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EMPIRICAL RESEARCH

It's Lonely at the Top: Adolescent Students' Peer-perceived Popularity and Self-perceived Social Contentment

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Abstract

Popularity is highly desired among youth, often more so than academic achievement or friendship. Recent evidence suggests being known as "popular" among peers (perceived popularity) may be more detrimental during adolescence than being widely well-liked (sociometric popularity). Thus, this study sought to better understand how two dimensions of popularity (perceived and sociometric) may contribute to adolescents' own perceptions of satisfaction and happiness regarding their social life at school, and hypothesized that "being popular" would have a more complex (and curvilinear) association with adolescents' social contentment than previously considered by linear models. Adolescents' peer popularity and self-perceived social contentment were examined as both linear and curvilinear associations along each status continuum in a series of hierarchical regressions. Participants were 767 7th-grade students from two middle schools in the Midwest (52% female, 46% White, 45% African American). Perceived and sociometric popularity were assessed via peer nominations ("most popular" and "liked the most", respectively). Self-reported social satisfaction, best friendship quality, social self-concept, and school belonging were assessed as aspects of social contentment. The results indicated that both high and low levels of perceived popularity, as well as high and low levels of sociometric popularity, predicted lower perceptions of social satisfaction, poorer best friendship quality, and lower social self-concept than youth with moderate levels of either status. Implications to promote adolescents' psychosocial well-being by targeting popularity's disproportionate desirability among youth are discussed.

Keywords Adolescence · Popularity · Loneliness · Social satisfaction · Curvilinear · Social contentment

Introduction

During adolescence, popularity becomes increasingly important to youth (LaFontana and Cillessen 2010). However, popularity is multi-faceted and complex and not always a positive force in adolescents' lives. Being "popular", some argue, is riskier for youth than being well-liked (Schwartz and Gorman 2011; Mayeux et al. 2008), as adolescents who are perceived to be "popular" by their peers are more likely to engage in risk-taking behaviors, such as delinquency (Allen et al. 2014), drug and alcohol use (Tucker et al. 2011), academic disengagement (Taylor and Graham 2007), and aggressive behavior (Cillessen and Mayeux 2004). Furthermore, growing evidence suggests there are long-term psychological repercussions for youth who pursue popularity. In a recent 10-year longitudinal study, youth who prioritized popularity over close friendships during high school had worse long-term psychological well-being, with lower self-esteem and higher levels of anxiety and depression into early adulthood (Narr et al. 2017).

A critical question often overlooked by this empirical emphasis on popular youths' risky behaviors and characteristics is how popularity is associated with youths' own perceptions of social contentment. What are the *psychosocial* outcomes of having achieved popularity during adolescence? As adolescence is a critical time to influence youths' perceptions of popularity and their motivation to pursue this status (LaFontana and Cillessen 2010; Levin and Madfis 2009), we believe that popular youths' own reported

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satisfaction and happiness with their social lives may not be the rosy picture that many adolescents believe it to be.

The current study investigates whether being popular among peers during adolescence is associated with youth having greater perceptions of contentment with their social lives at school. Using a sample of early adolescents, we examine the associations between two dimensions of popularity—sociometric and perceived popularity—and four aspects of social contentment (social satisfaction, best friendship quality, social self-concept, and school belonging), and allow for curvature in these associations to better examine perceptions of social contentment across all levels of popularity. In the following sections, we discuss peer popularity as particularly important to the social contentment of early adolescents and consider prior work which denotes two dimensions of popularity among youth (those who are well-liked (sociometric popularity) and those who are "popular" (perceived popularity)). At the end, we discuss how both the *dimension* and *degree* of popularity achieved may be important to youths' ability to achieve social contentment.

Early Adolescence and the Desire to be Popular

Adolescence is a time marked by transitions, both in the minds and bodies of adolescents as well as the social spaces they inhabit (Eccles et al. 1993; Juvonen et al. 2004). Most early adolescents in the United States transition from a smaller elementary school to a larger middle school, accompanied by an influx of new and unfamiliar peers. This transition causes the social landscape of adolescence to destabilize and subsequently reorganize into larger peer groups based on a status hierarchy, i.e., "crowds" and "cliques" (Adler and Adler 1998; Brown et al. 1986). Peer group membership and friendships become especially important to early adolescent students as social isolation is highly visible in this more grouped and stratified peer context (Berndt 1979).

Steinberg proposes that the "social brain" of adolescence poses significant risk to youths' psychosocial well-being. Neurological changes during adolescence cause heightened arousal in areas of the brain which perceive others' expressions, thoughts, feelings, and opinions (Steinberg 2014). As such, adolescents are especially aware of what others think of them. They react more strongly to feelings of social acceptance and rejection; thus, they may desire popularity as a means by which to achieve the former and avoid the latter (Lieberman 2013). Adolescents' pursuit of popularity, then, is considered by some to be a normal part of youths' social development (Topping et al. 2000).

Conversely, the pursuit of popularity may also stem from a desire for power or dominance. A broad literature has identified a strong association between peer popularity and various forms of peer aggression during adolescence (Heilbron and Prinstein 2008; for review). "Popular" individuals tend to act aggressively towards their peers (Mayeux et al. 2008; Prinstein and Cillessen 2003) and are more likely to be considered "bullies" (Juvonen et al. 2003). Such an empirical profile of popular youth as aggressive may have led to peer research which frequently ignores their needs for close friendships or intimacy. We currently know far more about the average behaviors and characteristics of popular youth than their perceptions regarding their social lives at school.

Popularity

Peer researchers identify two dimensions of popularity among youth. *Sociometric* popularity refers to being widely well-liked and accepted by peers. *Perceived* popularity denotes high prestige, visibility, and dominance within the peer ecology (Cillessen and van den Berg 2012). The term "popularity" is often used as an umbrella term to refer to both sociometric and perceived popularity in tandem, however sociometric popularity and perceived popularity each have distinct behavioral profiles and characteristics which lead to differing outcomes among youth (Parkhurst and Hopmeyer 1998).

Youth who are *sociometrically popular* (typically assessed by youth nominating peers who they "like the most", or "want to spend the most time with") are generally viewed favorably by their peers, and are frequently preferred over other students as activity partners, academic helpers, and possible friends (Ryan and Shin 2018). Youth who are well-liked by their peers tend to exhibit prosociality (e.g. cooperation, sociability, and kindness), have high quality peer friendships at school, and tend to do well academically (Cillessen and van den Berg 2012). Others find that well-liked youth are highly skilled interpersonally; their friends tend to rate their interactions with them more favorably than the friends of less widely liked peers (Allen et al. 2005). Traditionally, they are considered a relatively low-risk group for academic or psychosocial maladjustment (Kupersmidt and Dodge 2004; Schwartz et al. 2008).

Conversely, youth who are high in *perceived popularity* (assessed by youth nominating peers who they think are "popular") have a more complex behavioral profile characterized by both positive and negative attributes. Youth who are "popular" among peers tend to possess characteristics which are valued by the peer group (e.g. attractive, athletic, and well-known; Cillessen and van den Berg 2012; LaFontana and Cillessen 2002) and while socially adept and prosocial, they may also resort to coercion, social manipulation and aggression to maintain or enhance their status (Cillessen and Mayeux 2004; Rodkin and Roisman 2010). Additionally, youth who are "popular" may participate in

other behaviors that their peers are not necessarily fond of (e.g. academic misconduct, drink alcohol, use substances) yet grant them status and prestige (Mayeux et al. 2008). Thus, "popular" youth receive diverse ratings from their peers; some studies find that "popular" youth are generally accepted and well-liked and others find that they are widely disliked and targets of jealousy or avoidance (LaFontana and Cillessen 2002; Rubin et al. 2006). As building "popularity" oftentimes entails dominating others, peers may not necessarily want to befriend "popular" youth; as peers tend to avoid and dislike those who manipulate them (Juvonen et al. 2003). Thus, youth with perceived popularity may be deemed "popular" but unlikeable by peers, which may circumvent these youths' ability to develop close, intimate relationships at school.

