

Engagement in and Desire for Romantic and Sexual Relationships in College: Associations with
Mental Health

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Abstract

Research suggests certain types of romantic/sexual relationships, especially “hookups,” may be associated with increased mental health difficulties and lower well-being among college students, particularly women. However, findings on the impact of romantic and sexual relationship types on college students’ mental health are contradictory, and often do not consider the impact of self-reported desire or attitudes about hooking up. In this study, we examined whether degree of engagement in four types of romantic/sexual relationships (committed/romantic, dating, friends with benefits, and hookups) was associated with mental health functioning (depressive symptoms, anxiety symptoms, self-esteem), as well as if degree of engagement interacted with desire for each relationship type to predict mental health functioning. Finally, we examined whether interactions between engagement and desire as predictors of mental health functioning were moderated by gender. Participants included 140 University of Michigan undergraduates who completed online questionnaires on romantic and sexual relationship practices, attitudes about hooking up, and measures of depression, anxiety, and self-esteem. Our results indicate that, with a few exceptions, sexual/romantic relationship types were not typically associated with these mental health measures. Likewise, with few exceptions, the association between relationship type and mental health was not typically moderated by the desire for such relationships. Interestingly, we found that attitudes toward hooking up interacted with hookup number to predict anxiety for female students. These findings may suggest that “hookup culture” has normalized casual sexual relationships to the extent that they are not significantly associated with undergraduates’ mental health.

Keywords: dating, sexual practices, relationships, depression, anxiety, self-esteem

Engagement in and Desire for Romantic and Sexual Relationships in College: Associations with Mental Health

Approximately 12-18% of students on college campuses have a diagnosable mental illness (Mowbray et al., 2006), and 50% attended counseling for mental health concerns during the 2015-2016 year (Center for Collegiate Mental Health, 2016). Depression and anxiety are the primary reasons college students seek help (Center for Collegiate Mental Health, 2016), often due to increased stress. Students almost universally report that college is stressful (90%), and 30-40% indicate that stress interferes with functioning in their academic and social lives (American College Health Association, 2017). Navigating new relationships and increased social pressure are significant sources of stress during the college years (Darling, McWey, Howard, & Olmstead, 2007). Some have argued that the prevalence of casual sexual relationships has contributed to this stress, suggesting this type of relationship could impact self-esteem and body dissatisfaction (Paul, McManus, & Hayes, 2000). Considering the prevalence of “hookup culture” on college campuses (Kuperberg & Padgett, 2015; Owen, Rhoades, Stanley, & Fincham, 2010) it is likely that there is significant variability in the degree of desire for and comfort with these relationships. Thus, it is possible that some students are experiencing cognitive dissonance regarding the types of relationships they want and the types of relationships that they are actually engaging in (Owen et al., 2010), and this dissonance may be what is driving the relationship between relationship stress and mental health functioning in some individuals. Therefore, in this study we will examine whether incongruence between desired and actual romantic/sexual relationships (committed romantic relationship, casual romantic dating, friends with benefits, hookups) experienced in the transition to college is associated with measures of mental health, specifically depression, anxiety, and self-esteem.

Several studies suggest that committed relationships may be associated with lower levels of depression and anxiety. For example, in a sample of over 1,600 college students, those in committed relationships self-reported fewer mental health problems, including depression and anxiety (Braithwaite, Delevi, & Fincham, 2010). In a German study of adolescents and young adults, it was found that beginning a romantic relationship caused an increase in self-esteem, and this effect carried on when the relationship lasted for at least one year (Luciano & Ulrich, 2017). On the other hand, it has been reported that hookups sometimes result in feelings of anxiety and depression among college students (Bachtel, 2013). Hookups with a previous partner have been rated as more satisfying (Snapp, Ryu, & Kerr, 2015), suggesting psychological reactions to consistent hookup partners, or “friends with benefits,” may be associated with more positive psychological reactions than one-time encounters. A short-term prospective study of college students (Vrangalova, 2015) found associations between anxiety and depression with hookup experiences to be affected by relationship length (one time, longer casual, and any nonromantic) as well as intimacy level (prolonged kissing, genital touching, oral sex, and intercourse), such that “new hookups were often linked to higher subsequent anxiety,” yet “new nonromantic kissing hookups” were associated with *lower* later depression (Vrangalova, 2015, p. 493). However, hookups were largely unassociated with depression, and there was not a significant impact of hookup experiences and self-esteem in this study (Vrangalova, 2015). Thus, the impact of noncommittal sexual encounters on mental health varies across the literature and varies by definition of hookup used. Overall, this data suggests significant variability in the association between relationship types and mental health functioning, which highlights the need to examine potential factors that contribute to this variability.

Relationships between type of romantic and/or sexual behavior and mental health may not be linear. In particular, the university environment — characterized by the proximity of a multitude of potential sexual partners as well as a culture that popularizes drinking and partying — has been linked to the casual sex script (Armstrong & Hamilton, 2013), or the normalization of casual sex relationships. Indeed, it has been suggested that freshman students in particular may engage in sexual experimentation through “hookups” as an expression of their new freedom (Kuperberg & Padgett, 2015). Due to this cultural normalization of casual sex, it is possible that some college students may experience fewer negative reactions, such as shame, that are often associated with casual sexual encounters (e.g. “the walk of shame” (Lunceford, 2008)), especially if their attitudes toward the behavior are positive (Owen et al., 2010). Alternatively, aspects of the college environment may influence students’ engagement in casual sexual relationships despite a low personal desire to do so. For instance, the prevalence of hookups despite the frequency of negative experiences with them may be partially attributed to “pluralistic ignorance,” or a false belief that one’s peer group largely accepts a norm that one privately rejects (Kuperberg & Padgett, 2015). Indeed, students overestimate both others’ participation in casual sexual relationships (Holman & Sillars, 2012) as well as “the other gender’s comfort with hooking up behaviors” (Lambert, Kahn, & Apple, 2003, p. 129). Additionally, although the casual sexual script is emphasized in the college environment, both men and women have been found to prefer dates over hookups (Bradshaw, Kahn, & Saville, 2010), and when interviewed about “hooking up” and “friends with benefits” scripts, most college men either rejected the script or “enacted an amended version that allowed for greater relational connection” (Epstein, Calzo, Smiler, & Ward, 2009, p. 414). Additionally, when asked about their most preferred type of relationship, one study found that 63% of college-aged

men and 83% of college-aged women preferred “a traditional romantic relationship as opposed to an uncommitted sexual relationship” (Garcia, Reiber, Merriwether, Heywood, & Fisher, 2010), despite the commonality of the casual sex script, and another survey found that 65 % of women and 45% of men indicated they wished their hookup partner would become a committed relationship partner (Owen & Fincham, 2011). Overall, research suggests a discrepancy between college students’ sexual/romantic behaviors and the type of sexual/romantic relationships they would most like to engage in. It is possible that desire to engage in a certain relationship type moderates the impact of that relationship type on mental health functioning.

