

Predictors of extradyadic sex among young adults in heterosexual dating relationships: a multivariate approach

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ABSTRACT

A multivariate contextual analysis examined predictors of sexual extradyadic involvement (EDI) among young adults in heterosexual dating relationships. College students ($n = 647$) were surveyed to determine how a number of cultural precursors (i.e. gender, race, religiosity), relationship precursors (i.e. relationship satisfaction, relationship duration), alcohol related precursors (i.e. alcohol consumption, binge drinking), and psychosocial precursors (i.e. attachment, symptoms of depression) predicted extradyadic sexual relationship within a two month period. Findings from a hierarchical regression analysis suggest that relationship satisfaction and attachment were the only reliable predictors of sexual EDI.

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Introduction

Extradyadic sexual involvement occurs when an individual engages in a penetrative (i.e. coitus, oral sex, anal sex) or non-penetrative (i.e. petting, and kissing) sexual exchange with someone other than their exclusive romantic partner. Among young adults extradyadic involvement (EDI) is growing (Kessel, Atkins, & Furrow, 2007) even though the vast majority of people (90%) disapprove of it and find it immoral (Gallup, 2007). Studies suggest that an estimated 20%–45% of young adults engage in some form of sexual EDI (e.g. Braithwaite, Lambert, Fincham, & Pasley, 2010; Grello, Welsch, & Harper, 2006; Mark, Janssen, & Milhausen, 2011; Vail-Smith, Whestone, & Knox, 2010). For instance, Vail-Smith et al. (2010) reported that 27% of young adults engaged in sexual EDI (i.e. coitus, fellatio, or anal sex) while in an exclusive relationship. Not surprisingly, non-penetrative sexual EDI (i.e. caressing, hugging, kissing) occurs at an even higher rate. Using a sample of college students Braithwaite et al. (2010) found that 44% of those in dating relationships reported hugging and caressing a secondary partner.

The deleterious outcomes associated with EDI are well documented (for an overview, see Fincham & May, 2017). Poor physical health, psychological stress, reduced relationship satisfaction, relationship dissolution, intimate partner violence, and even death have been associated with EDI in romantic relationships (e.g. Amato & Rogers, 1997; Brady,

Tschann, Ellen, & Flores 2009; Kaighobadi, Starratt, Shackelford, & Popp, 2008; Negash, Cui, Fincham, & Pasley, 2014; Wilson & Daly, 1992). Despite these insidious outcomes, predictors of EDI among young adults in dating relationships have been understudied (McAnulty & Brineman, 2007). Moreover, the literature that does exist provides contradictory findings about what factors best predict sexual EDI. This may be because the interplay between many of the factors highlighted in this study and EDI are more complex than the methodology used to study them. Examining these factors as predictors of EDI among young adults in dating relationships from a multivariate context may provide a more accurate illustration of what combination of factors influence young adults in dating relationships to engage or refrain from sexual EDI. Moreover, given the link between premarital and marital relationships (e.g. Fincham & Cui, 2011) it is important to examine deleterious behaviors (i.e. sexual extradyadic sex) among young adults in particular. From a prevention perspective, understanding factors that predict sexual EDI in young adults may help clinicians work with young adults to promote or avoid attitudes, feelings, and behaviors that might impact their future dating and marital relationships. Investigators in this current study examined how three cultural variables (sex, race, and religiosity), two relationship variables (relationship satisfaction and duration), two alcohol-related variables (alcohol consumption and binge drinking), and two psychological variables (attachment and symptoms of depression) were systemically related to sexual EDI among young adults in dating relationships.

Theoretical perspective

Growing research encourages the study of sexual EDI from multiple contexts (e.g. Maddox et al., 2013). Thus, in the current study an ecological framework was employed to emphasize the environmental contexts of behaviors that integrate social and psychological influences and underscore the critical linkage of intrapersonal and interpersonal levels that effect behaviors. Further, ecological models are critical in the explicit consideration of multiple levels of influence that guide the development of more comprehensive interventions (Sallis, Owen, & Fisher, 2008). For these reasons, and because past research indicates significant variables associated with EDI, a social ecological model was used in this study to conceptualize the interplay of factors that predict infidelity.

Variables included in this study were categorized according to a four-level social ecological model comprised of societal, community, relationship, and individual factors (Bronfenbrenner, 1994). We conducted a series of hierarchical regression models, starting at the broadest societal level and working down to the individual level. In this way, we were able to determine the contributions of each level of the ecosystem on sexual EDI. The societal level (i.e. social and cultural norms), which often influences how individuals experience and *do* culture, included gender, race, and religion. The community context consisted of alcohol consumption and binge drinking, which is commonplace on college campuses (where over 21 million young adults attend in any given year; U.S. Census, 2011). Relationship satisfaction and duration composed the relationship level. Lastly, the individual level consisted of psychosocial factors (i.e. symptoms of depression, attachment). The authors recognize that while other variables not included in this study could potentially predict EDI in dating relationships, past research has shown that the variables included in this study are particularly worthy of further investigation to better understand

the complex interplay among factors (Gentzler & Kerns, 2004; Grello et al., 2006; Owen, Rhoades, Stanley, & Fincham, 2010; Paul, McManus, & Hayes, 2000).

