

SOCIAL PREFERENCE, PERCEIVED POPULARITY, ATHLETIC ABILITY, AND AGGRESSION AMONG SOUTH KOREAN ADOLESCENTS

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Social preference, perceived popularity, and aggression have been studied in the past using traditional methods of statistical analysis. To extend the literature in this area, I used social network analysis to investigate the characteristics of students with a high status in networks of social preference and perceived popularity. I collected data from 283 middle-school students using name generator questionnaires. Most characteristics of students with a high status within the 2 network types were similar to the average characteristics of the sample. Social preference and perceived popularity were significantly and positively associated with athletic ability and aggression, whereas age was significantly and negatively related to aggression. I identified students of high social status with clear characteristics in the 2 network types. Contrary to findings obtained in previous research, I found that aggression contributed to social preference. My findings have implications for the development of programs to address popular individuals' antisocial behavior.

Keywords: social preference, aggression, perceived popularity, athletic ability, peer acceptance, peer rejection, socialization.

Peer acceptance and rejection have important roles in adolescents' adjustment to school life and socialization. *Peer acceptance*—which is a characteristic that is used variously to indicate social acceptance, popularity, sociometric status, and peer status—can be defined as a continuous variable, such as social preference, or a categorical variable, such as sociometric group (i.e., popularity, rejection, and neglect; Bishop & Inderbitzen, 1995; Coie, Dodge, & Coppotelli, 1982; Ladd, Kochenderfer, & Coleman, 1997). Athletic ability has also been explored

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in similar contexts to clarify its effects on peer acceptance and status in terms of popularity (see, e.g., Smith, 2007).

In the social sciences, studies on perceived popularity and social preference have been conducted based on the assumption that there will be behavioral differences between popular and unpopular students, and with respect to preference and nonpreference. Most researchers have focused on social preference and have identified various influencing factors. However, scholars have recently begun to consider social preference and perceived popularity simultaneously (Borch, Hyde, & Cillessen, 2011; Mayeux, 2014; Parkhurst & Hopmeyer, 1998).

Social preference is the degree to which individuals are preferred, accepted, or liked by their peers (Bukowski & Hoza, 1989; Vaillancourt, 2001). On the other hand, *perceived popularity* refers to the perception of being the most/least popular in a peer group, regardless of social preference (Lease, Kennedy, & Axelrod, 2002; Lease, Musgrove, & Axelrod, 2002). Parkhurst and Hopmeyer (1998) questioned the traditional definition of social preference and introduced the concept of perceived popularity to help differentiate between the two. Some researchers (Lease, Kennedy, et al., 2002; Lease, Musgrove, et al., 2002; Parkhurst & Hopmeyer, 1998; Yavuzer, 2013) have claimed that social preference and perceived popularity cannot be considered aspects of the same concept because they are not strongly correlated. Furthermore, most studies of the behavioral characteristics of being popular versus unpopular, preference and nonpreference, or influencing factors within both dimensions, have been conducted within social science contexts; relatively little such research exists in the field of sports.

In contrast, one factor that has been examined in numerous prior studies focused on sports is *aggression*, or the expression of uncontrolled anger or frustration. Aggression is regarded as a behavioral trait of social preference and perceived popularity that is known to lead to interpersonal maladjustment. Adolescents may behave strategically in ways that hurt others to maintain or display popularity (Rose, Swenson, & Waller, 2004). Thus, the manifestation of positive and negative behaviors may vary by the level of social preference or perceived popularity.

A number of researchers have examined popularity in relation to athletic ability in sport. According to Smith (2007), adolescents' athletic ability is a means of achieving peer acceptance and building friendships, and appears to be more effective in this capacity than is competence in other activities (e.g., academics). This connection between athletic ability and popularity has been determined in numerous past studies (Chase & Dummer, 1992; Shakib, Veliz, Dunbar, & Sabo, 2011; Smith, 2003, 2007; Vierimaa & Côté, 2016). I was interested in the role of athletic ability in relation to social preference, perceived popularity, and aggression among adolescents in South Korea. Previous research has mainly

been conducted in the United States or Europe; therefore, it is uncertain whether the results of these studies can be applied in South Korea.