Another potential moderator of engagement in and desire for certain relationship types is gender. Research attention has been given to gender differences in reactions to college relationships, especially in the case of casual sexual encounters, or hookups. Women are less likely than men to report that their hookup experiences were positive (Garcia, Reiber, & Massey, 2012) — with nearly half (48.7%) reporting a negative reaction (Owen et al., 2010). Young adults who reported negative or ambivalent reactions to hookups also reported lower psychological well-being compared to those who had positive reactions (Owen et al., 2010). Reasons for women’s relative dissatisfaction include unreciprocated desires for romantic commitment and avoidance of relational negotiation (Bisson & Levine, 2009). Additionally, sex in dating relationships, as opposed to hookups, is more gratifying for women (Armstrong, Hamilton, & England, 2010), and whereas women reported being equally invested in sexually pleasing boyfriends and hookup partners, men reported being more concerned with the sexual pleasure of girlfriends versus hookup partners (Armstrong, England, & Fogarty, 2012). It is also possible that women more commonly experience negative reactions to hookups due to higher rates of sexual assault in the context of hookups (Garcia et al., 2012). Men who engaged in

casual sex self-reported fewest depressive symptoms, whereas for women, a history of casual sex was associated with the most depressive symptoms (Grello, Welsh, & Harper, 2006). Further, involvement in a committed relationship, compared with being single, was associated with fewer depressive symptoms for college women but not for men (Whitton, Weitbrecht, & Bruner, 2013). These studies suggest there are gender differences in college students' experiences of romantic and sexual relationships that should be explored.

Studies of college relationships have examined rates of participation in a range of sexual and romantic behaviors. Findings suggest that undergraduate students engage in relatively equal rates of casual sex and dating (Kuperberg & Padgett, 2015), with approximately 50% of students reporting engagement in a casual sex encounter (Kuperberg & Padgett, 2015; Owen et al., 2010) and a similar percentage reporting having gone on a date (Kuperberg & Padgett, 2015). Additionally, approximately half (51.26%) of college students report having had a long-term relationship since starting college (Kuperberg & Padgett, 2015). While most (88.70%) students report having had at least one of these types of relationships, and 25.32% report having participated in all three, only 11.30% of report having engaged in none (Kuperberg & Padgett, 2015). Additionally, among participants aged 20-24 in a national study, 15% reported having no sexual partners since age 18, indicating a wide range in behaviors participated in during the college years (Twenge, Sherman, & Wells, 2017). Because studies suggest college students engage in a wide range of behaviors, measures of romantic and sexual practices should be variable enough to capture this range of behaviors.

Research Hypotheses

The aim of this study was to determine whether incongruence between desired and actual romantic/sexual relationships was associated with rates of depression and anxiety symptoms and

self-esteem among college students. We hypothesized that higher levels of casual sexual encounters would be associated with greater depression and anxiety symptoms and lower self-esteem. Additionally, we hypothesized that less congruence between engagement in a relationship type and desire for that relationship type would be associated with higher depressive and anxiety symptoms and lower self-esteem. We further explored whether interactions of engagement and desire were significantly associated with mental health functioning when moderated by gender.

Method

Participants

This study included 140 undergraduate participants (65 men, 74 women, 1 declined to state) at the University of Michigan. Participant age ranged from 18 to 21, with a mean age of 18.68 ($SD=.81$). The majority of participants were freshman (51.43%), heterosexual (95.00%), and White (64.75%). Racial breakdown of participants was as follows: Black/African American (7.91%), American Indian or Alaska Native (.72%), Asian or Pacific Islander (21.86%), Middle Eastern/North African (2.88%), other (1.44%) and multi-racial (1.44%). Current membership in Greek Life was 35.71%; participants who are currently pledging or rushing Greek Life were 19.29%. Participants elected to participate in this study through the University of Michigan Subject Pool; for their participation, they received .5 hours of course credit toward a ten-hour participation in research studies requirement for an Introductory Psychology course. Participants were not aware of the subject matter of the study prior to participation. See Table 1 for a complete demographic breakdown.

Procedure

The protocol consisted of a single, remotely-accessed online survey session lasting approximately half an hour. During this time, participants completed various questionnaires, including demographics and measures of depression, anxiety, self-esteem, body esteem, weight-related body esteem attitudes about “hooking up,” as well as sexual and relationship practices during the past semester and satisfaction with those relationship types. Participants gained access to the study midway through the Fall 2017 semester; the study was made unavailable prior to final exams. This singular time point halfway through the Fall 2017 semester allows for observation of sexual and relationship attitudes and practices as well as current levels of depression, anxiety, and self-esteem experienced during the first half of the academic year.

Materials

Demographic information. Participants were asked for their age, year of study, gender, sexual orientation, race and ethnicity, political leanings, religious affiliation and practice, history of parental divorce and remarriage, age and gender of siblings, involvement in university Greek life, and perceived socioeconomic status.

Questionnaires.

Sexual and Romantic Relationship Practices Questionnaire. The Sexual and Relationship Practices Questionnaire was created for this study, was based on sexual experiences questionnaires (Impett & Tolman, 2006), and was broadened to include romantic relationship measures in addition to sexual experience measures. It includes questions about participation in romantic (romantic/committed; dating) and sexual (friends with benefits; hookups) relationship types, the degree of involvement in and satisfaction with those relationship types, and to what degree each type of relationship was desired during the past semester. Additional questions

regard use of dating apps as well as which type of relationship the participant would most like to engage in now (see Appendix I).

