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Abstract

This study examined the association of friendships and popularity with adolescents' first-time involvement in a romantic relationship (referred to as romantic relationship debut). The aim of this article was twofold: first, to disentangle the unique effects of friendships and perceived popularity; second, to separate same- and cross-gender peer nominations. Specifically, it was tested whether same- and cross-gender friendships or same- and cross-gender popularity were more likely to increase the likelihood of romantic relationship debut. Using longitudinal data of 590 Dutch adolescents age 12 to 18 (57 % girls) from TRAILS (Tracking Adolescents' Individual Lives Survey), results are consistent with the hypothesis that cross-gender friendships and cross-gender popularity increase the chances of a romantic relationship debut. Findings indicate that peer evaluations by cross-gender peers of both friendships and popularity account for adolescents' romantic relationship debut.

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Keywords

romantic/dating relationships, friendship, peer popularity, puberty / pubertal development

Introduction

Young people spend a great deal of time thinking about, talking about, and being in romantic relationships. Therefore, adolescent romantic relationships has become a primary research area for developmental research (Collins, Welsh, & Furman, 2009; Furman & Rose, 2015). As romantic relationships develop in the peer context (Vacirca, Ortega, Rabaglietti, & Ciairano, 2012), we examine the determinants of adolescent romantic relationships with a focus on the peers, in particular on friendship relations and peer-perceived popularity. Specifically, we look at the first-time involvement in a romantic relationships of adolescents between ages 12 and 18. We refer to this as a romantic relationship debut throughout the text. It should also be kept in mind that the theoretical approach of this article is mainly focused on heterosexual romantic relationships.

Theoretically, we draw on two perspectives to investigate the association between peers and heterosexual romantic relationships. A first line of research has sought to explain the precursors of adolescent heterosocial interactions, defined as interactions with the cross-gender peers (Grover, Nangle, Serwik, & Zeff, 2007; Mehta & Strough, 2009; Sippola, 1999). In particular, we focus on how the establishment of mixed-gender friendship networks precedes the onset of adolescent heterosexual romantic relationships, building upon the work by Connolly, Craig, Goldberg, and Pepler (2004; Connolly & Johnson, 1996). A second line of literature, based on Dunphy's (1963) classic work, focuses on the association between adolescent social standing (referring to popularity) and heterosexual romantic relationship debut, as well as how dating fits into broader patterns of socioemotional development during this life stage (Collins & Steinberg, 2007; Rubin, Bukowski, & Parker, 2007). This study combines both lines of research: Connolly et al.'s (2004; 1999; Connolly et al., 2000) developmental-contextual theory on the role of mixed-gender peer relations and Dunphy's (1963) social standing in peer groups.

Friendships and Emerging Romantic Relationships

Increased interaction with cross-gender peers is a noticeable developmental change occurring in early adolescence (Furman & Rose, 2015; Mehta & Strough, 2009; Sippola, 1999) and serves many developmental functions for

adolescents, such as companionship, intimacy, experimentation with gender-role behaviors, and sexual activity (Grover et al., 2007; Hartup & Stevens, 1997). Various types of peer relations can be distinguished with friendships being characterized as the closest type of reciprocal relationships and thus most influential in adolescents' social development (Furman & Rose, 2015; Hartup & Stevens, 1997). In their developmental-contextual theory of adolescent romantic stages, Connolly and colleagues (2004; Connolly et al., 2000; Connolly & McIsaac, 2009) connect cross-gender friendships to the emergence of adolescent romantic relationships. Accordingly, cross-gender friendships serve as conduits for heterosexual romantic relationships (Furman & Shaffer, 1999). More specifically, cross-gender friendships create opportunity structures for heterosexual dating in the sense that these friendships can link one to other potential partners (referring to brokerage) or themselves transition from friendship to romance. As Brown (1999, p. 292) states, peers "provide opportunities to meet and interact with romantic partners, to initiate and recover from such relationships, and to learn from one's romantic experiences." Previous studies demonstrate that cross-gender friendships are related to earlier sexual intercourse (Billari & Mencarini, 2003; Kreager, Molloy, Moody, & Feinberg, 2015) and that being a member of a broader mixed-gender peer group increases the chances of forming a romantic relationship (Feiring, 1999). In line with these findings, we hypothesize that *cross-gender friendships rather than same-gender friendships increase chances of a romantic relationship debut* (Hypothesis 1).

Popularity and Emerging Romantic Relationships

Next to cross-gender friendships, adolescents' social standing, or popularity, may explain adolescent heterosexual romantic relationship debut. Adolescence can be characterized by the increased importance of one's social standing in a peer group (Adler & Adler, 1998). Popularity is important in the formation of friendships by steering attraction to and avoidance from peers (Dijkstra, Cillessen, & Borch, 2013; Peters, Cillessen, Riksen-Walraven, & Haselager, 2010; van den Broek, Deutz, Schoneveld, Burk, & Cillessen, 2016).