Most social science researchers of preference and popularity have tended to use a peer nomination technique involving asking a class or group of adolescents who among them is the most liked, disliked, popular, and unpopular. However, comparatively few researchers (Smith, 2003; Vierimaa & Côté, 2016; Vierimaa, Erickson, Côté, & Gilbert, 2012) have used this technique in the field of sports. Furthermore, traditional methods of statistical analysis that involve examining adolescents' individual characteristics, have typically been employed in both fields when examining peer relationships and preference or popularity within adolescent groups. However, such methods have limited value in explaining which peer relationships influence the formation and structuralizing of preference and popularity networks among adolescents, and which social relationships are formed through this structuralized network. Despite this, studies in which social network analysis methods are used have been performed intermittently in relation to this topic.

Cauce (1986), who found that friendship social networks were related to social competence in young adolescents, did not use peer nomination and network analysis to measure these social networks. Xie, Cairns, and Cairns (1999) reported that members of the same peer social group gained similar scores for multiple behavioral dimensions, and that high social network centrality was associated with high levels of popularity among girls and with high levels of aggression among boys. They asked classroom teachers to evaluate students' aggression, academic competence, popularity, Olympian characteristics (e.g., good at sports, good-looking), and affiliation, and used peer nomination to complete social cognitive maps. The current study differs from previous research in that I measured all variables by peer nomination and used social network analysis.

Social network analysis is one of the most efficient research methods for studying classroom relationship networks (Kim & Yim, 2017). It expands the focus beyond individual characteristics (Scott, 2000) to provide new data on the positions of the most liked, disliked, popular, and unpopular adolescents within their respective peer networks. If an adolescent receives numerous nominations by his or her peers, that adolescent can be considered to have a high—or central—position in networks of social preference and perceived popularity, which means that he/she has a strong influence on networks and high status.

In both South Korea and Asia, there is a lack of research on sports, social preference, and popularity using social network analysis methods. Thus, I investigated the characteristics of adolescents with a high status in social preference and perceived popularity networks; examined why students with a high social position were nominated by peers; used social network analysis to

examine centralities in social preference, perceived popularity, athletic ability, and aggression; and determined correlations among the centrality of the focal variables.

Method

Participants

The population for this study comprised middle-school students in Cheonan-si, Republic of Korea. Three classes per grade were chosen at random from a single school with 11 classrooms per grade, via purposive sampling. I conducted all data collection during the second semester of the year, after classes had been assigned; each homeroom comprised approximately 33 students. The sample met the conditions of social network analysis (SNA), the most important of which is that the group boundary configuration should be clear.

Unlike in the United States, students in Korea who are in the same class are taught together in one classroom all day. Participants were 283 students (52.3% boys and 47.7% girls), 34.6% of whom were in first grade (aged 14 years), 31.8% in second grade (aged 15 years), and 33.6% in third grade (aged 16 years). At the time of data collection, there were no absentee students in the selected classes, and the response rate was 100%.

Procedure

Research assistants visited the selected school and asked the school manager, homeroom teachers, and students for permission to conduct the survey. They then explained the purpose of the study and survey method, advising that students could discuss the survey with their family and friends. All students participated on a voluntary basis and written consent was obtained from their parents. The study was granted exemption from ethical approval by the institutional review board of Hoseo University.

The questionnaire was orally administered to the whole class and took approximately 15 minutes to complete. Participants were told that they could stop answering at any time if they wished to, and they were separated from other students to ensure honest responding. They were also told that their responses would be kept confidential. When collecting peer nominations, students were limited to nominating peers within their homerooms.

