

## Julia Brailovskaia

## "Social Media Sport (SMS)-Study":

An effective measure of protecting (mental) health in the age of the digital transformation!?



### **CAIS Report**

Fellowship Oktober 2021 bis März 2022

**GEFÖRDERT DURCH** 

Ministerium für Kultur und Wissenschaft des Landes Nordrhein-Westfalen



### "Social Media Sport (SMS)-Study":

An effective measure of protecting (mental) health in the age of the digital transformation!?

# Background and Context – How can social media use impact our mental health

A brief glance at the Instagram feed in the morning, some status postings on Twitter during lunchtime, a conversation in a discussion group on Facebook during dinner, an upload of short videos on TikTok before bedtime, and many dialogues on WhatsApp in between – the daily use of social media (SM) belongs to the central aspects of the "digital transformation" in the 21st century. Over 4.62 billion people use SM. On average, they spend about 2 hours and 27 minutes on SM daily (DataReportal, 2022).

The global outbreak of the coronavirus disease 2019 (COVID-19) resulted in restrictions of offline social contacts ("social distancing") that fostered the significance of SM use (SMU) as the main source of information, social interaction, and pastime. In the short-term, SMU can contribute to mood modification. It reduces negative emotions and increases positive ones. This enhances one's perception of SM as an important source of satisfaction and happiness that contributes to further intensive online activity (Brailovskaia & Margraf, 2021).

However, in the longer-term intensive SMU can negatively impact mental health. SMU as a COVID-19 information source can contribute to psychological burden and anxiety due to the online spread of fake news. Passive observation of other generated content can evoke feelings of envy that result in enhanced depression symptoms and a decrease of life satisfaction. Excessive active online interaction can increase the perception of social support that can result in the development of a close emotional bond to SM and the pathological need to stay permanently online. This phenomenon has been termed as addictive SMU. Addictive SMU is defined by six typical characteristics: salience, tolerance, mood modification, relapse, withdrawal symptoms, conflict). Today, addictive SMU is not a recognized formal psychiatric disorder. However, recent research has shown that it is closely linked to high levels of COVID-19 burden and to low levels of mental health. In longitudinal studies, addictive SMU was positively linked to depression symptoms and insomnia up to six weeks later, and to suicide-related outcomes (suicide ideation and suicide behavior) up to one year later (e.g., Brailovskaia et al., 2020b; Brailovskaia et al., 2019).

Against this background, the question arises how to protect mental health in times of COVID-19 caused social distancing. Which time- and cost-efficient strategies can be implemented in our everyday life to reduce the potential negative impact of the rapid digital transformation?

## Approach and Objectives – How to protect mental health in times of COVID-19, digital transformation, and intensive social media use

In experimental studies that allow true causal conclusions, a reduction of time spent on SMU improved mental health (e.g., Brailovskaia et al., 2020a; Hunt et al., 2018). Depression and anxiety symptoms decreased, while life satisfaction increased. Thus, a starting point for the protection of mental health in times of COVID-19 and of a rapid digital transformation could be a controlled and conscious change of SMU time. But is this enough considering the high involvement of SMU in everyday life since the pandemic outbreak? Or do we need further changes of daily behavior?

Evolutionary, physical activity (e.g., cycling, jogging, yoga) is an important protective factor of mental and physical health (Rebar et al., 2015). Regular moderate physical activity can enhance the dopamine level in the brain which provides a rewarding experience and thus contributes to positive emotions. The positive experiences could reduce the strong need to engage in SMU when searching for positive emotions. This could decrease the emotional bond to the online world and the addictive use tendencies. Furthermore, physical activity can increase one's self-efficacy and confer resilience in the COVID-19 situation.

Thus, I hypothesized that a controlled and conscious reduction of time spent on daily SMU in combination with a controlled and conscious enhancement of time spent on physical activity could causally protect mental health during the pandemic. Both interventions can be implemented into our daily life without a violation of COVID-19 restriction measures.

