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Adolescent Online Romantic Relationship Initiation: Differences by Sexual and Gender Identification

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Abstract

Data from the national Teen Health and Technology Study of adolescents 13-18 years old (N = 5,091) were used to examine online formation of romantic relationships. Results show that lesbian, gay, bisexual, transgender, and queer (LGBTQ) and non-LGBTQ adolescents similarly were most likely to have met their most recent boy/girlfriend in the past 12 months at school. However, they differed on many characteristics of romantic relationship initiation, including the extent to which they initiated romantic relationships online. LGBTQ and non-LGBTQ adolescents also differed on level of offline access to potential partners, offline popularity, and numerous other factors possibly related to online relationship initiation (e.g., Internet use and demographic factors). Even after adjusting for differences in these factors, LGBTQ adolescents were more likely than non-LGBTQ adolescents to find boy/girlfriends online in the past 12 months. The results support the rich-get-richer hypothesis as well as the social compensation hypothesis.

Romantic relationships are common among U.S. adolescents (Manning, Longmore, Copp, & Giordano, 2014). Having these intimate relationships is a normative, age-typical task for adolescents, and these relationships have significant implications for health, adjustment, and psychosocial functioning (Bouchey & Furman, 2003; Collins, 2003). These relationships are opportunities for adolescents to learn about positive relationship dynamics as well as

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challenges of relationships (Manning et al., 2014). With an estimated 95% of U.S. adolescents ages 12-17 using the Internet (Lenhart et al., 2011), the Internet is a readily available tool to find and interact with potential romantic partners. Thus, understanding the extent of and factors related to adolescents' use of the Internet to meet romantic relationship partners can have important implications for the long-term well-being and health of adolescents.

To date, research on the extent to which people initiate romantic relationships on the Internet, or online, has focused on adults. Studies indicate that it is common for adults to develop relationships online. However, only about 3–26% of these relationships are romantic (Donn & Sherman, 2002; Knox, Daniels, Sturdivant, & Zusman, 2001; Madden & Lenhart, 2006; McKenna, Green, & Gleason, 2002; Parks & Floyd, 1996; Parks & Roberts, 1998; Smith & Duggan, 2013; Stevens & Morris, 2007). What seems to be missing in the literature are rates by which adolescents are forming romantic relationships online.

Adolescents are developmentally unique in terms of sexual development, sexual identity development, and other factors that impact romantic relationships and their formation (Connolly & McIssac, 2011; Furman & Wehner, 1997). Thus, data regarding online formation of romantic relationships from adults are not necessarily reflective of adolescent behavior. Data from adolescents is needed to know the extent of adolescents' online formation of romantic relationships.

Some attention has been paid to factors related to adolescents' use of the Internet to form relationships more generally. Much of this attention has focused on two hypotheses (Valkenburg & Peter, 2011). The rich-get-richer hypothesis proposes that the characteristics that facilitate relationship formation offline (i.e., in person) will also facilitate relationship formation online. Consequently, those adolescents who are relatively popular offline will be relatively popular online and group-based disparities in adolescents' formation of relationships offline will be mirrored in online relationship formation (Kraut, 2002; Peter et al., 2005). Conversely, the social compensation hypothesis proposes that the online environment and affordances facilitate relationship formation particularly for adolescents who have difficulty forming relationships offline (Kraut, 2002; McKenna & Bargh, 1999; Peter et al., 2005). Consequently, group-based disparities in the formation of adolescents' relationships offline will *not* be experienced when forming relationships online. Instead, adolescents who have difficulty forming relationships offline will experience relative ease in forming relationships online.

Consistent with the rich-get-richer hypothesis, socially anxious and lonely adolescents communicate via the Internet less often than those who are not (Valkenburg & Peter, 2007; van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008). As a result, socially anxious and lonely adolescents have less opportunity to form and develop relationships online.

Consistent with the social compensation hypothesis, lonely and socially anxious adolescents prefer online to face-to-face communication (McKenna et al., 2002; Peter et al., 2005; Pierce, 2009; Sheeks & Birchmeier, 2007), suggesting that they are more comfortable

communicating in the online environment. Furthermore, lonely adolescents (McKenna et al., 2002) and those with greater depressive symptomatology (Ybarra, Alexander, & Mitchell, 2005) are more likely to use the Internet to form relationships.

Although research concerning rates of and factors associated with adolescents' online formation of *romantic* relationships is lacking, scholars have speculated about which adolescents go online to meet romantic partners and the benefits of doing so (e.g., social enhancement and social compensation). This speculation has considered social skills as well as other social factors that impact the difficulty of forming romantic relationships. Some scholars (e.g., Walther & Parks, 2002) have focused on the characteristics of online communication that can have detrimental effects on relationship initiation, for example, reduced social cues. Consistent with the rich-get-richer hypothesis, these characteristics of the online environment seem to favor relationship formation for socially adept individuals.

