first conducted a MANCOVA with the four well-being variables at T3 (depression, anxiety, physical symptoms, and self-esteem) as outcomes, including the three-group *hookup motivation status* variable, biological sex and their interaction as predictors, and all control variables as in the previous analyses. The MANCOVA revealed a significant multivariate main effect for hookup motivation status, Wilks'  $\lambda = 0.94$ ,  $F(8, 986) = 3.66$ ,  $p < .001$ , partial  $\eta^2 = .029$ , and a non-significant multivariate interaction between sex and motivation hookup status, Wilks'  $\lambda = 0.97$ ,  $F(8, 986) = 1.78$ . We examined these effects with separate ANCOVAs for each of the four T3 outcome variables; the interactions with sex were maintained in the models due to the theoretical importance of testing sex differences in the context of casual sex. Significant main and interactive effects were followed with planned comparisons between the No-HU and HU-Low Nonautonomy groups, and between the No-HU and HU-High Nonautonomy groups. Adjusted means for the three groups separately by sex, and for the sample as a whole, are illustrated in Fig. 1.

For depression, there was a main effect of hookup motivation status,  $F(2, 503) = 6.67$ ,  $p < .01$ , and a non-significant interaction with sex,  $F(2, 503) = 2.68$ . Planned pairwise comparisons

<sup>2</sup> Initial analyses also controlled for sexual orientation (heterosexual vs. nonheterosexual) and race (White vs. Nonwhite). Neither was significant and both were excluded from final models.

<sup>3</sup> Initial analyses also controlled for interactions between T1-T3 hookups and all control variables (as recommended by Yzerbyt, Muller, & Judd, 2004); most of these interactions were non-significant and, in all cases, had no impact on the main results, so we excluded them from the final analyses.

**Table 2** Descriptive data and correlations for all variables, for men (under the diagonal) and women (above the diagonal)

Measure	1	2	3	4	5	6	7	<i>M</i>	<i>SD</i>	<i>n</i>
1. T3 depression <sup>a</sup>	–	.67***	.39***	–.68***	–.07	–.02	.25**	2.21	0.87	331
2. T3 anxiety <sup>a</sup>	.65***	–	.45***	–.49***	–.10 <sup>†</sup>	.13	.28**	1.92	0.81	330
3. T3 physical symptoms <sup>a</sup>	.47***	.51***	–	–.27***	.05	.10	.20*	0.09	1.01	331
4. T3 self-esteem <sup>a</sup>	–.67***	–.54***	–.35***	–	.10 <sup>†</sup>	.08	–.31**	3.93	0.77	338
5. Any genital HU T1–T3 <sup>a</sup>	.16*	.23**	.20**	–.10	–	na	na	0.37	na	338
6. Autonomous motivation T1–T3 <sup>b</sup>	.13	.05	.05	–.04	na	–	.12	4.19	1.46	124
7. Non-autonomous motivation T1–T3 <sup>b</sup>	.34**	.29*	.20	–.39**	na	.53***	–	2.04	0.79	124
<i>M</i>	2.02	1.67	–0.16	4.01	0.38	4.50	2.23			
<i>SD</i>	0.84	0.71	0.96	0.74	na	1.72	0.96			
<i>N</i>	188	187	188	190	190	72	72			
Range	1–5	1–5	–3–3	1–5	0–1	1–7	1–7			
Sex differences <sup>c</sup>	2.44*	2.06*	2.74**	1.17	<1	–1.35	–1.46			

<sup>a</sup> Includes all participants

<sup>b</sup> Includes only participants with at least one genital hookup between T1 and T3

<sup>c</sup> Represents  $\chi^2$  for variable 5; *t* test for all other variables

<sup>†</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

**Table 3** Hierarchical linear regression for impact of autonomous and non-autonomous hookup motivation between T1 and T3 on T3 well-being