Attitudes about Hooking Up. The Attitudes about Hooking Up measure is a five-item questionnaire to assess attitudes about aspects of hooking up and hookup culture (Owen et al., 2010). The five items are: “I would have sex with someone that I had no plans to ever talk to again;” “I think it’s okay to have ‘friends with benefits;” “I feel more comfortable hooking up with someone than talking about my feelings with them;” “I feel that that ‘friends with benefits’ is a natural step to develop a committed relationship;” and, “I feel that hooking up is a normal activity for college students.” These items were rated on a 7-point scale ranging from “Strongly Agree” to “Strongly Disagree.” Cronbach’s alpha was .80, indicating high internal consistency.

Center for Epidemiological Studies Depression Scale. The Center for Epidemiologic Studies Depression Scale (CES-D) consists of 20 items designed to measure depressive symptomatology, including affective and somatic symptoms (depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness; loss of appetite, sleep disturbance, and psychomotor retardation). The CES-D has good psychometric properties (Shafer, 2006).

Beck Anxiety Inventory. The Beck Anxiety Inventory (BAI) consists of 21 items designed to discriminate between symptoms of anxiety and depression. Respondents report how much they have been bothered by somatic symptoms of anxiety (such as feelings of nervousness, dizziness, and inability to relax) over the past week (Beck, Epstein, Brown, & Steer, 1988). The BAI has good internal consistency (coefficient alpha was .91) and test-retest reliability (.65) (Bardhoshi, Duncan, & Erford, 2016).

Rosenberg Self-Esteem Scale. The Rosenberg Self-Esteem Scale (RSES) is a 10-item scale that measures global self-worth by measuring both positive and negative feelings about the

self. Items are answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree (Rosenberg, 1965). The RSES has strong construct validity for men and women, for a variety of ethnic groups, and for college students. Alpha reliabilities ranged from .88 to .90 across six assessments (Robins, Hendin, & Trzesniewski, 2001).

Body Esteem Scale for Adolescents and Adults. The Body Esteem Scale for Adolescents and Adults (BESAA) is a 30-item scale. Although originally created for adolescents, modifications have made the scale suitable for adults. The measure includes a 5-point Likert scale where respondents are asked to express how often they agree with statements about their body esteem in regard to appearance, weight, and attribution, ranging from 0 (never) to 4 (always). The scale is valid and reliable over a wide range of ages. The subscales have high internal consistency and 3-month test-retest reliability (BE–Appearance $r(95) = .89, p < .001$; BE–Weight $r(95) = .92, p < .001$; and BE–Attribution $r(95) = .83, p < .001$) (Mendelson, Mendelson, & White, 2001).

Weight-Influenced Self-Esteem Questionnaire (WISE-Q). This questionnaire measures how self-esteem would be affected by a five-pound weight gain. It contains 22 questions on a 5-point Likert scale indicating how much the participant agrees or disagrees with provided statements. The WISE-Q has shown test-retest reliability ($r = .88, p < .001$) and good predictive validity of three related constructs: global self-esteem $r = .54$, drive for thinness $r = .57$, and body dissatisfaction $r = .57$ (Trottier, McFarlane, Olmstead, & McCabe, 2013).

Statistical Analyses

First, we examined the direct link between relationship types (romantic/committed, dating, friends with benefits, hookups) and mental health functioning (depression, anxiety, and self-esteem) using separate multiple regression analyses. Then, we examined whether

discrepancy between actual and desired relationship type moderates the association between degree of engagement with that type of relationship and mental health functioning by examining regression models that include interactions between an index of discrepancy and the selected relationship type predicting the mental health outcome. For each mental health outcome, we also ran this same model, substituting “attitudes about hooking up” for “desire.” Finally, we examined whether gender moderates the association between an interaction of relationship type and desire and mental health functioning.

Results

Descriptive Statistics

Relationship types. Participant engagement in each relationship type of relationship in the past semester is as follows: Committed/romantic: 24.29% (27.69% of men; 21.62% of women); dating: 40.00% (52.00% of men; 54.84% of women); friends with benefits (FWB): 30.71% (32.31% of men; 29.73% of women); hookups: 51.43% (53.85% of men; 50.00% of women). Participants were able to select more than one relationship type (see Table 2). Additionally, 20.86% of participants (18.46% of men; 22.97% of women) indicated that they had not engaged in any of these relationship types. When asked which of these of these relationship types participants would most like to be involved in now, responses were as follows: Committed/romantic: 49.29% (44.62% of men; 52.70% of women); dating: 20.71% (18.46% of men; 22.97% of women); friends with benefits: 10.71% (16.92% of men; 5.41% of women); hookups: 12.86% (16.92% of men; 9.46% of women); no romantic/sexual: 6.43% (3.08% of men; 9.46% of women).

Attitudes about Hooking Up. Attitudes about Hooking Up (AHU) scores range from 1 to 35, with higher scores indicating more positive attitudes towards hooking up and hookup

culture. The average participant score was 20.56 ($SD=6.71$). Scores did not significantly vary for men ($m=21.49$; $SD=6.97$) and women ($m=19.77$; $SD=6.46$). (See Table 3.)

Mental health functioning. Participant scores on the Center for Epidemiological Studies Depression Scale (CES-D) averaged 16.23 ($SD=9.65$) with women (18.92; $SD=10.10$) having significantly more depressive symptoms than men ($m=12.75$; $SD=7.80$) $t = -3.84$, $p < .001$. Scores on the Beck Anxiety Index (BAI) averaged 13.60 ($SD=11.94$), with women ($m=16.00$; $SD=13.37$) having significantly more symptoms of anxiety than men ($m=10.89$; $SD=9.59$) $t = -2.48$, $p < .05$. Scores on the Rosenberg Self-Esteem Scale (RSES) averaged 20.13 ($SD=6.00$), with women ($m=21.71$; $SD=5.89$) having significantly higher self-esteem than the men ($m=18.17$; $SD=5.51$) in the study, $t = -3.58$, $p < .001$. (See Table 4.)

