

Daily excessive internet use symptoms in adolescents

Ecological momentary assessment study of symptoms' daily variability and their predictors

The data described/study is from the project „Research of Excellence on Digital Technologies and Wellbeing CZ.02.01.01/00/22_008/0004583“ which is co-financed by the European Union.

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M U N I
F S S

Interdisciplinary
Research Team on
Internet and Society



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Background

- Time spent on the internet nearly doubled among youth (Smahel, 2020)
 - Risk of internet overuse & behavioral addiction
- **Symptoms of addictive behaviour** (Griffiths, 2005)
 - Salience (preoccupation)
 - Mood modification
 - Tolerance
 - Withdrawal symptoms & negative feelings
 - Inter- & intra-personal conflict
 - Relapse to problematic behaviour

eukidsonline.net

EU Kids Online 2020

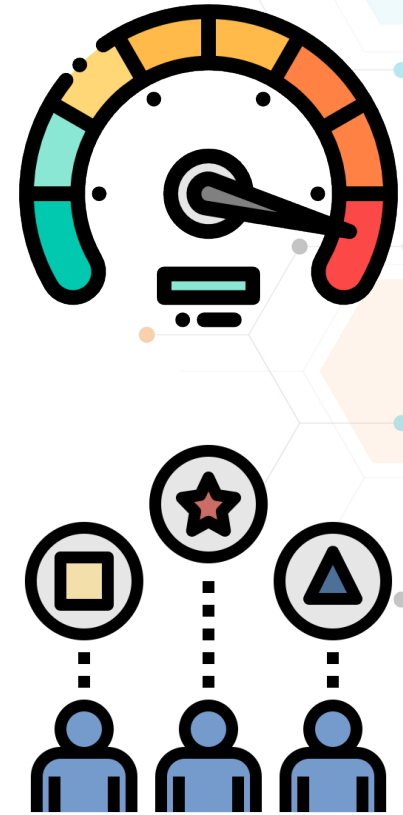
Survey results from 19 countries



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Background

- **Excessive internet use (EIU)** (Kuss et al., 2013; Blinka et al., 2020)
 - Problematic gaming, problematic social media use, ...
 - Continuum based approach
 - Only extreme end is related to behavioural addiction
- Most of EIU research is between-person (Blinka et al. 2015)
 - trait perspective, interpersonal differences
 - specific characteristics related to problematic behaviour



Background



- Media effects research suggests **within-person perspective** (Valkenburg et al., 2016; Molenaar, 2014)
 - Intra-personal changes, longitudinal research
 - Risk can be unstable and fluctuate over time
- Recent longitudinal studies (Stavropoulos et al., 2018; Donald et al., 2020)
 - Questioning the trait assumption of EIU
 - Mainly focused on periods like months or years
- Our research explores the daily perspective
 - Limited research so far (Coyne et al. 2022; Järvinen et al., 2023)
 - Missing research about factors influencing daily EIU fluctuations





Research questions



How much EIU symptoms fluctuate from day to day?



Which factors are related to EIU daily fluctuations?

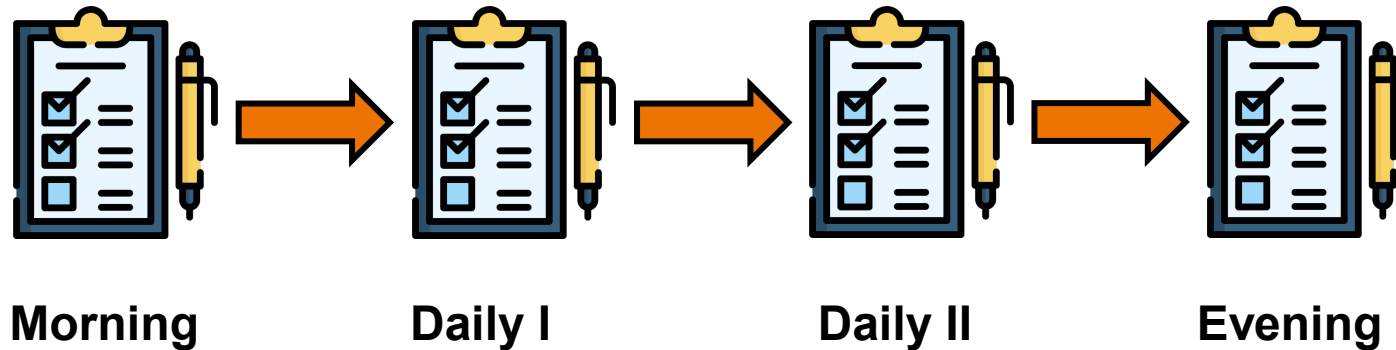
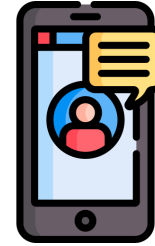




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Methodology

- **Ecological momentary assesment (EMA)**
 - 14 days – 4 questionnaires per day
 - Digital trace of smaphone use (objective data)



- **Sample – N = 92**, 54 % boys, 13 to 17 y. o.
 - 570 daily observations, 1926 questionnaires





Measures



Excessive internet use scale

- evening questionnaire
- slider 0 („Not at all“) – 100 („Very“)
- 3 symptoms: tolerance, withdrawal, conflict
- mean of three items

How often have you experienced the following since last night ...