Predictor	Depression			Anxiety			Physical symptoms			Self-esteem		
	<i>R</i> <sup>2</sup> $\Delta$	<i>B</i>	<i>SE</i>	<i>R</i> <sup>2</sup> $\Delta$	<i>B</i>	<i>SE</i>	<i>R</i> <sup>2</sup> $\Delta$	<i>B</i>	<i>SE</i>	<i>R</i> <sup>2</sup> $\Delta$	<i>B</i>	<i>SE</i>
Step 1	.36***			.36***			.30***			.49***		
Controls												
Step 2	.04**			.03*			.03*			.06***		
Autonomous motivation		–0.01	0.04		0.04	0.03		0.01	0.04		0.03	0.03
Non-autonomous motivation		0.22**	0.07		0.13*	0.06		0.19*	0.08		–0.25***	0.05
Step 3	.00			.00			.00			.00		
Autonomous motivation $\times$ sex		–0.03	0.04		0.03	0.03		0.02	0.04		–0.02	0.03
Non-autonomous motivation $\times$ sex		–0.02	0.07		–0.01	0.06		–0.06	0.08		0.04	0.05
Total <i>R</i> <sup>2</sup>	.41			.38			.33			.56		
<i>N</i>	192			191			192			195		

Includes only participants with at least one genital hookup between T1 and T3. All models control for sex, race (white vs. nonwhite), school year (freshman vs. junior), SES, sexual orientation (heterosexual vs. nonheterosexual), neuroticism, extraversion, any genital romantic sex experience by T3, number of genital hookup partners by T1 (log-transformed to reduce non-normality), and well-being at T1; data not shown. Sex: 1 = female; –1 = male; all other categorical variables were coded 0/1

<sup>†</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

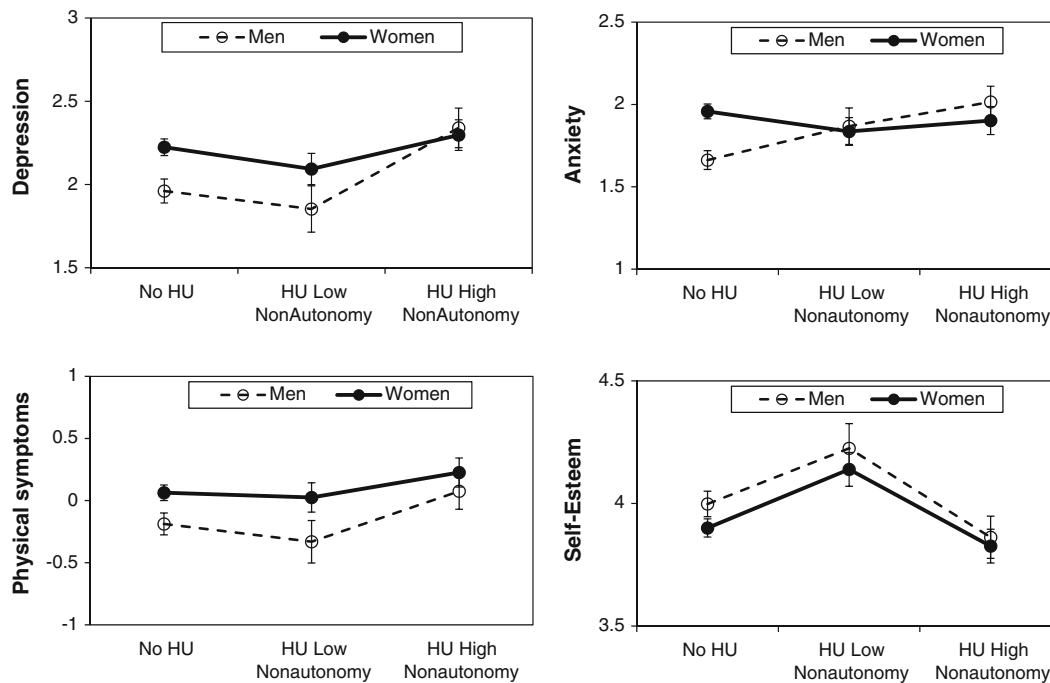
showed that HU-High Nonautonomy participants had significantly higher depression than No-HU peers,  $p < .01$ ,  $d = 0.33$ , supporting H3a. On the other hand, there was no difference between the HU-Low Nonautonomy and No-HU groups ( $d = -0.11$ ), supporting H3b.