Contrarily, consistent with the social compensation hypothesis, some scholars have speculated that people who experience barriers to meeting romantic partners, such as shyness and lack of access to available partners, will particularly benefit from non-traditional methods to find and meet potential romantic partners, such as using the Internet (e.g., Woll & Cozby, 1987). For example, the relative ease of self-disclosure online can lead to attraction (e.g., McKenna et al., 2002; Whitty & Carr, 2006), which, in turn, can facilitate romantic relationship formation for shy or otherwise socially-guarded people. In addition, the widespread reach of the Internet greatly increases opportunities to find particular types of people. These opportunities are particularly important for some minority groups, such as gay teens (e.g., Cooper & Sportolari, 1997).

Certain groups of adolescents, such as those who identify as lesbian, gay, bisexual, transgender, or queer (LGBTQ), might experience particular difficulty forming romantic relationships offline. This difficulty might be because LGBTQ adolescents tend to have fewer potential romantic partners available as they are estimated to comprise only 5% of the population of adolescents 13 to 18 years old (Harris Interactive & Gay, Lesbian and Straight Education Network [GLSEN], 2005). Simply because LGBTQ adolescents are a minority group, they have a limited number of potential partners. In addition, LGBTQ adolescents might experience particular difficulty forming romantic relationships offline because potential partners might be fairly well hidden; the stigma of developing romantic relationships with same-sex partners can be particularly difficult to overcome as an adolescent; and the risk of prejudice and physical harm may be great (Lever, Grov, Royce, & Gillespie, 2008).

Although there may be differences based upon one's sexual and/or gender identity (e.g., gay/lesbian compared to bisexual), generally the barriers to creating and maintaining romantic relationships for LGBTQ adolescents are more similar to each other than to the barriers for non-LGBTQ youth. These difficulties contribute to LGBTQ adolescents being less likely to have romantic relationships as compared to heterosexual female and male adolescents (Diamond & Dube, 2002).

Consistent with the social compensation hypothesis, the Internet might help to address these barriers that are experienced by LGBTQ adolescents and to ease the process of initiating romantic relationships for them. The Internet provides LGBTQ adolescents with an environment in which they can search for, find, and interact with like-minded individuals anonymously and, generally, can do so more safely than in the offline environment. LGBTQ individuals have the potential to learn about another person, such as their sexual identity, through the information that that person posts online, such as on a social network page (McKenna, 2007).

Existing data suggest that LGBTQ adolescents use the Internet to address these barriers. A substantial percentage of males aged 16 to 24 who have sex with other males have had sexual partners whom they met online (Garofalo, Herrick, Mustanski, & Donenberg, 2007). Moreover, some LGBT youth aged 16 to 24 report using the Internet to find romantic partners specifically because of difficulty finding LGBT peers offline (DeHaan, Kuper, Magee, Bigelow, & Mustanski, 2013). These data, however, lack a direct comparison to non-LGBT youth and a nationally-based sample of adolescents.

Purpose of the Study

The current study examines a) rates of online formation of romantic relationships among adolescents and b) the influence that social factors and individual characteristics and behaviors have on adolescents' online formation of romantic relationships in order to further test the rich-get-richer and social compensation hypotheses.

Hypotheses

The rich-get-richer hypothesis would be supported if offline access to potential romantic partners, offline supportive relationships, and popularity are *positively* related to online relationship initiation. These positive relationships would suggest that the characteristics that facilitate relationship formation offline also facilitate relationship formation online.

The social compensation hypothesis would be supported if offline access to potential romantic partners, offline supportive relationships, and popularity are *negatively* related to online relationship initiation. These negative relationships would suggest that the online environment and affordances facilitate relationship formation particularly for adolescents who have difficulty forming relationships offline. The social compensation hypothesis would further be supported if LGBTQ adolescents were more likely than non-LGBTQ adolescents to form romantic relationships online. This finding would suggest that the characteristics and affordances of the online environment—such as protection against social scrutiny and/or prejudice (e.g., Chaisson et al., 2006; Lever et al., 2008), an increased pool of potential intimate partners for LGBTQ individuals (Woll & Cozby, 1987; Cooper & Sportolari, 1997), and ability to search for potential romantic relationship partners without disclosing and with lower risk of indirect disclosure of LGBTQ identity to family and offline friends (Hillier & Harrison, 2007; Jamil, Harper, & Fernandez, 2009)—facilitate relationship formation particularly for LGBTQ adolescents.

The hypothesized associations between online romantic relationship formation and the predictors would be expected over and above the influence of other factors related to relationship formation in general and/or online that could account for the associations. Based upon the literature, these other influential factors include Internet use characteristics (e.g., Kang & Hoffman, 2011), parental monitoring (Friedlander, Connolly, Pepler, & Craig, 2007), psychological well-being (e.g., Bonebrake, 2002; Ybarra et al., 2005), evangelical religion (Bartkowski, Xu, & Fondren, 2011), and demographic characteristics (e.g., Baron, 2004; Muscanell & Guadagno, 2012).