- *I have felt bothered when I cannot be on the internet.*
- *I have caught myself using the Internet although I'm not really interested.*
- *I have spent less time than I should with either family, friends or doing schoolwork because of the time I spent on the internet.*





Measures



Entertainment and gaming app use

- Youtube, Netflix, Spotify, ...
- Clash Royale, Brawl Start, Clash of Clans, Roblox, ...



Social media and communication

- Instagram, TikTok, Facebook, Reddit, X, ...
- Messenger, Snapchat, WhatsApp, MS Teams, ...



Daily negative affectivity

- Four times a day – aggregated
- *upset, nervous, angry; sad, bored, lonely*



Daily stressors

- Four times a day – aggregated
- Problems with family, friends or classmates, school, other

**Other media use (PCs, tablets, TVs, ...) – only self-report
gender, age**





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Analysis

multilevel zero-inflated Poisson regression

- Allows to control data **nestedness**
 - observations from the same person are not independent
- All time-varying variables decomposed:
 - **between-person part** – average of all observations (person mean)
 - **within-person part** – daily differences from person mean

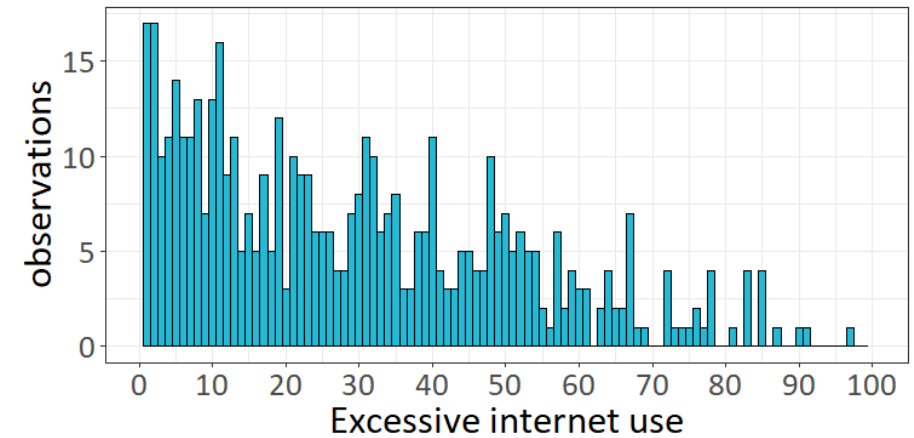
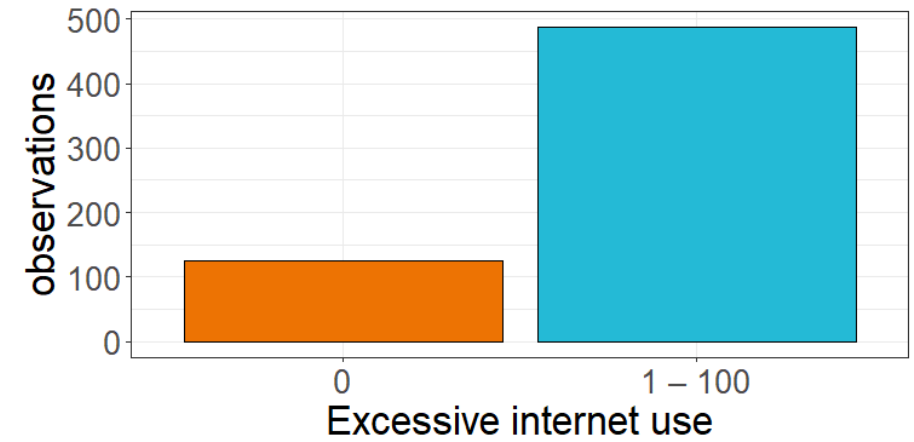
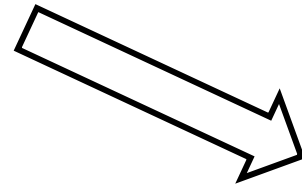
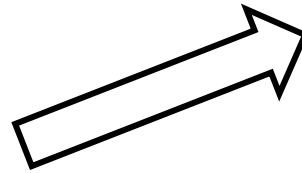
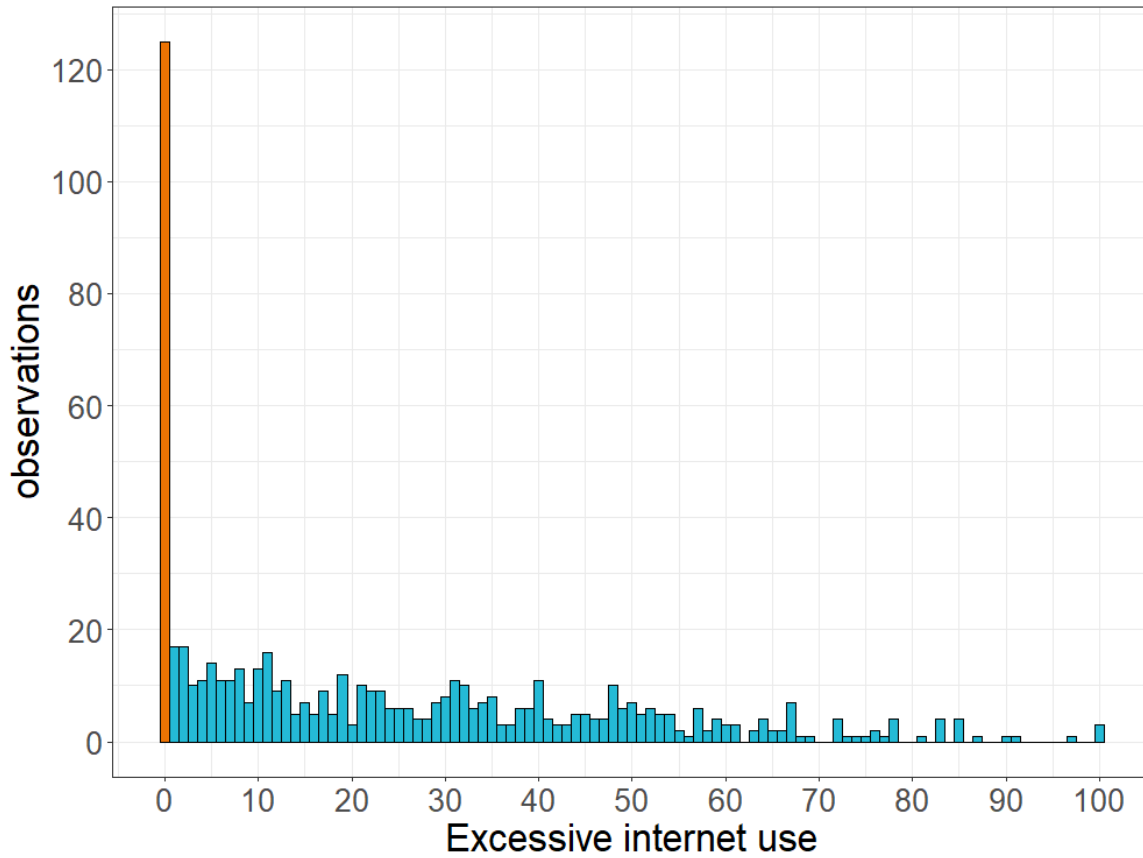




