Harmful peers: Core Discussion Network and University Students’ Physical and Mental Health

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Background and study rationale
Background (1)

Social networks are associated with human mental and physical health (Perkins et al., 2015).

Individuals with large and well-established social networks receive more social support and other resources from their ties rather than socially isolated persons (Fiore et al., 1983; Hays et al., 2001; Thoits, 2011).
Empirical studies on the role of networks in individual well-being are mostly based on complete network data.

These networks do not capture the embeddedness of the individual in diverse social contexts, lack in identifying potentially important ties.

So-called ‘strong ties’ which elucidate the closest connection are considered as main contributors to the individual's well-being (Thoits, 2011).
Our study rationale

We explore the relationship between the structural features of students’ core discussion networks (CDNs) (Burt & Schøtt, 1985).

CDN reflects the structure and composition of closest social connections of an individual and a set of self-reported measures of physical and mental health.
Materials and methods
Sample

264 (72% female, 79% bachelor) students from 21 degree HSE University programs

Online survey (September - October 2021)

HSE Moscow and Nizhniy Novgorod Campuses
Measures

CDN

Health: Depressive symptoms, Somatization symptoms, Sleep patterns, Tobacco, Alcohol, Caffeine consumption

Social Demographic Variables: self-reported gender, the level of education
The question wording:

“Name the people (confidants), with whom you usually discussed important matters over the last six months”

“For the first five mentioned confidants we requested respondents to specify these peoples` interconnections with each other, their gender, age, kinship, and educational level.”
Health-related variables

**Depressive symptoms** - PHQ-8.

**Somatization symptoms** - PHQ-15.

**BMI** based on self-reported weight and height.

7-point Likert scale to measure the frequency of **smoking tobacco, consuming alcohol and caffeine-containing drinks**.
Sleep patterns

Munich Chronotype Questionnaire (MCTQ)

1. the length of sleep on workday (SLDW);
2. the midpoint of sleep on workday (MSW);
3. the length of sleep on free day (SLDF);
4. the midpoint of sleep on free day (MSF).
Descriptive statistics
CDN example

Mother, 45 y.o.
Father, 51 y.o.
Brother, 28 y.o.
Best friend, 25 y.o.
Boyfriend, 24 y.o.

Legend

Communicate with each other

Gender
Female
Male

Education
Higher education
Unfinished higher education
Middle school
CDN

- Mean CDN size is 4.16 confidants (SD=1.73).
- Mean number of links is 2.47.
- Mode is five CDN partners (39.53%) and the 20% of respondents mentioned three confidants.
- 0.6% reported that his/her CDN has no members.
- The proportion of kins in CDNs is 0.57.
Health

- The average level of depressive symptoms is 7.87 (SD = 5.16).
- The level of somatization symptoms is 6.92 (SD = 4.76).
- Average BMI is 20.90 (SD = 3.26).
- 62% of participants never smoke and 11% smoke almost every day.
- 25% never drink alcohol and 2% drink it two-three times per week.
- 64% of students drink caffeine-containing beverages almost every day and 4% never drink them.
Sleep patterns

- The participants` average mid-sleep time on weekdays is 4.17 hours (SD = 1.12) and weekends 5.42 hours (SD = 1.41).
- Their sleep duration on weekdays is 7.08 hours (SD = 1.76) and on the weekends 8.49 hours (SD = 1.87).
Results
CDN and PHQ-8, PHQ-15, BMI

- Alters’ mean age is negatively associated with PHQ-15.

- The proportion of individuals with unfinished university education (as we might refer to their friends and classmates) is also negatively linked with PHQ-15.

- The proportion of kins in CDN is positively related to PHQ-15.

- None of the measured students` CDN aspects are statistically significantly associated with the intensity of depression symptoms, BMI.
Students` self-reported health-related measures and CDN structure (1)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>S</th>
<th>E</th>
<th>T</th>
<th>A_1</th>
<th>A_2</th>
<th>E_1</th>
<th>E_2</th>
<th>E_3</th>
<th>G</th>
<th>K</th>
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</thead>
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<td>PHQ-8</td>
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<td>-0.03</td>
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<td>0.17**</td>
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<td>0.05</td>
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<td>-0.08</td>
<td>0.12</td>
<td>0.06</td>
<td>0.02</td>
</tr>
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</table>

* – p <0.05; ** – p< 0.01
S – number of nodes in CDN.
E – number of edges in CDN.
T – transitivity of CDN.
A1 – alter mean age.
A2 – alter median age.
E_1 – the share of alters that have middle school education.
E_2 – the share of alters that have unfinished university education.
E_3 – the share of alters that have finished university education.
G – the share of alters, who are female.
K – the share of alters in CDN, who are relatives to participant.
CDN and Sleep patterns

- Alters’ mean and median age are negatively associated with mid sleep time on weekends.
- The share of alters, who are female is also negatively related with mid sleep time on weekends.
- The number of edges in CDN is positively connected with sleep duration on weekends.
- None of the measured students’ CDN aspects are statistically significantly associated with the mid sleep time on weekday and sleep duration on weekday.
## Students` self-reported health-related measures and CDN structure (2)

<table>
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<tr>
<th>Parameters</th>
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<th>A_2</th>
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<tr>
<td>Mid Sleep Time Weekday</td>
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<td>0.01</td>
<td>-0.04</td>
<td>-0.09</td>
<td>-0.01</td>
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<tr>
<td>Mid Sleep Time Weekend</td>
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<td>-0.18**</td>
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<td>-0.10</td>
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<td>-0.08</td>
<td>0.03</td>
<td>0.13</td>
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<td>Sleep duration Weekend</td>
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G – the share of alters, who are female.
K – the share of alters in CDN, who are relatives to participant.
CDN and tobacco, alcohol and caffeine consumption

- Alters’ mean is negatively associated with smoking and alcohol drinking frequency.
- Alters’ median age is negatively related to alcohol drinking frequency.
- The share of alters that have unfinished university education is positively connected with smoking and alcohol drinking frequency.
- The share of alters, who are relatives to participant is negatively linked with smoking and alcohol drinking frequency.
- None of the measured students` CDN aspects are statistically significantly associated with caffeine consumption.
# Students` self-reported health-related measures and CDN structure (3)

<table>
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<tr>
<th>Parameters</th>
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<th>T</th>
<th>A_1</th>
<th>A_2</th>
<th>E_1</th>
<th>E_2</th>
<th>E_3</th>
<th>G</th>
<th>K</th>
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</thead>
<tbody>
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<td>0.16**</td>
<td>-0.02</td>
<td>-0.04</td>
<td>-0.15*</td>
</tr>
<tr>
<td>Alcohol drinking frequency</td>
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<td>-0.02</td>
<td>-0.03</td>
<td>-0.11*</td>
<td>-0.13**</td>
<td>-0.05</td>
<td>0.12*</td>
<td>-0.08</td>
<td>-0.09</td>
<td>-0.15**</td>
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<tr>
<td>Caffeine consumption frequency</td>
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<td>-0.05</td>
<td>-0.04</td>
<td>0.02</td>
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<td>0.14</td>
<td>0.01</td>
<td>0.05</td>
<td>-0.09</td>
</tr>
</tbody>
</table>

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Discussion
Conclusion

● The size of the student`s CDN is not statistically significantly linked with depression and somatization symptoms, sleep patterns, BMI, tobacco, alcohol and caffeine consumption.

● The lack of kins and a lot of young individuals in CDN are the major risk factors for the student's health.
Thank you for your attention!
Questions?