Associations between Committed/Romantic Relationships and Mental Health

Depression. We examined the association between committed/romantic relationship length and depression, and whether this association varied as a function of desire for this relationship type. We found no overall effect of relationship length on depressive symptoms, $b=-0.86$, $t = -1.07$, $p = .29$, but this was moderated by the desire for such relationship. Specifically, as the desire for the relationship decreased, the link between relationship length on depressive symptoms increased significantly, Length x Desire $b = -1.20$, $t = -2.63$, $p < .01$. For those with little desire for committed relationships, the length of the relationship predicted higher depressive symptoms, $b = 5.97$, $t = 2.20$, $p = .03$. This association was not found among those with higher desire to be in a committed/romantic relationship. Furthermore, this interaction was not significantly moderated by gender. (See Table 5.)

Anxiety. We examined the association between committed/romantic relationship length and anxiety symptoms, and whether this association varied as a function of desire for this

relationship type. We found no overall effect of committed/romantic relationship length on anxiety symptoms. The interaction between length of committed/romantic relationship and desire to be in a committed/romantic relationship was not significantly associated with anxiety symptoms. This interaction was not significantly moderated by gender. (See Table 5.)

Self-Esteem. We examined the association between committed/romantic relationship length on self-esteem, and whether this association varied as a function of desire for this relationship type. We found a significant association between length of committed/romantic relationship and self-esteem, such that longer relationship length was associated with lower self-esteem $b=-1.72$, $t=-3.62$, $p<.001$. Further, we found an association between desire to be in a committed relationship and self-esteem $b=.63$, $t=.29$, $p=.03$, such that greater desire to be in a committed relationship was associated with greater self-esteem. The interaction between length of committed/romantic relationship and desire to be in a committed/romantic relationship was not significantly associated with anxiety symptoms. This interaction was not significantly moderated by gender. (See Table 5.)

Associations between Dating and Mental Health

Depression. We examined the association between number of date partners and depressive symptoms, and whether this association varied as a function of desire for this relationship type. We found no overall effect of date number on depressive symptoms, $b=-2.02$, $t=-1.02$, $p=.31$. The interaction between date number and desire was not significantly associated with depressive symptoms, $b=-1.31$, $t=-1.33$, $p=.19$, but was moderated by gender. For men, the association between date number and depressive symptoms was not moderated by the desire to be dating, $b=.06$, $t=.05$, $p=.96$. For women, there was an interaction between date number and desire to date $b=-4.10$, $t=-2.71$, $p<-.01$. Specifically, among women with low desire to date,

date number was positively related to depressive symptoms $b=18.53$, $t=2.37$, $p=.02$. As desire to date increased, the association between date number and depressive symptoms became less significant. (See Table 6.)

Anxiety. We examined the association between number of date partners and anxiety symptoms, and whether this association varied as a function of desire for this relationship type. We found no overall effect of date number on anxiety symptoms. The interaction between date number and desire to be dating was not significantly associated with anxiety symptoms. This interaction was not significantly moderated by gender. (See Table 6.)

Self-Esteem. We examined the association between number of date partners and self-esteem, and whether this association varied as a function of desire for this relationship type. We found a significant association between date number and self-esteem, such that a greater date number was associated with lower self-esteem $b=-2.80$, $t=-2.41$, $p=.02$. The interaction between date number and desire was not significantly associated with self-esteem. However, this interaction was significantly moderated by gender. For men, there was no interaction between date number and desire to date $b=-.04$, $t=-.06$, $p=.96$. For women, there was an interaction between date number and desire to date $b=-2.76$, $t=-3.03$, $p <.01$. Specifically, for those with low desire to be dating, a greater date number was inversely related with self-esteem $b=-10.76$, $t=2.27$, $p=.02$. However, as desire increases, this association between date number and self-esteem decreases. (See Table 6.)

Associations between Friends with Benefits (FWB) and Mental Health

Depression. We examined the association between number of FWB and depressive symptoms, and whether this association varied as a function of desire for this relationship type. We found no association between FWB number and depressive symptoms. However, we did

find a main effect of desire to engage in FWB relationships on depressive symptoms, $b=.95$, $t=2.00$, $p=.05$, such that stronger desire to engage in FWB relationships was associated with more depressive symptoms. The interaction between FWB number and desire to have a FWB was not significantly associated with depression symptoms. This interaction was not significantly moderated by gender. (See Table 7.)

Anxiety. We examined the association between number of FWB and anxiety symptoms, and whether this association varied as a function of desire for this relationship type. We found a significant association between FWB number and anxiety symptoms, $b=5.89$, $t=2.10$, $p=.04$, such that having a greater number of friends with benefits relationships was associated with more anxiety symptoms. We found no significant associations between desire for FWB relationships and anxiety symptoms. The interaction between FWB number and desire to have a FWB was not significantly associated with anxiety symptoms. This interaction was not significantly moderated by gender. (See Table 7.)

Self-Esteem. We examined the association between number of FWB and self-esteem, and whether this association varied as a function of desire for this relationship type. We found no overall effect of FWB number on self-esteem. The interaction between FWB number and desire to have a FWB was not significantly associated with self-esteem. This interaction was not significantly moderated by gender. (See Table 7.)

Associations between Hookups and Mental Health

Depression. We examined the association between number of hookup partners and depressive symptoms, and whether this association varied as a function of desire for this relationship type. We found no overall effect of hookup number on depressive symptoms. The interaction between hookup number and desire to hook up was not significantly associated with

depressive symptoms. This interaction was not significantly moderated by gender. (See Table 8.)

Anxiety. We examined the association between number of hookup partners and anxiety, and whether this association varied as a function of attitudes about hooking up. We found no significant association between hookup number and anxiety symptoms. The interaction between hookup number and attitudes about hooking up was not significantly associated with anxiety symptoms. However, this interaction did become significant when moderated by gender. For men, there was no interaction between hookup number and attitudes about hooking up $b=-.15$, $t=-.44$, $p=.66$. For women, there was an interaction between hookup number and attitudes about hooking up $b=.74$, $t=2.46$, $p=.02$. Specifically, among those with negative attitudes about hooking up, number of hookups was inversely related to anxiety symptoms $b=-18.79$, $t=-2.36$, $p=.02$. As attitudes about hooking up became more positive, the association between hookup number and anxiety symptoms became less significant. (See Table 9.)