Cultural factors

Gender

As compared to women, men have historically been considered the main perpetrators of sexual EDI (see Allen et al., 2005). However, the majority of the literature focuses on married couples. Research on EDI in dating couples is both sparser and more varied. Wiederman and Hurd (1999) found that men were significantly more likely than women to engage in all types of sexual EDI while in an exclusive dating relationship. Consistent with this, Fernandez (2012) found that the intention to engage in sexual EDI was greater for men than women in exclusive dating relationships. A more recent study by Martins et al. (2016) found that men (24.4%) were more likely to engage in sexual EDI as compared to women (15%). Opposing research, however, suggests that the gap in rates of EDI between men and women may be much smaller during emerging adulthood (Atkins, Baucom, & Jacobson, 2001). Barta and Kiene (2005) found relatively equal rates of EDI among those in exclusive dating relationships, though men were twice as likely as women to endorse sexual motives for their extradyadic behavior. Similarly, Grello et al. (2006) and Maddox Shaw, Rhoades, Allen, Stanley, and Markman (2013) found no significant relationship between gender and sexual EDI.

Race

Although there is a growing body of research on the link between cross-cultural factors and EDI, few studies have investigated the link between race and sexual EDI. Among married individuals, research shows that compared to White males and females, African American males and females were more likely to engage in EDI (e.g. Choi, Catania, & Dolcini, 1994; Wiederman, 1997). Consistent with these findings, Treas and Giesen (2000) found that even after controlling for educational achievement (an indicator of socio-economic status), African American men were twice as likely to engage in EDI. In a national study of married women, Whisman and Synder (2007) also found a significant relationship between race and EDI, with African Americans being more likely to commit sexual EDI. Even fewer studies have examined the link between EDI and race among young adults in dating relationships. One exception was a study by Vail-Smith and colleagues (2010). Findings from their study showed that African Americans, as compared to Whites, were significantly more likely to engage in coitus (22.3% vs. 14.9%), but no more likely to engage in anal sex (4.4% vs. 2.7%), cunillingus or fallatio (14.6% vs. 16.3%), with a secondary partner.

Religiosity

The link between religion/spirituality and marital EDI has come under close examination in recent years (e.g. Atkins & Kessel, 2008; Burdette, Ellison, Sherkat, & Gore, 2007; Dollahite & Lambert, 2007). Recent reviews by Fincham and Beach (2010) and

Mahoney (2010) highlight the growing number of empirical studies showing the negative association between marital EDI and religion/spirituality. However, with some exceptions, religiosity is rarely studied in the context of dating relationships. A series of three studies by Fincham, Lambert, and Beach (2010) showed that praying for one's partner was significantly linked to decreased reports of EDI among young adults in exclusive romantic relationships. Conversely, Maddox et al. (2013) found no association between religion (i.e. based on how religious one perceived themselves) and sexual EDI among young adults in exclusive romantic relationships. Mattingly, Wilson, Clark, Bequette, and Weidler (2010) found a link between religiosity and perceptions of EDI through data collected using a sample of 100 participants in both dating and marital relationships. More specifically, compared to their less religious counterparts, participants with stronger religious beliefs were more likely to perceive their partners ambiguous behaviors (e.g. hugging, talking on the phone), but not their deceptive (i.e. lying and withholding information) or explicit behaviors (i.e. dating, penetrative sex) as inappropriate and indicative of EDI.

Alcohol-related factors

Alcohol use and binge drinking

Researchers suggest that excessive alcohol consumption is often used as an excuse for engaging in risky sexual behavior (e.g. Leeman, Toll, Taylor, & Volpicelli, 2009; Kennedy & Roberts, 2009). However, little research has been conducted that examines the link between alcohol consumption and EDI among young adults. One exception was a study by Graham, Negash, Lambert, and Fincham (2016). Findings from the study showed that problem drinking (i.e. excessive drinking, alcohol-related behaviors) was a predictor of EDI, even after controlling for relationship satisfaction, gender, and age. More recently Maddox et al. (2013) found individuals who reported problems with alcohol were more likely to engage in sexual EDI. Given the high incidence of alcohol consumption and extradyadic behaviors among young adults in college (Hingson, Heeren, Winter, & Wechsler, 2005; Vail-Smith et al., 2010), it is surprising that more studies have not examined the link between excessive alcohol consumption and EDI among young adults. The present study will examine alcohol consumption as a predictor of EDI among young adults in dating relationships.

