

# Executive functioning and social selection in adolescents with ADHD: a social network analysis



Renato Arruda<sup>1</sup>, Antônio Carlos Andrade Ribeiro<sup>2</sup>, Pedro Custódio D'Amico<sup>3</sup>  
& Marco Antônio Arruda<sup>1</sup>

<sup>1</sup>Glia Institute, Ribeirão Preto, SP, Brazil; <sup>2</sup>Federal University of Alfenas, Human Sciences Dept., Alfenas, MG, Brazil  
<sup>3</sup> UNIFEV School of Medicine, Votuporanga, SP, Brazil



unifev

## INTRO

### Background

• Social functioning is one of the best indicators of mental health in children and adolescents and is critically impaired in those with Attention-Deficit/Hyperactivity Disorder (ADHD). Very few studies have explored this field with modern tools of Social Psychology.

### Objectives

- To study the impact of ADHD on the process of social selection of best friends using social network analysis (SNA) techniques in a network of adolescents attending a public school.
- To investigate the occurrence of homophily (the extent to which individuals form ties with similar versus dissimilar others) in adolescents with ADHD.

## METHODS

- Consents and analyzable data were obtained from 108 adolescents aged 10 to 16 years attending the sixth and seventh grades recruited at a public school of a low-density Brazilian city (Delfinópolis – Brazil). ADHD was ascertained according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM 5) with validated questionnaires filled out by parents and teachers (Strengths and Difficulties Questionnaire, MTA-SNAP IV and the Executive Function Inventory for Children and Adolescents - EFICA).
- A rank of the top three friends was requested from the adolescents.
- SNA techniques were applied as Exponential Random Graphs Model (ERGM) to estimate the impact of ADHD on the selection of friendships, relational configurations, and attributes of the actors in the selection of best friends.
- Homophily was evaluated according to Pearson's correlation coefficient (C Constraint). Sample consists of 108 sixth and seventh-graders (10 to 16 years).

## RESULTS

- Of 108 adolescents 7 (6.5%) met DSM-5 criteria for ADHD.
- Those with ADHD tended to occupy the periphery of the social network and to develop a relational pattern that expressed less autonomy (C Constraint = 0.249,  $p < 0.01$ ), whereas students without ADHD were more likely to be selected as best friends.
- The homophily mechanism was observed based on the affiliation to the classroom and on the diagnosis of ADHD, which suggests that the equals are sought as best friends.

## CONCLUSIONS

- Adolescents with ADHD are less popular (less often they are nominated as best friends) and tend to occupy peripheral position in the social network, with less autonomy and access to the resources that circulating in the network.
- Adolescents with better executive functioning are more popular (more often nominated as best friends) and tend to occupy a central position in the social network, having more autonomy and greater control over the flow of resources circulating in the network.
- According to the ERGM the homophilia mechanism is observed concerning executive functioning (the better the executive functioning, the greater the chance of the teen being chosen as a best friend). The effect of ADHD on the selection of best friends was not significant.
- The present study adds to the literature new findings to better understand the impact of ADHD on social functioning instigating new opportunities of interventions in this group of patients.

Figure 1. Social network as a function of school year, node centrality and ADHD diagnosis.