High peer status may be an important precursor for the establishment of early heterosexual romantic relationships (Dunphy, 1963). Popularity increases visibility (de Bruyn & Cillessen, 2008) with popular adolescents usually being the first to become involved in the mixed-gender groups, which creates opportunities for heterosexual dating (Adler & Adler, 1998). This aligns with sexual selection theory, in which it is argued that human mating is partially strategic as one seeks mates to solve specific adaptive problems (Buss & Schmitt, 1993; Pellegrini & Long, 2003). In this respect, high popular

peers are attractive as their status signals success, dominance, and access to resources conducive to reproductive success. Previous research shows that peer status is positively associated with adolescent romantic relationships (Dunphy, 1963; Lee, Brittain, & Vaillancourt, 2018; S. Miller et al., 2009).

We build on previous research in two ways. First, in most prior studies, status is operationalized as *sociometric popularity* (referring to incoming friendship nominations), which indicates social acceptance among peers, but not necessarily social standing in the peer group (Cillessen & Rose, 2005). The latter is better captured by *perceived popularity*, which is operationalized through aggregating responses to nomination questions such as, “Who is popular in your school?” or “Who do you think is cool?” Prior research demonstrates that sociometric popularity and perceived popularity are correlated, but statistically and conceptually distinct dimensions (Cillessen & Rose, 2005; Dijkstra, Cillessen, Lindenberg, & Veenstra, 2010b).

Second, studies about popularity and adolescent dating (S. Miller et al., 2009; Simon, Aikins, & Prinstein, 2008) do not distinguish whether perceptions of popularity stem from same-gender or cross-gender peers. However, the gender origins of reputation likely matters when predicting heterosexual romantic relationship debut. Dunphy (1963) theorized that adolescents who are popular within their same-gender groups are the first ones to reach across the gender divide of early adolescence and form heterosexual romantic relationships with cross-gender peers. In addition, it is likely that particularly cross-gender popularity makes adolescents visible and attractive for dating with cross-gender peers. For example, a boy’s status among other boys may be less consequential in predicting heterosexual romantic involvement than the same boy’s status among girls. Hence, we distinguish same- and cross-gender peer evaluations to better identify the correlates of romantic relationship debut. We thus hypothesize that *cross-gender popularity rather than same-gender popularity increases chances of a romantic relationship debut* (Hypothesis 2).

Background Characteristics

Finally, we controlled in our analyses for gender, physical development, age, socioeconomic status (SES), and parental divorce (Ivanova, Veenstra, & Mills, 2010), which are known to affect romantic relationship formation. Romantic experiences in adolescence depend partially on gender norms. For instance, there is evidence for a sexual double standard, when boys are rewarded for their heterosexual contacts, whereas girls are stigmatized for the same behavior (Kreager & Staff, 2009). Previous research has also shown that girls tend to select partners older than themselves (Collins et al., 2009)

which in adolescence might result in girls being more likely to have a romantic relationship debut than boys (Collins et al., 2009).

Physical development (puberty) is a key factor in adolescent sexual development because it marks an individual transition from a non-reproductive to a reproductive state (Suleiman, Galván, Harden, & Dahl, 2017; Waylen & Wolke, 2004). Early physical development may generate cross-gender friendships and dating among girls and among boys (B. C. Miller & Benson, 1999; Skoog, Sorbring, Hallberg, & Bohlin, 2013). Because adolescent girls are in general more physically developed than boys (Suleiman et al., 2017), we expect that more physically developed boys are more likely to have heterosexual romantic relationships than less physically developed boys. Thus, in addition to direct effects of gender and physical development, we also control for the interaction to account for differences in boys and girls pubertal timing.

SES has been linked to sexual development with adolescents from lower socioeconomic background being more likely to have sexual experience at an earlier age than adolescents from higher socioeconomic background (Kågesten & Blum, 2015). Although, the findings linking SES and romantic relationships have been inconsistent, studies acknowledged the importance of accounting for SES as characterizing familial background (Furman & Rose, 2015).

In addition, parental divorce is another factor representing family's background. Previous research has shown that parental divorce has an effect on adolescent dating to the extent that adolescents proceed forming romantic relationships faster if there is a turmoil in the family (Ivanova et al., 2010). All these variables (gender, physical development, age, SES and divorce) were included as controls.

Current Study

The aim of this study is to examine whether having same-gender and cross-gender friendships differentially predict adolescent romantic relationship debut, and to examine whether perceived popularity, reported by same-gender and cross-gender peers, is associated with romantic relationship debut. We build on previous studies by focusing on perceived popularity rather than sociometric popularity, and disentangling same- and cross-gender effects on romantic relationship debut. Moreover, we employ a longitudinal approach to our data analysis in a way that all of the predictors were measured before the romantic debut in adolescence. Specifically, we investigate the behavior (referring to whether adolescents started having their first romantic relationships or not between ages of 12 to 18) rather than dating popularity or desires.