Relationship factors

Relationship satisfaction

With some exceptions (e.g. Barta & Kiene, 2005, Drigotas, Safstrom, & Gentilia, 1999; Lewandowski & Ackerman, 2006), research on relationship satisfaction and EDI among young adults in dating relationships is scarce and has provided inconsistent results. Using a sample of 432 college students, Barta and Kiene (2005) found that relationship dissatisfaction was the most consistent motivation for emotional and sexual EDI. Similarly, McAlister, Pachana, and Jackson (2005) found that among several relationship variables (including relationship duration, commitment to the relationship, and investment to the relationship), relationship satisfaction was the only significant predictor of sexual EDI. A recent longitudinal study by Maddox et al. (2013) showed lower relationship satisfaction

significantly predicted future sexual EDI. In contrast to these studies however, Hall and Fincham (2009) showed that relationship satisfaction did not significantly predict later EDI.

Relationship duration

With the exception of a study done by Maddox et al. (2013) examination of the link between relationship duration and sexual EDI has gone virtually unexamined in the dating literature. Common findings that do exist in this literature typically account for relationship length as a control variable (e.g. Hicks & Leitenberg, 2001; Lewandowski & Ackerman, 2006) rather than a separate predictor. In this study, we will examine if relationship duration has any independent predictive power on sexual EDI in dating relationships.

Psychosocial factors

Depressive symptoms

Two studies have examined the link between psychological distress and EDI in dating relationships using longitudinal data. Hall and Fincham (2009) found that individuals who initially reported having greater psychological distress (i.e. anxiety, lower general well-being, guilt, depression, shame, self-forgiveness, and trauma) were more likely to report EDI later. Conversely, Maddox and colleagues (2013) found no significant relationship between general psychological distress (i.e. mood and anxiety) and sexual EDI. To build on this body of scarce literature and to identify more specific forms of psychological symptoms the current study examined whether or not symptoms of depression specifically predicted EDI in young adults when controlling for the various factors reviewed earlier.

Attachment

Direct links between adult attachment and EDI have been made in the marital literature. Anxious attachment has been linked to increased rates of EDI, especially among women (Bogaert & Sadava, 2002). Using the attachment categories of secure, fearful, preoccupied, and dismissive, Allen and Baucom (2004) found that dismissive men exhibited the highest rates of EDI. For women, those with preoccupied attachment styles exhibited the highest levels of EDI. More recently, Russell, Baker, and McNulty (2013) found individuals' avoidant attachment style did not predict whether or not they engaged in an extradyadic relationship. However, spouses were less likely to engage in an extradyadic relationship if they reported having a partner that was highly avoidant.

On the other hand, relatively little research exists on the link between attachment and EDI among young adults in dating relationships. Studies that have examined the link between attachment and EDI among individuals in dating relationships have typically also included married individuals in their sample (e.g. Bogaert & Sadava, 2002; Dewall et al., 2011), without, however, testing whether the link differed across those who were dating versus married. We are only aware of one study that has examined the link between

attachment and EDI using a sample made up exclusively of individuals in dating relationships. A study by Allen and Baucom (2004) found that attachment was linked to EDI for both male and female college students.

Hypotheses

Despite contradictory and scarce findings on the factors that predict EDI, several hypotheses were examined in this study that were based on previously described literature. Investigators in this study proposed that individuals will be more likely to engage in sexual EDI if they reported being: (1) male, (2) a racial minority, (3) less religious, (4) more frequent consumers of alcohol, (5) more likely to binge drink, (6) less satisfied in their relationships, (7) in shorter-term relationships, (8) less securely attached, and (9) more likely to have symptoms of depression. When considered in the context of one another, the investigators hypothesize that societal, community, relationship, and individual factors will explain the greatest amount of variance in EDI.

Method

Participants

The participants (369 females and 278 males) in this study were undergraduate students from a Southeastern university taking an introductory family studies course. The three-credit university wide course met a liberal studies requirement in social sciences. Thus, participants in the study represented students from across six semesters and from a wide range of programs within the university. Participation in the study was encouraged, but not required. At the beginning of the semester all students were invited to participate in a study that examined the effects of the class on their relationship. Participants received course credit in exchange for completing an online questionnaire about their personal characteristics and relationships. Students who chose not to participate in the study were offered the opportunity to complete an alternative course related assignment for the same course credit.

Measures

Extradyadic involvement

To assess for their EDI participants were asked to report whether or not they had engaged in extradyadic sexual behaviors during the past two months. Specifically they were asked “Please indicate whether, within the past 2 months, you have experienced any of the following behaviors with other people while you were dating your partner. That is, at the same time you were dating your partner, did you engage in any of the following sexual or romantic behaviors with someone else?” Behaviors measured were kissing, hugging/caressing, sexual intimacy without intercourse, and sexual intercourse. EDI was measured through a series of yes/no questions. Responses were coded 0 = *no* and 1 = *yes*. A response of “yes” to any question placed respondents into the “yes” category for purposes of analysis.

Gender

To assess for gender participants were asked to indicate if they were *male* (coded as 0) or *female* (coded as 1).

Race

To assess for race participants were asked to indicate whether they identified as *White*, *African American*, *Latino*, *Asian*, *Native American/American Indian*, *Other* (fill in the blank)?” Responses were then recoded to *White* (coded as 1) and *non-White* (coded as 0).