Self-Esteem. We examined the association between number of hookup partners and self-esteem, and whether this association varied as a function of desire for this relationship type. We found no overall effect of hookup number on self-esteem. The interaction between hookup number and desire to hook up was not significantly associated with self-esteem. This interaction was not significantly moderated by gender. (See Table 8.)

Discussion

In the current study, we aimed to determine whether certain types of romantic/sexual relationships (specifically hookups) were associated with symptoms of depression, anxiety, and self-esteem, as well as whether incongruence between desired and actual romantic and/or sexual relationships was associated with rates of depression and anxiety symptoms and self-esteem. We

hypothesized that higher levels of casual sexual encounters (e.g. “hookups”) would be associated with increased depressive and anxious symptoms, as well as lower self-esteem. Additionally, we hypothesized that greater incongruence between engagement in a relationship type and desire for that relationship type would be associated with higher depressive and anxiety symptoms, and lower self-esteem. Contrary to our hypothesis, we found that engagement in hookups was largely unassociated with mental health functioning for both men and women, even when accounting for desire to engage in hookups. Additionally, we found that incongruence between engagement in a type of relationship and desire for that type of relationship was not typically associated with the measures of mental health functioning studied, with a few exceptions. Interestingly, we found an interaction between attitudes toward hooking up and number of hookup partners to be significantly associated with anxiety for women, but in an unexpected direction. Specifically, we found that for women with negative attitudes toward hooking up, higher anxiety was actually associated with a lower number of hookup partners. Unexpected associations between romantic/sexual practices and mental health highlight the potential that college students’ attitudes towards romantic/sexual relationships are shifting, and suggest that the link between romantic/sexual behavior and college students’ mental health is more complex than previous research has suggested.

Rates of Engagement in Relationship Types

We asked participants about their engagement in four types of romantic and sexual relationship types over the past semester. From most to least engaged in, these were: hookups (51.43%), dating (40.00%), friends with benefits (30.71%), and committed/romantic (24.29%); additionally, 20.86% of respondents indicated they had engaged in none of these. These findings are largely consistent with past studies demonstrating a wide variety of romantic and sexual

behaviors in college students (Twenge et al., 2017), as well as that approximately 50% of college students report having engaged in a casual sexual encounter (Kuperberg & Padgett, 2015; Owen et al., 2010). However, fewer participants in this study indicated they had gone on dates or been in a committed/romantic relationship than in previous studies, and a notably higher percentage of participants indicated they had engaged in none of these relationship types (Kuperberg & Padgett, 2015). It is possible that the large proportion of freshmen students in our sample may explain these unexpected findings, as it has been suggested that freshmen engage in casual sexual relationships as an expression of their newfound freedoms (Kuperberg & Padgett, 2015); additionally, it is possible they may not have had sufficient time to develop committed/romantic or dating relationships. The large number of undergraduates who indicated they engaged in none of these relationship types may suggest a type of incoming student who is focused on academics rather than romantic/sexual relationships during their transition into a highly competitive university environment.

Impact of Committed/Romantic Relationship Type on Mental Health

For committed/romantic relationships, we found a significant association between the interaction of Length and Desire on depressive symptoms, such that for those with low desire to be in a committed/romantic relationship, greater relationship length was associated with more depressive symptoms. This complicates previous findings that engagement in a committed/romantic relationship is associated with lower rates of depression (Braithwaite et al., 2010), especially for women (Whitton, Weitbrecht, & Bruner, 2013). Considering the large proportion of freshmen students in our study, it is possible this finding may be explained by the college transition. If freshmen students enter college in a committed/romantic relationship, it is possible that the availability of new romantic and sexual partners offered by the university

environment may cause a decreased desire to remain in the relationship, especially considering the emphasis on “hookup culture” in the college environment, and particularly if the high school-to-college transition has made the relationship “long distance.” Then, remaining in a relationship that one does not desire to be in could cause an increase in depressive symptoms. Alternatively, students who go through the college transition with pre-existing depressive symptoms may find it more difficult to end their committed/romantic relationship if their significant other offers emotional comfort during the time of the transition, despite conflicting desires. Interestingly, despite the comorbidity between depression and anxiety (Kaufman & Charney, 2000), we did not find significant associations between engagement in committed/romantic relationships and anxiety symptoms, suggesting the link between committed/romantic relationships and depression symptoms specifically should be further explored.

Additionally, we found a significant association between length of committed/romantic relationships and self-esteem, such that longer relationship length was associated with lower self-esteem. This result is not necessarily inconsistent with past research findings that self-esteem typically increases at the beginning of a romantic relationship and persists when the relationship holds for at least one year, and then decreases after a break-up (with no continuing effect after one year) (Luciano & Ulrich, 2017). It is possible that participants in our study had broken up (perhaps with their high school romantic partner) within the first semester of coming to college, causing lower self-esteem of those with longer committed/romantic relationships in this study. Alternatively, it is possible that incoming college students in committed/romantic relationships may not end unfulfilling relationships due to their low self-esteem, as those with low self-esteem may not believe they would be better off without the relationship. Overall, these findings point to the importance of examining both relationship type as well as an individual’s desire to engage

in that type of relationship, as well as offers support for a longitudinal study design that tracks students as they transition into college.

Impact of Dating Relationship Type on Mental Health

Although we did not find an association between number of date partners and depressive symptoms or an interaction between Date Number x Desire on depressive symptoms, we did find that gender moderated this interaction, such that the Date Number x Desire interaction was significantly associated with depressive symptoms for women but not men. Specifically, for women with low desire to date, a greater number of dating partners was associated with more depressive symptoms. Importantly, as women's desire to date increased, the association between date number and depressive symptoms decreased. Consistent with research indicating that women (more so than men) often wish that their casual sex encounters would result in a committed/romantic relationship (Owen & Fincham, 2011), it is possible that women are dating with the intention of beginning a committed/romantic relationship, and thus have low desire to engage specifically in the behavior of "dating." For these women, it may follow that an increasing number of date partners (i.e. an increasing number of dates that do not result in a committed/romantic relationship) may contribute to more depressive symptoms. Alternatively, it is possible that women who are already experiencing depressive symptoms may have low desire to engage in the *process* of dating (as would be consistent with depressive symptomatology), but may be motivated to engage in increased dating *behavior* in an effort to develop a committed/romantic relationship. These hypotheses are consistent with our finding that although only 21.62% of women in our study indicated they had engaged in a committed/romantic relationship in the past semester, 52.70% indicated this is the relationship type they would most like be in. This finding suggests the importance of examining women's intentions when

engaging in dating behavior. As with associations between committed/romantic relationships and mental health, we did not find significant associations between dating relationships and anxiety, despite the comorbidity of depression and anxiety.