Method

Sample

Data stem from TRAILS (Tracking Adolescents' Individual Lives Survey). The longitudinal study TRAILS was designed to chart and explain the development of mental health and social development from preadolescence into adulthood ($N = 2,230$) (de Winter et al., 2005). The measures used were assessed in the second (T2; 2003-2004) and third (T3; 2005-2006) wave of TRAILS, which in addition to the regular questionnaire included additional information from peer nominations and an event history calendar.

Peer nominations were collected during the second wave from TRAILS participants and their classmates in classes with at least three TRAILS participants (for more information on data collection procedures, see Dijkstra, Cillessen, Lindenberg, & Veenstra, 2010a; Dijkstra, Lindenberg, Verhulst, Ormel, & Veenstra, 2009). The assessment of the peer nominations lasted about 15 minutes and took place during regular lessons. Peer nominations were assessed in a total of 172 classes in 34 schools in the first grade (72 school classes) and second grade (100 school classes) of secondary education. The school classes were almost equally divided among levels of education: low education (60 school classes), middle education (53 school classes), and high education (59 school classes). Each classroom contained on average 18.39 participating pupils ($SD = 55.99$; range from 7 to 30). Respondents could nominate an unlimited number of same-gender and cross-gender classmates in their responses to all questions. Of all 3,672 adolescents who were approached to participate (including both regular TRAILS participants and their classmates who were not necessarily part of the regular TRAILS cohort), 90.2% completed the peer nomination measure. This resulted in a subsample of peer nominations for 1,007 regular TRAILS participants (\bar{X} age = 13.60; $SD = 0.66$).

During the third wave of TRAILS, the *Event History Calendar* (EHC) interviews were performed, during which a smaller subsample of TRAILS respondents was asked to report important life events, such as the start and end of romantic relationships, on a detailed monthly calendar going back to the beginning of the TRAILS data collection (approximately 5 years back). A total of 1,513 adolescents completed the EHC interview (\bar{X} age = 16.25; $SD = 0.67$ at the time of filling in the calendar). The EHC interviews took place in participants' homes and took approximately 45 minutes. If the adolescents answered positively to a certain question (e.g., "Have you started a romantic relationship in this 5-year period?"), they were then asked to mark the months in which the event started and ended on a calendar provided by the interviewer. If participant could not recall

the precise month, the interviewers were instructed to facilitate the recollection by asking whether the event took place before or after another significant event (e.g., “Did your relationship start before or after you moved to your new house?”). If an event took place before the start of the EHC, the interviewer noted down only that the adolescent had experienced it without the precise date (Ivanova et al., 2010).

For our target sample, we applied two selection rules: (a) participant should have participated in both peer nominations and the EHC interview; (b) participant should not have any dating experiences prior to the peer nomination assessment. As we were interested in the effect of friendship and popularity on the romantic relationship debut, we measured our predictors at the wave prior to the self-reported romantic relationship outcome to maintain the correct temporal ordering of our concepts. This strategy yielded a target sample of $n = 590$ adolescents (57% girls).

Measures

Outcome variable (T3)

Romantic relationship debut. During the EHC interviews, respondents were asked to recall their romantic relationships since the beginning of the TRAILS study and report the timing of romantic relationships (“verkering” in Dutch, signaling a serious romantic relationship or “going steady”; reported at the \bar{X} age = 16.22). A dichotomous variable was constructed indicating if a respondent entered a *first* romantic relationship between T2 and T3 (and did not have any romantic relationships before T2; see sample description) (Mills, 2011).

Primary independent variables (T2)

Friendships. Respondents were asked “Who are your best friends?” and could nominate an unlimited number of their classmates. The focus was on classmates, because Dutch students spend most of their time in their class and do not change classes from one subject to another. All participants from the target sample were in mixed-gender classrooms with at least one cross-gender person per class (average proportion of girls per class = .5). Only reciprocated friendship ties were used. Two types of measures were created: first, *total friendships*—the number of friendship nominations received divided by the total number of participating classmates; second, *same- and cross-gender friendships*—the number of nominations received from same-gender and cross-gender peers divided by the total number of participating same-gender and cross-gender classmates, resulting in proportion scores ranging from 0 to 1. All proportion scores were transformed into percentages (proportion score multiplied by 100) to make

results easier to interpret (see Analytical strategy). This strategy was chosen to control for the heterogeneity in classroom sizes which varied from eight to 30 pupils per class with the mean of 20.4 ($SD = 5.6$).