Religiosity

To assess for religiosity participants were asked, “All things considered how religious would you say you are?” Responses ranged from 1 = *not at all* to 4 = *very*.

Alcohol consumption and binge drinking

A standard quantity-frequency index (QFI) was derived from the quantity and frequency of consumption of alcoholic beverages in the past 30 days (Armor & Polich, 1982). The derived QFI incorporates quantity and frequency of consuming alcoholic beverages and provides a measure of the average number of drinks consumed per day in the last month. A single-item measure was used to assess for participants binge drinking (i.e. How often in the last 30 days did you have five or more drinks on one occasion?). Responses ranged from 1 = *never happened* to 9 = *more than 10 times*, with higher scores indicating more alcohol consumption.

Relationship satisfaction

Four items from an Item Response Theory analysis of the Couple Satisfaction Index (Funk & Rogge, 2007) were used to measure relationship satisfaction, including satisfaction (from 1 = *worse than all others/extremely bad* to 6 = *better than all others/extremely good*), reward (from 1 = *not at all* to 6 = *very much or extremely*), warmth and comfort (from 1 = *strongly disagree* to 6 = *strongly agree*), and happiness (from 1 = *extremely unhappy* to 7 = *perfect*). To measure satisfaction participants were asked, “In general, how satisfied are you with your relationship.” The question, “How rewarding is your relationship with your partner?” was used to measure the sense of reward participants’ felt from their relationship. The statement, “I have a warm and comfortable relationship with my partner” was used to measure one’s feeling of warmth in their relationship. Participants’ responses to the last item was based on the statement, “Please select the answer which best describes the degree of happiness, all the considered, of your relationship.” Higher scores indicated greater relationship satisfaction. Items from this measure demonstrated adequate reliability and validity and had a Cronbach alpha of .94. Items also correlated with the Ineffective Arguing Inventory (−.79; Kurdek, 1994) and the Dyadic Adjustment Scale (.87; Spanier, 1976).

Relationship duration

A single item was used to assess relationship duration, “How long have you been in this relationship?” Response choices ranged from 1 = *less than two months* to 7 = *three years plus*.

Depressive symptoms

The 10-item Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) was used to assess how frequently participants exhibited symptoms of depression within the past week (e.g. “I was bothered by things that usually don’t bother me”). Response choices ranged from 1 = *rarely or none of the time* (less than 1 day) to 4 = *most or all of the time* (5–7 days), with higher scores indicating more distress. The CES-D had good reliability and validity and had a Chronbach’s alpha of .79 in this current study.

Attachment

Adult attachment was measured using the 12-item short form of the Experiences in Close Relationships Scale (ECR; Wei, Russell, Mallinckrodt, & Vogel, 2007). The avoidant attachment (Cronbach’s alpha .83) and anxious attachment (Cronbach’s alpha .75) subscales had adequate reliability, and therefore averaged to create composite scores. The correlation between avoidant and anxious attachment was .23 ($p = .01$). Sample items included, “I want to get close to my partner, but I keep pulling back,” and “I do not often worry about being abandoned.” Responses ranged from 1 = *definitely not like me* to 7 = *definitely like me*. Higher scores reflected a more secure attachment and lower scores reflected a more insecure attachment (i.e. anxious or avoidant).

Results

Items examined in this study were part of a larger questionnaire assessing intrapsychic and interpersonal factors among college students. The larger sample consisted of 1900 students. The subsample ($n = 647$) used in this study consisted of students who reported that they were currently in an exclusive romantic relationship and that they had engaged at least one form of sexual EDI while in that relationship. Descriptive statistics for this subsample are reported in Table 1. Participants ranged in age from 17 to 28 with a median age of 19.6. Three hundred sixty-nine females (57%) and 278 males (43%) were included in the study. These percentages are representative of the ratio of females to male on college campuses nationwide (Snyder, 2009). The majority of participants were non-Hispanic white (70%), 11% were Hispanic, 10% were African American, 5% were Mixed, 2%

Table 1. Descriptive statistics for model variables.

	Min	Max	Mean	SD
Religiosity	1	4	2.56	.942
Alcohol Use	.50	21	5.95	4.36
Binge Drinking	1	9	2.67	2.21
Rel Satisfaction	4	25	20.50	4.08
Rel Duration	1	7	4.37	1.94
Psych Distress	10	36	17.39	4.57
Attachment	32	80	61.17	9.47
			Frequency	Percent
Male			278	43
Female			369	57
White			453	70
Non-White			194	30
Kissing			134	21
Hugging/Caressing			311	48
Sexual intimacy w/o intercourse			87	13
Sexual intercourse			74	11

Table 2. Missing data.

	Frequency	Percent
Religiosity	2	.3
Alcohol Consumption	3	.5
Binge Drinking	2	.3
Relationship Satisfaction	13	2.0
Relationship Duration	9	1.4
Psychological Distress	16	2.5
Attachment	16	2.5

Note: Variables not included in this table had no missing data.

were Asian/Pacific Islander, and 2% reported as Other. Participants who completed all measures were included in the analyses, which were conducted using IBM SPSS Statistics 22.

