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Jennifer DeMent

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Social Media Use (SMU) is a relatively new phenomenon, but one which has rapidly become ubiquitous in common culture, globally. Many users report benefit and some research supports assertions that there are benefits to be gleaned from healthy SMU. However, there are a great deal of studies exploring risks and negative consequences for some users. More specifically, there is a growing body of research considering whether SMU is an addictive behavior that may function to regulate emotion. Emotion Regulation(ER) has not been studied in any depth in relation to SMU, but has been studied in relation to established addictions. It is the purpose of this paper to explore existing research and ways in which current knowledge supports new ER questions and to explore considerations of protections related to SMU, particularly those related to psychological and behavioral intervention in cases in which SMU has become harmful.

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Dr. Loverich

Second Advisor

Dr. Jefferson

Third Advisor

Dr. Freedman-Doan

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Jennifer DeMent

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Supervising Instructor Dr. Loverich

Honors Advisor Dr. Jefferson

Department Head Dr. Freedman-Doan

Honors Director Krish Narayanan

Abstract

Social Media Use (SMU) is a relatively new phenomenon, but one which has rapidly become ubiquitous in common culture, globally. Many users report benefit and some research supports assertions that there are benefits to be gleaned from healthy SMU. However, there are a great deal of studies exploring risks and negative consequences for some users. More specifically, there is a growing body of research considering whether SMU is an addictive behavior that may function to regulate emotion. Emotion Regulation(ER) has not been studied in any depth in relation to SMU, but has been studied in relation to established addictions. It is the purpose of this paper to explore existing research and ways in which current knowledge supports new ER questions and to explore considerations of protections related to SMU, particularly those related to psychological and behavioral intervention in cases in which SMU has become harmful.

Introduction

November 9th, 2017 Sean Parker, the founding president of Facebook, gave an interview at the National Constitution Center in Philadelphia during a cancer research event. During the course of the interview he discussed Facebook and his tempered opinion of the SM outlet (Allen, 2017). He warned people that, "The thought process that went into building these applications, Facebook being the first of them ... was all about: 'How do we consume as much of your time and conscious attention as possible". Parker went on to explain that, "It's a social-validation, feedback loop ... exactly the kind of thing that a hacker like myself would come up with, because you're exploiting a vulnerability in human psychology." In short, their hope in its design, was that it would become addictive. Parker himself now expresses concern that this may be unhealthy for our society. Toward the end of the discussion the interviewer asked if Parker still uses SM. He answered that he still uses it, "but I don't let it use me." Parker summed up an essential question for psychological research. How do we help people use SM, without

allowing it to use them? Though SM use has become ubiquitous in common culture, and appears to be something that will remain so for a while, relatively little is known about its direct effects on human psychology and social behavior.

A great deal of research on SMU is being done through the lens of addiction. Currently there is a significant body of research in “internet addiction” (e.g., Laconi, Rodgers, & Chabrol, 2014) as well as research more specifically looking into SM addiction. Yet whether behaviors reflect addiction is still debated in our field and the social sciences more generally. Psychology and Psychiatry both debate whether any physical behavior can be considered an addiction in the absence of a substance (American Psychiatric Association, 2013). Some argue these are impulse control disorders, compulsions, or are not disorders. In addition, addiction is such a detrimental condition that exploring SM or internet use from this lens seems likely to create a bias against the view of SM as a tool. With any tool it’s most useful to understand: when and how it’s helpful, when and how it’s harmful, who is at risk while using it, and how to assist people to use it, without it using them. For this reason, this paper presents knowledge gleaned from the existing literature with the aim of broadening the lens to better understand mechanisms related to problematic SMU (PSMU).

2. Methods

2.1 Literature Search

For the literature search, four databases were used. PsycINFO and a ProQuest Power search were performed for terms related to SMU, addiction, and ER. A Statista search was performed for more general information, such as average usage rates. For Social Media, the terms “social media” or “social media usage” or “Facebook” or “Twitter” were used. These SM platform descriptors were specifically used because they are the two most commonly used SM

sites, according to a Statista search in 2017. These fields were further refined by “and” “addiction” or “compulsi*” and “emotion regulation” (ER). All search parameters were limited to anywhere but full text. Finally a ProQuest book search was performed for the same parameters.

2.2 Selection of literature

Once the overview searches were complete, the most recent meta-analyses and systematic reviews were investigated for each of the most commonly related bodies of literature: Personality traits, anxiety, and depression were targets, as well as papers that reviewed the existing measures for these areas. Papers were evaluated on the strength of their statistical methods. The most relevant papers for each area were then selected. As ER and Acceptance and Commitment Therapy (ACT), an intervention for ER difficulties, were the specific fields of interest, but there was not a lot of literature specific to them and SMU, I looked for any papers that included any combination of those fields as well.

Exclusion criteria included papers regarding the dissemination of knowledge or using SM to interact with clients or groups of clients. With further reading, such as Wiederhold (2017), it became apparent that a small incorporation of such studies was relevant to a whole picture discussion. Papers that did not offer English translation or that were not available in full text were also excluded. As technology changes rapidly, papers more than eight years old were only included if they incorporated something critical to an underlying construct.

