Exploring social media use as a composite construct to understand its relation to mental health: A pilot study on adolescents

Joana de Calheiros Velozo[a,*], Johannes E.A. Stauder[b]

[a] Department of Developmental Psychology, Faculty of Psychology and Neurosciences, Maastricht University, Maastricht, The Netherlands
[b] Department of Development Psychology, Department of Cognitive Neuroscience, Faculty of Psychology and Neurosciences, Maastricht University, Maastricht, The Netherlands

A B S T R A C T

Background: Adolescents are spending more and more time on social media and studying how this is associated to their mental health has become an important focus of research. However, most studies have studied social media use in general and have overlooked the variance in social media activity. That is, the differences in activities within social media. This is a pilot study that sets out to understand whether it is relevant to explore social media as a composite measure while accounting for gender differences.
Methods: A survey was distributed to parents (N = 72) with a teen between 13 and 16 years of age measuring mental health (i.e. SDQ, and CIU), and social media behavior.
Results: Findings show that various social media activities are differently related to mental health. Socializing, online shopping, and following people one is not familiar with were significantly related to conduct problems. Likewise, playing games, and posting content, specifically videos online were significantly associated with compulsive Internet use. However, no significant gender differences were found in the association between social media activities and mental health.
Conclusions: This study provides evidence that social media should be studied as a composite measure rather than a single measure so that we may have a better understanding of how specific social media activities relate differently to health. Findings and suggestions for future studies are discussed.

1. Introduction

Adolescents' Internet use, and in particular their use of social media has grown exponentially in the past decade. The Pew Research Center reports that 92% of American teens between the ages of 13 and 17 go online daily, and out of those 92%, 24% report being "almost constantly" online (Lenhart et al., 2015). Social media is a term that refers to any online platform that allows for teens to interact with one another (O'Keeffe & Clarke-Pearson, 2011). These include messaging apps (e.g. email, Whatsapp, Viber, chat rooms etc.), social networking websites such as Facebook and Twitter, photo sharing apps (e.g. Pinterest, Instagram etc.), video sharing apps (e.g. Snapchat, Periscope, Youtube etc.), and online games such as Warcraft a Massively Multiplayer Online Game (Subrahmanyam & Greenfiel, 2008). The relation between social media and mental health remains, nonetheless, unclear. Social media use has shown strong associations with mental health, however, studies have mostly focused on general social media use and have not differentiated between the various activities within the realm of social media. This study attempts to start filling-in that gap by assessing the

association between more specific social media use (i.e. posting, looking at other's content, videos etc.,) and mental health, while accounting for the role of gender.

1.1. Mental health

Mental health is understood in terms of internalizing and externalizing dimensions. Internalizing problems are emotional difficulties that are internalized and can turn into depression, anxiety, and low self-esteem. On the contrary, externalizing problems translate into disruptive behavior such as hyperactivity, peer problems, and behavioral problems such as getting into fights, lying, and stealing. Social media has shown to be both positively and negatively associated with these various aspects of health.

Social media has several benefits such as enhancing friendship quality (Valkenburg & Peter, 2009), decrease feelings of loneliness and increase feelings of bonding (Burke, Marlow, & Lento, 2010). Social media provides a safe space for adolescents to share their concerns and learn about topics that are more uncomfortable to talk about face-to-

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face, such as substance abuse, health, or sex (O'Keeffe & Clarke-Pearson, 2011). It has shown to be particularly beneficial to adolescents with social difficulties, such as social anxiety, as it provides anonymity and freedom for them to experiment and interact (Young & Lo, 2011).

On the other hand, social media also has significant downsides. Terms like the "Facebook depression", for instance, have been coined to describe symptoms of depression that arise from the long-term use of social media (O'Keeffe & Clarke-Pearson, 2011). Although social media contributes to lowering feelings of social loneliness, this does not seem to apply for emotional loneliness. Unlike with face-to-face interactions, emotional loneliness increases with screen-based interactions (Moody, 2001). In fact, research on college students showed that those who viewed more content on Facebook reported less feelings of bonding, and more feelings of loneliness (Burke et al., 2010). Similarly, results from a longitudinal research on a sample of 663 Dutch students' Internet use showed that instant messaging and chat rooms were associated with higher levels of depressive symptoms as well as compulsive Internet use six months later (van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008).

Many people also express anxiety similar to that of people suffering from obsessive-compulsive disorder. That is, constantly checking their phone no matter the situation (e.g. in bed, bathroom, driving, dining etc.) and feeling anxious when unable to do so. In fact, 45% of adults in Britain feel worried or anxious when unable to access their social media accounts (Rosen, Whaling, Rab, Carrier, & Cheever, 2013). That obsession also manifests itself in what is called "phantom vibrations", the illusion that the phone is vibrating when in fact it is not (Rothberg et al., 2010).

