

Minireview Article

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Social Media Addiction and Objective Measures of iPhone Use: Use What I Say and Use What I Do

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Abstract

The past 10 years have seen a growing increase in research surrounding social media use on personal devices, with some studies investigating use from within the framework of addiction. However, a reoccurring issue within these studies has been that the predominant form of measuring social media “use” has relied upon self-report data, which has various issues related to validity. This paper describes how the issue of validity in research on social media use can be addressed by using information readily available in participants’ back pockets: their iPhone. In this respect, we wish to share methodology capable of providing an objective measure of social media use for those willing to restrict their study to iPhone users. We will discuss what type of information is available to researchers, how they may access it in an ethical fashion, and the limitations associated with these objective measures. Ultimately, the hope is for such objective measures to supplement more traditional self-report methods, so that we can obtain the most accurate information possible.

Keywords: Social media; Measurement; iPhone; Objective measure; Addiction

Introduction

When conducting research within the addictions field, it is important to be confident in the validity of measures assessing “use”, or in other words, engagement in some kind of behavior. Often in addictions research, self-report measures are used, which raises questions about the validity of the data. Studies have shown self-report data to be prone to potential response biases of participants who may maximize, minimize, or deny their activity altogether, or alternatively, be completely unaware of the reality of their use [1]. As a result, some research ignores self-report methods altogether and turns to biochemistry in bodily functions, things found in breath, blood, urine, and hair. Of course, there is a good reason for self-report measures in addictions research; these measures do not just address use, but also assess for negative life-impact and perceived distress related to the behavior in question, all facets which are fundamental to the magnitude of the problem behavior. The present article is not challenging the use of self-report methods.

Instead, we wish to address a measurement issue in a specific area of social media research by providing a viable solution for those willing to restrict their study to iPhone users, for reasons which will be addressed later.

Given the explosion of social media use facilitated by devices more readily available than ever, there is now a burgeoning literature of studies on social media use and addiction [2]. There is also the concern of parents, the public in general, and lawmakers – themes commonly reflected in multiple U.S. Congressional hearings on the topic in 2021. Some of this research has focused on problematic smartphone use in general [3], while other research has focused on the impact of specific apps, such as the relationship between excessive Instagram use and its negative effects on mental health, especially within teenage girls [4].

However, research studies have typically continued to use self-report methods to assess social media behavior, despite several

studies highlighting inconsistencies between self-report and machine-generated measures of use [5-7]. For example, a meta-analysis conducted by Cheng and colleagues (2021) found the reported prevalence of social media addiction to vary dramatically with some studies reporting single-digit rates [8,9], while others report prevalence rates of more than 40% [10,11]. The goal of this paper is to address this measurement issue of “use” within social media research and suggest an objective behavioral record for iPhone users that is in your participants’ back pockets: the iPhone itself. In this paper, we will discuss what information is available, how it can be accessed in an ethical fashion, and the limitations of objective measurement. It is important to note that objective behavioral records are not capable of replacing self-report methods, but certainly have the potential to augment them.

Discussion

Our interest in this topic sprang from a research study developed by the first author into attachment theory and social media addictions, and the question of accurate objective measurement. Given the importance of obtaining objective information, it is crucial that researchers understand the abundance of information readily available to them. In 2018, Apple announced the release of iOS 12, which consisted of a built-in feature to track and control screen time across various apps [12]. This feature is compatible with the iPhone 5s and later upgrades and can also be accessed on iPads and iPods. Within the Screen Time feature, iPhone users can view their screen time as daily or weekly averages, with the option to view screen time records from up to three weeks prior. Given that previous research has found just under one week of smartphone data to be sufficient in determining an individual’s typical usage [5], the iPhone offers more than enough data to draw sound interpretations of usage. Not only does the iPhone provide screen time averages, but it also breaks down screen time across specific categories and individual apps. For example, all social media apps are combined into a ‘Social’ category that provides a total screen time across all social media apps (e.g., Facebook, Instagram, Twitter) but also provides a count for time spent on individual apps. The screen time data is presented to users as an hourly count and as a bar graph, which depicts which categories users are spending the most time on (e.g., Social). The Screen Time feature also compares this week’s screen time with last week’s and calculates the percentage increase or decrease between the two timepoints. Evidently, the iPhone Screen Time feature contains a wealth of information that is readily available to researchers interested in a variety of topics. For social media addictions research, it means an objective machine-supplied measure of actual use is readily available.

There are several methods researchers can use to obtain screen time from a participant’s iPhone. First, researchers can direct participants to the Screen Time feature on their phone and have the participant report the information verbally or through a survey. However, given that problematic social media users may associate their use with guilt or shame [13], researchers should avoid using methods that provide participants with the opportunity to report

their use as more or less favorable than it really is. Therefore, a feasible solution to this problem is to have participants submit a screenshot of their screen time record. This method allows researchers to obtain an accurate and objective measurement of participant screen time within seconds. However, like with any research method, ethical considerations need to be taken into account. For some iPhone users, their name is listed along with the screen time data, meaning that a screenshot of their screen time will contain identifying information. To ensure anonymity in the data, researchers may ask participants to crop their name out of the photo before submitting it or the researcher can record the required information from the screenshot and then immediately delete it. So far, we have collected data from many undergraduate students using this method and no one has opted to remove their name from the screenshot. However, if collecting data from other populations, there may be individuals who are skeptical about providing such information and thus may choose to crop their name out. This method of obtaining data was deemed acceptable by our own institutional Research Ethics Board, and therefore, could be acceptable to other Boards as well.

Given the methodological issue of self-report data, recent studies have attempted to develop other methods for objectively tracking smartphone and social media usage. Some studies have developed their own apps for the purpose of obtaining an objective record [5,14] while others have suggested the use of externally developed apps such as MobileDNA, App Usage, or RescueTime [4]. While each of these are viable options for obtaining objective records, they may also make data collection more tedious than it needs to be. For example, researchers would need to require that participants sign up for the study, download the app, have it running for the required period of time, and then submit their record of use. In the long run, this multi-step process may make it difficult for researchers to retain participants. The Screen Time feature built into the iPhone is a much more feasible source of information, given that it is already functioning in the background of most iPhones. In this respect, we offer readers a “simpler way”.

There are limitations associated with this research method. So far, we have only thoroughly explored the screen time feature provided by iPhones, so the information presented here is not generalizable to users of other smartphones. It is possible that other brands of smartphones offer similar features that can be used for research purposes, although the information appeared to be inconsistent across phones when we examined them. Future research is needed to investigate the potential of obtaining objective records of social media use across all brands of smartphones. However, until the features of other smartphones are properly explored, inclusion criteria may be restricted to iPhone users and still provide a wealth of information, given that 46.9% of smartphone users in the United States own an iPhone [15], with likely similar statistics across other countries. A second limitation to this method is that participants must have an iPhone 5s or later with iOS 12 downloaded. Without the appropriate iPhone or software update, participants will not

be able to access the Screen Time feature. As a result, this may also restrict the participant pool even further. In our current data collection, this has not been an issue.

Conclusion

Regardless of how the information is obtained, previous research has agreed upon the need for objective measures of social media use [5,13,14]. Without objective measures, potential discrepancies with self-report data can pose difficulties in diagnosing or treating social media addictions. Ultimately, a combination of self-report methods to address life-impact issues ("Use what I say") and objective measures to address use ("Use what I do"), may be the best approach. In sum, the current paper wishes to draw attention to another tool that could be in the toolbox of social media addiction researchers.

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Conflict of Interest

Authors declare no conflict of interest.

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