Additionally, we found a significant association between date number and self-esteem, such that a greater number of dating partners was associated with lower self-esteem. Although there was not a significant association between the interaction of date number and desire to date on self-esteem, this interaction was significant when moderated by gender. For men, there was no association between the interaction of date number and desire to date on self-esteem. For women, this interaction was significantly associated with self-esteem. Specifically, for women with low desire to be dating, a greater number of dates was inversely related with self-esteem; however, as desire increased, this association between number of dating partners and self-esteem decreased. Interestingly, these results are parallel to our above finding that the interaction of number of dating partners and desire to date is significantly associated with depression when moderated by gender. Similarly, then, consistent with research indicating that women (more so than men) often wish that their casual sex encounters would result in a committed/romantic relationship (Owen & Fincham, 2011), it is possible that women are dating with the intention of beginning a committed/romantic relationship, and that in this case, having a greater number of date partners (suggesting dates are failing to result in a committed/romantic relationship) may negatively affect the self-esteem of these women. Alternatively, it is possible that women with lower self-esteem have lower desire to engage in the *process* of dating, but may be motivated to engage in increased dating *behavior* in an effort to develop a committed/romantic relationship. Together, these findings suggest the importance of examining college students' — particularly

women's — intentions behind casual romantic dating, and perhaps suggest relationship types be measured not only by label, but by the degree of intimacy and/or commitment within them.

Impact of Friends with Benefits (FWB) Relationship Type on Mental Health

We found a significant association between friends with benefits (FWB) number and anxiety symptoms, such that a greater number of FWB was associated with more anxiety symptoms. This finding may be related to previous findings suggesting that women in heterosexual couplings are often dissatisfied with casual sexual encounters because they develop romantic feelings that are unreciprocated (Bisson & Levine, 2009), that many college men also look for greater relational connection than offered by traditional “friends with benefits” scripts (Epstein et al., 2009), and that both men and women often wish that their hookup encounter would result in a committed relationship (Owen & Fincham, 2011). It is possible that the undefined nature of friends with benefits relationships (recurring but noncommittal) may contribute to this finding, as having multiple consistent but noncommittal partners within the span of one semester may induce stress and/or anxiety, especially if experiencing unreciprocated intimate or romantic feelings. It is unknown, however, why this effect was unique to anxiety and not depression.

Impact of Hookup Relationship Type on Mental Health

Contrary to our hypothesis that casual sexual encounters would be associated with poorer mental health, we found no significant associations between hookup number or hookup desire on depressive symptoms. This result was unexpected, considering research suggesting that hookups are associated with higher depressive symptoms (Grello, Welsh, & Harper, 2006) as well as negative reactions in women (Owen et al., 2010). It is possible that the normalization of “hookup culture” on college campuses (Kuperberg & Padgett, 2015) has contributed to this lack

of an association between engagement in casual sexual encounters and depressive symptoms. Furthermore, it is interesting that despite this study's finding that for women with low desire to date, a higher number of dating partners was associated with more depressive symptoms and lower self-esteem, no such interactions were significant in the case of hookup behavior. Rather, when substituting "desire to engage in hookups" for "attitudes about hooking up," we actually found a result that is inconsistent with these other findings.

Although we found no association between hookup number and anxiety symptoms, and no interaction of hookup number and desire for hookups, we did find a significant interaction of attitudes toward hooking up and hookup number for women. Specifically, for women with negative attitudes about hooking up, hookup number was negatively related to anxiety symptoms, and as attitudes became more positive, the association between hookup number and anxiety symptoms diminished. This finding complicates previous findings that hookups are associated with negative psychological reactions in women (Owen et al., 2010), but is consistent with the finding that college-aged women with lower initial anxiety were more likely to engage in later hookups (Vrangalova, 2015). Thus, anxiety may be better conceptualized as a moderator than an outcome of casual sexual encounters. That is, anxiety symptoms may impact the relationship between attitudes about hooking up and hookup number for women. Indeed, we found greater anxiety symptoms predicted a stronger relationship between attitudes about hooking up and number of hookup partners, whereas this relationship was insignificant for women with low anxiety. It is possible that anxiety as a moderator can be explained by a college environment that encourages hooking up via a "hookup culture" (Kuperberg & Padgett, 2015; Owen et al., 2010). Due to "hookup culture," college students may be experiencing high external pressure to engage in hookup behavior. At the same time, having more anxiety may

discourage hookup behavior due to the uncertain, sometimes “risky” nature of the activity. In this case, having positive attitudes toward hooking up may counteract this high anxiety when present, allowing for women to participate in the externally-validated “hookup culture” without experiencing cognitive dissonance — therefore resulting in a greater number of hookup partners for these women. This finding suggests the importance of exploring measures of mental health functioning as predictors in addition to outcomes of romantic and sexual behavior via longitudinal design, as well as exploring the impact of cultural and environmental norms on hookup attitudes and behavior.

Contrary to our hypothesis that casual sexual encounters would be associated with lower self-esteem, we found no impact of friends with benefits or hookups on self-esteem. This finding is inconsistent with suggestions that hookups may negatively impact self-esteem in women (Paul et al., 2000), and is somewhat inconsistent with findings that hookups — especially for women — often result in feelings of guilt (Herold & Mewhinney, 1993) and regret (Fisher, Worth, Garcia, & Meredith, 2012), but is aligned with the finding that engagement in hookups does not significantly impact self-esteem (Vrangalova, 2015). It is possible that the normalization of “hookup culture” on college campuses, and a social pressure to engage in hookup behaviors, has made the association between engagement in hookups and self-esteem insignificant for this population. This finding points to the importance of examining cultural and environmental norms as impacting college students’ attitudes and behaviors.