Social media use is not limited to internalizing problems, there is ample evidence that it is also associated with externalizing problems such as attention deficit hyperactivity disorder (Nikkelen, Valkenburg, Huizinga, & Bushman, 2014), antisocial personality disorder, or bullying (Rosen et al., 2013). Adolescents who spend more time on screen-based activities are more likely to be bullied and perpetuate bullying, they are also more likely to skip school and have low grades, drink alcohol, and have poor physical and eating habits (Busch, Ananda Manders, & Rob Josephus de Leeuw, 2013; Busch, Laninga-Wijnen, Schrijvers, & De Leeuw, 2017; Jacobsen & Forste, 2011). Adolescents who are exposed to risky behavior by friends posting it on social media platforms are more likely to take part in such behavior as well (Huang et al., 2014).

Some adolescents' online behavior mirrors symptoms characteristic of addictive behavior, such as loss of control, preoccupation, conflict, and withdrawal symptoms (Meerkerk, Van Den Eijnden, Vermulst, & Garretsen, 2009). Although the vocabulary used to talk about this behavior varies widely (e.g. Internet addiction, pathological Internet use, Internet overuse etc.), we will refer to it as compulsive Internet use (CIU). Adolescents who report spending more time on social media platforms also tend to report feeling more preoccupied and having less control over their online behavior as opposed to adolescents who more scarcely go on social media. Likewise, more intense social media users displayed greater psychosocial distress. Adolescent boys are slightly more likely to exhibit symptoms of compulsive internet use than girls (4.15% and 3.6% respectively) (Müller et al., 2016).

1.2. Gender differences

Adolescent boys and girls use social media differently. Boys prefer using social media to play games, whereas girls spend more time talking with peers (Barker, 2009; Ohannessian, 2009). In fact, boys spend twice as much time as girls playing computer games (Baer, Bogusz, & Green, 2011), and in 2010 only 54% of boys between the ages of 15 and 17 reported using social media networks such as Facebook, and Instagram as opposed to 70% of girls (Pujazon-Zazik & Park, 2010). Online games serve as a protective shield for boys. Avid game players exhibit lower levels of internalizing problems such as anxiety and depression (Ohannessian, 2009), as well as externalizing problems such drinking alcohol, and engaging in risky sexual behavior (Casiano, Kinley, Katz, Chartier, & Sareen, 2012).

There are also gender differences in the motives for socializing online. Boys use social media platforms as a means of social compensation when they exhibit low collective self-esteem. That is boys who feel displeased with their social group are more likely to use social media to communicate with people outside the group. Girls on the contrary have stronger collective self-esteem and therefore use social media to solidify already existing friendships (Barker, 2009; Subrahmanyam & Greenfiel, 2008).

Girls show stronger negative associations between their social media behavior and their mental health than boys. For example, girls are more likely than boys to display internalizing problems associated with their online activities (Ohannessian, 2009). This association is present both when girls use social media to interact with peers, and also when they use it more passively to watch videos, listen to music, and/or read (Pea et al., 2012). Moreover, social media relies heavily on visual imagery that is "staged" rather than accurate representations of reality. Such unrealistic depictions of life can lead to a decrease in self-esteem, and an increase body image issues among adolescent girls (Fardouly, Diedrichs, Vartanian, & Halliwell, 2015; Grabe, Ward, & Hyde, 2008; Perloff, 2014). Experimental settings have shown that girls exposed to profiles of active Facebook users, that is users who post a lot of content and portray themselves in a positive light, report lower self esteem and compare themselves more harshly against others (Vogel, Rose, Roberts, & Eckles, 2014).

The purpose of this study is to expand on existing research by exploring the association between social media and mental health, but more specifically the various activities within social media (i.e. posting, looking content, videos, talking etc.) rather than general social media use and mental health as understood through the internalizing (i.e. emotional, peer) and externalizing (i.e. conduct, hyperactivity) dimensions. Furthermore, explore the role of gender in these associations. This is a pilot study aiming to shed more light on this theme and provide a platform and a direction for further studies. We hypothesize that social media activities will relate differently from one another to mental health. Girls' who spend more time looking at other people's content, and posting things online will display more internalizing problems (i.e. emotional, peer) and boys who play more online games are more likely than girl to display symptoms of compulsive internet use and externalizing problems (i.e. conduct, hyperactivity).

2. Methods

2.1. Participants

The sample was comprised of 103 participants in total. However, several participants did not fill-out the entirety of the survey and were therefore not included in the data analysis. The final sample was composed of data from 72 participants ($N = 35$ girls) between the ages of 13 and 16 years. Most participants had no previously diagnosed disorder, and some reported having been diagnosed with Dyslexia $(N = 8)$, Asperger $(N = 4)$, ADHD $(N = 4)$, Anxiety $(N = 3)$, or Depression $(N = 2)$.

2.2. Procedure

Numerous schools were approached to take part in the study. The Arnhem International School, the International School of Groningen, and International School Eindhoven in Holland as well as the Institut International de Lancy in Switzerland agreed to participate in the study by sharing the online questionnaire via email with parents of adolescents within the age demographic. The email included a short description of the study as well as a link to an online questionnaire they had to fill-in within two months of receiving it. The survey was divided