College Smartphone Dependency: Relationships Between Social-Emotional Well-Being and Personality

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Department of Psychology
Assumption College
• The use of technology has become an integral part of daily life for many Americans, especially adolescents and young adults (Smith, 2015)

• Technology has become more readily available and easier to use

• Preliminary data shows an increasing trend of college age students having an excessive reliance on smartphones
  • There is some indication that the frequency and dependency on smartphones show cognitive and behavioral patterns similar to other addictive disorders (Lee, Ahn, Choi, & Choi, 2014; Mok et al., 2014)
Research over the past few years has begun to explore possible relationships between smartphone use and a variety of indicators of mental health, especially among traditional college age students.

- Interpersonal relationships, including loneliness (Tan, Pamuk, & Donder, 2013; Bian & Leung, 2015)
- Depression, anxiety, and sleep quality (Adams & Kisler, 2013; Demirci, Akgonul, & Akpınar, 2015; Thomee, Harenstam, & Hagberg, 2011)
- Personality traits (Gu, Xi, Cheng, Wu, & Wang, 2014; Kim et al., 2014; Kotov, Gamez, Schmidt, & Watson, 2010; Lee, Tam, & Chie, 2013)
Hypotheses

- This study examined the relationship between smartphone dependency, social-emotional well-being, and personality traits in college students

- **Hypothesis 1**: Students with high levels of smartphone dependency will be more prone to lower levels of social-emotional well-being than those with low levels of smartphone dependency

- **Hypothesis 2**: Smartphone dependency will predict “clinical” levels of social-emotional well-being

- **Hypothesis 3**: The relationships between smartphone dependency and indices of social-emotional well-being will be moderated by specific personality traits
Method

- **Participants & Procedure**
  - 150 college students (M = 19.28 years) in a small liberal arts college in the Northeast
  - 83.2% Female
  - 80.5% White; 7.4% African-American; 4.7% Latino; 4.7% Asian; 2.7% Bi-racial
  - Participants completed a series of questionnaires on PsychData
Smartphone Addiction Scale (SAS)

- 33-item self-report scale designed to measure an individual’s index of smartphone addictive behavior for those 18 years of age and older (Kwon et al., 2013)
  - Relatively new scale – internal consistency (Cronbach’s alpha = 0.967) and concurrent validity verified
  - 6-point Likert Scale (1 = Strongly Disagree; 6 = Strongly Agree)

- **Six Subscales**
  - **Daily life disturbance (5Q; 0.858)** – includes missing planned work, having a hard time concentrating in class or while working, suffering from light-headedness or blurred vision, pain on the wrists or at the back of the neck, and sleep disturbance
  - **Positive anticipation (8Q; 0.913)** – feeling excited about and getting rid of stress with smartphone use
Measures

• **Six Subscales** (cont.)
  
  • **Withdrawal** (6Q; 0.876) – being inpatient, fretful, and intolerable without a smartphone, constantly having one’s smartphone in one’s mind even while not using it, never giving up one’s smartphone, and becoming irritated when bothered while using one’s smartphone
  
  • **Cyberspace-oriented relationship** (7Q; 0.904) – feeling that one’s relationships with his/her friends obtained through a smartphone are more intimate than his/her relationships with his/her real-life friends, experiencing an uncontrolled feeling of loss when not able to use one’s smartphone, and consequently constantly checking one’s smartphone
Measures

- **Six Subscales (cont.)**
  - **Overuse (4Q; 0.825)** – uncontrollable use of one’s smartphone, preferring to conduct searches using one’s smartphone to asking help from other people, always preparing one’s charging pack, and feeling the urge to use one’s smartphone again right after one stopped using it
  - **Tolerance (3Q; 0.865)** – always trying to control one’s smartphone use but always failing to do so
Measures

Outcome Questionnaire-45 (OQ-45)

- 45-item self-report scale used to estimate an individual’s index of mental health functioning for those 18 years of age and older (Lambert, Kahler, Harmon, Burlingame, & Shimokawa, 2011)