While these findings have helped peer researchers paint a more descriptive profile of each dimension of popularity, not all high status youth enjoy equal rank and prestige. Qualitative studies describe de facto "leaders" (e.g. "queen bees" or "alphas") among popular youth, and that peers jockey for status within the popular cliques (Adler and Adler 1998; Eder 1985). Popularity functions both as a "crowd" or "clique" (Brown et al. 1986) as well as along a continuum; increasing levels of popularity leading to a singular "most popular" and/or "most liked" individual. This latter view, however, is underrepresented among the profiles of popular youths' average attitudes and behaviors. The few studies which have incorporated a curvilinear view of popularity do find differential outcomes relative to youths' position on the peer status spectrum. For instance, studies find that youth who are highly and least "popular" among peers are more similar in their internalizing symptoms (Rose and Swenson 2009) and externalizing behaviors (Prinstein and Cillessen 2003; Stoltz et al. 2016) than youth with average levels of this status. Others find that specific health risk behaviors, such as cigarette smoking, are less common among highly "popular" youth and more common among youth with average popularity (Prinstein et al. 2011).

While it is vital to assess the average behaviors associated with popularity from a risk-prevention perspective, too often this perspective averages over the differential experiences of popular youth, especially those at higher ends of the spectrum who (by definition) may face more extreme peer social experiences. This study will expand upon the current literature by linking peers' perceptions of popularity with adolescents' own perceptions of social contentment, and allow for curvature in these associations.

Social Contentment

Social contentment refers to an individual's feelings of satisfaction, happiness, and confidence regarding their social relationships and social interactions. Many theories emphasize social contentment as critical part of well-being. Humanistic and motivation theories convey that feeling supported, respected, and acknowledged by others is a basic psychological need, essential for well-being regardless of age or maturity (Baumeister and Leary 1995; Deci et al. 1991; Maslow 1943). Baumeister and Leary's (1995) "belongingness hypothesis" argues that individuals will continuously strive to achieve at least a minimum quantity of close, positive, and lasting relationships throughout their lives. According to Self-Determination Theory, only when the need for relatedness with others is satisfied in tandem with two other basic psychological needs—those for competence and autonomy—can psychological well-being and positive self-esteem be achieved (Deci et al. 1991; Milyavskaya and Koestner 2011). Across theories, social contentment is assumed to be multifaceted; that a sense of belonging and relatedness with others, close relationships which are supportive and reciprocated, and perceiving these relationships as valuable and personally satisfying all contribute towards this need's fulfillment.

Crick and Ladd (1993) found that classification and perceptions of peer social experiences vary both between and *within* peer status groups, and that even well-liked children report feelings of social distress and loneliness not significantly different than neglected or average children. In other words, having many possible friends or acquaintances at school does not necessarily lead to better psychosocial outcomes, rather, the *perception* that one has of one's relationships (i.e., high in intimacy, or as valuable to oneself) appear to be what truly matters for well-being. The more others like you, or think you are "popular", may not necessarily lead to greater perceptions of contentment with one's social life or in one's relationships with peers (Juvonen 2007).

We capture this concept through four measures which assess different aspects of adolescents' perceptions regarding their social relationships with peers and social lives at school: social satisfaction, best friendship quality, social self-concept and school belonging. *Social satisfaction* refers to perceiving that one has a network of social relationships which is personally meaningful and valuable (e.g., a peer group), and inversely acts as a measure of social or relational loneliness (Cacioppo et al. 2015; Weiss 1973). *Best friendship quality* addresses the belief that one has a close and intimate attachment to another person (i.e., their best friend), and when perceived to be poor, identifies an emotional or intimate loneliness (Cacioppo et al. 2015; Weiss 1973). *School belonging* is the sense of being a part of the school community and denotes feelings of affiliation and connectedness to others within the school as well as the school context itself (Goodenow 1993). *Social self-concept*, while not necessarily denoting belongingness or relatedness, is a self-assessment of social well-being by comparing

one's social skill and opportunities to those of others (e.g., other similarly-aged peers; Lord et al. 1994).

Social contentment incorporates youths' perceptions of their relationships with peers *and* satisfaction with these relationships. As such, lacking a sense of companionship and intimacy with others has implications for the adjustment of youth (Juvonen and Gross 2005; Margalit 2010). These should be further examined and elaborated among popular youth.

Popularity and Social Contentment

Cillessen and Bellmore (2011) theorize that the two dimensions of popularity represent different arenas of social competence during adolescence. Sociometric popularity represents the ability to empathize with and respond to the needs of others, which enables youth to be prosocial and cooperative and affords new friendship opportunities. Other studies support this depiction; adolescents who were well-liked among their peer group are often rated by their best friend as having greater social competence within their friendship (Allen et al. 2005). Being well-liked also affords youth greater opportunities to form new peer friendships which may lead to higher quality friendships as they are able to choose their friends from many possible options (Bukowski et al. 1996). However, Bukowski et al. (1993) concluded that friendship and being widely well-liked tend to lead to different emotional outcomes, where being well-liked affects youths' perceptions of belongingness (i.e., "fitting in") while friendships impact affective outcomes such as loneliness through opportunities for closeness and intimacy. Thus, being widely liked by peers is thought to be predictive of greater opportunities and competence in peer friendships which, in turn, leads to higher quality friendships and psychosocial well-being, however, it does not necessarily ensure that one will feel personally satisfied or fulfilled with the relationships one currently has.

Perceived popularity represents the ability to be interpersonally effective, and if needed, resort to manipulation or even aggression to achieve their social goals (Cillessen and Bellmore 2011). It may be that the behaviors required to maintain being "popular" during adolescence may compromise these youths' ability and opportunities to form satisfying social bonds which will yield them social contentment, however, little is known regarding perceived popularity and this dimensions' influence on youths' psychosocial outcomes. Some studies find that youth who are considered both "popular" and "bullies" by peers tend to have better mental health overall (Juvonen et al. 2003). Others find that popularity may shield adolescents who are relationally aggressive from developing internalizing symptoms such as depression and anxiety (Rose and Swenson 2009). Yet others do not find that being "popular" during adolescence has any effect on preventing depression nor anxiety among youth (Sandstrom and Cillessen 2006). Conversely, longitudinal evidence finds that popularity pursuit may spur youth to develop maladjusted social strategies (Allen et al. 2014) and depression and social anxiety later on in life (Narr et al. 2017).

One aspect of social contentment, social self-concept, has been linked to both being "popular" (Meijs et al. 2010) and being well-liked by peers during adolescence (Chambliss et al. 1978; Kurdek and Krile 1982; Patterson et al. 1990). Youth who have a high social self-concept tend to exhibit greater self-esteem overall and perceive that they can make and keep friendships relatively easily, while those with poorer social self-concept tend to report feelings of loneliness and are likely to view themselves negatively in other domains (e.g., physical appearance, personality; Goswick and Jones 1981; Harter 1990). Others suggest that the self-concept reflects a person's perceptions of how others view him or her ("reflected self-appraisal"; Lieberman 2013). As such, unlike the other forms of social contentment, high social self-concept may denote a sense of social competence or an intuition that others view them as successful in the social domain, but not a feeling of belonging or relatedness.