Methods

Participants

Participants were 5,091 school-attending¹ adolescents in 5th grade or above residing in the United States. Of the 5,091 participants, 3,198 were non-LGBTQ and 1,893 were LGBTQ (183 transgender; and 1,110 gay/lesbian, 574 bisexual, and 26 queer). Participants were 13-18 years-old and, on average, 15.7 years-old.

Procedure

Evidence from a recent population-based study of adolescents 13 to 18 years old (Harris Interactive & GLSEN, 2005) has shown that about 5% of this population identify as LGB. With such a low base rate, it is challenging to randomly identify a representative sample large enough to draw statistically valid conclusions. The Teen Health and Technology (THT) study was designed particularly to address this limitation.

Data for the THT Study were collected from 5,907 13-18 year-olds in the U.S. via an online survey. Participants were recruited from a stratified random sample of U.S. residents identified from members of the Harris Poll Online (HPOL) opt-in panel ($n = 3,989$); and an oversample of LGBTQ teenagers recruited through referrals from GLSEN ($n = 1,918$). Neither HPOL nor GLSEN invitations mentioned relationship initiation. Qualified respondents indicated informed assent online and completed the survey.

The response rate for the HPOL sample (7.2%) is similar to rates in other randomly-recruited national surveys (e.g., Pew Research Center for the People and the Press, 2012). The response rate for GLSEN-recruited participants cannot be calculated because we do not know how many people saw the invitations.

The survey protocol was approved by the Chesapeake IRB, the University of New Hampshire IRB, and GLSEN Research Ethics Review Committee. A waiver of parental consent was granted to protect youth who would be potentially placed in harm's way if their sexual orientation was disclosed to their caregivers.

Weighting procedures were used to align the two samples so that the data would behave consistently with a nationally representative sample within each sample and so that the

¹The sample was limited to school-attending adolescents to allow for examination of the influence of school-related indicators of the main variables of interest (e.g., offline access to potential partners indicated by attendance in a school in an urban, suburban, or rural area).

HPOL and GLSEN-recruited samples could be validly combined.² Additional details are available in the methodology report (<http://innovativepublichealth.com/wp-content/uploads/2009/07/Online-Benefits-and-Risks-Study-Methodology-Report.pdf>).

Data were imputed using the “impute” command in Stata, which executes single imputation. Respondents who did not meet valid data requirements (e.g., gave valid answers for less than 80% of the survey; $n = 365$), who did not attend school ($n = 256$),¹ and who did not identify as LGBTQ or non-LGBTQ ($n = 195$) were dropped. The final sample size was 5091.

Measures

Characteristics of Romantic Relationship Initiation—Respondents were asked how many romantic relationships they had in the past 12 months with a boy/girlfriend. Numbers 0 to 3 were coded consistent with the number and numbers of 4 or more (4-89) were coded as 4, to address the skew in the distribution.

Respondents who had a boy/girlfriend in past 12 months were asked where they met these boy/girlfriends—school; online (on the Internet; “such as through a social networking site or chat room”); the mall; a program or activity outside of school; a place of worship; or some other way or place. To reflect the number of boy/girlfriends met online in the past 12 months and address the skew in the distribution, numbers 0 to 3 were coded consistent with the number and numbers of 4 or more (4-55) were coded as 4. A substantial number of respondents who indicated “some other way or place” indicated that they had met their most recent boy/girlfriend through a mutual acquaintance. To capture this commonality, we coded these responses to be distinct from other places that were indicated.

LGBTQ identity—Respondents indicated their sexual identity by choosing all options that applied to them—gay, lesbian, bisexual, heterosexual, questioning, queer, other, and not sure. Youth also indicated their biological sex at birth (male or female) and gender (male, female, transgender, and other). Youth who indicated a different biological sex than gender, and did not indicate they were transgender were asked whether or not they are of “transgender experience.” We coded respondents who identified as straight/heterosexual exclusively, reported corresponding biological sex and gender, and were not transgender or of transgender experience as being non-LGBTQ (0). We coded respondents who identified as a) gay, lesbian, bisexual, or queer—exclusively or in combination; and/or b) transgender or of transgender experience as being LGBTQ (1). We excluded adolescents who identified as “questioning” and not as transgender because their responses indicated that they were in the process of determining their sexual identity, which is different from identifying as LGBQ or as heterosexual (e.g., Floyd & Stein, 2002).

²To examine the possibility that findings are due to extreme weights rather than actual relationships between variables, additional analyses were conducted. An independent random subsample of 597 restricted to exclude respondents overrepresented in the data was selected from the GLSEN LGBTQ sample and weighted to represent 50% of the combined LGBTQ sample to create a nationally-representative sample of LGBTQ with less extreme weights but a smaller total sample size of LGBQ than the combined sample including all GLSEN LGBTQ. All analyses were conducted with both combined samples and results compared. Results did not vary enough to warrant different conclusions based on the different samples. Therefore, we report results using the full combined sample.