# Methods – How to realize the changes of social media use and physical activity during COVID-19

In the frame of the Social Media Sport (SMS)-Study that I worked on during my fellowship at the Center for Advanced Internet Studies (CAIS), I decided to investigated my idea on the combination of reduced SMU and enhanced physical activity experimentally and longitudinally. Thus, I designed the study as a randomized controlled trial with a two-week intervention period, three experimental groups and one control group. Notably, the time determined for daily SMU reduction and for daily increase of physical activity followed available literature (e.g., Brailovskaia et al., 2020a). The overall 642 participants were randomly assigned to one of the four groups:

- 1. Experimental Social Media (SM) Group: The 162 participants of this group reduced their daily SMU time by 30 minutes over a two-week period.
- Experimental Physical Activity (PA) Group: The 161 participants of this group increased their daily time spent on physical activity by 30 minutes over a two-week period.
- 3. Experimental Combination Group: The 159 participants of this group reduced their daily SMU time by 30 minutes and increased their daily time spent on physical activity by 30 minutes over a two-week period.
- 4. Control Group: The 160 participants of this group did not get any specific instructions for a change of their time spent daily on SMU and on physical activity.

Participants of the three experimental groups completed also a "daily compliance-diary" over the 14 days of the intervention period to assess their compliance with the instructions. Similar to previous experimental studies on SMU (e.g., Brailovskaia et al., 2020a), the level of compliance was 93.2% in the

SM Group, 91.9% in the PA Group and 88.1% in the Combination Group. Over more than six months, all participants completed six online surveys on various mental health and lifestyle variables: 1. The day prior to the beginning of the intervention period (baseline, Day 0); 2. One week later (intermediate, Day 7); 3. After the 14 days of the intervention period (post, Day 15); 4. One month after the intervention period (follow-up 1); 5. Three months after the intervention period (follow-up 2); and 6. Six months after the intervention period (follow-up 3). This empirical approach allowed to assess short- and longer-term causal effects. All communication with the participants took place via e-mail in order not to violate the COVID-19 measures.

# Empirical Results – How did the changes of social media use and of physical activity during COVID-19 influence mental health

The experimental changes of time spent on SMU and on physical activity over two weeks significantly changed daily behavior of the participants and improved their mental health in the short- and in the longer-term. The Combination Group showed the strongest and most stable effects. In contrast, there were no remarkable changes in the Control Group, which confirms the effectivity of the interventions.

My participants reported a significant decrease of daily SMU time – up to 46 minutes – after the end of the intervention period and a significant increase – up to 1 hour 39 minutes – of time spent on physical activity (both: Combination Group). Thus, they continued and even enhanced the behavioral changes introduced during the intervention period even six months later. After the intervention period, many of them reported that they started to pay more attention to their online activity and tried to engage only in really necessary behavior. In addition, many participants integrated physical activity into their daily routine. Notably, many people engage in intensive SMU when searching for positive emotions. If SMU becomes the main source of positivity, it can negatively impact one's mental health and everyday life (Sun & Zhang, 2020). It is possible that my intervention established physical activity as an alternative, healthier source of positivity and, thus, SMU lost its exceptional position.

Furthermore, the level of life satisfaction and subjective happiness significantly increased in the experimental groups. Depression symptoms and addictive tendencies of SMU significantly decreased. These findings provide evidence that the two-week intervention improved mental health. Moreover, the psychological burden caused by the COVID-19 situation also decreased significantly.

Moreover, in the SM Group, the smoking behavior decreased from initially about 6 to 7 tobacco products daily to 3 to 4 products six months after the experimental period. Therefore, it seems that the participants not only decided to engage in a healthier lifestyle by increasing physical activity, but also by reducing unhealthy smoking behavior.

#### Conclusion – What can we learn from the SMS-Study

The digital transformation of society made SMU a significant part of daily routine for many people around the globe. SM are by far no longer the place where only young adults engage in social interactions. More and more young children operate on TikTok and Snapchat, more and more older people create an account on Facebook and Twitter. Despite their obvious benefits, potential side effects of intensive SMU – especially with respect to our mental health – should be taken into account.

Each year, large sums of money are spent on complex, time-consuming programs to protect our mental health. The SMS-Study presents an effective, cost- and time-efficient strategy that can protect mental health, even during the extraordinary COVID-19 situation. The positive effects of the intervention remain stable for up to six months. The reduction of daily SMU time and the increase of daily physical activity can be implemented in our everyday life as a standalone intervention, and it can be incorporated in the

psychotherapeutic context.

#### Public results of the CAIS-project and next steps – How to promote and to further develop the SMS-Study's findings

On April 19, I was invited as a guest speaker at the Faculty of Psychology at the University Witten/ Herdecke. On May 11, I was invited as a guest speaker at the Faculty of Psychology at the Ulm University. In both talks, I presented my findings of the SMS-Study. Furthermore, I will present the findings on upcoming national and international conferences in 2023.