Gender Differences in Popularity and Social Contentment

While recent evidence suggests youth tend to use interpersonal aggressive strategies to maintain high status regardless of gender (Hawley et al. 2008; Prinstein and Cillessen 2003), girls and boys do tend to differ in their behaviors relative to their position on the status hierarchy. In a recent study on health-risk behavior and perceived popularity, highly "popular" boys were found to smoke more marijuana and be more sexually active than boys with moderate levels of this status, while no such association was found among "popular" girls (Prinstein et al. 2011). This signals that certain behaviors may serve different social functions between girls and boys of different levels of popularity.

Likewise, perceptions of social contentment do commonly vary by gender. For instance, girls tend to report that they have higher quality friendships than boys (Brendgen et al. 2001) yet also report greater social anxiety than them as well (Rose and Rudolph 2006). Girls tend to desire connectedness and intimacy in their social relationships and thus form peer relationships which are more communicative in nature, while boys tend to desire autonomy and relationships which are instrumental in value (Anastasi 1984; Sandstrom and Cillessen 2006; Rodkin et al. 2000). Thus, being well-liked among peers might allow girls the greater intimacy and connection they desire with their peers, while

being "popular" may give boys the social preeminence they desire to feel as if they are happy with their social life at school.

Current Study

This study investigates the nature of the relationship between popularity and social contentment during adolescence, one which we predict will vary due to both the differing levels and dimension of popularity which youth have achieved. We predict that attaining higher levels of *sociometric popularity* (or being widely well-liked by one's peers) will be positively and linearly associated with greater social satisfaction, best friendship quality, school belonging, and social self-concept. We predict that being widely well-liked by one's peers at school increases the likelihood that peers will communicate these positive perceptions to them, as well as seek them out for friendship (Bukowski et al. 1996). Likewise, highly well-liked youth may more easily ascertain this information and feel as if they are supported, respected, and liked by their peers, leading to greater social contentment (Lieberman 2013). Highly well-liked students may also have more opportunities and willing peers with which to build satisfying relationships and achieve a sense of belonging at school (Bukowski et al. 1996). Likewise, they may look to their peers' largely positive perceptions of them to inform their own greater sense of social self-concept ("reflected self-appraisal"; Lieberman 2013).

Conversely, curvilinear trends are expected between *perceived popularity* (being regarded as "popular" by one's peers) and three of the four aspects of social contentment: social satisfaction, best friendship quality, and school belonging. We believe an inverted curvilinear association is likely for each. Highly "popular" adolescents tend to be more overtly and relationally aggressive than their less "popular" peers (Prinstein and Cillessen 2003; Stoltz et al. 2016) and peers do not like or enjoy these behaviors (Juvonen 2007). Achieving social contentment may be more difficult for highly "popular" youth if peers do not like them and/or do not feel comfortable forming intimate friendships with them. Likewise, maintaining a "popular" reputation is a lot of work; which may yield additional stress (Cohen and Wills 1985). The constant threat of losing this status as well as the social maneuvering required to maintain it (Hawley 2003) may become a psychological burden which taxes highly "popular" youths' perceptions of social contentment. Conversely, not being "popular", specifically at a developmental stage when it matters most to youth, may also bring down perceptions of social contentment. Adolescents tend to be jealous of or actively dislike those who are "popular" (Juvonen 2007) yet also greatly desire this status for themselves during early adolescence (LaFontana and Cillessen 2010). Not being "popular" may also promote use of maladaptive social strategies to become "popular" which may backfire and alienate them further (e.g., imitate the behavior, take on the appearance, and/or be overly admiring of more "popular" peers; "ingratiating behaviors" Molden and Maner 2013). Thus, being *too* popular, as well as not being "popular" at all, may be detrimental to adolescents' perceptions of social contentment. We exclude from this hypothesis social self-concept, which we expect to be positively and linearly associated with greater perceived popularity as it measures more self-perceived social ability and success rather than explicit feelings of relatedness. The perception that one is socially competent, or even skilled, is likely easier to ascertain the more one is considered "popular" (Bukowski et al. 1996; Meijs et al. 2010).

Methods

Sample

Seventh grade students were chosen as the sample of interest due to their proximity to the middle school transition, which is typically a time of social instability and when popularity takes on greatest priority and necessity in students' lives (Eccles et al. 1993; LaFontana and Cillessen 2010). Thus, the effects of popularity should be strongest on adolescents' perceptions the year following the transition (7th grade). Two separate cohorts of seventh grade students (381 and 366 students, 767 students total) who participated in the School Transition and Early Adolescent Development (STEAD) project were chosen for this study. The first cohort (Cohort 1, or C1) was drawn from two large middle schools in the Midwest (208 and 173 seventh grade students in each school, respectively); the second cohort (Cohort 2, or C2) attended the same two middle schools during a subsequent year (201 and 165 seventh grade students in each school, respectively). The full sample (767 adolescents) was ethnically diverse (46% White, 45% African American, 3% Hispanic and 7% other ethnic groups), and just over half-female (52%), with an average age among participants of 12 years old (SD = .765). Each cohort was similar in size and demographic characteristics (see Table 1). Each of the middle schools served non-metropolitan small urban communities and reported 81–86% of their students were eligible for free or reduced-fee lunch.

Procedure

Each of the middle schools ($N = 2$) agreed to participate in the project. To encourage students to participate, two weeks

Table 1 Cohort 1, Cohort 2, and full sample descriptives

Cohort 1 (C1) sample description, $N = 381$		Cohort 2 (C2) sample description, $N = 366$		Full sample description, $N = 767$	
	Distribution (%)		Distribution (%)		Distribution (%)
Gender		*Gender*		*Gender*	
Male	48.6%	Male	47.8%	Male	48.2%
Female	51.4%	Female	52.2%	Female	51.8%
Race/ethnicity		*Race/ethnicity*		*Race/ethnicity*	
White	45.2%	White	46.1%	White	45.7%
African American	43.9%	African American	46.4%	African American	45.1%
Hispanic	3.4%	Hispanic	1.7%	Hispanic	2.6%
Asian or Pacific Islander	0.5%	Asian or Pacific Islander	0.0%	Asian or Pacific Islander	0.3%
American Indian or Alaska Native	1.3%	American Indian or Alaska Native	0.6%	American Indian or Alaska Native	0.9%
Other	5.6%	Other	5.3%	Other	5.4%

prior to data collection, research staff (i.e., a professor or graduate student) visited each class and introduced themselves and described the project. Students were told that that the survey was an opportunity to share their opinions, and that results would help adults better understand students' experiences in school. Students were told school supplies would be distributed to those who participated in the survey. Letters describing the project were given to all students to take home to their parents. If parents did not want their child to participate in the study, they were instructed to have their child return an attached opt-out form to the teacher, call the school, or call the researchers at the university number provided on the letter. Teachers checked with students that the letters were delivered home. For both cohorts, less than 10% of the parents declined to have their child participate across cohorts.

Surveys were administered to students mid-way through the school year. Prior to the survey, students were told that the purpose of the survey was to learn about their experiences at school, that the survey was not a test, that there were no right or wrong answers, and that their participation was voluntary. Students were assured that the information in the survey would be kept confidential. If students wanted to participate, they needed to sign an assent sheet. Instructions and items were read aloud by the research team while students read along and responded to survey questions. A blank sheet of paper was provided for students to cover their answers as they worked on the survey to keep their responses private. At the conclusion of the survey administration, participants were given the opportunity to choose two small gifts from a basket filled with a variety of school supplies (e.g., pencils, erasers, highlighters). All procedures were approved by the University Institutional Review Board.