Limitations

There are several limitations of this study to consider. First, this study did not have a longitudinal design. As such, we were only able to assess current levels of depression and anxiety symptoms and self-esteem, and could not determine whether relationship type and/or

desire preceded psychopathology or vice versa. Second, this study utilized self-report measures, which have reliability and validity concerns. Thirdly, because our sample was largely heterosexual, White, and college freshman, our conclusions may not be generalizable to other populations. Future research should prioritize longitudinal design and should further explore students' intentions in engaging in relationships as well as perceptions of environmental and cultural norms that may influence the associations between college students' romantic and sexual desires and behaviors.

Conclusion

This study has implications for the relationship between romantic/sexual relationship types and mental health of college undergraduates. Approximately 50% of college students attend counseling for mental health concerns (Center for Collegiate Mental Health, 2016), and a number of studies have suggested that engagement in certain types of romantic/sexual relationships impacts college students' mental health and self-esteem (Braithwaite et al., 2010; Paul et al., 2000; Snapp et al., 2015), as well as have suggested an impact of both college hookup culture and gender on engagement in these behaviors (Kuperberg & Padgett, 2015) and psychological reactions to those engagements (Owen et al., 2010; Snapp et al., 2015). We found that engagement in the four types of relationships in this study (committed/romantic, dating, friends with benefits, and hookups) typically did not have direct associations with the mental health outcomes measured. Exceptions included that greater length of committed/romantic relationship was associated with lower self-esteem, a greater number of date partners was associated with lower self-esteem, and a greater number of FWB partners was associated with greater anxiety symptoms. Contrary to our hypothesis, results typically remained insignificant when considering congruence between desire to engage and actual degree of engagement in

these relationship types. Exceptions included that for those with low desire to be in a committed/romantic relationship, greater length of committed/romantic relationship was associated with greater depression symptoms, and that for women (but not men) with low desire to be dating, a greater number of date partners was associated with both lower self-esteem and greater depressive symptoms. Additionally, we did not find that engagement in casual sexual encounters, or “hookups,” resulted in poorer mental health functioning, even when accounting for gender moderation. Interestingly, we did find that greater anxiety symptoms predicted a stronger relationship between attitudes about hooking up and number of hookup partners, specifically for women with high anxiety. It is possible that other factors, such as the external environment as well as intentions in engaging in certain types of relationships (for instance, a desire for romance and/or intimacy versus noncommittal sex alone), may have a role in moderating the relationship between college students’ romantic and sexual desires and behaviors, and future research should focus on these interactions.

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Table 1

Descriptive Statistics for Demographic Variables

	Men		Women		Totals	
	n	Percentage	n	Percentage	n	Percentage
Gender	65	46.76%	74	53.24%	139	100%
Sexual Orientation						
Heterosexual/Straight	63	96.92%	69	93.24%	133	95.00%
Gay/Lesbian	2	3.08%	1	1.35%	3	2.14%
Bisexual	0	0.00%	4	5.41%	4	2.85%
College Year						
Freshman	32	49.23%	39	52.70%	72	51.43%
Sophomore	26	40.00%	30	40.54%	56	40.00%
Junior	5	7.69%	5	6.76%	10	7.14%
Senior	2	3.08%	0	0.00%	2	1.43%
Race						
White	44	67.69%	46	62.16%	90	64.75%
Black/African	4	6.15%	7	9.46%	11	7.91%
American						
American	0	0.00%	1	1.35%	1	.72%
Indian/Alaska Native						
Asian/Pacific Islander	14	21.54%	15	20.27%	29	20.86%
Middle Eastern/North African	2	3.08%	2	2.70%	4	2.88%
Other	0	0.00%	2	2.70%	2	1.44%
Multi-racial	1	1.54%	1	2.35%	2	1.44%
Greek Life Membership						
Current Member	22	33.85%	28	37.84%	50	35.71%
Currently Pledging/Rushing	13	20.00%	14	18.92%	27	19.29%

Table 2

Descriptive Statistics for Engagement in Relationship Types by Gender

Relationship Type	Men		Women		Totals	
	n	Percentage	n	Percentage	n	Percentage
Committed/Romantic	18	27.69%	16	21.62%	34	24.29%
Dating	13	52.00%	17	54.84%	56	40.00%
FWB	21	32.31%	22	29.73%	43	30.71%
Hookup	35	53.85%	37	50.00%	72	51.43%
No Romantic/Sexual	12	18.46%	17	22.97%	29	20.86%

Table 3

Descriptive Statistics for Attitudes about Hooking Up (AHU) By Gender

Measure	Men (N=65)		Women (N=74)		Totals (N=139)	
	m	SD	m	SD	m	SD
Attitudes about Hooking Up (AHU)	21.49	6.97	19.77	6.46	20.56	6.71

Table 4

Descriptive Statistics for Mental Health Measures by Gender

Mental Health Measure	Men		Women		Totals	
	m	SD	m	SD	m	SD
Depression (CES-D)	12.75***	7.80	18.92***	10.10	16.23	9.65
Anxiety (BAI)	10.89*	9.59	16.00*	13.37	13.60	11.94
Self-Esteem (RSES)	18.17***	5.51	21.71***	5.89	20.13	6.00

*p < .05. ***p < .001.

Table 5

Multiple Regression Analyses Predicting Mental Health Functioning from Committed/Romantic Relationship Length, Desire to Engage in a Committed/Romantic Relationship, and Gender

Predictor	Mental Health Functioning								
	Depression (CES-D)			Anxiety (BAI)			Self-Esteem (RSES)		
	b	t	p	b	t	p	b	t	p
Model 1									
Committed Length	-.86	-1.07	.29	-.74	-.76	.45	-1.72	-3.62	<.001
Committed Desire	.73	.50	.14	.83	.61	.18	.63	.29	.03
Model 2									
Committed Length	5.97	2.20	.03	4.30	1.29	.20	-.22	-.13	.90
Committed Desire	1.22	2.34	.02	1.20	1.84	.07	.74	2.35	.02
Committed Length x Desire	-1.20	-2.63	<.01	-0.90	-1.58	.12	-0.27	-.96	0.34
Model 3									
Committed Length x Desire x Gender	.13	0.13	.89	.62	.48	.63	-.58	-.93	.36