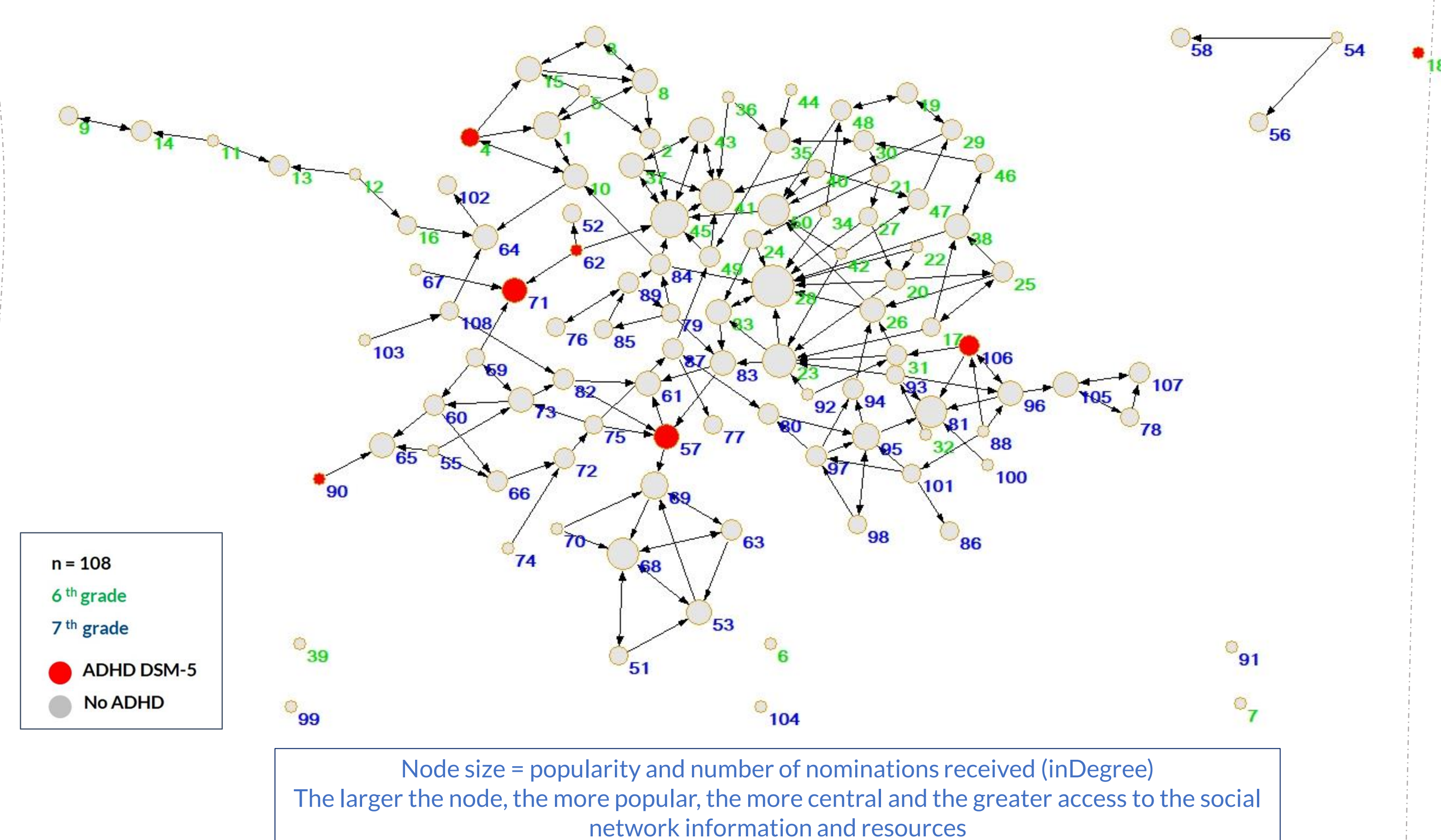


Figure 2. Social network as a function of strong components, node centrality, and ADHD diagnosis.