Offline access to potential partners was assessed, as per Rosenfeld and Thomas (2012), by the population density of the respondents' community, with greater population density reflecting a greater number of people in proximity to potentially interact with and suggests a greater number of offline potential partners to potentially interact with (urban or suburban area [1] vs. rural area [0]). It was also assessed by whether (1) or not (0) respondents had a boy/girlfriend offline in the past 12 months, which necessarily indicates some offline access to potential partners.

Offline supportive relationships was measured using four items modified from the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988). These items asked respondents to think about their friends who they first met in-person, not online, and to report how much they agree that they, for example, “can count on these friends when things go wrong.” Item responses were summed so that larger values reflected greater support from offline friends (range: 4-28; Cronbach's alpha = .94).

Offline popularity was assessed by how many close friends respondents have whom they first met in person. This measure of popularity—number of friends—is a commonly used, simple measure of offline as well as online popularity (e.g., Ali, Amialchuk, & Pentina, 2013; Scott, 2014; Zywicki & Danowski, 2008). We coded responses from 0 to 6 consistent with the number, responses from 7 to 10 as 7, and responses of 11 or more as 8, to address the skew in the distribution.

Other factors related to relationship initiation in general—In-person parental monitoring was assessed with two items that were modified from the Youth Internet Safety Survey (Finkelhor, Mitchell, & Wolak, 2000). These items asked about the respondents' “parent or guardian who knows the most about [the respondent]” and how often, in the past 12 months, this person knew where they were and who they were with when they were not at home. Higher sum scores reflect greater *lack of* parental monitoring (range: 2-10, Cronbach's alpha = .84).

Depressive symptomatology was assessed with a brief version of the CESD-R (Haroz, Ybarra, & Eaton, 2014; Cronbach's alpha = .93). Based on DSM criteria for depressive disorders, respondents with sum scores of 8 or lower were coded to reflect no clinically significant depressive symptomatology (1); those with higher scores were coded to reflect clinically significant depressive symptomatology (0; Haroz et al, 2014).

Self-esteem was assessed with Rosenberg's (1965) 10-item scale (Cronbach's alpha = .93). Responses were coded so that larger values reflected greater self-esteem, were summed across items, and then coded to reflect scores one standard deviation above the mean and higher (1) versus all other scores (0). Therefore, depressive symptomatology and self-esteem were both coded so that larger values reflect *better* psychological well-being.

Other factors related to relationship initiation online—These factors included respondent-reported race, ethnicity, age, household income, gender, and being born again or evangelical Christian. They also included Internet use characteristics: a) whether respondents have rules for online safety (i.e., “Do you have your own rules for things you

can or cannot do online?”); b) how safe respondents feel when they are online; and c) spending more than one hour of personal time online on a typical day (dichotomized to address skew in the distribution). Finally, they included technology-based parental monitoring, which was assessed with three items that asked about the youth's “parent or guardian who knows the most about [the youth]” and how often, in the past 12 months, this person knew who they talked to online, the websites they went to, and with whom they text message. Higher scores reflect greater *lack of* technology-based parental monitoring (range: 3-15, Cronbach's alpha = .87).

Survey process measures—Respondents reported whether they were alone and responded honestly when they completed the survey.

Results

Romantic Relationship Initiation among LGBTQ and non-LGBTQ Adolescents

Table 1 displays results of the chi-square tests and ANOVAs corrected for survey weights (i.e., Design-based F statistics) used to assess statistical differences between LGBTQ and non-LGBTQ adolescents in rates of romantic relationship initiation. These results indicate that although substantial proportions of both LGBTQ and non-LGBTQ adolescents were currently in or had recently had romantic relationships, LGBTQ adolescents were more likely to have such relationships (63.6% and 47.2%, respectively). In addition, overall, on average, LGBTQ adolescents had more boy/girlfriends in the past 12 months (1.1 and 0.7, respectively). Overall, both LGBTQ (15.1%) and non-LGBTQ (3.4%) adolescents initiated romantic relationships online in the past 12 months, but LGBTQ adolescents did so at a higher rate. Finally, overall, LGBTQ adolescents, on average, had more boy/girlfriends in the past 12 months who they met online as compared to non-LGBTQ adolescents (0.2 and <0.1, respectively).

Most commonly, overall, both LGBTQ (34.9%) and non-LGBTQ (30.1%) adolescents had met their *most recent* boy/girlfriend in the past 12 months at school, although LGBTQ adolescents did so at a slightly higher rate. Overall, both LGBTQ and non-LGBTQ adolescents reported having initiated their *most recent* romantic relationship in the past 12 months online (9.0% and 2.1%, respectively) and through a mutual acquaintance (5.5% and 2.6%, respectively), but LGBTQ adolescents did so at a significantly higher rate. Statistically, there were no differences in rates at which LGBTQ and non-LGBTQ adolescents had met their *most recent* boy/girlfriend in the past 12 months at the mall, a program or activity outside of school, a place of worship, and other locations (e.g., in their neighborhood).