Measures

The questionnaire I used to collect data on personal characteristics, social preferences, perceived popularity, athletic ability, and aggression was largely based on the peer nomination Name Generator Questionnaire (NGQ; Kim & Yim, 2017). Personal characteristics included the participant's gender, grade,

and name. Social preference was measured using two items asking participants which peers were most liked (NGQ question 1: “Who do you like the most in your class? Please nominate the names of three students in order of priority”) and most disliked, and perceived popularity was measured by two similar items, with “most popular” and “least popular” replacing most liked and most disliked, respectively (Mayeux, Sandstrom, & Cillessen, 2008). Four additional questions were used to assess reasons for each nomination (NGQ question 2: “Please write why you are nominating these students, e.g., good at athletics, kind, close to self, stylish, handsome/pretty”). Athletic ability was measured using the same type of NGQ: namely, by nominating individuals who were the most and least athletic, respectively. Aggression was measured in terms of relational and physical aggression. According to researchers including Bowker and Etkin (2014) and Rose et al. (2004), relational aggression corresponds to the NGQ items “spreads rumors” and “isolates others,” whereas physical aggression relates to the item “engages in violent acts.” Three nominees were to be listed, in order of priority. I required participants to provide their real names to demonstrate objectively and clearly the popularity relationship between students. However, pseudonyms were used during data analysis and interpretation to protect confidentiality.

For SNA of the questionnaires on social preference, perceived popularity, athletic ability, and aggression, I constructed a directional matrix that was weighted according to nomination priority. I used an open-answer format to investigate participants’ reasons for nomination, and then categorized similar answers.

Data Analysis

I conducted SNA and correlational analysis using NetMiner 4.2. The network structure was determined through centrality analysis. Degree of centrality quantifies the centrality of an actor’s position within a network by examining how related or connected the actor (node) is to other actors (nodes; Bonacich, 1987). This degree can be expressed as the following equation: $d(n_i)/(N - 1)$, where $d(n_i)$ is the number of nodes to which the node (student) i is connected, and N is the total number of nodes (students) in the network. In networks, degree of centrality shows the extent to which a student is liked or popular—that is, the closer he or she is to the center of the network (higher degree of centrality), the more liked and popular that student is.

Results

Characteristics of Status in Social Preference

Summarizing the main characteristics of students with a high status (i.e., those receiving numerous nominations from peers, called “stars”; Barabási, 2002)

within the social preference network, the most liked students were generally nominated because of characteristics such as kindness, intimacy, and humor, in decreasing order of relevance. In contrast, the most disliked adolescents were nominated because of characteristics such as being (in descending order of relevance) disliked, noisy, isolated, and dull.

When examining the overall characteristics of social preference by grade, students with the highest degree of centrality (class 1 = .218, class 2 = .219, class 3 = .218) for the most liked network among the first-grade (classes 1–3) students possessed characteristics such as having a sense of humor, being intimate, being kind, being good academically, and being good at athletics. In this way, students with high centrality in this network enjoyed high social preference in their classes, and became recognized as stars. In contrast, students with the highest centrality (class 1 = .871, class 2 = .750, class 3 = .562) within the most disliked network among the first-grade students possessed characteristics such as being disliked, being noisy, being isolated, and having a poor sense of humor.

Second-grade (classes 4–6) students with the highest centrality (class 4 = .323, class 5 = .214, class 6 = .214) in the most liked network showed characteristics such as being intimate, being kind, and having a good sense of humor. In contrast, students with the highest centrality (class 4 = .548, class 5 = .250, class 6 = .250) within the most disliked network showed characteristics such as being isolated, being dull, and being disliked.

Finally, third-grade (classes 7–9) students with the highest centrality (class 7 = .276, class 8 = .281, class 9 = .194) in the most liked network had characteristics such as being intimate, being kind, being good academically, and having a good sense of humor. Students with the highest centrality (class 7 = .690, class 8 = .437, class 9 = .741) in the most disliked network showed characteristics such as being disliked, being noisy, being isolated, and having a poor sense of humor.

Characteristics of Status in Perceived Popularity

Summarizing the main characteristics of the students with high status (stars) within the perceived popularity network, adolescents with the highest centrality in the most popular network tended to have characteristics such as a good sense of humor, being kind, being good academically, being good at athletics, being handsome/pretty, and being stylish. For the least popular network, adolescents with the highest centrality had characteristics such as being disliked, being dull, being noisy, being isolated, not being stylish, and having a shabby appearance. The centrality of the most unpopular network was higher than that of the most popular network. That is, unpopularity tended to be restricted to a few students compared to the number of most popular students.