Measures

Peer nominations

Popularity Students were asked to think about all of their peers in their grade and write the names of those who they thought best fit the description of "the kids I like the most" and "the kids who are the most popular". Through unlimited peer nominations procedure, students could nominate as many of their peers to these categories as they wished (names of peers who did not participate or who opted out of the study were coded as "missing" in the dataset, i.e., nominations of non-consenting peers were not used). *Sociometric popularity* was computed from the total number of *like* nominations a student received, with greater scores indicating students with greater sociometric popularity (widely well-liked youth) and receiving no *like* nominations by peers corresponded to a score of zero. *Perceived popularity* was computed from the total number of *popular* nominations which a student received, greater scores indicating students with greater perceived popularity (highly "popular" youth) and a score of zero denoting no nominations received for *most popular*. Each raw score was then standardized within grade level to create proportional scores, following the procedure used by Coie et al. (1982).

Peer-perceived behaviors To assess the behaviors peers associated with either dimension of popularity, students were asked to think about all of their peers in their grade,

and write the names of students they thought best fit under each of the following four descriptions: "the kids who work hard and get good grades" (i.e., academic), "the kids who goof off and don't care about grades" (i.e., disruptive), "the kids who are really cooperative and are willing to help others" (i.e., prosocial), and "the kids who start fights and push other kids around" (i.e., aggressive). Students could nominate as many of their peers to each of these categories as they wished through unlimited peer nomination procedure (peer nominations of those who did not participate or who opted out of the study were coded as "missing", i.e., nominations of non-consenting peers were not used). Each behavioral measure was computed from the raw number of nominations which a student received for a particular category (e.g. academic, disruptive, prosocial, aggressive), and was then standardized within grade-level to create proportional scores (Coie et al. 1982).

Social contentment

Social satisfaction Students' social satisfaction was measured using an adapted version of the *Loneliness and Social Dissatisfaction Questionnaire* designed by Asher et al. (1984) and revised by Asher and Wheeler (1985). Students were asked to rate how much they agreed or disagreed to seven items measuring their perceptions of satisfaction and happiness regarding their social lives at school. Such statements included in this measure are, "I am happy with my friends at school", and "I have some really good friends in school." Students' responses to negative statements such as "I am lonely at school" and "I don't think the other kids at school like me" were reverse-coded and then included in the overall measure. Students responded to seven items on a 5-point Likert scale (1, "Not at all true" to 5, "Very true"). Responses were then standardized, with a mean of 0 and a standard deviation of 1, for ease of interpretation (Coie and Dodge 1983). The calculation of Cronbach's alpha demonstrated this measure had high internal consistency ($\alpha = .79$) among the sample.

Best friendship quality Students' friendship quality was assessed using Rose's (2002) adapted version of Parker and Asher's (1993) *Friendship Quality Questionnaire* to measure youths' perceptions regarding the level of intimacy and support they had with their best friend (Rose 2002; Ryan and Shim 2008). Students were first asked to think of their "very best friend", then rate how much they agreed or disagreed to the eight statements with their best friend in mind. Such statements included in this measure are, "We share things with each other", "We always tell each other our problems", and "We can talk about whatever happens to us". Students responded on a 5-point Likert scale (1, "Not at all true" to 5, being "Very true"). The calculation of Cronbach's alpha demonstrated this measure had high internal reliability ($\alpha = .89$). Responses for this measure were standardized to a mean of 0 and a standard deviation of 1.

Social self-concept Students' responded to three items measuring how capable they felt making friends, developing close friendships, and in their social skills relative to their same-age peers from Eccles's measure of perceived competence for the social domain (Lord et al. 1994). Items included, "Compared to most seventh-grade students, how would you rate your social skills?" and "How good are you at making friends?". Students' responded on a 5-point Likert scale (1, "Not good at all" to 5, "Very good"). The calculation of Cronbach's alpha found adequate internal reliability ($\alpha = .75$) among the sample. Responses to this measure were then standardized with a mean of 0 and a standard deviation of 1.

School belonging Five items from the *Psychological Sense of School Membership* (PSSM) scale (Goodenow 1993) were included to assess students' perceptions of belonging at school. Students were asked how much they agreed or disagreed to statements such as, "I feel like a real part of this school" and "I am happy to be at this school". Students' responses to negative statements such as "Sometimes I feel as if I don't belong here" were reverse-coded before they were incorporated into the final measure. Students responded on a 5-point Likert scale (1 being "Not at all true" to 5 being "Very true"). The calculation of Cronbach's alpha demonstrated this measure had high internal consistency ($\alpha = .82$), and responses were standardized to a mean of 0 and a standard deviation of 1.

Analysis Plan

A primary goal of the study was to examine the general hypothesis that social contentment would be positively and linearly associated with sociometric popularity (being well-liked), yet have a more complex, curvilinear relationship with perceived popularity (being "popular" among peers) during adolescence. In the preliminary analyses, zero-order and partial correlations between the two dimensions of popularity and four peer-perceived behaviors were conducted to confirm the discriminant validity and assess the behavioral profiles of sociometric and perceived popularity among the sample. Gender, cohort, and racial/ethnic group differences in the primary constructs were also examined to determine whether perceptions of social contentment varied as consequence of these group memberships. To test the main hypotheses, each aspect of social contentment (social satisfaction, best friendship quality, social self-concept, and

Table 2 Zero-order and partial correlations between two dimensions of popularity (sociometric and perceived) and peer-perceived behaviors ($N = 767$)

Behavior	Peer nomination	Zero-order correlations		Partial correlations	
		Sociometric popularity	Perceived popularity	Sociometric only (controlling for perceived)	Perceived only (controlling for sociometric)
Prosocial	"Are really cooperative and willing to help others"	.574***	.209***	.556***	−.120**
Academic	"Works hard and gets good grades"	.492***	.195***	.465***	−.075*
Disruptive	"Goofs off and doesn't care about grades"	.170***	.316***	.010	.271***
Aggressive	"Starts fights (pushes other kids around)"	.102**	.295***	−.059	.283***

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

school belonging) acted as dependent variables in a series of hierarchical regressions.

Results

Preliminary Analyses: Associations Between Popularity Dimensions and Adolescents' Behavior

A zero-order correlation between the measures of perceived popularity and sociometric popularity indicated a significant and positive association between them ($r = .43$, $p < .001$). Both perceived popularity and sociometric popularity were significantly and positively associated with positive behaviors (prosocial and academic) as well as negative behaviors (disruptive and aggressive) among youth when both dimensions of popularity were allowed to correlate with each other (i.e., zero-order correlations). However, once perceived popularity was controlled, sociometric popularity was uniquely and positively associated (in order of magnitude) with prosocial ($r = .556$, $p < .001$) and academic ($r = .465$, $p < .001$) behavior, and not significantly associated with disruptive ($r = .010$, $p = .786$) or aggressive ($r = -.059$, $p = .109$) behavior among the sample. Likewise, when sociometric popularity was controlled, perceived popularity was uniquely and positively associated with (in order of magnitude) aggressive ($r = .283$, $p < .001$) and disruptive ($r = .271$, $p < .001$) behavior, and negatively associated with prosocial ($r = -.120$, $p = .001$) and academic ($r = -.075$, $p = .040$) behavior (see Table 2).

Preliminary Analyses: Gender, Cohort, and Racial/Ethnic Differences in Social Contentment

As the sample is diverse, with a balanced distribution of White and African American adolescents from two cohorts of seventh-grade students (see Table 1), the moderating effects for each factor (racial/ethnic group membership and cohort) were investigated along with gender effects to identify any subgroup differences in the primary constructs. A multivariate analysis of variance (MANOVA) with the four aspects of social contentment as the dependent variables revealed a significant gender effect, $F(4, 612) = 16.548$, $p < .001$; Wilk's $\lambda = .902$, $\eta^2 = .098$ and a significant gender by cohort interaction, $F(4, 612) = 3.809$, $p = .005$; Wilk's $\lambda = .976$, $\eta^2 = .024$. Univariate results indicated girls tended to report greater social satisfaction, $F(1, 623) = 10.661$, $p = .001$, and better best friendship quality, $F(1, 623) = 50.098$, $p < .001$, than boys, however, the significant interaction between gender and cohort identified boys in the second cohort as having greater social satisfaction, $F(1, 623) = 9.074$, $p = .003$, on average, than boys in the first cohort. There were no significant differences at either the multivariate or univariate level due to racial/ethnic group membership and all race/ethnicity interactions were also insignificant. All MANOVA and univariate results are listed in Table 3.