Almost all of these differences are mirrored in the results among participants who had a boy/girlfriend in the past 12 months (Table 1). These results indicate that, among participants who had a boy/girlfriend in the past 12 months, compared to non-LGBTQ adolescents, LGBTQ adolescents had more boy/girlfriends (1.6 and 2.0, respectively); were more likely to initiate romantic relationships online (7.1% and 23.7%, respectively); and had more boy/girlfriends in the past 12 months who they met online (<0.1 and 0.4, respectively) in the past 12 months. Furthermore, among participants who had a boy/girlfriend in the past 12 months,

compared to non-LGBTQ adolescents, LGBTQ adolescents were more likely to have had met their *most recent* boy/girlfriend in the past 12 months online (4.4% and 14.2%, respectively) and through a mutual acquaintance (5.5% and 8.6%, respectively). Dissimilar to overall rates among all participants, among participants who had a boy/girlfriend in the past 12 months non-LGBTQ adolescents were more likely than LGBTQ adolescents to have had met their *most recent* boy/girlfriend in the past 12 months at school (63.6% and 54.8%, respectively).

Differences between LGBTQ and non-LGBTQ Adolescents on Characteristics and Behaviors Related to the Initiation of Romantic Relationships

Table 2 displays results of the chi-square tests and ANOVAs corrected for survey weights used to assess statistical differences between LGBTQ and non-LGBTQ adolescents in characteristics and behaviors related to romantic relationship initiation. These results indicate that LGBTQ adolescents were *more* likely to attend school in an urban or suburban area, have met a boy/girlfriend offline in the past 12 months, spend more than one hour of personal time online per day, be older, be female, and have low household income. LGBTQ adolescents also had *more* offline friends and less (i.e., more of a lack of) in-person and technology-based parental monitoring. Conversely, LGBTQ adolescents were *less* likely to be of better psychological well-being (i.e., less likely to lack depressive symptomatology and to have high self-esteem), to feel safe online, to be White, and to be born again or evangelical Christian.

Factors that Influence Adolescents' Online Initiation of Romantic Relationships

A logistic regression model with LGBTQ identification as the predictor (adjusting for only the survey process measures) revealed that the odds of having met a boy/girlfriend online in the past 12 months were five times higher for LGBTQ adolescents than for non-LGBTQ adolescents (aOR = 5.13, 95% CI: 3.73, 7.04, $p < .001$). This effect remained but was attenuated when offline access to potential partners, offline supportive relationships, offline popularity, and other adolescent characteristics and behaviors that influence relationship initiation in general and online were taken into account. As shown in Table 3, even after adjusting for these factors, LGBTQ adolescents were more than three times as likely as non-LGBTQ adolescents to have met a boy/girlfriend online in the past 12 months (aOR = 3.43).

Results of this latter logistic regression analysis indicate that offline access to potential partners is uniquely and negatively related to online formation of romantic relationships in that adolescents living in urban or suburban areas were less likely than those living in rural areas to have met a boy/girlfriend online in the past 12 months (aOR = 0.64). Conversely, offline popularity is uniquely and positively related to online formation of romantic relationships in that the likelihood of having met a boy/girlfriend online in the past 12 months increased by 9% with each incremental increase in offline close friends (aOR = 1.09).

Of the other adolescent characteristics and behaviors examined, having personal rules for online behavior, having low household income, and not reporting depressive symptomatology were related to lower odds of having met a boy/girlfriend online in the past 12 months (aOR

= 0.68, 0.61, and 0.60, respectively). Conversely, spending more than one hour of personal time online on a typical day and lacking in-person parental monitoring were related to greater odds of having met a boy/girlfriend online in the past 12 months (aOR = 1.90 and 1.15, respectively).

Discussion

Self-reported dating experiences of adolescents 13-18 years of age living across the U.S. provide support for the rich-get-richer hypothesis as well as for the social compensation hypothesis. Consistent with the rich-get-richer hypothesis, offline popularity was associated with increased odds of recent online relationship initiation. Consistent with the social compensation hypothesis, offline access to potential partners was associated with decreased odds of recent online relationship initiation. Furthermore, LGBTQ adolescents were more likely than similar non-LGBTQ adolescents to have recently met a romantic relationship partner online. These results are similar to those of studies of adults (Madden & Lenhart, 2006; Rosenfeld and Thomas, 2012), which show that groups with limited markets for romantic partners, such as LGBT, are particularly likely to find romantic partners online.