- **Total Score and 3 Subscales**
  - **Symptom distress** – reflects symptoms of anxiety disorders, affective disorders, adjustment disorders, and stress related disorders
  - **Interpersonal relations** – complaints of loneliness, conflicts with others, family and marriage problems
  - **Social role** – difficulties in the social role of worker, homemaker, or student
Measures

Neuroticism-Extraversion-Openness Five-Factor Inventory-3 (NEO-FFI-3)

- 60-item short-version self-report scale of the NEO-PI for those 12 years of age and older (Costa & McCrae, 2010)

- **Five Domains**
  - Neuroticism
  - Extraversion
  - Openness
  - Agreeableness
  - Conscientiousness
Measures

**UCLA Loneliness Scale-3 (UCLA-LS-3)**

- 20-item self-report scale designed to measure an individual’s subjective feelings of loneliness as well as feelings of social isolation and shyness people may experience in specific situations (Russell, 1996)
- 4-point Likert scale (1 – Never, 4 = Always)
- Demonstrates internal consistency across samples (i.e., college students, nurses, teachers, and the elderly) ranging from 0.89 to 0.94 and test-retest reliability of 0.73 over a one-year period
Measures

**Pittsburgh Sleep Quality Index**

- 19-item self-report measure that assesses sleep quality and sleep disturbances over the past month (Buysse et al., 1989)
- There are seven components to the PSQI: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction
- The component scores add up to a global score (range 0-21) as an indicator of overall sleep quality
  - Scores greater than 5 are indicative of a significant sleep disturbance
- In healthy controls, the global score had an internal consistency of 0.83
Results

- Smartphone dependency positively correlated with all OQ scales and the UCLA Loneliness scale

<table>
<thead>
<tr>
<th>SAS</th>
<th>OQ Symptom Distress</th>
<th>OQ Interpersonal Relations</th>
<th>OQ Social Role</th>
<th>OQ Total</th>
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<tbody>
<tr>
<td>Life Disturbance</td>
<td>.350**</td>
<td>.231**</td>
<td>.408**</td>
<td>.374**</td>
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<tr>
<td>Positive Anticipation</td>
<td>.075</td>
<td>.156</td>
<td>.166*</td>
<td>.127</td>
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<tr>
<td>Withdrawal</td>
<td>.241**</td>
<td>.210**</td>
<td>.179*</td>
<td>.254**</td>
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<tr>
<td>Cyber-Relationship</td>
<td>.140</td>
<td>.230**</td>
<td>.131</td>
<td>.186*</td>
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<tr>
<td>Overuse</td>
<td>.138</td>
<td>-.056</td>
<td>.120</td>
<td>.095</td>
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<tr>
<td>Tolerance</td>
<td>.265**</td>
<td>.227**</td>
<td>.308**</td>
<td>.299**</td>
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<tr>
<td>Total</td>
<td>.283**</td>
<td>.249**</td>
<td>.309**</td>
<td>.318**</td>
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<table>
<thead>
<tr>
<th>SAS</th>
<th>UCLA Loneliness</th>
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<tr>
<td>Life Disturbance</td>
<td>.228**</td>
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<tr>
<td>Positive Anticipation</td>
<td>.188*</td>
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<tr>
<td>Withdrawal</td>
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<tr>
<td>Cyber-Relationship</td>
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<td>Overuse</td>
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<tr>
<td>Tolerance</td>
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<tr>
<td>Total</td>
<td>.313**</td>
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</tbody>
</table>

*Correlation significant at the 0.05 level (2-tailed)
**Correlation significant at the 0.01 level (2-tailed)
Results

- Smartphone dependency positively correlated with neuroticism
- Smartphone dependency negatively correlated with extraversion, openness, agreeableness, and conscientiousness