Linear and Curvilinear Associations Between Popularity and Social Contentment

In each analysis, to control for cohort differences and gender effects discovered during the preliminary analyses, gender (girl = 1, boy = 2), cohort (C1 = 1, C2 = 2), and the interaction of the two (gender × cohort) were entered as controls into Step 1 of each regression model, the linear terms of sociometric and perceived popularity were entered as predictors simultaneously in Step 2, and the quadratic terms for each of the popularity predictors were entered simultaneously in Step 3[1]. To ensure that the amount of variation in the estimates (and the linear & curvilinear trends) were less sensitive to the unique distribution of the

[1] An initial set of analyses were conducted to ensure that gender, cohort, and the gender cohort interaction did not additionally interact with each aspect of popularity on social contentment. Interaction terms between gender, cohort, gender × cohort and each dimension of popularity (sociometric and perceived) were entered into the last step of each regression model. None of these interactions were significant, therefore, analyses were conducted again excluding them. Results of the analyses are reported without these interactions in Table 4.

Table 3 MANOVA and univariate tests for gender, cohort, and racial/ethnic group differences in social contentment

Multivariate analysis of variance (MANOVA)					
Effect	λ	*F*	*df1*	*df2*	
Gender	.902	16.548***	4	612	
Cohort	.988	1.867	4	612	
Race	.994	.895	4	612	
Cohort × gender	.976	3.809**	4	612	
Cohort × race	.997	.399	4	612	
Gender × race	.987	1.946	4	612	
Gender × race × cohort	.993	1.015	4	612	
Univariate follow-up tests					
Effect	*df*	MS	*F*	*p*	Effect size
Gender					
Social satisfaction	1	6.204	10.661**	.001	.017
Best friendship quality	1	36.151	50.098***	.000	.075
Social self-concept	1	.393	.625	.430	.001
School belonging	1	.246	.230	.632	.000
Cohort × gender					
Social satisfaction	1	5.280	9.074**	.003	.015
Best friendship quality	1	.147	.204	.652	.000
Social self-concept	1	.125	.199	.656	.000
School belonging	1	2.739	2.554	.110	.004

Note: λ = Wilk's lambda, MS = mean squares, effect size = partial η^2

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

subjects in the sample, each regression was bootstrapped to 1000 sample iterations (with replacement) (Field 2013). Results are presented in Table 4.

The overall models which regressed the linear terms of each type of popularity on youths' perceptions of social satisfaction, $F(5, 682) = 7.933$, $p < .001$, $R^2 = .055$, best friendship quality, $F(5, 701) = 37.517$, $p < .001$, $R^2 = .212$, and social self-concept, $F(5, 732) = 7.009$, $p < .001$, $R^2 = .046$, were significant. Similarly, models which regressed the quadratic terms of popularity onto youths' perceptions of social satisfaction, $F(7, 682) = 9.521$, $p < .001$, $R^2 = .090$, best friendship quality, $F(7, 701) = 30.686$, $p < .001$, $R^2 = .236$, and social self-concept, $F(7, 732) = 8.823$, $p < .001$, $R^2 = .079$, were also significant. The model which regressed the linear terms of each type of popularity on youths' perceptions of belonging at school was insignificant, $F(5, 709) = 1.642$, $p = .147$, $R^2 = .012$, as well as the model which regressed their quadratic terms, $F(7, 709) = 1.580$, $p = .139$, $R^2 = .016$.

Significant linear terms emerged for sociometric popularity in two of these models; fewer than what was predicted in the first hypothesis. Greater sociometric popularity predicted greater social satisfaction ($\beta = .110$, $p = .015$), and better best friendship quality ($\beta = .120$, $p = .002$) among youth, but was not significantly associated with social self-concept ($\beta = .037$, $p = .375$). Unexpectedly and contrary to the first hypothesis of this study, significant curvilinear trends also emerged between sociometric popularity and social satisfaction, ($\beta = -.275$, $p < .001$), best friendship quality, ($\beta = -.239$, $p < .001$), and social self-concept ($\beta = -.219$, $p = .002$), and all three of these quadratic terms were negative.

Sociometric popularity and social self-concept had no significant linear relationship, but did have a significant quadratic relationship. The absence of a significant linear trend, yet the presence of a significant curvilinear trend, indicates that the data are best fit by a U-shaped curve. The positive regression coefficient of the insignificant linear term, yet negative regression coefficient of the significant quadratic term, suggest a negative curvilinear effect, where the U-shaped trend is pointed downward. Thus, both higher and lower levels of sociometric popularity predicted poorer social self-concept compared to those in the middle of the distribution. The combined presence of significant linear and curvilinear trends for sociometric popularity on both social satisfaction and best friendship quality indicate that these trends are competing with one another, as the linear terms are positive, yet the quadratic terms are negative.

Table 4 Linear and curvilinear associations between two dimensions of popularity (sociometric and perceived) and social contentment

Predictor	Social satisfaction		Best friendship quality		Social self-concept		School belonging	
	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1		.037***		.194***		.018**		.004
Gender (F = 1; M = 2)	−.495***		−.498***		−.085		−.009	
Cohort (C1 = 1; C2 = 2)	−.302*		−.019		.105		−.066	
Gender × cohort	.598***		.088		−.025		.101	
Step 2		.019**		.019***		.028***		.007
Perceived popularity - linear term	.042		.032		.146***		−.061	
Sociometric popularity - linear term	.110*		.120**		.037		.095	
Step 3		.035***		.024***		.033***		.004
Perceived popularity - quadratic term	−.181*		−.159*		−.254**		−.087	
Sociometric popularity - quadratic term	−.275***		−.239***		−.219**		−.080	
Total R^2		.090***		.236***		.079***		.016

Note: β values are derived from the step at which each predictor was added to the equation

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

However, the models which included the quadratic terms explained significantly more of the variance in each of these relationships than the linear models, thus the curvilinear trends were retained. Subsequent analyses demonstrated that all curvilinear trends between sociometric popularity and social satisfaction, best friendship quality, and social self-concept were inverted, U-shaped, and descended below the initial starting value at the highest levels (see Fig. 1). Thus, youth with high sociometric popularity tended to report less social satisfaction, poorer best friendship quality, and a lower sense of social self-concept compared to not only those in the middle of this distribution, but also their peers who received no nominations to this status whatsoever.

Only one of the linear terms for perceived popularity was significant across the models; greater perceived popularity uniquely predicted better social self-concept ($\beta = .146$, $p < .001$) yet was not similarly associated with social satisfaction ($\beta = .042$, $p = .350$) or best friendship quality ($\beta = .032$, $p = .401$) among youth. However, significant curvilinear terms were identified for perceived popularity as negatively predicting social satisfaction ($\beta = -.181$, $p = .024$), best friendship quality ($\beta = -.159$, $p = .027$), and social self-concept ($\beta = -.254$, $p = .001$). The absence of significant linear trends between perceived popularity and both social satisfaction and best friendship quality, yet the presence of significant curvilinear trends for each, indicates that both relationships are best fit by a U-shaped curve. Likewise, perceived popularity had both a significant linear and curvilinear relationship with social self-concept, yet the model which included the quadratic terms of popularity explained significantly more of the variance in this relationship than the model which included only their linear terms, thus the curvilinear trend was retained. The positive regression coefficients of the linear terms, yet negative regression coefficients of the quadratic terms, suggest a negative curvilinear effect, where the U-shaped trend is pointed downward in all instances. Subsequent plotting of these trends verified all curvilinear trends between perceived popularity and social satisfaction, best friendship quality, and social self-concept were inverted, U-shaped, and descended below the initial starting value at the highest levels (see Fig. 2). Thus, youth with high perceived popularity tended to report less social satisfaction, poorer best friendship quality, and a lower sense of social self-concept compared to those with moderate levels of perceived popularity, as well as their peers who received no nominations for this status whatsoever.