Popularity. Popularity was based on the number of nominations adolescents received from their classmates for the question “Who do others want to be associated with?” The concept of popularity covers aspects of influence, dominance, having social power, attractiveness, and resource control (cf. Cillessen & Rose, 2005). In most studies of popularity among adolescents, respondents are asked to nominate the most (and least) popular peers; this can cover many aspects. Our measure was based on what adolescents presumably mean by saying that a person is popular, namely, that people want to be connected with the popular person, to be associated with that person. Moreover, we explicitly disentangled personal preferences for being associated with a person from reputation-based preferences by asking respondents to nominate people with whom others want to be connected. We think that this yielded a reputation-based measure for popularity. Previous studies using this measure showed that correlations with other measures of peer status as well as behaviors are comparable to studies using the more standard measure of popularity (Cillessen & Rose, 2005; Dijkstra et al., 2010a; Dijkstra et al., 2009). Following the same procedure as for friendships, proportion scores were calculated for *total*, *same-* and *cross-gender popularity*, and transformed into percentage-scores ranging from 0 to 100. Total popularity and total friendships showed moderate correlation (for girls $r = .38$, for boys $r = .19$) indicating that the concepts are not interchangeable.

Background characteristics

Physical development (T2). The stage of physical development was assessed at T2 using self-reports. Adolescents were asked to report the degree of their own pubertal change (Petersen et al., 1988). All adolescents were asked to indicate whether they started experiencing the growth spurt, the growth of body hair (e.g., pubic hair), and changes in skin (e.g., pimples). Boys were also asked about the growth of their facial hair and changes in voice, whereas girls were asked about their breast growth and menstruation. Answers categories ranged on a 4-point scale from 1 = *change has not yet begun* to 4 = *change seems complete*. Answers to these questions were combined (Cronbach's α for boys = .77, for girls = .74) and z-standardized within gender.

Socioeconomic status (T1). SES was measured using income level, educational level of the father and the mother, and occupational level of both parents (occupational level was based on the International Standard Classification for Occupations; Ganzeboom & Treiman, 1996). These five variables

were standardized and combined into one scale with an internal consistency of .84. The scale captures 61.2% of the variance in the five items. Missing values (e.g., when there is only one parent in the family) did not affect the association of this scale with other variables.

Parental divorce (T2). During EHC interviews at T3, adolescents were asked to report the date when their parents got divorced (if appropriate), which includes non-married parents that split up. The dummy variable was computed yielding “1” if the respondent experienced parental divorce *before* the date of peer nomination assessment (\bar{X} age 13.41).

Age at EHC interview (T3). We also controlled for age at the interview of EHC, which ranged from 14.8 to 18.0 (\bar{X} = 16.22, SD = 0.60), to account for differences in the recall period of romantic relationship history.

Attrition Analyses

Before our analyses, we compared our sample of adolescents (n = 590) to those omitted from the sample due to early romantic relationship initiation (n = 134). The early daters were on average 12.70 (SD = 0.85) years old at the beginning of their first romantic relationship, whereas adolescents in the target sample reported having their first romantic relationship at the average age of 14.90 (SD = 0.90). An independent sample t test revealed that compared with the excluded early daters, respondents in the target sample came from families with higher SES, $t(714)$ = 7.11, p < .05, Cohen's d = 0.35 (\bar{X}_{target} = 0.21, SD = 0.77; $\bar{X}_{\text{early daters}}$ = -0.06, SD = 0.78). Comparison on the explanatory variables from the peer nomination data, which were collected after the onset of romantic relationships for the early daters, showed that compared with the excluded early daters, selected participants were lower in popularity, $t(175.5)$ = 4.02, p < .05, Cohen's d = -0.44 (\bar{X}_{target} = .09, SD = .12; $\bar{X}_{\text{early daters}}$ = .15, SD = .15).

In addition, we compared our romantic relationship sample (n = 590) to the initial TRAILS sample at T1. Compared with the target sample, other TRAILS participants (N = 2,230 - 590 = 1,640) were more likely to be boys, $\chi^2(2,230)$ = 10.98, p < .05 Cramer's ϕ^2 = 0.07, and came from families with a lower SES, $t(2,188)$ = -9.49, p < .05, Cohen's d = -.46 (\bar{X}_{others} = -0.14, SD = 0.77; \bar{X}_{target} = 0.21, SD = 0.79).

Analytical Strategy

First, we explored descriptive statistics for all study variables separately for boys and girls, and for experienced romantic relationships debut and not

(referred to as daters and non-daters). Second, a series of generalized linear models, namely, logistic regressions with a “logit” link function, were tested to investigate whether friendships and popularity predicted romantic relationship debut. Such an approach was dictated by the binary nature of our outcome variable.

To test our hypotheses, we fitted three models, first with a total measure of friendships/popularity, then separated by same- and cross-gender friendships/popularity nominations, and finally, same- and cross-gender friendships and popularity in one model. All of the analyses were carried out using the R version 3.1.1. (Crawley, 2005). As a robustness test, the same models were applied to the sample that also included early daters ($n = 724$), showing almost identical results (available upon request).

Model fit was assessed by checking residual deviance, Akaike information criterion (AIC), and two pseudo- R tests: McFadden’s and Nagelkerke’s. Lower values of AIC indicate a better model fit. McFadden’s R -squared is a pseudo- R test with values closer to zero indicating that the model has low predictive power, and values between .2 and .4 showing a very good model fit. If comparing two models on the same data, McFadden’s is higher for the model with the greater likelihood. Nagelkerke usually gives an indication of the goodness of fit for a model on a scale of 0 to 1.