<table>
<thead>
<tr>
<th>SAS</th>
<th>NEO Neuroticism</th>
<th>NEO Extraversion</th>
<th>NEO Openness</th>
<th>NEO Agreeableness</th>
<th>NEO Conscientiousness</th>
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</thead>
<tbody>
<tr>
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<td>.296**</td>
<td>-.060</td>
<td>-.034</td>
<td>.007</td>
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<td>-.203*</td>
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<td>-.198*</td>
<td>-.223**</td>
<td>-.162*</td>
<td>-.194*</td>
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</table>

*Correlation significant at the 0.05 level (2-tailed)
**Correlation significant at the 0.01 level (2-tailed)
Results

<table>
<thead>
<tr>
<th>SAS</th>
<th>PSQI Sleep Quality</th>
<th>PSQI Sleep Latency</th>
<th>PSQI Sleep Duration</th>
<th>PSQI Sleep Efficiency</th>
<th>PSQI Sleep Disturbances</th>
<th>PSQI Sleep Medications</th>
<th>PSQI Daytime Dysfunction</th>
<th>PSQI Global Score</th>
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</thead>
<tbody>
<tr>
<td>Life Disturbance</td>
<td>.269**</td>
<td>.149</td>
<td>.183*</td>
<td>.252**</td>
<td>.333*</td>
<td>.247**</td>
<td>.284**</td>
<td>.404**</td>
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<td>Positive Anticipation</td>
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<td>.071</td>
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<td>.152</td>
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<td>.184*</td>
<td>.227**</td>
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<tr>
<td>Total</td>
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<td>-.093</td>
<td>.112</td>
<td>.152</td>
<td>.218**</td>
<td>.151</td>
<td>.169*</td>
<td>.188*</td>
</tr>
</tbody>
</table>

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**Correlation significant at the 0.01 level (2-tailed)

- Smartphone dependency positively correlated sleep disturbances, daytime dysfunction, and global score
- Of note, the SAS subscale life disturbance was positively correlated with the global score and all PSQI subscales, except for latency.
Results

Logistic regression analyses showed that the SAS was predictive of students who scored in the “clinical” range for the OQ-45 and those that reported above average loneliness scores.

SAS did not predict the PSQI global score.
Results

- Multiple regression analyses did not indicate any moderating relationship with SAS, personality traits, and OQ-45 {and PSQI global score and loneliness}
Discussion

- **Hypotheses 1 & 2 – Supported**
  - The more students were dependent on using their smartphone, the higher their reported social-emotional distress
    - Smartphone dependency predicted “clinical” levels of social-emotional distress, including loneliness
    - Students with higher levels of smartphone dependency reported poorer sleep quality
      - However, smartphone dependency did not predict the PSQI global score
    - Personality traits were also associated with smartphone dependency
      - The more dependent on smartphone use, the higher levels of neuroticism
      - The less dependent on smartphone use, the higher levels of extraversion, openness, agreeableness, and conscientiousness

- **Hypothesis 3 – Not Supported**
  - No personality traits moderated the relationship between smartphone dependency and social-emotional distress
Discussion

• **Limitations**

  • Lack of sample diversity/generalizability
    - Small liberal arts college population
    - 83.2% women
    - 80.5% white
  
  • Data was collected via self-report – some studies have measured smartphone use with behavioral measures (e.g., tracking software; e.g., Lee et al., 2014)
  
  • Caution on conclusions based on correlations
    - Directionality – e.g., smartphone dependency leads to mental health distress or mental health distress leads to smartphone dependency
    - Causal – many other factors associated with smartphone use and social-emotional wellbeing
Discussion

- **Future Directions**
  - More diverse college sample
  - Objective behavioral measures of actual smartphone use
  - Additional self-report measures for mental health distress
    - Perhaps target specific distress/disorders
    - May provide “better” predictive models

- **Practice/Clinical Implications**
  - Findings have the potential to inform interventions targeted at reducing/modifying smartphone use and improving college student mental health
    - SAS as a screening tool?
    - Psychoeducation of smartphone use
  - Discern what elements of smartphones are harmful *and beneficial*
  - If smartphone use is reduced, what will replace it?