Discussion

For decades, adolescent research has viewed popularity as adaptive for youth; indicative of low-risk for academic or psychological maladjustment, and as evidence of youths' social competence and skill. However, more recent evidence has found that perceived popularity—or being "popular" among peers—is theoretically and behaviorally different than sociometric popularity—or being widely

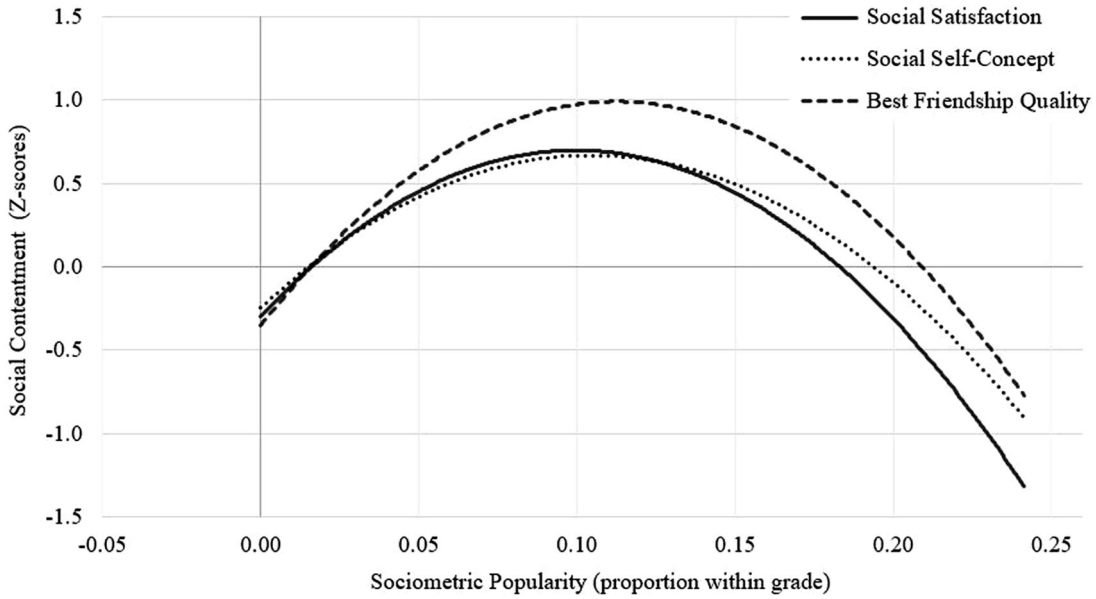

Fig. 1 Curvilinear trends between sociometric popularity and adolescents' perceptions of social contentment

well-liked—as adolescents who are "popular" tend to use overt and relational aggression and risky behaviors to maintain this status (Mayeux et al. 2008). This has encouraged a focus on the *behaviors* of popular youth which are detrimental and an empirical avoidance of popular youths' own perceptions regarding their social well-being. As gaining popularity is particularly desirable during early adolescence, often more so than achievement, friendship, or showing compassion to a rejected peer (LaFontana and Cillessen 2010), this study sought to identify the nature of the relationship between having attained popularity among peers during adolescence and adolescents' own perceptions of satisfaction and happiness regarding their social life at school. This study examined the following hypotheses: (1) that being well-liked among peers would positively predict adolescents' contentment with their social lives at school (measured by four aspects: social satisfaction, best friendship quality, social self-concept, and school belonging), and that (2) being "popular" would have a more complicated (and curvilinear) relationship with social contentment, where it would predict it differentially depending on the degree to which it was attained. This study is the first to use nonlinear models to explore adolescents' perceptions of social satisfaction and happiness across multiple levels and dimensions of peer popularity.

Both perceived popularity and sociometric popularity were significantly associated with one another among the sample ($r = .43$, $p < .001$). This finding is like that of other peer popularity studies; being well-liked and being "popular" are two dimensions of popularity which are often both attributed to the same individual. The sample possesses a relatively low correlation between perceived popularity and sociometric popularity among adolescents in comparison to other studies (Sandstrom and Cillessen 2006 ($r = .74$), LaFontana and Cillessen 2002 ($r = .70$)), however, this is not uncommon (Prinstein and Cillessen 2003 ($r = .46$); Parkhurst and Hopmeyer 1998 ($r = .40$)), and other evidence suggests this correlation is determined by gender and decreases over time (Cillessen and Mayeux 2004; van den Berg et al. 2015). Additionally, both dimensions of popularity—being well-liked and being "popular"—were significantly associated with positive behaviors, such as prosociality and achievement ("Are really cooperative and willing to help others" and "Works hard and gets good grades", respectively), as well as negative behaviors, such as being academically disruptive and aggressive towards peers ("Goofs off and doesn't get good grades" and "Starts fights (pushes other kids around)", respectively). Previous studies have found both positive and negative behaviors associated with adolescents who were both "popular" and well-liked by peers (Machiavellians; Hawley 2003); these youth typically switch between being prosocial and helpful or acting aggressively towards peers depending on whichever social strategy is most beneficial to enhance or maintain their status. However, after controlling for the other dimension of popularity in the partial correlations, being "popular" was uniquely and positively associated with aggressive and disruptive behavior, and negatively associated with prosocial and academic behaviors, while being well-liked was uniquely and positively associated with prosocial and academic behaviors, and not significantly associated with either aggressive or disruptive behavior.

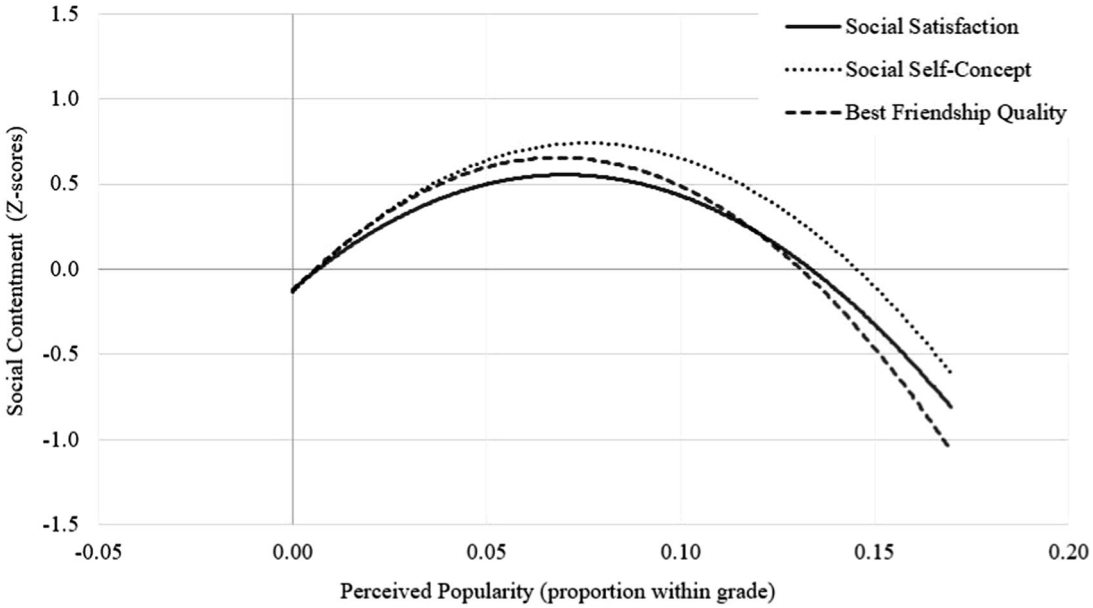

Fig. 2 Curvilinear trends between perceived popularity and adolescents' perceptions of social contentment

Overall, these findings affirm a distinctive pattern of behaviors associated with each dimension of popularity among the sample; consistently positive behaviors among those who were well-liked (Mayeux et al. 2008) yet consistently negative behaviors among those who were "popular" (Parkhurst and Hopmeyer 1998).

