

Digital communication technologies and mental health

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Summary

In the 21st century, smartphones and social networking sites (SNS) have become essential tools for billions of people for a wide range of purposes including connecting and collaborating with others, accessing information, shopping online, or passing time. Due to the popularity and prevalence of smartphones and SNS, much work has been done in the past two decades to understand how these digital communication technologies impact mental health.

Past research predominantly focused on the amount of time people spend using smartphones and SNS. This yielded mixed findings and meta-analyses revealed that, on average, the effect of smartphone and SNS usage on mental health is negative but small. However, focusing on overall usage time does not take into account (1) usage types, (2) user characteristics, and (3) the distinction between non-problematic and problematic usage of digital communication technologies, and how the interplay between these three aspects impacts mental health.

In this dissertation, we addressed these three key limitations and answered six major research questions: (1) How does usage of SNS and smartphones influence mental health? (2) Which user characteristics have been investigated as moderators of the relationship between (different types of) SNS use and mental health in prior research? (3) How do major personality traits (e.g., neuroticism) moderate the relationship between (different types of) smartphones use, SNS use and mental health? (4) How do demographic (e.g., age) and personality traits (e.g., neuroticism) moderate the relationship between non-problematic SNS use and problematic SNS use, and what are the associated consequences for mental health? (5) Why is neuroticism a vulnerability factor in the context of problematic SNS use? Do fear of missing out and self-control mediate the relationship between neuroticism and problematic SNS? (6) Why is FoMO a vulnerability factor in the context of problematic smartphone use? Do dimensions of problematic smartphone use mediate the relationship between fear of missing out and mental health?

Chapter 1 provides a comprehensive overview of past research, identifies three key limitations, and explains how the present dissertation will address these limitations.

Chapter 2 critically reviews past research on the impact of active and passive use of SNS on mental health and formulates the extended active-passive model of SNS use. In this model, we decompose active SNS use in four subtypes by crossing two fundamental interaction dimensions: reciprocity and communion. Moreover, we decompose passive SNS use in four subtypes by crossing two fundamental content dimensions: self-relevance and achievement. Finally, we propose to cross usage types and user characteristics in the prediction of mental health as the effect of different types of SNS use differs across users.

Building on Chapter 2, **Chapter 3** systematically reviews existing evidence on user characteristics that have been tested as moderators of the relationship between (types of) SNS use and mental health. We demonstrate that out of 15 unique moderators distributed across 26 manuscripts, the majority of moderators (73%) were studied in a single journal article only. We also demonstrate that findings were largely mixed for those moderators that were studied at least in two journal articles. The only exception was social comparison orientation which has been found to robustly moderate the relationship between passive SNS use and mental health. For users scoring high on social comparison orientation, passive SNS usage was associated with diminished mental health. On the other hand, the relationship between passive use of SNS and mental health was not significant for those who scored low on this trait.

Chapter 4 presents findings from a seven-day diary study that we conducted to empirically test the moderating role of neuroticism and extraversion in the relationship between digital communication technologies and mental health. Specifically, we used a fine-grained approach and distinguished between different types of smartphone use (overall time spent, social use, non-social use), Instagram use (overall time spent, active use, passive use) and indicators of mental health (positive affect, negative affect). We found that non-social use of smartphones and passive use of Instagram predicts negative affect. We also found that neuroticism moderates the relationship between time spent on smartphones and negative affect and between passive Instagram use and negative affect, such that these effects are detrimental for those who score high on this trait but are non-significant for those with a low score. Finally, we also found that extraversion is a risk factor in the relationship between time spent on smartphones and positive affect. Those who scored high on extraversion experienced declines in positive affect. However, this was not the case for those users who scored low on extraversion.

Chapter 5 presents findings from a cross-sectional study where we examined whether the relationship between Facebook use intensity and depressive symptoms is mediated by problematic Facebook use and moderated by age, neuroticism, and extraversion. We found that problematic Facebook use fully mediated the relationship between Facebook use intensity and depressive symptoms. Furthermore, our findings demonstrated that this indirect relationship was stronger for young users and users scoring high on neuroticism.

Chapter 6 explores further why neuroticism is a vulnerability factor in the context of problematic use of SNS. For this purpose, we conducted a cross-sectional study and tested whether the relationship between neuroticism and problematic SNS use was parallelly mediated by fear of missing out and self-control. We found that only fear of missing out was a robust mediator of this relationship.

Chapter 7 builds on the findings of Chapter 6. In a cross-sectional study, we examined whether the relationship between fear of missing out and emotional well-being was parallelly mediated by five dimensions of problematic smart-

phone use (tolerance, positive anticipation, cyberspace-oriented relationships, withdrawal, and physical symptoms). Our findings demonstrated that only two dimensions: cyberspace-oriented relationships and physical symptoms, were robust mediators of this relationship.

Chapter 8 presents an overview of the main findings of the dissertation. It also discusses the theoretical and practical implications of these findings, acknowledges the limitations, and provides recommendations for future research. For instance, the empirical studies presented in the dissertation are correlational and therefore future studies should replicate these findings in experimental studies to clarify the causal nature of the relationship between usage of digital communication technologies and mental health.