



Disordered eating in college sorority women: A social network analysis of a subset of members from a single sorority chapter

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ABSTRACT

Objective: Disordered eating attitudes and behaviors are prevalent among college women, and peers appear to influence current and future eating pathology. Social network analysis (SNA) is an innovative quantitative method to examine relationships (i.e., ties) among people based on their various attributes. In this study, the social network of one sorority was modeled using exponential random graph model (ERGM) to explore if homophily, or the tendency for relationship ties to exist based on shared attributes, was present according to sorority members' disordered eating behaviors/attitudes and their body mass index (BMI).

Method: Participants included members of one sorority at a large Southeastern university. All members were included on a roster unless they elected to opt out during the consent process, and 41 (19%) of the members completed the study measures. Participants completed the Social Network Questionnaire developed for this study (degree of "liking" of every member on the roster), the Eating Disorder Examination-Questionnaire (EDE-Q), and a demographics questionnaire in exchange for one hour of community service credit.

Results: The final sample consisted of mostly White women with an average age of 20. Homophily across liking ties was examined based on the EDE-Q Global scale, episodes of binge eating, and BMI. The greater the difference in EDE-Q Global scores, the more likely the participants were to like one another. The greater the difference in BMI, the less likely the participants were to like one another. Binge eating was unrelated to homophily.

Discussion: College sorority women appear to prefer other women with dissimilar levels of disordered eating attitudes, suggesting complex interactions between stigmatized or valued disordered eating attributes. Women with similar BMI were more likely to like one another, confirming past findings.

Eating pathology, including loss of control over eating and dietary restriction, are common among college women (Eisenberg, Nicklett, Roeder, & Kirz, 2011; Mintz & Betz, 1988) and are associated with negative psychological and physical consequences, such as low self-esteem, depression, and nutritional deficiencies (e.g., Favaro, Ferrara, & Santonastaso, 2003). Prevalence estimates of pathological eating behaviors and attitudes are higher in college women compared to the general population as over 13% of college women endorse a positive screen for an eating disorder (Eisenberg et al., 2011), 2/3 of college women report engaging in risky or extreme dieting (Krahn, Kurth, Gomberg, & Drownowski, 2005), and up to 80% endorse maladaptive beliefs about weight and shape (Fitzsimmons-Craft, 2011). Disordered eating behaviors and attitudes also appear to be relatively persistent for

college women (Berg, Frazier, & Sherr, 2009), perhaps because college women interact frequently (even during meals) with other female peers (Zalta & Keel, 2006) and report frequent appearance-related social comparisons (Fitzsimmons-Craft, 2011). Distinct social pressures may increase risk for college women as a significantly higher number of college women report binge eating than women of the same age who are not enrolled in college (e.g., Rand & Kuldau, 1991).

A relationship between peer behaviors and disordered eating has been found in young adults (Eisenberg & Neumark-Sztainer, 2010; Keel & Forney, 2013) and there is some evidence that women who are members of college sororities are at increased risk of eating pathology (Alexander, 1998; Meilman, Von Hippel, & Gaylor, 1991; Prouty, Protinsky, & Canady, 2002; Schulken, Pinciario, Sawyer, Jensen, &

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Hoban, 1997). Sororities may both attract women at risk for development of disordered eating due to an elevated emphasis on appearance (Basow, Foran, & Bookwala, 2007), and encourage (via modeling) disordered eating behaviors such as dietary restraint, binge eating, and purging (Basow, Foran, & Bookwala, 2007; Fitzsimmons-Craft, 2011; Crandall, 1988). However, the relationship between eating pathology and sorority membership remains unclear as not all studies find elevated eating pathology for sorority women. For example, elevated risk for eating pathology may be unique to certain sorority houses, particularly where all or most members live together (Hoerr, Bokram, Lugo, Bivins, & Keast, 2002). Allison and Park (2004) reported that there were no differences in attitudes towards thinness, body dissatisfaction, ideal weight or bulimic behaviors in women who planned to join sororities and women who did not. Further, these data suggested that, over time, women in sororities did not increase in disordered eating attitudes or risky dieting. Instead, non-sorority women decreased in some pathological eating attitudes. There remained no differences over time in binge eating and purging behaviors between sorority and non-sorority women (Allison & Park, 2004). Therefore, additional studies with advanced methodologies are needed to explore the nature of eating pathology in sorority women and how relationship ties are affected by disordered eating attitudes and behaviors.

Social network analysis (SNA) is an analytic tool that allows for quantitatively characterizing associations between symptoms or pathology between members in social groups (Borgatti, Mehra, Brass, & Labianca, 2009; Burt, Kilduff, & Tasselli, 2013; Rosenquist, 2011; Wasserman & Faust, 1994). The use of SNA in a group in which the majority of individuals know one another, such as a sorority, presents an opportunity to understand the peer-to-peer influences on maladaptive eating behaviors and attitudes during the college years within a social environment that may represent a vulnerability factor for their spread. There are two SNA approaches primarily used to analyze these relationships: egocentric and sociocentric. Egocentric SNA represents a social network self-reported by an individual (i.e., ego), so the network is created from the perspective of the ego. Sociocentric SNA is obtained by having each individual in a particular “closed” network rate his or her relationship to all other individuals in this same network. Thus, sociocentric SNA does not rely on a single source of data (i.e., a single ego) and allows for a more objective characterization of a social network from multiple perspectives (Borgatti et al., 2009; Burt et al., 2013; Rosenquist, 2011; Wasserman & Faust, 1994).

