

Cross-sectional comparison of mental health symptom network among university students with no- and high-risk alcohol consumption. Results from SHoT2018.

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Background: The association between alcohol-related problems and poor mental health is evident from several studies. Few studies have, however, investigated potential differences in the relationship between different symptoms (symptom connectivity) of mental health problems across different levels of alcohol-related problems. The aim of the present study was to employ a network analytical approach to increase our understanding of symptom connectivity among no- and high-risk alcohol consumers in a university student population.

Methods: Using data from a large sample (N=50,054) taken from the Norwegian university student survey SHOT2018, we estimated models of the relationship between different symptoms of mental health problems. Mental health problems were assessed using Hopkins Symptom Checklist Scale 25 (HSCL-25), which is constructed to measure

symptoms of anxiety, depression and somatization. The Alcohol Use Disorder Identification Test (AUDIT) was used to discriminate between no-risk (scores below 8; N=28,351; 56.6%) and high-risk consumers (scores above 16; N=2,713; 5.4%). The analytical procedure included the use of a network modelling approach, employing both exploratory graphical analysis, and comparisons of connectivity, community structure, and strength centrality (i.e., connectedness to other symptoms in the network) across no- and high-risk consumers.

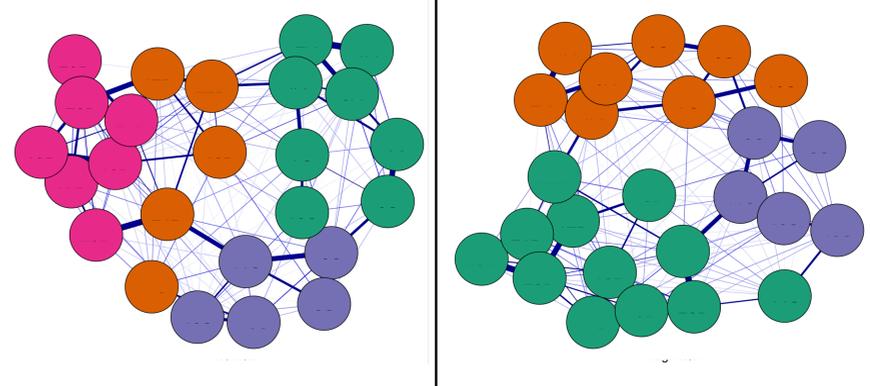


Figure 1. Symptom communities across no- and high-risk consumers (AUDIT).

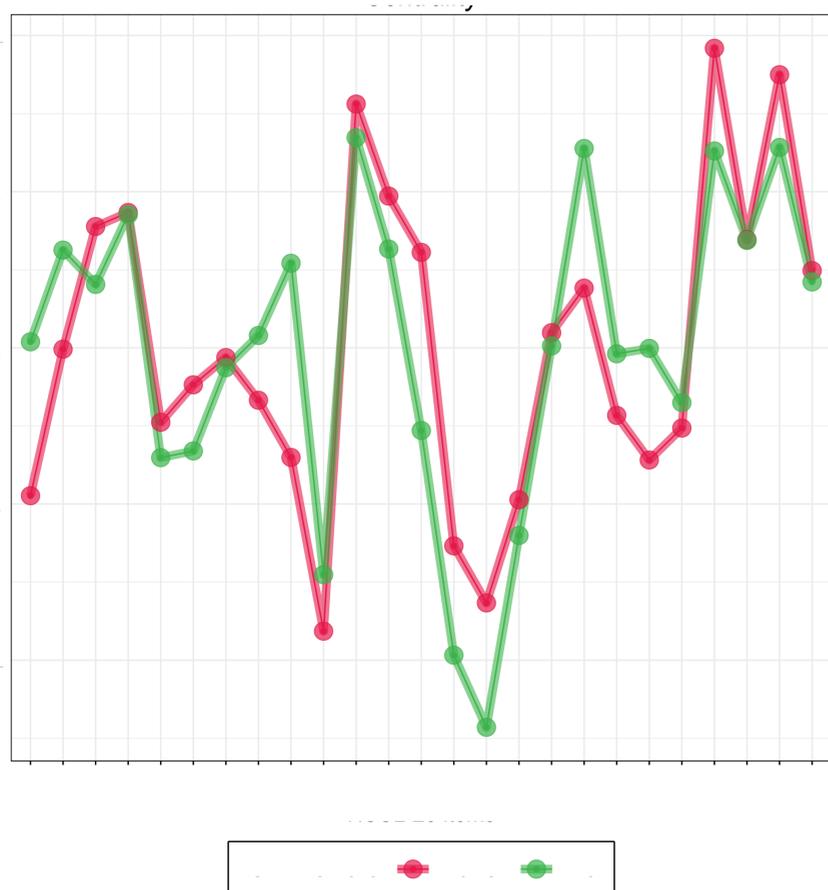


Figure 2. Centrality of symptoms across no- and high-risk consumer (AUDIT).

Results: For no-risk consumers 4 symptom communities were identified, comprising **general anxiety**, two **depression** communities and a **somatization** community (fig. 1). For high-risk consumers 3 symptom communities were identified; a **general anxiety with somatic symptoms**, a **depression** and a **somatization** community. Furthermore, there were substantial differences in the centrality of some symptoms across no- and high-risk consumers (fig. 2). This included symptoms related to **lack of energy, restlessness, tremors, feeling trapped, feeling lonely, feeling hopeless, crying easily, worrying and suddenly frightened without reason.**

Conclusions: The present study suggests that the relationship between different symptoms of mental health problems are different among no- compared to high-risk alcohol consumers. The difference is expressed both as differences in the clustering of symptoms, but also in relation to the connectivity and centrality of different symptoms. This study may help to shed light on the potential symptom-level mechanisms behind the association between alcohol-related problems and poor mental health. Future studies should use a longitudinal approach to further increase our understanding of the relationship between alcohol use and mental health.

Conflict of interest: None.

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