To begin, because of the high percentage of white participants, tests of skewness were conducted to assure no violations of normality for our regression models. Skewness was $-.08$ ($SE = .18$) for non-white and $.08$ ($SE = .12$) for white, which indicates no issues with skewness. Next, the percentage of missing data for each variable was calculated (see Table 2). Due to the small percentage of missing data, it was determined that this could be addressed by replacing missing values with the series mean. Following this, bivariate correlations were conducted for all variables of interest. These are presented in Table 3. The main hypotheses were tested through a hierarchical logistic regression, which added variables in four models in order to clarify how each impacted the model fit. Logistic regression was used due to the binary nature of the dependent variable. All reported R^2 values are Cox and Snell. The first model tested whether gender, race, and religiosity were associated with EDI. None of the societal variables significantly predicted EDI (gender, $b = -.143$, $Wald \chi^2(1) = .77$, $p = .38$, race $b = -.16$, $Wald \chi^2(1) = .85$, $p = .36$, religiosity $b = .02$, $Wald \chi^2(1) = .28$, $p = .60$, respectively). Collectively these societal variables explained a minute amount of the variance in EDI ($R^2 = .003$, $F(3, 590) = .64$, $p = .59$).

The second model added community variables. Contrary to our hypothesis, neither alcohol consumption nor binge drinking significantly predicted EDI ($b = .03$, $Wald \chi^2(1) = .86$, $p = .36$, and $b = .07$, $Wald \chi^2(1) = .165$, $p = .20$, respectively). However, this model explained a significant proportion of the variance in EDI ($R^2 = .03$, $F(7, 586) = 3.35$, $p < .01$) and significantly improved the model fit ($R^2\Delta = .02$, $p < .01$). Thus, alcohol consumption overall did predict EDI.

Relationship variables were added in the third model. As expected, relationship satisfaction predicted EDI ($b = -.09$, $Wald \chi^2(1) = 17.81$, $p < .001$); however, relationship

Table 3. Bivariate correlations of model variables.

Variables	1	2	3	4	5	6	7	8	9	10
1. Infidelity	1									
2. Gender	-.03	1								
3. Race	-.04	.00	1							
4. Religiosity	.02	.06	-.08*	1						
5. Alcohol Use	.13**	-.14**	.20**	-.21**	1					
6. Binge Drinking	.14**	-.16**	.19**	-.16**	.85**	1				
7. Rel Sat	-.19**	.03	.08*	.02	-.08*	-.10*	1			
8. Rel Duration	-.08*	-.04	-.03	-.05	-.13**	.03	.03	1		
9. Psych Distress	.07	.11**	.00	-.08*	.07	.08*	-.30**	.04	1	
10. Attachment	-.21**	-.04	.11**	.00	-.06	-.11**	.45**	.27**	-.39**	1

Note: ** $p \leq .01$, * $p \leq .05$.

Table 4. Results of hierarchical regression.

Predictor	B	SE B	β	<i>t</i>	<i>p</i>		
Model 1							
Constant	.51	.07		7.36	.000		
Gender	-.04	.04	-.03	-.87	.382		
Race	-.04	.04	-.04	-.92	.359		
Religiosity	.01	.02	.02	.52	.601		
Model 2							
Constant	.38	.08		4.91	.000		
Gender	-.01	.04	-.01	-.27	.786		
Race	-.07	.04	-.07	-1.65	.099		
Religiosity	.03	.02	.05	1.16	.245		
Alcohol Consumption	.01	.01	.07	.92	.356		
Binge Drinking	.02	.02	.02	1.28	.200		
Model 3							
Constant	.88	.13		6.55	.000		
Gender	-.13	.04	-.01	-.33	.738		
Race	-.05	.04	-.05	-1.23	.221		
Religiosity	.02	.02	.04	1.10	.270		
Alcohol Consumption	.01	.01	.07	.91	.363		
Binge Drinking	.02	.02	.07	.92	.356		
Relationship Satisfaction	-.02	.01	-.17	-4.34	.000**		
Relationship Duration	-.01	.01	-.06	-1.41	.160		
Model 4							
Constant	1.25	.21		5.96	.000		
Gender	-.02	.04	-.02	-.44	.661		
Race	-.04	.04	-.04	-.88	.379		
Religiosity	.02	.02	.04	1.10	.274		
Alcohol Consumption	.01	.01	.08	1.14	.254		
Binge Drinking	.01	.02	.05	.64	.526		
Relationship Satisfaction	-.01	.01	-.11	-2.54	.011*		
Relationship Duration	-.00	.01	-.02	-.42	.674		
Attachment	-.01	.00	-.16	-3.32	.001**		
	<i>R</i>	<i>R</i> ²	<i>Adj. R</i> ²	<i>R</i> ² Δ	<i>df</i>	<i>F</i>	<i>p</i>
Model 1	.06	.00	-.00	.00	3, 643	.64	.588
Model 2	.16	.03	.02	.03	2, 641	7.40	.001**
Model 3	.24	.06	.05	.03	2, 639	10.52	.000**
Model 4	.27	.07	.06	.02	2, 637	5.54	.004**

p* ≤ .05, *p* ≤ .01.

