Network Structure of Psychopathology Symptoms in a Community Sample of Youth

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The field of network psychometrics has developed into a promising alternative to the common cause theory and depicts mental illnesses as arising from the interactions between symptoms. In this study, we aimed to examine the network structure of psychopathology symptoms in a community youth sample to detect the most influential symptoms. The sample of 3933 subjects was taken from the Philadelphia Neurodevelopmental Cohort and comprised of youth between the ages of 11-21. 112 variables corresponding to 17 symptom groups were used estimate the network structure using a mixed graphical model. Node influence was determined using predictability and centrality measurements including node strength, closeness, and betweenness. The network generated had distinct cluster regions and three independent psychosis/psychosis prodromal nodes. A conduct disorder item eliciting whether the subject had ever threatened someone had the greatest strength centrality measurement (2.605) followed closely by an OCD item related to compulsive behavior (2.517). One mania item relating to irritability (1.671) and fear of travelling through tunnels (1.509) had the largest bridge strength centrality values. History of inpatient treatment (0.999) had the largest predictability value, suggesting it could potentially be an effective intervention target. OCD and conduct disorder symptoms had the largest strength centrality values and are influential symptoms that could potentially be used to more effectively screen youth for mental illnesses. Depression and OCD symptoms had the largest bridge centrality values and should be targeted to prevent comorbidity of associated symptoms. Understanding psychopathology symptom networks could lead to greater insights for prevention and individualizing treatments.