Results

Descriptive Statistics

Table 1 displays the descriptive statistics of the study variables. The sample consisted of 56% girls and 44% boys. The average age at the EHC interview was 16.2 ($SD = 0.6$), with 80% ranging between age 15.5 and 17.0.

With regard to friendships, 5% of the sample did not receive any nominations neither from same- nor from cross-gender classmates. Same-gender friendships were more prevalent than cross-gender ones: 95% of respondents had at least one same-gender friend, whereas only 36% had one or more cross-gender friend.

More than a third of respondents ($n = 223$, 37.8%) were not considered as popular by any of their peers (popularity score = 0), thus the mean of total popularity was low ($\bar{X} = 9.31$, $SD = 12.28$, see Table 1). When split by the gender of the nominator (sender of the nomination), popularity among same-gender peers was larger than cross-gender popularity, $\bar{X}_{\text{same-gender}} = 12.58$, $\bar{X}_{\text{cross-gender}} = 6.75$, $t(589) = 9.97$, $p < .001$.

Table 1. Descriptive Statistics of Study Variables.

Variable	\bar{X} (<i>SD</i>)	Median	Minimum value	Maximum value
Age at EHC interview	16.22 (0.60)	16.13	14.80	18.01
SES	0.21 (0.77)	0.27	-1.73	1.74
Physical development	-0.02 (1.01)	0.14	-3.21	2.30
Total friendships	21.22 (12.53)	20.00	0.00	73.33
Same-gender friendships	34.72 (21.17)	33.33	0.00	100.00
Cross-gender friendships	7.02 (13.53)	0.00	0.00	100.00
Total popularity	9.31 (12.28)	4.55	0.00	65.22
Same-gender popularity	12.58 (17.78)	6.67	0.00	100.00
Cross-gender popularity	6.75 (14.85)	0.00	0.00	128.60
Dichotomous variables	Frequencies (%)			
Romantic relationship debut	0 = Non-daters	287 (49%)		
	1 = Daters	303 (51%)		
Gender	0 = Girls	332 (56%)		
	1 = Boys	258 (44%)		
Parental divorce	0 = Not divorced	503 (85%)		
	1 = Divorced	87 (15%)		

Note. EHC = Event History Calendar; SES = socioeconomic status.

Results showed that half of the respondents (51.4%) indicated that they had their first romantic relationship between T2 and T3 with girls (57.4%) being more likely to report a romantic relationship debut than boys (43%) ($\chi^2 = 11.02, p < .01$). The mean age at the start of the first romantic relationship was 14.90 ($SD = .90$), ranging from 12.91 to 17.57.

Table 2 shows a series of *t* tests that capture differences in study variables between boys and girls, and between those who had romantic relationship debut (daters) and those without romantic relationship debut (non-daters). On average, girls scored significantly higher than boys on same-gender popularity, $\bar{X}_{\text{boys}} = 9.81, \bar{X}_{\text{girls}} = 14.71, t(581) = 3.41, p < .001$, whereas boys had somewhat higher, although not significantly, scores than girls on cross-gender popularity, $\bar{X}_{\text{boys}} = 8.05, \bar{X}_{\text{girls}} = 5.75, t(488) = -1.82, p = .07$. There were no gender differences in the mean scores of other study variables. With regard to differences between daters and non-daters, there were some differences with the former being older, lower SES, more physically developed, and more popular, and having more cross-gender friends. There were no significant differences between daters and non-daters in the mean scores of total friendships and same-gender friendships.

Table 2. The *t*-Tests for Gender Differences (Girls vs. Boys) and Romantic Relationship Debut (vs. No Debut).

	Gender differences				Romantic relationship debut					
	Mean for girls (<i>n</i> = 332)	Mean for boys (<i>n</i> = 258)	<i>t</i> value	<i>df</i>	<i>p</i> value	Mean for non-dater (<i>n</i> = 287)	Mean for daters (<i>n</i> = 303)	<i>t</i> value	<i>df</i>	<i>p</i> value
Age at EHC interview	16.22	16.22	0.08	569.00	.93	16.13	16.31	-3.73	529.86	<.01
SES	0.21	0.22	-0.10	527.30	.92	0.33	0.11	3.54	581.87	<.01
Physical development	-0.02	-0.01	-0.09	535.80	.93	-0.16	0.12	-3.45	581.19	<.01
Total friendships	21.11	21.35	-0.23	534.00	.82	0.20	0.22	-1.90	587.48	.06
Same-gender friendships	33.87	35.83	-1.10	523.60	.27	0.35	0.35	0.20	580.76	.84
Cross-gender friendships	7.79	6.01	1.64	587.60	.10	0.05	0.09	-4.01	506.32	<.01
Total popularity	10.00	8.41	1.56	558.30	.12	0.07	0.12	-4.90	569.27	<.01
Same-gender popularity	14.71	9.81	3.41	581.90	<.01	0.10	0.15	-3.53	582.49	<.01
Cross-gender popularity	5.75	8.05	-1.82	488.50	.07	0.04	0.09	-3.83	545.74	<.01

Note. EHC = Event History Calendar; SES = socioeconomic status.