Disproving our hypotheses regarding sociometric popularity, significant curvilinear trends demonstrated that high levels of sociometric popularity predicted less social satisfaction, poorer best friendship quality, and lower social self-concept than those in the middle or even the low end of this status distribution. Thus, highly well-liked youth tended to report less social contentment than those who experienced moderate levels of this status, and more surprisingly, than those who weren't even nominated. These results conflict with previous findings that youth who are well-liked tend to feel more comfortable in their social lives, and have better social adjustment overall (Cillessen and van den Berg 2012; Wentzel 1994; Wentzel and Asher 1995).

Additionally, being "popular" among peers was not consistently associated with youths' sense of social contentment either, in line with the hypothesis regarding perceived popularity. Significant curvilinear trends demonstrated that both low and high levels of perceived popularity predicted less social satisfaction, poorer best friendship quality, and lower social self-concept than adolescents who had moderate levels or even low levels of this status. In other words, highly "popular" youth reported no greater sense of satisfaction, quality, or skillfulness relating to their social lives and friendships at school than their peers who were not nominated as "popular", while those in the middle of this distribution reported the greatest social contentment. These findings are contrary to prior research which finds being "popular" is promotive of psychosocial well-being among adolescents, or that this status may help explain some youths' superior mental health relative to their not "popular" peers (Harter et al. 1998; Hartup 1996; Juvonen et al. 2003).

Together, these results confirm that the nature of the relationship between popularity and youths' social contentment is essentially *nonlinear*; both dimensions of popularity became less associated with social contentment at their low and high levels. This reflects a Goldilocks trend between popularity and social contentment previously unaccounted for by prior work. Having some popularity among peers (regardless of whether that is being well-liked or considered "popular") appears to be better for adolescents' psychosocial well-being than not having any, but having *too much* may be *worse* for adolescents' well-being than not being popular at all.

There is a large body of evidence which finds youth who are "popular" tend to act aggressively towards their peers and that they use this behavior to maintain and enhance this status (Cillessen and Mayeux 2004; Prinstein and Cillessen 2003; Rose et al. 2004). Previous studies have found aggression and perceived popularity during adolescence were curvilinearly associated, where higher and lower levels of this status were both linked to greater aggression towards peers (Prinstein and Cillessen 2003). The preliminary analyses reflected these findings; being "popular" was uniquely and positively associated with both disruptive and aggressive behavior among the adolescents in the sample. Past findings and the current results together support a Catch-22 of being highly "popular" during adolescence; highly

"popular" youth may derail their ability to achieve a greater sense of satisfaction in their social lives and build meaningful friendships with their peers due to the very mechanisms by which they gain and protect this status (LaFontana and Cillessen 2002; Rose et al. 2004).

Likewise, maintaining popularity is hard work; youth may not continue to be "popular" if they do not consistently "up the ante" by behaving in ways which garner them additional prestige among peers. Cumulative continuity theory suggests that behaviors "will often be maintained and even extended when an early behavioral pattern changes future social contexts and outcomes so as to make similar or more extreme future behaviors more likely" (Allen et al. 2014). Thus, the behaviors which first made youth "popular" among peers (such as minor deviances) typically evolve over the course of adolescence, requiring more extreme demonstrations of this behavior in order to impress peers (e.g., serious acts of deviance). As being "popular" was positively associated with disruptive behavior as well as aggression towards peers among the sample (see Table 2), "upping the ante" to remain "popular" may have disproportionate psychosocial costs.

This leads us to consider, why is being *increasingly* well-liked among peers during adolescence not consistently associated with adolescents' social contentment? Sociometric popularity—or simply being well-liked by one's peers—is often thought to be a relatively benign phenomenon among youth, as prior work finds this dimension to be associated with prosociality (e.g., friendliness, being helpful and cooperative towards peers) (Allen et al. 2014). Indeed, being well-liked was strongly associated with prosocial and cooperative behaviors among adolescents in this study (see Table 2). Multiple theories contend that being widely liked by the peer group during adolescence will increasingly beget positive psychosocial outcomes; that well-liked youth receive additional social resources, information, and opportunities which their less well-liked peers do not, and that these extra resources shield them from poor psychosocial outcomes (Bukowski et al. 1996; Prinstein 2017).

The findings of this study suggest that it may not be the *average behaviors* of well-liked youth which disassociate them from social contentment at high and low levels of this status, but rather the *social processes* in which they take part that breed less social satisfaction and happiness overall. Characteristically, the most well-liked individuals in any context are those who are greatly attuned to the preferences or norms of the peer group (Allen et al. 2014). Some describe this as well-liked youth's ability to "trend spot" rather than "trend set"; they are better at picking up on the implicit or explicit social cues of "how to be" from their peers and are also skilled at meeting these expectations to socially succeed among them (Allen et al. 2005). However, during early adolescence, peer socializing influences may be particularly strong; highly well-liked youth may find themselves acting in certain ways in order to be liked by their peers which make their social lives inherently less satisfying.

Also, unlike other stages of development, peer norms during adolescence may not be entirely positive. Allen and colleagues (2005) have suggested that the behaviors or characteristics which youth tend to like during adolescence may be counter to those of authority figures, as these behaviors communicate to peers their independence and maturity. Indeed, among the sample used for this study, disruptive behavior had a slightly positive association with being well-liked, however this association was not significant (see Table 2). Adolescents who are widely well-liked by peers are clearly behaving in ways which their peers like or admire; yet what peers like or admire during adolescence may not promote positive interactions and intimate relationships with others at school (e.g., pseudo-mature behaviors; Allen et al. 2005).

Similarly, maintaining popularity during adolescence may set aside the use of more adaptive means for establishing peer friendships (Allen et al. 2014). For instance, if "popular" youth attain status by simply associating with physically attractive friends, then they may not work to develop the intimate friendships and prosocial skills that do yield social contentment (Allen et al. 2006). Highly "popular" youth may also limit their interactions with peers of lower status to protect their own status (Eder 1985), and may cut ties with less "popular" friends or even best friends in order to become more highly "popular". Both would lead to poorer social contentment if discarded friendships were of higher quality than the peer friendships which they have currently. From this perspective, the social strategies through which youth attain status may consequently lead to peer relationships which do not satisfy youths' social needs for intimacy or relatedness with others, but that do help them attain or maintain status (Allen et al. 2014; Hawley 2003).

Conversely, not being "popular" or well-liked by peers, specifically at a developmental stage when it matters most to youth, may generate the perception that one isn't as socially satisfied as one *could be*. Most youth tend to put popularity on a pedestal; they are jealous of those who attain it (Juvonen 2007) and greatly desire it for themselves (LaFontana and Cillessen 2010). Viewing the social experiences of popular youth from the other side of this spectrum may cause youth to feel as if they are "missing out"; popular youth are typically athletic and physically attractive individuals who hang out together, "party" together, and appear independent and autonomous in their decisions. Additionally, the characteristics required to attain greater popularity may be outside of one's reach (e.g., athleticism, wealth) while other social strategies to gain

status (e.g., imitate the behavior, take on the appearance, and/or be overly admiring of high-status peers; "ingratiating behaviors" Molden and Maner 2013) may backfire and further belabor the point that one is unpopular. Ultimately, during adolescence, the "grass may look greener" on the other side of the popularity spectrum for youth who do not experience it.