For self-esteem, there was also a significant main effect of hookup motivation status,  $F(2, 501) = 9.33$ ,  $p < .001$ , and a non-significant interaction with sex,  $F(2, 502) < 1$ . Planned pairwise comparisons showed that the difference in self-esteem between the HU-High Nonautonomy and No-HU groups was

in the direction hypothesized by H3a (lower in HU-High Nonautonomy participants,  $d = -0.19$ ), but was only marginally significant ( $p < .09$ ). In support of H3b, HU-Low Nonautonomy students had higher self-esteem than their No-HU peers,  $p < .01$ ,  $d = 0.34$ .

For physical symptoms there was no main effect of hookup motivation status,  $F(2, 504) = 2.30$ , or moderation with sex,  $F(2, 504) < 1$ . Planned comparisons indicated that hooking up, regardless of non-autonomous motivation, was not linked to different levels of physical symptoms compared to not hooking





**Fig. 1** Adjusted well-being means for women and men without genital hookups between T1 and T3 (No-HU), with genital hookups and low non-autonomous motivation (HU Low Nonautonomy), and with genital hookups and high non-autonomous motivation (HU High Nonautonomy).

up. Specifically, there were no differences in physical symptoms between HU-High Nonautonomy and No-HU participants,  $d = 0.13$  (not supporting H3a), or between HU-Low Nonautonomy and No-HU participants,  $d = -0.14$  (supporting H3b).

Anxiety was the only outcome where a non-significant effect of hookup motivation status,  $F(2, 501) = 1.75$ , was moderated by sex,  $F(2, 501) = 5.02$ ,  $p < .01$ . Planned comparisons within each sex indicated that HU-High Nonautonomy men had higher anxiety than No-HU men,  $p < .01$ ,  $d = 0.53$ , supporting H3a; HU-Low Nonautonomy men did not differ from their No-HU peers ( $d = 0.33$ ,  $p > .08$ ), supporting H3b. Genital hookups had no effects on anxiety among women regardless of their level of non-autonomous motivation, as there were no differences in anxiety between HU-High Nonautonomy and No-HU women,  $d = -0.07$  (not supporting H3a), or between HU-Low Nonautonomy and No-HU women,  $d = -0.19$  (supporting H3b).

## Discussion

This study examined the longitudinal links between genital hookups, hookup motivation, and four aspects of well-being (depression, anxiety, physical symptoms, and self-esteem) among college students. We found at least partial support for the prediction that hooking up over the course of one academic year would have no significant effect on well-being (H1), that self-

Means are adjusted for school year, race, sexual orientation, socioeconomic status, neuroticism, extraversion, number of lifetime genital hookup partners at T1, any romantic genital sex by T3, and T1 well-being. Error bars represent standard errors

determination in hookup motivation would be associated with higher well-being among the hookup experienced (H2), and that, when compared to peers without hookups, lower well-being would be present only among those with low hookup self-determination, but not those with high hookup self-determination (H3). Examining sex differences, the study found no support for higher hookup self-determination among men compared to women (H4) and only a few sex differences emerged regarding the other three hypotheses. We discuss each of these findings in turn.