Examining the overall characteristics of perceived popularity by grade, first-grade students with the highest centrality (class 1 = .419, class 2 = .687,

class 3 = .469) in the most popular network possessed characteristics such as having a good sense of humor, being kind, being good at athletics, and being good academically. The students with the highest centrality (class 1 = .774, class 2 = .750, class 3 = .687) in the least popular network had characteristics such as being disliked, being dull, being messy, and being isolated.

Second-grade students with the highest centrality (class 4 = .419, class 5 = .321, class 6 = .536) within the most popular network showed characteristics such as having a good sense of humor, being good at athletics, and being handsome/pretty. Students with high centrality (class 4 = .806, class 5 = .214, class 6 = .250) in the least popular network showed characteristics such as being dull, being isolated, and having a shabby appearance.

Finally, third-grade students with the highest centrality (class 7 = .414, class 8 = .531, class 9 = .419) within the most popular network displayed characteristics such as being kind, being good academically, and having a good sense of humor. Students with the highest centrality (class 7 = .552, class 8 = .563, class 9 = .774) in the least popular network displayed characteristics such as being disliked, being dull, and being isolated. The most popular and least popular characteristics were the same as those for the most and least liked networks, respectively.

Table 1. *Correlations of Social Preference and Perceived Popularity with Athletic Ability and Aggression*

Variable	Age	Athletic ability		Aggression			
		Good at sports	Bad at sports	SR	IO	EVA	
	Age	.013	-.027	-.086	-.255**	-.049	
SP	ML-DC	.030	.123*	-.154**	.087	-.017	.045
	MD-DC	-.007	-.072	.402***	.166**	.108	.110
PP	MP-DC	.002	.472***	-.185**	.249***	.144*	.255***
	LP-DC	-.016	-.153*	.524***	-.004	-.021	-.041

Note. SP = social preference, PP = perceived popularity, ML = most liked, MD = most disliked, MP = most popular, LP = least popular, DC = degree of centrality, EVA = engages in violent acts, IO = isolates others, SR = spreads rumors.

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

Correlations Between Social Preference, Perceived Popularity, Athletic Ability, and Aggression

Degree of centrality in the most liked network had a marginally significant positive relationship with good athletic ability. Conversely, degree of centrality in the most disliked network showed a significantly positive correlation with poor athletic ability, and had a marginally significant positive correlation with

relational aggression (spreading rumors; see Table 1). Age showed no significant positive correlation with other variables, but did have a significantly negative correlation with relational aggression (isolates others). Degree of centrality in the most popular network was positively and significantly correlated with good athletic ability, as well as having a marginally significant positive correlation with both relational aggression and physical aggression. On the other hand, in the least popular network, there were comparatively strong positive correlations between degree of centrality and poor athletic ability.

Discussion

In this study I aimed to identify the characteristics of students with a high status in social networks (stars) and to determine if there were correlations between network position, athletic ability, and aggression. A question arose in prior studies regarding whether social preference and perceived popularity are dispersed evenly within networks, or are concentrated on a select few individuals; the latter was evident in my analysis results, implying that certain students from my sample acted as stars in every class. Although there were differences between grades and classes regarding the characteristics of students with a high status in the social preference networks, a few main characteristics were nevertheless apparent. Participants generally determined their most liked students through the characteristics of kindness, intimacy, and humor (in decreasing order of importance), whereas their most disliked individuals were characterized by plain dislike, followed by noisiness, lack of intimacy, and dullness. For the perceived popularity network, students generally determined the most popular students in their class using characteristics such as humor, kindness, academic and athletic ability, and appearance (in decreasing order of importance), whereas they defined the least popular individuals using characteristics such as plain dislike, followed by dullness, noisiness, a lack of intimacy and stylishness, and shabby appearance. Such results indicate similarities and differences in the determinants of social preference and perceived popularity network stars. The key difference between the two types of network stars appears to relate to athletic ability. In social preference networks, stars with high centrality exhibited no characteristics relating to athletic ability, whereas athletic ability was an important factor determining perceived popularity. In contrast, similarities between the two types of network stars appeared to be kindness, intimacy, and humor.