Logistic Regression Analysis

A series of logistic regression models were applied to test how friendships and popularity predict romantic relationship debut. All models included five control variables and one interaction effect between physical development and gender. Models 1 and 2 explored the effects of total friendships, and same- and cross-gender friendships as predictors of romantic relationship debut. Models 3 and 4 tested the effect of popularity as predictors. The final model (Model 5) simultaneously tested the effects of friendships and popularity separated by same- and cross-gender nominations. Table 3 shows the results of the logistic regression models by presenting the effect sizes in predicting whether an adolescent had a romantic relationship debut or not. Regression coefficients (b) and their standard errors (SE) are in logits, representing the amount of change in the log odds of the outcome for a one-unit change in predictor variable with all other effects being constant. Interpretation of such coefficients is difficult; thus, odds ratios (ORs, calculated as exponential of parameter estimate B) and their 95% confidence intervals (CIs) are also provided, and can be interpreted as the odds of romantic relationship debut (versus no romantic relationship debut). An OR of 1.0 means that there is no association between predictor and outcome, OR greater than 1.0 indicates that the covariate is associated with increased odds of an outcome, OR less than 1.0 indicates the covariate is associated with decreased odds of an outcome. Small effect sizes of peer nomination measures are related to their specific measurement, namely their broad scale ranging from 0 to 100, which means that one unit represents 1% of the total possible number of peer nominations.

First, the effects of the control variables and total popularity are presented in Model 1 (see Table 3). SES had a negative effect on dating (OR = 0.74, 95% CI = [0.59, 0.94]), meaning that respondents from higher SES families were less likely to have a romantic relationship debut, and with one-unit increase in SES, the odds of romantic relationship debut (versus no debut) decreases by a factor of 0.74. Age at the EHC interview was predictive of romantic relationship with older respondents being more likely to have had a romantic debut; to be more specific, holding all other covariates constant, each additional year of age increases the odds of romantic relationship debut by a factor of 1.54. With regard to gender, boys had a lower chance of having a romantic relationship compared with girls (OR = 0.57, 95% CI = [0.40, 0.81]). The main effect of physical development represents the effect for girls (when gender = 0), and the effect of physical development for boys can be derived by adding the main effect with the gender interaction term, which in Model 1 is equal to 0.47, and converted to OR is 1.60. In other words, the

Table 3. Logistic Regression Models With Romantic Relationship Debut (0 = No Romantic Debut, 1 = Experienced Romantic Debut) as an Outcome.

	Model 1			Model 2			Model 3			Model 4			Model 5			
	B	SE	OR	95% CI	B	SE	OR	95% CI	B	SE	OR	95% CI	B	SE	OR	95% CI
Intercept	-6.92**	2.44	0.00	[0.00, 0.11]	-6.72**	2.49	0.00	[0.00, 0.15]	-6.67**	2.48	0.00	[0.00, 0.16]	-6.92**	2.48	0.00	[0.00, 0.12]
SES	-0.29*	0.12	0.74	[0.59, 0.94]	-0.28*	0.12	0.76	[0.60, 0.96]	-0.31**	0.12	0.73	[0.58, 0.92]	-0.31**	0.12	0.73	[0.58, 0.93]
Age at EHC interview	0.43**	0.15	1.54	[1.15, 2.08]	0.43**	0.15	1.54	[1.14, 2.08]	0.41**	0.15	1.51	[1.12, 2.04]	0.43**	0.15	1.54	[1.14, 2.08]
Parental divorce	0.52*	0.26	1.68	[1.01, 2.84]	0.52	0.27	1.67	[1.00, 2.84]	0.51	0.27	1.66	[0.99, 2.82]	0.49	0.26	1.64	[0.98, 2.77]
Gender (male)	-0.56**	0.18	0.57	[0.40, 0.81]	-0.52**	0.18	0.60	[0.42, 0.85]	-0.53**	0.18	0.59	[0.41, 0.84]	-0.59**	0.18	0.56	[0.39, 0.79]
Physical development	0.05	0.12	1.05	[0.84, 1.32]	0.02	0.12	1.02	[0.81, 1.29]	0.05	0.12	1.05	[0.83, 1.32]	0.04	0.12	1.04	[0.82, 1.31]
Physical Development × Gender	0.42*	0.18	1.53	[1.08, 2.17]	0.48**	0.18	1.62	[1.14, 2.32]	0.46*	0.18	1.58	[1.11, 2.26]	0.45*	0.18	1.57	[1.10, 2.24]
Friends	0.01	0.01	1.01	[1.00, 1.03]												
Same-gender friends					0.00	0.00	1.00	[0.99, 1.00]								
Cross-gender friends					0.03**	0.01	1.03	[1.01, 1.05]								
Popularity									0.03***	0.01	1.04	[1.02, 1.05]				
Same-gender popularity																
Cross-gender popularity													0.01,	0.01	1.01	[1.00, 1.02]
AIC	765.67				754.44				746.74				750.23			
McFadden's pseudo-R ²	.083				.099				.106				.104			
Nagelkerke (Cragg and Uhler) pseudo-R ²	.15				.17				.18				.18			