Homophily, or similarity, on various attributes (e.g., age, gender, ethnicity) is a key concept in SNA, shown across studies to promote interpersonal attraction and contact (Lott & Lott, 1965; McPherson, Smith-Lovin, & Cook, 2001). People who are similar tend to interact more frequently across varying levels of closeness than people who are dissimilar, meaning that characteristics, attitudes, beliefs, and behaviors tend to be localized within larger groups. This phenomenon has been studied and found repeatedly in work settings, school systems, and neighborhoods, but has been studied less in organizations like sororities, where individuals volunteer to join based on acknowledged and valued similarities (for a review see: McPherson et al., 2001). Of note, behaviors and attitudes important to a group are the most likely to be shared amongst its members (Festinger, 1954). For social groups of college women, thinness and attractiveness may be highly valued (Meyer & Waller, 2001). Therefore, homophily across certain individual characteristics (e.g., weight, shape, and eating preoccupation) known to be relevant to disordered eating may help explain the purported higher engagement in disordered eating within sorority settings, possibly because sorority members may internalize the unrealistic attractiveness standards to a greater extent than non-sorority female college students (Cashel, Cunningham, Landeros, Cokley, & Muhammad, 2003; Crocker, Luhtanen, Cooper, & Bouvette, 2003; Fitzsimmons-Craft, 2011).

Homophily may be present in social networks via socialization, whereby individuals become more similar to others over time, and/or via selection, such that individuals select relationships based on

recognized similarities. Within social groups, certain behaviors and/or attitudes are normal and become associated with popularity. These behaviors or attitudes become the most likely characteristics to be adopted by members (Crandall, 1988). However, it may be that this assimilation of valued attitudes and behaviors only occurs when group membership is self-selected. Meyer and Waller (2001) showed that, for college students randomly assigned to housing during their first year of college, neither eating behaviors nor attitudes converged over a 25-week period. Interestingly, only students who chose to live together became more similar in levels of drive for thinness, but not bulimic behaviors. Thus, perhaps homophily on eating pathology depends on self-selection into a group and the group's valued attitudes and behaviors (Meyer & Waller, 2001). Similarly, Zalta and Keel (2006) found that bulimic behaviors converged in groups of college students who lived together (i.e., “blockmates”), but only if individuals selected each other. Blockmate selection was related to shared personality traits, including perfectionism and impulsivity, which are risk factors for bulimia (Zalta & Keel, 2006). Within a sorority system, Crandall (1988) reported that women who were identified as friends by other sorority members (i.e., most popular) most often self-reported the highest frequency of binge eating. Over time an individual's level of binge eating came to resemble the level of binge eating of her closest friends, suggesting that bulimic behaviors were socially valued, promoting adoption of binge eating (Crandall, 1988).

In contrast, within adolescent friendship “cliques” (i.e., social subgroups in which reciprocal relationships exist between each group member), 10th grade girls shared similar levels of body image concern and dietary restraint but did not group together based on binge eating behavior (Paxton, Schutz, Wertheim, & Muir, 1999). However, as with college social groups, various processes appear to govern the forming of friendships between adolescents across studies. Results from Rayner, Schniering, Rapee, Taylor, and Hutchinson (2013) showed that adolescent girls selected friends with similar levels of body dissatisfaction and bulimic behaviors but not levels of dieting. Taken together, findings from adolescent and college samples may suggest that individuals are drawn to friendships with others who value similar concerns about weight and appearance (e.g., self-selection into organizations or friendship groups with similar attitudes and beliefs), and that specific popular behaviors become more similar between group members over time only in self-selected groups.

Homophily may be most influential in promoting relationships when similarities are on observable attributes or demographic characteristics (e.g., age, gender, race, body size) versus attitudes or behaviors (McPherson et al., 2001). This may be partially because individuals misperceive others' beliefs and behaviors to be similar to their own (McPherson et al., 2001). Further, disordered eating behaviors are associated with shame and guilt (Berg et al., 2013; Sanftner, Barlow, Marschall, & Tangney, 1995) such that, even in close relationships, individual attitudes and behaviors may be kept secret (Muuss, 1986). As such, individuals may group together based on an observable characteristic of apparent similarity in eating behaviors such as body mass index (BMI). Previous studies have utilized samples with variation in BMI across all classifications (e.g., underweight, normal weight, overweight, obesity) and reported that the likelihood of being nominated as a friend decreases with increased weight (De La Haye, Robins, Mohr, & Wilson, 2011). Adolescents (Crosnoe, Frank, & Mueller, 2008; De La Haye et al., 2011; Schaefer & Simpkins, 2013; Simpkins, Schaefer, Price, & Vest, 2013) who have a BMI in the normal range (i.e., 18.5–24.9) tend to form relationships with others of similar BMI rather than those who are obese (BMI above 30.0), and overweight and obese adults may tend to have closer relationships with individuals who are also overweight or obese (Leahey, LaRose, Fava, & Wing, 2011). These data suggest that BMI may influence the formation of social ties, similarly to the data indicating that individuals tend to form bonds with others who share similar appearance-related values. What is unclear, however, is whether or not these associations extend to eating pathology within a

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