As few studies in which the characteristics of socially popular and unpopular stars are examined have been conducted in a Korean context, it is difficult to compare my study results with those obtained in existing research. Nevertheless, previous researchers (Eder, 1985; Lease, Kennedy, et al., 2002; Parkhurst & Hopmeyer, 1998) have shown that adolescents with high perceived popularity

are described as cool, powerful, influential, arrogant, exclusionary, elitist, manipulative, and controlling (Meijs, Cillessen, Scholte, Segers, & Spijkerman, 2010), which supports my own results.

By analyzing the correlations between social preference network, athletic ability, and aggression, I found that centrality in the most liked network had comparatively strong positive correlations with athletic ability and aggression. This implies that students with higher (lower) centrality are more (less) likely to possess athletic ability and aggression. Degree of centrality for the most disliked individuals also showed significant positive correlations with poor athletic ability and relational aggression. These results indicate that students who have poor (better) physical ability and show high (low) relational aggression are more (less) disliked by their peers. In contrast, comparing the correlations of the most liked and most disliked students' degree centralities, degree of centrality for the most disliked individual showed a relatively stronger correlation.

My finding that aggression seemed to relate to behavioral characteristics of the most liked and most disliked students appears to be related to Korean culture. In Korea, bullying is widespread among teenagers and is becoming a serious social problem leading to suicide (Park & Kwon, 2013). Unlike the results of previous researchers, the correlation I observed between social preference and relational aggression may be due to this characteristic of Korean society. The significant correlation between popularity and factors has been supported by prior researchers, including those who have conducted work in the field of athletic ability (see, e.g., Lease, Kennedy, et al., 2002). However, other researchers (e.g., Lease, Kennedy, et al., 2002) have not found evidence for a positive correlation between social preference and aggression, making this a novel finding in my study and revealing that well-liked (i.e., socially popular) students do not exclusively engage in positive behaviors.

For this set of relationships, degree of centrality for the most popular individuals showed relatively stronger correlations with athletic ability and aggression compared with those for social preference. While perceived popularity had a relatively stronger correlation with aggression than did social preference, this relationship was not consistently present. Thus, athletic ability can be considered an important predictor of perceived popularity (Borch et al., 2011). My findings support those of Dijkstra, Lindenberg, Verhulst, Ormel, and Veenstra (2009), who reported a significant correlation between popularity and factors such as athletic ability. A positive relationship between perceived popularity and aggression has also been consistently determined in past research (Cillessen & Mayeux, 2004; de Bruyn, Cillessen, & Wissink, 2010). Adolescents with high perceived popularity have been shown to exhibit a feeling of superiority among their peers (Lease, Kennedy, et al., 2002), somewhat aggressive behavior to retain their social status within peer groups (Eder, Evans, & Parker, 1995; Michell & Amos, 1997), and

selective formation of social ties with others (Rose et al., 2004). The aggressive behavior of these adolescents is not likely to be negatively regarded by peers and, thus, may risk going unnoticed by teaching staff. Therefore, special attention and supervision is necessary to identify aggressive behavior among students with high perceived popularity in school settings. Further, age was negatively related to isolating others, with the lower grades tending to isolate others more than did higher grades. This suggests that special guidance and management for lower grades is needed with respect to relational aggression.

Conclusion, Limitations, and Future Research Directions

Students with a high status—who were consistently nominated by their peers and who had high centralities within the social preference and perceived popularity networks—shared some similarities, although physical ability was a more important determinant of perceived popularity than of social preference in this study. Furthermore, social preference and perceived popularity were significantly correlated with athletic ability, and, contrary to the findings of previous researchers, social preference was positively correlated with aggression (spreading rumors). Given that these antisocial but well-liked adolescents might have a negative influence on their peers, particularly because of their high social centrality, schools should develop and implement programs to reform the negative behaviors of popular adolescents.

I did not observe the change process of the students' social network because I used a cross-sectional study design. Follow-up studies should be conducted to examine longitudinal changes that occur in the popularity network over a time period of at least a year. This would allow researchers to address whether students with high centrality within a popularity network change, and if so, what reasons lead to these changes. In addition, future researchers should aim to identify whether the results of this study can be applied to other areas of South Korea and countries in Asia, and other groups of high school or undergraduate students.

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