The general lack of main effects of hooking up on well-being was consistent with most prior longitudinal research on adolescents and young adults (Eisenberg et al., 2009; Fielder & Carey, 2010a; Monahan & Lee, 2008; Owen et al., 2011; Shulman et al., 2009). This was the first longitudinal college study that employed a university-wide sample and followed students for longer than one semester; it was also the first longitudinal study reporting data on well-being outcomes other than depression and self-esteem. As such, the study significantly contributes to the generalizability of the conclusion that there are no negative long-term effects of hooking up on well-being among college students in general. Although casual sex may have certain features that many fear renders it potentially more harmful than romantic sex (e.g., emotional rejection, substance abuse, less enjoyment), engagement in this behavior per se does not appear to uniformly affect well-being. This further suggests

that any links between casual sex and inferior well-being identified in cross-sectional research (Bersamin et al., 2013; Grello et al., 2006; Paul et al., 2000) are more likely to be due to a causal link in the opposite direction—from inferior well-being to casual sex. Several longitudinal studies have identified such links among adolescents (Grello et al., 2003; Manning, Longmore, & Giordano, 2005; Shulman et al., 2009), although not college students (Fielder & Carey, 2010a; Owen et al., 2011).

As predicted, nonautonomy in one's hookups resulted in lower well-being across all four outcomes and both sexes. This is a typical finding in SDT across a variety of areas of human action (Ryan, Deci, Grolnick, & LaGuardia, 2006) and showed that SDT processes apply, at least to some extent, to the casual sex context. Although hookup motivation explained only a small percent of the variance in well-being (3–6%), our results suggest it was a significant determinant of well-being following hookups. Furthermore, level of nonautonomy in one's hookups was consequential in comparisons with peers without hookups. Those high on nonautonomy in their hookups reported poorer self-esteem, higher depression, and higher anxiety (among men only) than their no-hookup peers, suggesting that hooking up for the “wrong” reasons may be a stressful life event compared to no hooking up. Those low on nonautonomy in their hookups, on the other hand, did not differ from and, in the case of self-esteem, surpassed in well-being their peers without any hookups. This suggests that hooking up in the absence of non-autonomous reasons may have the power to buffer against any negative consequences of hookups and may, in fact, represent an uplifting life event with potential for fostering positive growth.

The effects of non-autonomous hookup motivation on well-being among the hookup experienced and in comparison with the hookup inexperienced were quite robust. They emerged above and beyond the effects of several potential confounds tested in our analyses, specifically romantic sex and prior casual sex experience, as well as two major personality traits that are known to be linked to casual sex (Schmitt, 2005), motivation (Deci & Ryan, 1985), and well-being (Costa & McCrae, 1980)—extraversion and neuroticism. Furthermore, the results of both sets of analyses and for all four well-being outcomes at T3 remain virtually identical when the models controlled for the level of all four well-being variables at T1, or when the comparison group included only those with romantic sex experiences (tables available on request).

In this study, autonomous motivation was not related (positively or negatively) to any well-being outcomes. Given extensive support for the positive role of autonomy in well-being in other areas of human action (Ryan et al., 2006), this was an unexpected finding. One possible explanation is that the specific assessment of autonomy in hooking up used here failed to capture the essence of autonomy in a way that would make a difference to well-being. Another possibility is that demand characteristics introduced a substantial amount of error in our meas-

ure, because the autonomous reasons appear more “respectable” reasons to engage in a behavior with relatively low overall social respectability. This may have led even those with little autonomous motivation to report it to a greater extent, whether due to conscious efforts to “save face” or unconscious processes such as cognitive dissonance. The effects of such demand characteristics could be further compounded by retroactive memory biases making it easier for participants to report autonomous motivation when there was none. Yet another possibility is that this finding was due to our selection of well-being outcomes. In SDT research, most common outcomes are not negative ones, such as depression or anxiety, but positive ones, such as life satisfaction, happiness, or vitality. It is also possible that casual sex is in some way different from other areas to which SDT has been applied such that autonomy does not have the power to positively affect well-being in this context. These possibilities need to be addressed in future research.