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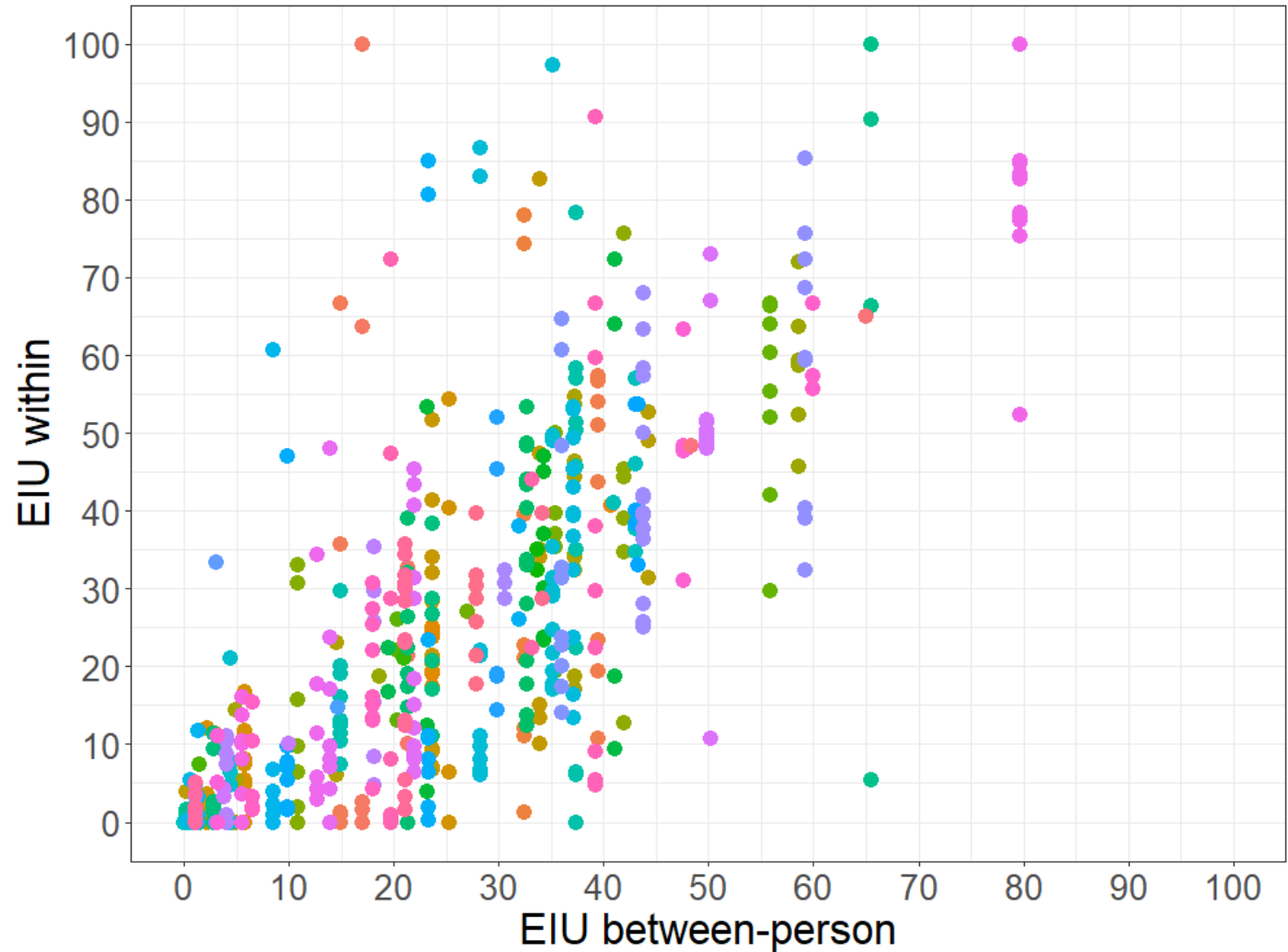




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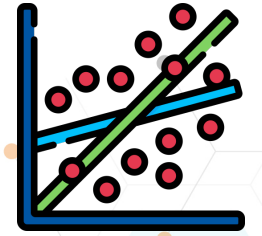
Results

- ICC = .54
- 46 % of variability in EIU as due to daily fluctuations
- All three symptoms
 - tolerance – ICC = .37
 - withdrawal – ICC = .49
 - conflict – ICC = .53





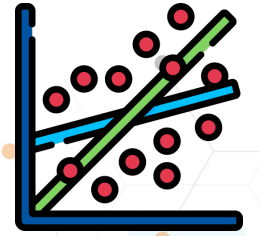
Results



| | | binomial (OR) | count (RR) | binomial (OR) | count (RR) |
|------------------------------|---------|---------------|------------|---------------|------------|
| Intercept | | 0.12 * | 15.52 * | 0.27 | 8.60 * |
| Entertainment & games | between | 0.04 | 1.95 * | 0.09 | 1.56 |
| | within | 1.19 | 0.95 * | 1.20 | 0.92 * |
| Social media & communication | between | 0.32 | 1.19 | 0.34 | 1.19 |
| | within | 0.79 | 1.06 * | 0.87 | 1.05 * |
| Daily negative affectivity | between | | | 0.68 | 1.18 * |
| | within | | | 0.98 | 1.08 * |
| Daily stressors | between | | | 0.79 | 1.01 |
| | within | | | 1.02 | 1.00 |
| Other media use | between | | | 1.22 | 1.04 |
| | within | | | 0.78 * | 1.03 * |
| Gender | | | | 1.49 | 1.26 |
| Age | | | | 0.93 | 0.99 |



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Conclusions

- EIU is not a stable trait – rather time-varying characteristic
- Smartphone behaviour and daily affectivity
 - Could be used to potentially indicate a risk of EIU
 - Digital phenotyping
 - Potential interventions
- **Limitations**
 - Relationships are not causal – only contemporaneous
 - Low sample size for between-person effects





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