Moreover, I summed up the main findings of the SMS-Study in a research study that has been published in the international peer-reviewed *Journal of Public Health*:

Brailovskaia, Julia, Swarlik, Verena J., Grethe, Georg A., Schillack, Holger, & Margraf, Jürgen (2022). Experimental longitudinal evidence for causal role of social media use and physical activity in COVID-19 burden and mental health. *Journal of Public Health*. doi:10.1007/s10389-022-01751-x). <u>https://link.springer.com/article/10.1007/s10389-022-01751-x</u>.

#### **CAISZeit Podcast**

Matthias Begenat (CAIS) and Silke Offergeld (Speaker of the Digital Society and Media Competence of the State Chancellery NRW) recorded an interview podcast with me on "Social Media and Mental Health" on February 18, 2022. The podcast was published on the CAIS website on March 03, 2022 (CAISZeit, 2022): <a href="https://www.cais.nrw/caiszeit-podcast/">https://www.cais.nrw/caiszeit-podcast/</a>

#### **New Studies**

The SMS-Study is the framework for several new studies that I will work on in the next months. For example, I will investigate the replication the findings of the SMS-Study by the replacement of SM by general smartphone use. Furthermore, I want to replicate the SMS-Study in a sample of clinical patients.

#### Acknowledgement - Thank you very much

I am grateful to CAIS for the opportunity to engage in highly topical research whose findings can support the mental health of many people. Specifically, I want to thank Esther Laufer and Andrea Porsfeld who did everything to let us feel comfortable and welcome at CAIS.

#### **Bibliography**

Brailovskaia, Julia, & Margraf, Jürgen (2021). The relationship between burden caused by coronavirus (Covid-19), addictive social media use, sense of control and anxiety. *Computers in Human Behavior, 119*, 106720. doi:10.1016/j.chb.2021.106720

Brailovskaia, Julia, Rohmann, Elke, Bierhoff, Hans-Werner, Margraf, Jürgen, & Köllner, Volker (2019). Relationships between addictive Facebook use, depressiveness, insomnia, and positive mental health in an inpatient sample: A German longitudinal study. *Journal of Behavioral Addictions*, *8*(*4*), 703-713. doi:10.1556/2006.8.2019.63

Brailovskaia, Julia, Ströse, Fabienne, Schillack, Holger, & Margraf, Jürgen (2020a). Less Facebook use – More well-being and a healthier lifestyle? An experimental intervention study. *Computers in Human Behavior, 108*, 106332. doi:10.1016/j.chb.2020.106332

Brailovskaia, Julia, Teismann, Tobias, & Margraf, Jürgen (2020b). Positive mental health mediates the relationship between Facebook Addiction Disorder and suicide-related outcomes: A longitudinal approach. *Cyberpsychology, Behavior, and Social Networking, 23*(5), 346-350. doi:10.1089/cyber.2019.0563

DataReportal. (2022). Digital 2022: Global Overview Report. Retrieved on March 18, 2022, from <u>https://datareportal.com/reports/digital-2022-global-overview-report</u>

Hunt, Melissa G., Marx, Rachel, Lipson, Courtney, & Young, Jordyn (2018). No more FOMO: Limiting social media decreases loneliness and depression. *Journal of Social and Clinical Psychology*, *37*(10), 751-768. doi:10.1521/jscp.2018.37.10.751

Rebar, Amanda L., Stanton, Robert, Geard, David, Short, Camille, Duncan, Mitch J., & Vandelanotte, Corneel (2015). A meta-meta-analysis of the effect of physical activity on depression and anxiety in non-clinical adult populations. *Health Psychology Review*, *9*(3), 366-378. doi:10.1080/17437199.2015.1022901

Sun, Yalin, & Zhang, Yan (2020). A review of theories and models applied in studies of social media addiction and implications for future research. *Addictive Behaviors*, *114*, 106699. doi:10.1016/j.addbeh.2020.106699

#### Table of Figures

Photo Titlepage: CAIS

#### Contact

PD Dr. Julia Brailovskaia Research Fellow and Faculty Member, Mental Health Research and Treatment Center, Department of Clinical Psychology and Psychotherapy, Faculty of Psychology, Ruhr-Universität Bochum, Germany Massenbergstr. 9-13, 44787 Bochum, Germany julia.brailovskaia@rub.de https://orcid.org/0000-0001-7607-1305 tel: +49 234 3221506