Note: Model 1 includes all societal factors; Model 2 adds community factors; Model 3 adds relationship factors, and Model 4 adds individual factors.

duration did not ($b = -.06$, $Wald \chi^2(1) = 1.98$, $p = .16$). This model explained 6% of the variance in EDI ($R^2 = .06$, $F(5, 588) = 5.47$, $p < .001$) and was a significantly improved model compared to model 1 ($R^2\Delta = .03$, $p < .001$).

The fourth model tested the contributions of individual factors. As expected, attachment significantly predicted EDI ($b = -.04$, $Wald \chi^2(1) = 10.70$, $p < .001$); however, symptoms of depression did not ($b = -.02$, $Wald \chi^2(1) = .56$, $p = .45$). With the inclusion of psychosocial factors, relationship satisfaction remained a significant predictors of EDI ($b = -.06$, $Wald \chi^2(1) = 6.38$, $p < .05$). Individual factors explained a significant amount of the variance in EDI ($R^2 = .07$, $F(9, 584) = 5.59$, $p < .001$) and significantly improved the model ($R^2\Delta = .02$, $p < .01$). Results from these regression models are summarized in Table 4.

Discussion

This study examined the independent contributions of several potential predictors of EDI in a multivariate context. Although previous studies support a variety of cultural,

community, relationship, and psychosocial variables as predictors of EDI, the results of this study highlight the need to examine them collectively, rather than in isolation. More specifically, a social ecological examination of the factors revealed that individual and relationship factors appear to be better predictors of sexual EDI among dating couples than societal and community factors. Said differently, factors that predict sexual EDI do not appear to extend beyond individuals' intrapersonal and interpersonal processes. Of the ten factors drawn that were found to be significant predictors of sexual EDI in past research, the only reliable predictors of EDI to emerge among young adults were relationship satisfaction and attachment.

Consistent with findings from Maddox and colleagues (2013), findings from this study showed that cultural factors were poor predictors of sexual EDI among young adults. Despite findings from studies that support the relationship between religious/spiritual behavior and sexual EDI (Fincham et al., 2010) among those in dating relationships, our findings indicate no link and are consistent with findings from Maddox et al. (2013). Such converse findings may be due to differences in measurement characteristics. Similar to Maddox et al. (2013) a one-item measure, asking participants to report their religious devotion was used in this study. This is unlike other studies that have measured religious/spiritual behaviors (i.e. prayer). Moreover, the contrast between literature that links sexual EDI to religious involvement among those in marital (Burdette et al., 2007), but not dating relationships may be because marital unions are commonly entered into through God and considered more sacred than dating relationships.

Also, consistent with findings from Maddox and colleagues the present study found little difference in rates of EDI by gender. This makes sense given recent research that shows that heterosexual sexual activity among adults is virtually equal across genders (Petersen & Hyde, 2010; Treger, Sprecher, & Hatfield, 2013). The finding may also reflect a shift away from the sexual double standard that exists for women. A growing number of women feel less ashamed or restricted when reporting their sexual experiences. Finally, findings from this sample showed that despite prior research on the significant relationship between EDI and race (e.g. Vail-Smith et al., 2010), race is not a predictor of EDI among young adults in dating relationships when accounting for other variables. Findings are consistent with literature that suggests that relationship issues are similar across races (e.g. Brown, 2003), but inconsistent with findings on infidelity in the marriage literature (Whisman & Synder, 2007). While it appears that race may not be a good predictor of sexual infidelity further research to clarify the role of race on infidelity among dating couples is warranted.

The investment model (Rusbult, 1980, 1983), which has been used in prior research, maintains that individuals in more satisfying relationships are more likely to be committed to relationships and less likely to seek alternative options. Findings from our study support this idea and other studies that link relationship satisfaction to sexual EDI (Barta & Kiene, 2005; Maddox et al., 2013; McAlister et al., 2005). In general, when faced with multiple, sometimes complex circumstances (e.g. alcohol use, depression), individuals, especially young adults, may engage in reactive and deleterious behaviors that have intrapersonal and interpersonal consequences. Findings from our study, however, suggest that relationship satisfaction acts as buffer against individuals reactively engaging in extradyadic sex. Moreover, individuals who are concerned about whether or not their relationship is

vulnerable to extradyadic sex and who are seeking to protect their relationship against extradyadic sex should typically look no further than the dating relationship itself.