Note. AIC = Akaike information criterion; a model with lower AIC is preferred to one with a higher AIC. McFadden's pseudo-R²—pseudo-R tests with values closer to zero indicating that the model has low predictive power, and values between .2 and .4 showing a very good model fit. Nagelkerke (Cragg and Uhler) pseudo-R² gives a reasonable indication of the goodness of fit for a model on a scale of 0 to 1. b = parameter coefficient; SE = standard error; OR = odds ratio (e^b); CI = confidence intervals of OR; if the 95% CI does not contain the value 1.0, the association is statistically significant at $\alpha = 0.05$. SES = socioeconomic status; EHC = Event History Calendar.

* $p < .05$. ** $p < .01$. *** $p < .001$.

effect of physical development is moderated by gender and is only significant for boys. All control variables showed consistent effects in all four logistic regression models. Parental divorce was significant only in the first model, and marginally significant in the rest of the models, suggesting that respondents who experienced divorce before T2 had increased odds of romantic debut compared with respondents from intact families.

Models 1 and 2, in Table 3, capture the main effects of total friendships and same- and cross-gender friendships on romantic relationship debut. There was no effect of total friendship (Model 1); however, when split by gender (Model 2), cross-gender friendships predicted romantic relationship debut, whereas same-gender friendships showed no effect. In line with the first hypothesis, Model 2 shows that having reciprocated cross-gender friendships had a significant positive association with the likelihood of romantic relationship debut (OR = 1.03, 95% CI = [1.01, 1.05]). In other words, one-unit increase in cross-gender friendship score (or increase in cross-gender popularity by 1%) increased odds of romantic relationship debut by a factor 1.03.

Our second hypothesis was tested in the second and third model (Table 3). Although total popularity (Model 3) was significantly associated with romantic relationship debut (OR = 1.04, 95% CI = [1.02, 1.05]), when split into same- and cross-gender nominations (Model 4), only cross-gender popularity predicted romantic relationship debut (OR = 1.02, 95% CI = [1.01, 1.04]), whereas same-gender popularity had no association with the outcome. Model 4 shows that holding all other variables constant, 1% increase in cross-gender popularity increased odds of romantic relationship debut by a factor of 1.02.

Table 3 shows the full model (Model 5) which tested the association of same- and cross-gender friendships as well as same- and cross-gender popularity with romantic relationship debut. The results show that only cross-gender friendships and popularity have unique effect on romantic relationship debut. Both cross-gender friendships and cross-gender popularity had the effect of 0.02 (OR = 1.02, 95% CI = [1.01, 1.04] in both cases).

With regard to model fit, lower values of AIC indicated a better fit of Model 5, compared with other four models. Both McFadden's and Nagelkerke's pseudo- R^2 tests showed that Model 5 performs best from all the models and shows an acceptable model fit.

Discussion

The aim of this study was to look at the associations between adolescent friendships, perceived popularity, and romantic relationship debut. Specifically, we wanted to shed light on the determinants of adolescent romantic relationships by focusing on the peer context, combining two main research lines: the

emergence of cross-gender friendships from childhood to adolescence (Connolly, Nguyen, Pepler, Craig, & Jiang, 2013) and social standing in the peer group (Dunphy, 1963). In so doing, we disentangled the distinct roles of same-gender friendships, cross-gender friendships, and same- and cross-gender popularity, implicitly focusing on heterosexual romantic relationships. We focused on predicting this relationship debut by capturing peer nomination measures prior to romantic relationship initiations.

First, our results show that even though reciprocated cross-gender friendships were not as common as same-gender friendships, having more cross-gender friends increased chances of romantic relationship debut. This finding is consistent with previous research. For example, Connolly and colleagues (2004; Connolly et al., 2000; Connolly et al., 2013) showed that having a large number of cross-gender peers facilitates the emergence of romantic relationships. In addition, it was found that students with cross-gender friends were significantly more likely to date a year later compared with students with no cross-gender friends (Kreager et al., 2015). However, that study also showed that romantic relationship debut did not originate from cross-gender friends (Kreager et al., 2015), suggesting that these friendships function as indirect “training grounds” for romantic relationships where adolescents learn how to interact with the cross-gender peers rather than a dating pool in and of itself (Connolly & Goldberg, 1999). Moreover, these findings clearly indicate that having cross-gender friendships open up opportunities for dating with cross-gender peers. As such, cross-gender friendships form important contexts in which adolescents probably learn to interact with cross-gender peers.