### Sex Differences

Theory and prior research suggest that women are less interested in casual sex (Buss & Schmitt, 1993; Petersen & Hyde, 2010) and more likely to engage in it for non-autonomous reasons (Regan & Dreyer, 1999). Furthermore, concerns have been raised that women might be disproportionately affected by any negative consequences of casual sex (Paul, 2006; Townsend, 1995). These sex differences were not borne out by the data in this study. Women and men reported virtually identical rates of casual sex, and indistinguishable levels of both autonomous and non-autonomous motivation for engagement in it. This suggests that, although distal evolutionary concerns regarding short-term mating may be more relevant for women than men, on a proximal level, casual sex may have equal appeal to both sexes among current generations of young people. This process would likely be helped by increasingly more permissive sexual attitudes in the West (Kraaykamp, 2002; Thornton & Young-DeMarco, 2001) and the waning influence of the sexual double standard (Marks & Fraley, 2005), even though unrestricted female sexuality is still judged more harshly than men's, especially in more subtle ways (Marks, 2008; Marks & Fraley, 2006; Vrangalova et al., 2013). This is not inconsistent with evolutionary theories that predict that, due to strategic pluralism (i.e., the idea that mating strategies vary according to environmental conditions), at least some women with certain personal and social characteristics would be highly interested in casual sex (Gangestad & Simpson, 2000).

Perhaps more surprisingly, the single negative link between hooking up and well-being that emerged was seen among men, not women. Specifically, men who had a genital hookup over the course of the academic year had higher anxiety than their hookup-inexperienced peers, and hookup nonautonomy only partially buffered against this effect. Anxiety has not been studied much in relation to casual sex previously: We could

identify only one such study, which found no cross-sectional relationship between trait anxiety and one-night stands in a community-based sample of adult men (Bancroft et al., 2004). A link to higher anxiety may be due to the uncertainty inherent in casual sexual interactions in terms of their future outcome, or due to fear of potential negative consequences, such as unwanted pregnancy, sexually transmitted infections, or reputation loss, all of which are relatively common reactions following casual sex (Campbell, 2008; Glenn & Marquardt, 2001; Paul & Hayes, 2002). Why this effect was only seen in males is less clear. It is possible that post-hookup fears and uncertainty were higher among this particular sample of men. Another possibility is that as hookups become more normative among college students—further compounded by pluralistic ignorance, that is, generally false beliefs regarding their high prevalence among others in this group (Lambert, Kahn, & Apple, 2003; Reiber & Garcia, 2010), college men may feel greater pressure to perform well in their hookups leading to greater anxiety. This issue deserves future examination.

The sex difference in anxiety notwithstanding, the results of this study more strongly favor a conclusion of few to no sex differences in the strength and type of hookup motivation or in the link between hookup motivation and well-being. This is consistent with prior SDT research, which typically finds no sex differences in the operation of SDT processes (Deci & Ryan, 2000).

#### Limitations and Future Research

The university-wide sample representative in terms of race and college enrollment was a strength of this study; nonetheless, the sample represented a relatively homogeneous group of well-educated and privileged students at an elite school. Future research needs to examine these effects in other, more diverse groups of young adults. Another limitation was the relatively low response rate (13 %), which is somewhat lower than the average response rate of online surveys in general (Cook, Heath, & Thompson, 2002). The low response rate raises the possibility that, although the sample was unbiased by recruitment procedures, some self-selection bias may have occurred, including a 1.7:1 ratio of women to men (university-wide, this ratio is 1:1). Moreover, despite the relatively large sample, only a minority (37 %) engaged in at least one genital hookup over the academic year, resulting in some tests to be underpowered. The prevalence of hookups in our sample was lower than other studies, many of which report prevalence of 50 % or higher over one or two semesters (Fielder & Carey, 2010a; Holman & Sillars, 2012; Olmstead et al., 2013; Owen et al., 2011). This difference may have to do with greater focus on academics at this Ivy League university compared to the institutions sampled in other studies, most of which are large public universities and some rank particularly high on lists of the best “party schools” (Fiesta Frog, 2013; Randolph, 2013). The difference

could also be due to our university-wide sample as opposed to mostly social science samples in prior studies. For example, only 23 % of engineering students in the current study had a genital hookup during the year, compared to 62 % of students in the colleges of International and Labor Relations or Hotel Administration.