Table 6

Multiple Regression Analyses Predicting Mental Health Functioning from Number of Date Partners, Desire to Engage in Dating, and Gender

Predictor	Mental Health Functioning								
	Depression (CES-D)			Anxiety (BAI)			Self-Esteem (RSES)		
	b	t	p	b	t	p	b	t	p
Model 1									
Date Number	-2.02	-1.02	.31	.11	.05	.96	-2.80	-2.41	.02
Date Desire	.68	1.43	.15	.82	1.43	.16	.19	.65	.52
Model 2									
Date Number	3.25	.73	.47	1.42	.26	.79	1.06	.40	.69
Date Desire	1.22	1.95	.05	.96	1.25	.21	.57	1.54	.13
Date Number x Desire	-1.31	-1.33	.19	-.33	-.27	.79	-.95	-1.60	.11
Model 3									
Date Number x Desire x Gender	.06	.05	.96	1.23	.85	.40	-.04	-.06	.96

Table 7

Multiple Regression Analyses Predicting Mental Health Functioning from Number of Friends with Benefits (FWB) Partners, Desire to Engage in a FWB Relationship(s), and Gender

Predictor	Mental Health Functioning								
	Depression (CES-D)			Anxiety (BAI)			Self-Esteem (RSES)		
	b	t	p	b	t	p	b	t	p
Model 1									
FWB Number	-1.92	-.80	.43	5.89	2.10	.04	-.68	-.47	.64
FWB Desire	.95	2.00	.05	-.15	-.26	.80	.20	.66	.51
Model 2									
FWB Number	-4.97	-.70	.49	-4.17	-.52	.60	-1.66	-.40	.69
FWB Desire	.84	1.54	.13	-.61	-.89	.37	.16	.46	.65
FWB Number x Desire	.71	.46	.65	2.38	1.35	.18	.23	.25	.80
Model 3									
FWB Number x Desire x Gender	.59	.19	.85	-.12	-.03	.97	1.95	1.07	.29

Table 8

Multiple Regression Analyses Predicting Mental Health Functioning from Number of Hookup Partners, Desire to Engage in Hookup Relationships, and Gender

Predictor	Mental Health Functioning								
	Depression (CES-D)			Anxiety (BAI)			Self-Esteem (RSES)		
	b	t	p	b	t	p	b	t	p
Model 1									
Hookup Number	-.27	-.20	.84	1.12	.68	.50	-.73	-.88	.38
Hookup Desire	.88	1.62	.11	.21	.31	.76	.33	.97	.33
Model 2									
Hookup Number	.24	.07	.94	-3.09	-.71	.48	.67	.31	.75
Hookup Desire	.92	1.53	.13	-.13	-.17	.86	.44	1.18	.34
Hookup Number x Desire	-.12	-.16	.87	.87	1.05	.30	-.29	-.71	.48
Model 3									
Hookup Number x Desire x Gender	.24	.21	.84	2.21	1.49	.14	-.16	-.23	.82

Table 9

Multiple Regression Analyses Predicting Mental Health Functioning from Number of Hookup Partners, Attitudes about Hooking Up (AHU), and Gender

Predictor	Mental Health Functioning								
	Depression (CES-D)			Anxiety (BAI)			Self-Esteem (RSES)		
	b	t	p	b	t	p	b	t	p
Model 1									
Hookup Number	1.04	.76	.45	1.49	.93	.35	-.12	-.03	.90
AHU	-.02	-.10	.92	-.04	-.19	.85	-.03	-.32	.75
Model 2									
Hookup Number	-5.02	-1.03	.30	-8.89	-1.43	.15	-3.63	-1.22	.22
AHU	-.14	-.72	.47	-.22	-1.00	.32	-.10	-.89	.38
Hookup Number x AHU	.25	1.30	.20	.43	1.73	.09	.15	1.23	.22
Model 3									
Hookup Number x AHU x Gender	-.15	-.44	.66	.74	2.46	.02	.09	.57	.57

Appendix I

Sexual and Romantic Relationship Practices Questionnaire

Please respond to each of the following questions by selecting your answers from the options provided.

Since the beginning of the semester: Have you engaged in a formal, committed, romantic relationship (steady significant other)? If you have engaged in more than one relationship, refer to the longest relationship in answering the following questions.

Yes No

(if yes) Indicate the length of the relationship: _____

(if yes) Are you currently in that relationship?

Yes No

(if yes) On a scale from 1 (not at all) to 7 (very much so):

To what degree were you satisfied with the experience of having a formal, committed relationship?

Not at all					Very much so	
1	2	3	4	5	6	7

On a scale from 1 (not at all) to 7 (very much so):

How much did you want to be in a formal, committed relationship during this time (since the start of the semester)?

Not at all					Very much so	
1	2	3	4	5	6	7

Had you engaged in a formal, committed relationship prior to coming to college?

Yes No

Since the beginning of the semester: Have you romantically dated/gone on dates?

Yes No

(if yes) How many individuals have you gone on dates with? _____

(if yes) Are you currently dating?

Yes No

(if yes) On a scale from 1 (not at all) to 7 (very much so):

To what degree were you satisfied with your experience of dating?

Not at all					Very much so	
1	2	3	4	5	6	7

(if yes) On a scale from 1 (not at all) to 7 (very much so):

To what degree were you satisfied with your experience of having a “friends with benefits” relationship(s)?

Not at all Very much so
 1 2 3 4 5 6 7

On a scale from 1 (not at all) to 7 (very much so):

How much did you want to engage in “friends with benefits” relationship(s) during this time (since the start of the semester)?

Not at all Very much so
 1 2 3 4 5 6 7

Had you engaged in "friends with benefits" relationships prior to coming to college?

Yes No

Which of the following types of romantic/sexual relationship would you most like to be involved in now [choose one]?

Committed romantic relationship

Casual dating

Casual hookups (no expectation of future encounters)

Friends with benefits

No romantic/sexual relationship

Which of the following dating/hookup apps do you currently use?

Tinder

Bumble

Grindr

None

Other app: _____

In your own words, what factors have influenced your sexual/romantic decisions since coming to college? [short response]