The Internet appears to benefit adolescents who have difficulty forming relationships as well as those who do not. These benefits might be obtained for these different groups as a result of different reasons for looking for partners on the Internet and different processes of relationship formation. Adolescents *who have difficulty forming relationships* because of access issues; lack of safe, supportive social environments; or weak social skills might use the Internet to address these issues. Thus, they might be using the Internet purposely to form romantic relationships, resulting in relationships similar to what McKenna (2007) referred to as targeted relationships. McKenna (2007) limited her definition of targeted relationships to those relationships that develop from interactions on online dating sites. We view targeted relationships more generally as those developed from interactions engaged in purposely to form a relationship, in this case a romantic relationship. Conversely, adolescents *who have less difficulty forming relationships* generally might be forming romantic relationships online as a byproduct of their online activity paired with their ability to form relationships, resulting in what McKenna (2007) referred to as naturally forming relationships where the purpose of the interaction is the activity. Consistent with this explanation, Peter and colleagues (2005) found that introverted adolescents were motivated to communicate online to counter their lack of social skills, which increased the likelihood of forming friendships online. Conversely, they found that extroverted adolescents formed friendships online as a consequence of their frequent online communication and self-disclosure.

These results suggest that theoretical advancement in this area might benefit from an integration of the rich-get-richer and social compensation hypotheses. This integrated hypothesis should specify for whom and under what circumstances adolescents' use of the Internet to form relationships will result in the rich getting richer and under which circumstances this use will result in social compensation.

Our findings also suggest that LGBTQ adolescents might not experience as much difficulty identifying potential romantic partners as expected given a relatively small overall pool of

potential romantic partners (Harris Interactive & GLSEN, 2005). Although adolescent dating rates might be influenced somewhat by current understanding of the terms used to refer to dating (Manning et al., 2014), our findings are consistent with overall rates of adolescent dating (Child Trends, 2014) and show that substantial percentages of LGBTQ as well as non-LGBTQ adolescents have dated in the past 12 months. Moreover, LGBTQ adolescents were more likely than non-LGBTQ adolescents to have recently had and had, on average, more romantic partners. In addition, LGBTQ adolescents recently had more offline romantic partners. They also had greater offline access to potential partners and greater offline popularity.

Perhaps the desire to have romantic relationships and the difficulty of forming them offline are insufficient to motivate a greater proportion of LGBTQ adolescents to shift from seeking romantic partners offline to doing so online. LGBTQ adolescents might be relying on conventional, long-established methods to meet romantic partners (e.g., meeting them at school) for lack of an alternative that is perceived as acceptable and otherwise viable. For example, much the same way as adolescents in general use mutual acquaintances as sources of information regarding whether people to whom they are attracted are single and attracted to them (Berger & Bell, 1988; Clark, Shaver, & Abrahams, 1999), LGBTQ adolescents might, in addition, use mutual acquaintances as sources of information regarding the potential partners' LGBTQ status or openness to engage in romantic relationships with individuals who are LGBTQ.

The results of the current study also add to our knowledge of how commonly adolescents use the Internet to form romantic relationships. Much of the past research in this area has focused on adults and/or targeted samples of Internet users (e.g., Madden & Lenhart, 2006; McKenna et al. 2002; Parks & Roberts, 1998; Stevens & Morris, 2007). Overall, this past research indicates that using the Internet to form romantic relationships is already common among adults (Finkel, Eastwick, Karney, Reis, & Sprecher, 2012). Findings of the current study suggest at least the beginning of a normality and acceptance of this behavior by adolescents, which could increase as these adolescents age into adulthood as a result of recent increases in adult rates of online relationship formation (Rosenfeld & Thomas 2012).

Even though adolescents are using the Internet to form romantic relationships, they seem to continue to rely on conventional, long-established methods to meet romantic partners. LGBTQ and non-LGBTQ adolescents alike continue to find romantic partners in person, most commonly at school.

There are multiple possible explanations for adolescents' continued use of in-person methods to meet romantic partners. During the school year, adolescents spend the majority of their time engaging in activities with other adolescents. These encounters are associated with numerous factors that are related to attraction and the formation of romantic relationships, including propinquity (Festinger, Schachter, & Back, 1950), similarity (Byrne, 1961), familiarity (Moreland & Zalenc, 1982), and frequency and amount of interaction (Newcomb, 1961; Saegert, Swap, & Zajonc, 1973). Perhaps also characteristics of in-person methods of introduction and interaction that occur less often online than in person for adolescents—such as a recommendation by a mutual acquaintance, seeing a person's body

language, or frequent unintentional encounters—have a much stronger influence on adolescents' formation of romantic relationships than other factors. It could also be that adolescents' romantic relationships in general tend to be more naturally forming (McKenna, 2007) as opposed to developing from targeted interactions engaged in for the purpose of forming a relationship. A better understanding of the process by which adolescents initiate romantic relationships online as compared to offline would help us better understand the motives behind online initiation of romantic relationships as well as the benefits and costs possibly associated with online initiation of romantic relationships among adolescents.