The definition of hookup used in the study was broad: It included any kind of genital contact. We chose this level of sexual intimacy because many hookups do not involve intercourse (Fielder & Carey, 2010b) and for statistical power purposes (only 27 % of participants had an intercourse hookup over the academic year). More restrictive definitions should be examined in future work, as there are sociocultural (Peterson & Muelhenhard, 2007), evolutionary (Townsend & Wasserman, 2011), neurochemical (Young & Wang, 2004), and empirical (Fielder & Carey, 2010a; Paul et al., 2000) reasons to believe that hookups involving intercourse may have greater impact on well-being than hookups involving less physically intimate sexual acts. Furthermore, the hookup variables used in this study combined shorter (e.g., one-night stands) and longer (e.g., friends-with-benefits) casual interactions. Future research should examine these separately, as they may impact well-being differently, perhaps due to differences in the frequency or level of sexual and non-sexual contact, personal disclosure, intentionality, emotional attachment, or substance and condom use present in each (Jonason, Li, & Richardson, 2011; Romero-Daza & Freidus, 2008; Wentland & Reissing, 2011). In addition, our assessment did not distinguish (casual) dating partners as a separate category; it is possible that participants varied in how they classified such partners, introducing some level of error in the data, particularly as it pertains to measurement and meaning of relationship motivation.

Several limitations stem from our measure of hooking up motives. Reporting of motivation was retrospective, extending across all hookups that occurred over the course of the academic year. This likely affected the reliability of the measure both directly and indirectly by aiding the conscious (e.g., lying to “save face”) or unconscious (e.g., cognitive dissonance) effects of demand characteristics on reporting autonomous versus non-autonomous reasons. Another limitation was the relatively short measure of self-determination used in this study where several items combined multiple ideas and may have been confusing. Furthermore, the endpoints of the scale were anchored by “none of my hookups” and “all of my hookups” and this may have different meanings for those with a single versus many hookups. Finally, there was an unusually high overlap between autonomous and non-autonomous motivation among men ( $r = .53$ ), indicating that hookup motivation among men was less differentiated along the self-determination continuum or that our measure was less successful at capturing the relevant gradations in motivation among men. Future research should focus on developing a more standardized Self-Regulation

Questionnaire for the casual sex context (Ryan & Connell, 1989), and one that is equally appropriate for men and women.

Finally, this study addressed only one of many potential factors that influence the link between casual sex and well-being; other factors, such as expectations, personality, attachment styles, substance and condom use, partner communication, or social norms need to be examined. Furthermore, although there are a number of possibilities for the mechanisms by which casual sex affect well-being (e.g., substance use, societal disapproval, sexual/reproductive health consequences, etc.), these have yet to be empirically tested using mediational analyses.

### Implications

These results, together with some prior findings (Fielder & Carey, 2010a; Grello et al., 2006; Meier, 2007; Owen & Fincham, 2011; Owen et al., 2010, 2011; Paul et al., 2000), indicate that not all hookups have the same potential to benefit or harm well-being and not all individuals are equally susceptible to this potential; instead, this depends on many individual, social, and situational factors. By examining motivation as one such potential factor, this study contributes to shifting research away from main effects and toward a more informative exploration of moderators and mediators. Such refined understanding could also help shift education, public policy, and clinical work away from uniform, one-size-fits-all strategies and messages regarding casual sex and its health consequences, and toward more individually tailored, and, thus, more useful, approaches. Given that (proximal) motivation is a factor that precedes hooking up behavior and is largely cognitively accessible to and under conscious control of the individual, motivation may be a particularly useful tool in helping young adults to make responsible and informed decisions regarding their sexual behavior. Specifically, young people need to be informed that whether their psychological and physical well-being benefits or suffers following casual sex may be crucially dependent on their reasons for engaging in it. They should be encouraged to examine their motives prior to hooking up, and provided with the practical, emotional, and social skills to choose to refrain from hooking up when their motives are primarily of the ‘wrong’ (i.e., non-autonomous) type.

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