Second, we estimated the association between perceived popularity and the likelihood of adolescent romantic debut. Results showed a positive association between total popularity and romantic relationship debut; however, once popularity was divided into same-gender and cross-gender peer perceptions, only the latter was predictive of romantic relationship debut. This shows that being perceived as popular by cross-gender peers increases one’s chances of the romantic relationship debut, whereas popularity among same-gender peers does not. This suggests that same- or cross-gender peers admire different aspects of popularity. These results extend on Dunphy’s (1963) classical study by disentangling between same- and cross-gender popularity.

Third, when combined together, adolescents with cross-gender friends and perceived as popular by cross-gender peers were more likely to have a romantic relationship later on. It is thus not enough to be considered as popular by male and female peers to increase the likelihood of romantic relationship debut. Rather, the gendered source of both friendships and popularity is important, and only cross-gender popularity is associated with increased

probability of romantic relationship debut. This has been partly shown by Connolly and colleagues' research, but popularity has not been separated by nominator's gender before.

According to Brown (1999), there are four phases in adolescent romantic relationship developmental sequence: initial, status, affection, and bonding phases. Similarly to the first stage of the romantic relationship development the "initial phase" is characterized by the establishment of cross-gender relationships. In the "status phase," individuals tend to consider the consequences of a particular relationship for their image among peers. The preoccupation of trying to fit in and finding the right peer group makes romantic relationships be considered as a "means of establishing, improving, or maintaining peer group status" (Brown, 1999).

Overall, this study put two important theoretical perspectives to a test: on one hand, following the work of Connolly and others (2004; Connolly et al., 2000; Connolly et al., 1999) on the role of mixed friendship groups including cross-gender friendships as starting point for romantic relationships; on the other hand, the idea from Dunphy (1963) about the importance of social standing for initiating romantic relations. We empirically tested and refined the implications of both approaches by specifically looking at same- and cross-gender friendships and popularity, lending support for both perspectives.

Limitations

There are some limitations of our study that should be acknowledged. Our study was conducted in the northern part of the Netherlands, which is known to be less ethnically heterogeneous and more rural than the rest of the country. Hence, this might affect the generalizability of our findings to other, more ethnically diverse contexts, as well as other countries. Romantic behavior is often seen as culturally dependent (Brown, 1999), meaning that what is normal in one county might not be appropriate in another (which may also apply to rural and urban). Cultural norms strongly influence the degree and timing of romantic involvement (Furman & Winkles, 2010; B. C. Miller & Benson, 1999) and might also influence which characteristics are valued and contribute to popularity among peers. We found, however, that half of the respondents had romantic relationships in the observed period of time, which is in line with other studies on the prevalence of romantic relationships (Friedlander, Connolly, Pepler, & Craig, 2007). Moreover, it is important to note that our theoretical rationale was focused on heterosexual relationships. Although the outcome variable did not discriminate between cross-sex and same-sex romantic relationships as the data did not include an indicator for the type of romantic relationship, our study and the theoretical frameworks

implicitly refer to heterosexual relationships. Hence, the findings of this study do not generalize to same-sex romantic relationships. Further studies should pay more attention to the role of friendships and popularity in same-sex romantic relationships.

A potential limitation is that our peer measures were restricted to the classroom context. Although popularity is a reputation-based measure, which can be adequately measured by classmates, friendships outside the classroom were not taken into account. Future research might profit from also considering friendships outside the classroom, particularly for girls when growing older (Poulin & Pedersen, 2007). Nevertheless, in the Dutch educational system the classroom is an important context in which adolescents spend most of their time in school and friendships are formed and highly relevant.

Finally, the data used were collected approximately 10 years ago. In the meantime, social and cultural changes might have influenced adolescents' dating, most prominently, the rise of social media and technical devices including its potential risks (Kernsmith, Victor, & Smith-Darden, 2018). However, the underlying principles we were interested in, namely, the impact of having cross-gender friends and being considered as popular by cross-gender peers, have probably not changed so much. Adolescents experiencing and starting to date nevertheless need access to cross-gender peers either by having cross-gender friends or being visible among cross-gender peers in terms of popularity.

Conclusion

This study investigated the extent to which adolescent romantic relationship debut was affected by friendships and popularity among same-gender and cross-gender peers. Findings suggest that adolescents with cross-gender friendships, as well as adolescents perceived as popular by cross-gender peers, are more likely to have romantic debut. This underlines the importance of cross-gender relationships and perceptions, despite that they are still not common in the middle-adolescence. Teens who manage to form cross-gender friendships and are perceived as popular by cross-gender peers are, however, more likely to have a romantic relationship debut, emphasizing the gendered social origins of adolescent romantic and sexual relationships.

Compliance With Ethical Standards

All procedures performed in this study were in accordance with the American Psychological Association (APA) ethical standards. Informed consent was obtained from all individual participants included in the study. This study was funded by various grants which are declared in the "Funding" section.


Declaration of Conflicting Interests


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