Although in some regards the prevalence of online romantic relationship formation among adolescents seems low, the prevalence nevertheless causes some concern of related costs. Data suggest that friends (Wolak, Mitchell, & Finkelhor, 2002) and romantic partners (Rosenfeld & Thomas, 2012) who met online are often 'strangers' who lack ties with other people in one's network, as opposed to being someone known, for example, through friends. Thus, the online relationship is probably outside of traditional family supervision and the historical constraints of geographic propinquity (Wellman, 2001); and it does not benefit from the support and supervision of the individual's social network (McKenna et al., 2002). Consequently, groups of adolescents who engage in more online relationship formation, such as LGBTQ adolescents, are also possibly at increased risk of adverse effects of relationships, such as substance use, juvenile delinquency (Cui, Ueno, Fincham, Donnellan, & Wickrama, 2012; Davies & Windle, 2000; Seffrin, Giordano, Manning, & Longmore, 2009), and teen dating violence (Halpern, Oslak, Young, Martin, & Kupper, 2001).

These costs, however, do not necessarily undermine the benefits of online relationship formation, especially for groups of adolescents who have difficulty forming romantic relationships offline. Access to potential partners is critical to the potential of forming romantic relationships, which are opportunities for adolescents to gain relationship skills (Furman & Simon, 1999; Laursen & Jensen-Campbell, 1999; Manning et al., 2014). The Internet can provide this access and decrease other barriers to the formation of romantic relationships and, thus, can facilitate a normative, age-typical task for adolescents. Furthermore, forming relationships online provides opportunities for adolescents to gain social interaction skills particular to the online environment, an environment of ever increasing importance in daily lives. The current study indicates the role of the online environment in adolescent relationship formation, particularly for LGBTQ adolescents. An important next step for research is to examine the nature of the romantic relationships adolescents form online.

Limitations and Strengths

Our study is one of the largest, covering important adolescent and LGBTQ issues. It used a national, randomly-selected sample of adolescents with an oversample of LGBTQ adolescents. This study not only makes a significant contribution to the limited research that has examined online dating among adolescents, but it also extends the existing research on adults to adolescents.

The study data, however, are somewhat limited. As the data are cross-sectional, temporality cannot be determined. The data also rely on weighting to be nationally representative. While

we took a cautious approach and are confident in our analytic strategies, findings should be replicated in other national studies. In addition, our study compared LGBTQ and non-LGBTQ adolescents. Although appropriate to our research questions, this approach does not inform additional questions related to similarities among and differences between L, G, B, T, and Q adolescents in the initiation of online romantic relationships. For example, future research might examine variations between LGBTQ groups in terms of the particular nature and extent of barriers to the formation of romantic relationships that they experience and the association of type and extent of barrier with online formation of romantic relationships. Such research would inform on variations in experiences of different minority, stigmatized, and hidden groups. Finally, only youth who used the Internet were included (excluding the 5% of youth who are not online; Lenhart et al., 2011) and they were recruited online. This exclusion and methodology might have led to an oversampling of youth who spend relatively more time online and an overestimate of online initiation of romantic relationships. If so, we would expect this sampling bias to impact LGBTQ and non-LGBTQ participants alike and, thus, would not diminish the meaningfulness of the comparison of these groups.

There is also a possibility that the adolescents' online self-reports were not accurate. To increase accuracy, we used multiple procedures to limit participation only to those invited to participate and to encourage honest and accurate reporting. Consequently, we are confident that the data accurately reflect the characteristics and experiences of the adolescents who participated in this study.

An additional consideration is that when we measured offline supportive relationships and popularity, we distinguished online and offline friends based on where they first met. Although this distinction does not take into account the complexity of the process of forming and maintaining friendships (interacting both online and offline at different times for different reasons and in different amounts), it reflects the key characteristic of offline interaction, that is, the in-person context associated with friends including how they look, talk, relate to people, etc. This is information that people might not otherwise have if they had first met their friends online.

Conclusion

Despite the extent of Internet use in general and to connect socially with others specifically, results suggest that a minority of adolescents use the Internet to initiate romantic relationships. Although LGBTQ adolescents are more likely than non-LGBTQ adolescents to initiate romantic relationships online, LGBTQ and non-LGBTQ adolescents are still more likely to initiate romantic relationships offline, through more conventional, long-established methods. Furthermore, results suggest that the Internet benefits adolescents who have difficulty forming relationships as well as those who do not.

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Table 1
Rates of romantic relationship initiation among LGBTQ^a and non-LGBTQ adolescents who attend school (N = 5091)