With regard to the length of individuals' dating relationships, some individuals may feel like the longer they are in a relationship the more committed their partner is to the relationship, and thus the less at risk they are of experiencing sexual EDI. It is not uncommon to hear individuals who have been hurt or betrayed by a partner say something along the lines of, "I cannot believe my partner would do this to me after all this time." Such a statement is indicative of the value that many in relationships put on the duration of their relationship. Existing research on the other hand clearly shows that time can create the space for couples to both grow and damage their relationships (Brown & Kawamura, 2010; Moore, McCabe, & Brink, 2001). Contrary to research that links the length of individuals' relationships to positive and negative relationship outcomes in general, the current study found the length of a relationship is negligible as a predictor of sexual EDI. Thus, it is the quality, rather than the length of the relationship that is important in the context of extradyadic sex. Individuals who have dated for a considerable amount of time, but are not satisfied in their relationship may be equally as vulnerable to experiencing sexual EDI as those who have dated much less time but report greater relationship satisfaction. Further, given that relationship duration was no longer significant with the addition of attachment, it is likely that relationship length is only an important predictor of EDI to the extent that those who have been in relationships longer are more likely to feel secure in their relationships.

Alcohol impedes individuals from making clear decisions without forethought about potential alternatives or an evaluation of immediate and future consequences. Similarly, the immediate sexual gratification that draws people to engage in sexual EDI is often shortsighted. Therefore, it is not surprising that prior studies have linked alcohol consumption and sexual EDI (Hall, Fals-Stewart, & Fincham, 2008). In this study, however, we examined alcohol consumption amid other important factors and found that all else considered, alcohol consumption does not predict EDI among young adults.

Considerable literature identifies depression as an outcome of extradyadic sex (e.g. Gordon & Blow, 2008; Cano & O'Leary, 2000); however, findings from this study suggest the inverse may not be true for young adults in dating relationships, especially when also accounting for other predictors of EDI. In other words, EDI may leave young adults vulnerable to experiencing symptoms of depression, but young adults with symptoms of depression appear not to be at greater risk of engaging in extradyadic sex. Voluminous literature that identifies social isolation as a consequence of depression (Schaefer, Kornienko, & Fox, 2011) may to some extent explain why young adults may turn inwards rather than seek out extradyadic partners when experiencing symptoms of depression.

Also, in accordance with previous research (e.g. Bogaert & Sadava, 2002), results of the current study suggest that attachment style and EDI are significantly linked. More specifically, findings suggest that individuals who are not securely attached (i.e. have anxious or avoidant attachment styles) are more likely to engage in EDI than those who are securely attached. Past research suggests that those with more anxious attachment styles may seek out extradyadic relationships as a means of improving self-esteem or perceived desirability, whereas people with a more avoidant attachment style tend to endorse motivations for EDI related to obtaining desired space from their partner (Allen & Baucom, 2004).

In addition to being a precursor for sexual EDI, adult attachment has also been linked to sexual health. Past findings show that women with insecure attachment styles are more likely to contract sexually transmitted infections (STIs; Bogaert & Sadava, 2002). Similarly, studies also link sexual EDI to sexual health (Brady et al., 2009). Findings linking attachment and sexual EDI to deleterious sexual health outcomes lend importance for the finding in our study that shows attachment as a precursor to sexual EDI among young adults. Young adults with insecure attachments are not only more likely to engage in sexual EDI, but may also face greater sexual health risks.

It is also worth noting that similar to other research attachment was included as a psychosocial factor (Owens et al., 2010). However, it is important to consider that attachment orientations can be viewed as relationship specific. Individuals can hold multiple attachment schema's regarding different significant others. In this regard, the results make even more sense, given that the only other consistent predictor of sexual EDI (i.e. relationship satisfaction) is a relationship variable.

Implications

The proliferation of online dating websites (up from 10% in 2013 to 27% in 2016; Pew Research Center, 2016) coupled with the declining rate of marriage in the United States over the last two decades (National Healthy Marriage Resource Center, 2009) suggests that there are more young adults engaging in romantic relationships outside the parameters of committed marriages and with more access to sexual partners than ever before. In light of these facts and the findings from our current study, it is important that systemic therapists be prepared to treat what will likely be a growing number of clients presenting with concerns about extradyadic sex or who present with problems (i.e. low relationship satisfaction or insecure attachments) that are precursors to extradyadic sex.

In general, sexual EDI is commonly described as a symptom of some form of dysfunction in the dyadic relationship (Peluso & Spina, 2008). Therefore, therapists are recommended to circumvent getting absorbed in heavy content discussions about sexual EDI (Peluso & Spina, 2008). Conversely, although it is important to examine the factors that may have contributed to the sexual extradyadic relationship, it is equally important avoid further hurting the non-offending partner. Thus, during the onset of treatment therapists are encouraged to show empathy towards the non-offending partner and help the offending partner take accountability for the extradyadic behavior (Fife, Weeks, & Gambeseia, 2008; Negash & Morgan, 2016). This may bolster the non-offending partners sense of validation and may encourage him or her to be more accepting of conversations and interventions that frame the extradyadic behavior as a symptom of relational issues.

Findings from the current study suggest focusing on couples' relationship satisfaction and relationship attachments may be effective in the prevention and treatment of sexual EDI among young. With regards to treating sexual EDI, therapist should help couples shift away from describing the sexual extradydic encounter(s) in detail and avoid prematurely engaging in trust building activities until they have assessed for and addressed couples' relationship satisfaction and attachment more carefully. Using attachment based theories and interventions in individual and couples therapy can help heal emotional attachment injuries that stem from EDI (Johnson, 2005; Schade & Sandberg, 2012).