The overall insignificance of the models exploring the relationship between popularity and belonging suggest that being "popular" or well-liked among peers may have a little to do with adolescent's sense of belonging at school. We, like others, speculate that peer status may not influence youths' perceptions of belonging directly, but it may indirectly influence other social supports which do impact adolescents' sense of belonging at school (Juvonen 1997, 2006). It might be that adolescents' sense of belonging at school is more directly influenced by their friendships with their peers, other school-specific relationships, or their perceptions of their school context specifically, rather than as a direct consequence of their peer social status. For instance, prior evidence indicates that youth who have emotionally supportive relationships with adults at school tend to feel comfortable there, and thus are more likely to form positive peer relationships in this setting as well (Allen et al. 2011).

The results of these analyses lead us to believe that popularity during adolescence is a *psychosocial stressor* which acts much like a weight, drawing down youths' perceptions of social well-being the heavier it gets. This theory is informed not only by the positive and negative *behaviors* which youth perform and must continue to perform in order to be liked or considered "popular" by their peers, but by the *socialization processes* which constantly change what is required to be "popular" or liked during adolescence, increasing the complexity and breadth of the *social strategies* which youth must carry out in order to maintain or achieve greater status (Hawley 2003; Allen et al. 2014). Popularity, then, is psychosocially stressful for youth during adolescence, whether that means many of your peers like you, many peers think you are "popular", or neither.

The findings of this study warrant a nuanced view of popularity as a nonlinear construct. It is important for future peer research to not only conduct linear analyses involving popularity, as these may unnecessarily "average over" the differing experiences among popular youth. For instance, in this study, while significant linear trends indicated being well-liked was predictive of greater social satisfaction and better best friendship quality among youth, the negative curvilinear effects completely subverted these associations, demonstrating highly well-liked youth reported *less* social satisfaction and *poorer* best friendship quality than those who didn't receive any nominations at all. Treating popularity as curvilinear construct may lead to future explorations of the popularity which find additional complexities in the experiences of youth who have attained status during adolescence.

Strengths and Limitations of the Research

This research has methodological strengths as well as weaknesses. Incorporating multiple measures of social contentment better encompasses adolescents' overall sense of satisfaction with their social lives (Kline 2015). However, reliance on self-report measures as the singular source of adolescent's social contentment may make these results more prone to respondent bias. Use of self-reports to investigate these specific perceptions (how adolescents' feel about their social life at school) appears to be better fit methodologically than incorporating other extrinsic sources of this information, such as teachers, parents, or their peers.

Viewing popularity as a continuum rather than as a distinct category of youth or peer group strengthens this study's ability to distinguish between the differing experiences and perspectives among popular youth. However, there is the possibility that treating data as continuous when it is truly categorical in nature may yield less reliable results (Rhemtulla et al. 2012). As there is evidence to support popularity functions as a distinct social clique or crowd among youth (Brown et al. 1986), there is equal evidence that it is a spectrum along which youth all fall (Adler and Adler 1998; Eder 1985).

Another limitation is that the data used for this study are cross-sectional, that is, collected from the respondents on only one occasion. Longitudinal data would provide a better perspective to explain the direction of causality between each dimension of popularity and the various aspects of social contentment featured in this study, as well as better account for possible fluctuations in social status over the school year among the sample. Likewise, the associations examined in this study may have other constructs which mediate and moderate them, beyond those already investigated. Future work could build on these findings with longitudinal designs and the examination of possible moderators or mediators between peer social status and social contentment.

Both dimensions of popularity (sociometric and perceived popularity) were included in the analyses, which provides a more precise measurement of popularity present in the adolescent peer ecology. However, sociometric and perceived popularity could each have different meanings, or average attitudes and behaviors associated with each dimension, depending on school context. Although the sample consisted of a sizable population of adolescents ($N = 767$), these findings are not generalizable to contexts which differ dramatically from the sample.

Implications

Early adolescence is a critical period for influencing youths' motivations toward pursuing popularity (LaFontana and Cillessen 2010). The current findings suggest that future efforts to improve adolescents' psychosocial well-being could focus on targeting the social mechanisms and collective illusions which encourage the pursuit of greater status over establishing or deepening peer friendships.

According to social norm theory, by providing objective information which reflects the true norms of the group, individuals tend to adapt their attitudes and behavior to this newly provided norm. Several studies have found that rates of heavy drinking among college students often decline after providing them with information on the actual drinking behaviors of their classmates (Perkins and Craig 2006). As popularity is often more desired and valued by adolescents than either academic success or establishing close friendships (Adler and Adler 1998; LaFontana and Cillessen 2010), informing early adolescents that those with the most popularity among them do not necessarily report any greater sense of satisfaction with their social lives at school, their best friendships, or confidence in their social skill than those with less may help attenuate popularity's desirability.

Parents and educators could play an important role in promoting social goals which are more beneficial to youth by providing information regarding the true norms of popular youth to their adolescents. This could be accomplished, for instance, by asking adolescents to imagine the relationship they believe exists between popularity and feeling satisfied with one's social life at school, then demonstrating that this relationship is not necessarily a positive or linear one (i.e., a Goldilocks trend). Along with openly discussing the personal costs of being highly "popular" or well-liked by peers during adolescence, the importance of friendships and intimacy can be illustrated. Further, these findings provide a possible leverage point for brief social psychological interventions in school contexts where what or who is "popular" or well-liked is also associated with problem attitudes and behaviors.

There is growing evidence that teachers can play an active role in shaping peer group processes and social norms within their classrooms by using social dynamics management strategies (Audley-Piotrowski et al. 2015; Farmer et al. 2011; Gest et al. 2014). For instance, teachers can promote equitable status amongst students by consistently linking status with positive social engagement and prosocial behaviors (Rodkin 2011; Vaillancourt et al. 2003) and by supporting isolated students (Gest et al. 2014). Middle school teachers who are attuned to the composition of the peer groups in their classrooms and monitor their students' social interactions are generally better at identifying what gains status, which students are popular, and who aspires to either (Hamm et al. 2011). Accordingly, the overall value of popularity is likely altered among a peer group when the teacher becomes more attuned to it; for instance, when teachers ascertain and point out that popularity is highly valued among the adolescents in their class, it may be that a different norm is established in which pursuing popularity is less desirable.

Conclusion

This study identified a more complex relationship between popularity among peers and adolescents' psychosocial well-being at school than previously considered by investigating the possibility of nonlinear associations between two dimensions of popularity and multiple forms of social contentment. The findings refute the idea that being the most "popular" or well-liked among peers during adolescence garners a greater sense of satisfaction, happiness, or confidence with their social lives at school for youth. Along with dips in social contentment evident at the lower ends of each spectrum, the findings appear to represent a Goldilocks trend between popularity and social contentment during adolescence: having *moderate* popularity may be better for adolescents' psychosocial well-being than not having any; but having *too much* appears to be *worse* for adolescents' well-being than not being popular at all.

Authors' Contributions S.M.F. conceived the study, designed the study, conducted the statistical analyses, drafted the manuscript and revised the manuscript; A.M.R. secured IRB, collected the data, participated in the design and coordination of the study and revised the manuscript critically for intellectual content. All authors read and approved the final manuscript.

Data Sharing and Declaration This manuscript's data will not be deposited.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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