Characteristics of romantic relationship initiation	Non-LGBTQ (N = 3198) %; Mean (SD)		LGBTQ (N = 1893) %; Mean (SD)		Design-based F; Group mean comparison F (1, 5084)
	Of All Non-LGBTQ	Of Non-LGBTQ Who had Boy/girlfriend in Past 12 Months	Of All LGBTQ	Of LGBTQ Who had Boy/girlfriend in Past 12 Months	
Had boy/girlfriend in past 12 months			63.6		43.01***
Number of boy/girlfriends in past 12 months					
Zero	0.7 (0.02)	1.6 (0.03)	36.4	2.0 (0.06)	32.10***
One	52.8	--	--	--	
Two	29.1	61.7	31.3	49.3	
Three	11.7	24.7	14.6	23.0	
Four or more	3.8	8.0	6.8	10.7	
Met boy/girlfriend <i>online</i> in past 12 months	2.7	5.7	10.8	17.1	
	3.4	7.1	15.1	23.7	120.37***
Number of boy/girlfriends met <i>online</i> in past 12 months	<0.1 (<0.01)	<0.1 (0.08)	0.2 (0.03)	0.4 (0.04)	41.81***
Zero	96.6	92.9	84.9	76.3	
One	2.9	6.1	11.1	17.4	
Two	0.5	1.0	2.2	3.4	
Three	0.0	0.0	0.4	0.6	
Four or more	0.0	0.0	1.5	2.3	
Where met most recent boy/girlfriend in past 12 months					
<i>Online</i>	2.1	4.4	9.0	14.2	78.24***
At school	30.1	63.6	34.9	54.8	4.73*
At the mall	0.9	1.9	1.9	3.0	3.18
At a program or activity outside of school	5.0	10.5	5.9	9.3	1.11
At a place of worship	2.1	4.5	1.3	2.1	1.10
Through a mutual acquaintance	2.6	5.5	5.5	8.6	11.95***
Other way or place	2.4	5.2	3.9	6.1	2.69

Note.

^aLGBTQ = lesbian, gay, bisexual, transgender, queer;

100' *d*

'10' *d*
**
'50' *d*
*

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Table 2
Comparisons of characteristics and behaviors for LGBTQ^a and non-LGBTQ adolescents who attend school (N = 5091)

Characteristics and behaviors	Non-LGBTQ (N = 3198) %; Mean (SD)	LGBTQ (N = 1893) %; Mean (SD)	Design-based F; Group mean comparison F (1, 5084)
Offline access to potential partners			
Live in urban or suburban area	59.5	66.8	9.15**
Met boy/girlfriend <i>offline</i> in past 12 months	43.7	56.4	26.92***
Offline supportive relationships			
Social support from offline friends	22.0 (0.10)	22.3 (0.22)	1.59
Offline popularity			
Number of offline close friends	4.1 (0.05)	4.5 (0.10)	11.92***
Other adolescent characteristics and behaviors related to online relationship initiation			
Have personal rules for online behavior	68.4	66.1	1.04
Spend more than one hour of personal time online on typical day	71.3	82.9	25.13***
Feel somewhat or extremely safe online	79.3	72.0	12.67***
Lack in-person parental monitoring	3.4 (0.03)	4.1 (0.07)	69.56***
Lack technology-based parental monitoring	7.9 (0.07)	10.3 (0.15)	212.94***
Do not have depressive symptomatology	79.4	44.3	248.08***
Have high esteem	73.8	40.9	194.96***
Race: White	68.3	62.4	6.10*
Ethnicity: Hispanic	18.7	22.3	2.66
Age: 16-18 years old	52.5	62.1	15.94***
Low household income	26.7	31.9	5.09*
Gender: Female	49.4	59.7	18.30***
Born again or evangelical Christian	27.7	10.1	51.07***

Note.

^aLGBTQ = lesbian, gay, bisexual, transgender, queer;

* $p < .05$;

100' *d*

'10' *d*
**

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Table 3
Logistic regression model predicting odds of school-attending adolescents (N=5091) having an online romantic relationship in the past 12 months

Predictors	Adjusted OR	95% CI
LGBTQ identity: LGBTQ	3.43***	2.21, 5.31
Offline access to potential partners		
Live in urban or suburban area	0.64*	0.45, 0.91
Met boy/girlfriend <i>offline</i> in past 12 months	1.24	0.85, 1.81
Offline supportive relationships		
Social support from offline friends	0.99	0.96, 1.03
Offline popularity		
Number of offline close friends	1.09*	1.01, 1.17
Other adolescent characteristics and behaviors related to online relationship initiation		
Have personal rules for online behavior	0.68*	0.48, 0.98
Spend more than one hour of personal time online on typical day	1.90*	1.10, 3.28
Feel somewhat or extremely safe online	1.08	0.72, 1.63
Lack in-person parental monitoring	1.15**	1.04, 1.27
Lack technology-based parental monitoring	1.05	0.98, 1.12
Do not have depressive symptomatology	0.60*	0.39, 0.94
Have high esteem	0.90	0.57, 1.43
Race: White	0.98	0.66, 1.44
Ethnicity: Hispanic	1.18	0.76, 1.82
Age: 16-18 vs. 13-15 years of age	1.08	0.76, 1.52
Low household income	0.61*	0.41, 0.90
Gender: Female	0.79	0.54, 1.16
Born again or evangelical Christian	0.88	0.53, 1.45
Survey process measures		
Dishonest when completing survey	0.60	0.12, 2.99
Not alone during the survey	1.24	0.87, 1.77

Note. LGBTQ = lesbian, gay, bisexual, transgender, queer;

* *p* .05;
** *p* .01;
*** *p* .001

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