Complaints of sexual EDI are commonplace in couples therapy and challenging to treat (Fife et al., 2008; Vossler & Moller, 2014). Therefore, clinicians should also dedicate more attention toward preventing extradyadic sex. Findings from the current study suggest that interventions used to improve relationship satisfaction and heal fractured attachments may help reduce the onset of extradyadic sex in individuals' current or future dating relationship(s). For instance, individual or conjoint couple or family therapy may help individuals heal from recent or past attachment injuries, which may consequently reduce their engagement in emotionally reactive behaviors (i.e. engaging in extradyadic sex).

Altogether, the sexual health implications associated with sexual EDI also warrant careful consideration. Especially since young adults are among the most vulnerable groups to contract STIs and human immunodeficiency virus (HIV), accounting for nearly half of new STI cases (CDC, 2010). Findings may be used to promote appropriate levels and modes of intervention to reduce the sexual health risks associated with sexual EDI among young adults. Promoting the use of relationship and sexual education programs in college settings may be one way to intervene. Such programs may be used as a buffer against young adult college students entering and maintaining unhealthy emotional and sexually relationships (Fincham, Stanley, & Rhodes, 2011).

Limitations

This study identifies several important correlates of EDI among young adults, but the findings need to be interpreted in the light of several limitations. An estimated 21.4 million students (U.S. Census, 2011) enrolled in college in any given year are represented by young adults, many of whom are in exclusive dating relationships (Negash, 2012). Nonetheless, reliance on a college sample limits the generalizability of these findings. It is important to investigate the behaviors of those who never attend college. Findings indicate the necessity to examine the influence that relationship satisfaction and attachment have on sexual EDI more carefully. Relationship satisfaction is a multifaceted concept, influenced by simple and complex psychological, relationship, and environmental factors. Thus, in the context of sexual EDI, it is important to study relationship satisfaction using two-dimensional measures that highlight both positive and negative subjective perspectives of relationship quality in future studies (Mattson, Rogge, Johnson, Davidson, & Fincham, 2012). Given the sexual health implications associated with sexual EDI, the researchers in this study decided not to expand the study to include an examination of emotional or online EDI. This is not to suggest that both emotional and online EDI are not damaging to dyadic relationships (Cravens & Whiting, 2014; Negash et al., 2014). Clearly, emotional and online EDI are worthy of close examination given that both predictors of emotional well-being and sexual EDI.

Despite the fact that the variables under investigation are described as precursors of extradyadic sex, the correlational, cross-sectional nature of this study precludes us from making inferences about the direction of effects. There is a potential bi-directional association between EDI and a few of the identified precursors (i.e. relationship satisfaction, attachment). For instance, low relationship satisfaction may lead to EDI, but EDI may also decrease relationship satisfaction (e.g. Hall & Fincham, 2009). Whenever possible, it is desirable to examine relationships using multi-level data (e.g. dyadic data). Since, however, individual level data was collected in this study, relationship factors were based on

the perception and behaviors of one instead of both partners. To expand our scope of understanding beyond the perceptions and actions of the offending partner, we recommend the use of dyadic data in future studies.

The participants of the study (i.e. the offending partners) were still in their primary dating relationships at the time they completed the survey. Therefore, it is possible that the predictors of infidelity would be different between those who remained in the relationship and those whose relationship dissolved. However, given that the offending partner reported on recent sexual EDI (i.e. within the last 2 months) it is possible that the differences between the groups was a product of time in that the group who remained in the relationship during the study, may have seen their relationship end soon after the study. Examining the variables in this study using a longitudinal design may help determine the temporal ordering of effects thereby supporting stronger causal inferences. Future research should also examine factors that moderate and mediate the relationships tested in this current study and distinguish between specific sexual EDI behaviors.

Additionally, there are some measurement limitations that should be addressed in future research. First, the determination of religiosity relies on self-reported perception and does not account for religious commitment versus religious practice. Second, the binge drinking measure uses the definition of binge drinking for men and may not properly account for binge drinking among women. Third, current racial coding attempts to capture extreme sociocultural diversity within single-race categories can make it difficult to effectively examine infidelity by race. Finally, future research should expand on the impact of attachment styles by exploring the differences in EDI based on the subset of insecure attachment.

Conclusion

In spite of its limitations, findings from this study contribute valuable information about what influences young adults to engage in extradyadic relationships. Using a multivariate contextual lens in this study revealed a clearer idea of the factors that predict sexual EDI. Despite considerable research that shows how gender, race, religion, relationship duration, alcohol use, and symptoms of depression are linked to young romantic dating relationships when it comes to factors that influence young adults to engage in extradyadic sexual relationships it appears they need look no further than their own relationships.

Disclosure statement

No potential conflict of interest was reported by the authors.

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