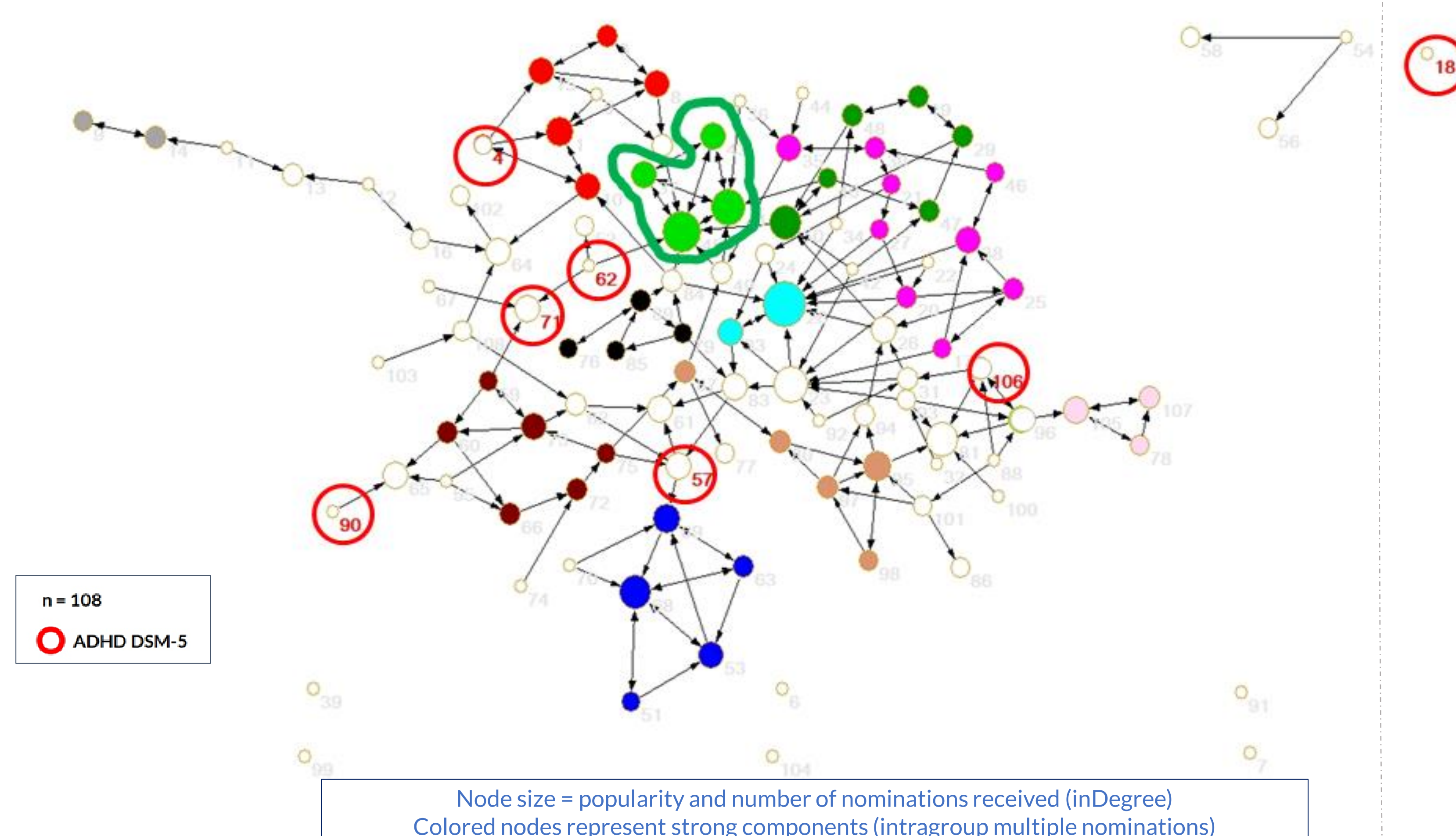
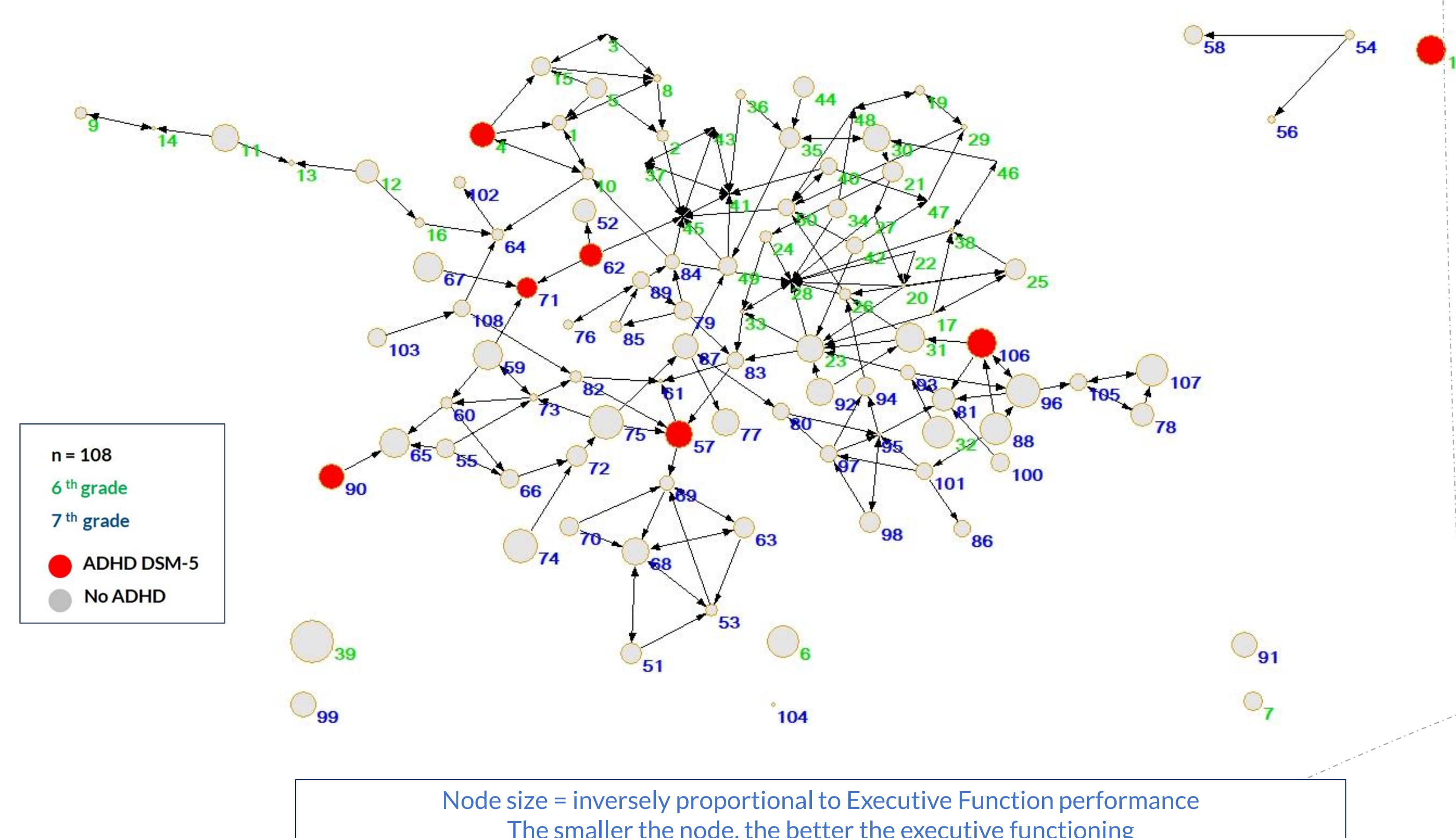


Figure 3. Social network as a function of executive functioning, school year, and ADHD diagnosis.



**“Adolescents with ADHD tended to occupy the periphery of the social network exhibiting a relational pattern of less autonomy, whereas those without ADHD were more likely to be selected as best friends. The homophily mechanism was observed, which suggests that the equals are sought as best friends.”**

Take a picture to  
download the full poster