Current Social Media Research in Psychology

There is a notable body of research growing daily on the subject of SMU in psychology. A search in PsychInfo for Social Media in the the title yielded 3,811 results as of January 2019; for Facebook alone in the title 1,800 documents were found. As keywords are now being assigned differently, if each of the common platforms, such as Twitter or Snapchat is added for

keyword searches, even larger bodies of literature emerge. Using “Social Media”, or “Facebook”, or, “Snapchat”, or “Instagram”, or “YouTube”, or “MySpace” in a keyword search yielded 9,978 results as of January 2019. There’s a lot of valuable data to be gleaned in the existing papers, especially for such a new topic. There are some key areas that seem to have fostered the most interest to date.

Social Media as an Addiction

While there are remaining questions about whether to think of behavioral and substance addictions in the same category, there’s growing support for seeing them together, with common causes, functions, and consequences (Shaffer et al., 2018). While some in both psychology and psychiatry still hesitate to accept behaviors as addictions, the DSM-5 does now place gambling addiction and substance use disorders in the same category (American Psychiatric Association, 2013, pp. 584-589). The only formally recognized behavioral addiction in the DSM-5 is gambling; however, the authors called for further research into other behavioral addictions. Papers such as Shaffer et al. 2018 make strong arguments for considering the similarities between behavioral and substance use disorders. As they note, separating them into distinct treatments and assessments often leads to multiple comorbid diagnoses and multiple fragmented treatments for individuals while there are enough similarities to consider each more closely with other addictions. Taking a transdiagnostic approach is much more contemporary, and potentially a more efficient way of understanding and intervening in addictive and other behaviors.

Social media may be no different. When searching for Social Media and Addiction 331 results were found as of January, 2019. In Hormes, Kearns, and Timko (2014) the authors call the behavioral addiction to social networking, “disordered online social networking use”

(DOSNU). They used adapted measures of alcohol abuse and dependence to measure disordered online social networking use in a college sample and found 9.7% of the sample had significant scores on these adapted measures.

Some researchers (Tzavel, et al. 2015) point out that it's important not to over rely on time spent online as a significant identifier of problematic use. Reading the written accounts of conversations with adolescents who were found to experience negative outcomes, there's reason to suspect self-report of time spent online retrospectively may be particularly skewed for those with problematic use. One boy in this study reported less time online than several peers but in interview went on to describe use far beyond the hours reported, such as being online throughout the school day, and fights with parents and friends over always being online, for example. Other adolescents who reported high use, but were not experiencing negative outcomes went on to describe time spent using the internet to do research for homework or check schedules for teams and other offline groups as time spent online. The contrast indicates that particularly for hours spent online, retrospective self-report may be poor.

Similarities to other behavioral addictions

Online sex offending is a growing issue. From 1997 to 2000 there was a 68% increase in crime related to online pornography and a 200% increase in exploitation of children through pornography (Quayle, 2008). These numbers are somewhat related to several countries eliminating laws that prohibit such material. In these areas production increased, while the material itself is still illegal in other places, where it then shows up. There is a significant portion of those addicted to the Internet who are preoccupied with sexual material (Young, 2008), and the internet offers ease of access. There may be some overlap in this group and high SMU groups. It would be important to differentiate those who are seeking sexually explicit material

from those who have a more generalized overuse of SM. Moretta & Buodo (2018) note that this could be differentially conceptualized as those addicted *to* Social Media versus those addicted *on* Social Media.

While child pornography is illegal, and pedophilia is a long recognized DSM diagnosis, there are other forms of sexual motivation that are neither recognized as diagnosable disorders or criminal in any way, but still represent a different motivation for use of the Internet than that discussed in general problematic Internet or SM use. There are sites for casual sexual encounters, illicit materials, and other options, so SM, as with the Internet in general offers what Cooper, Delmonico, and Burg (2000) call the “triple-A engine” of the Internet: anonymity, accessibility, and affordability. As this section is about considering behavioral addictions as subsumed in the same class of disorders as other addictions, this statement is not meant as a dismissal of those addicted to sexually explicit material online from the general disordered SM use considerations, but rather to recognize that there is an additional motivation and function when sexual materials are sought.

In this vein, looking to research on Self Perceived Problematic Pornography Use (SPPPU), there is promising research on the connections to ER and ACT treatment. A lack of ER skills is found to correlate with addictions, while an improvement in those same skills is shown to help reduce this type of addictive behavior (Crosby & Twohig, 2016; Sniewski, Farvid, & Carte 2018). A review paper by Sniewski, Farvid, & Carte (2018) found that the only randomized control trial (RCT) of treatment for SPPPU was done utilizing ACT (Crosby & Twohig, 2016). ACT interventions showed promising results, with a 92% reduction in pornographic material viewed by the end of treatment and an 86% reduction in a three month follow up with the same participants. Interestingly, it appears that there have been several attempts to create scales to measure problematic SMU, but little mention of treatment in the

literature, whereas SPPPU seems to show the reverse , with few measures available, but several treatment papers in the literature.

Additionally, there are many games incorporated in SM sites; DSM-5 called for further research into gaming addiction (American Psychiatric Association, 2013). Gaming likely overlaps with PSMU as well. It will be important for any research in this area to look into how frequently gaming and sexual preoccupations co-occur with addictive behaviors in SM use.

Social relatedness through SM

SM is proposed to be a social feedback loop, according to Parker (Allen, 2017), so it's not surprising that a common question in research of SM is its effect on social connectedness, which is interwoven with other research questions in various studies. Some of the research focusing on social connectedness and overall well-being have asserted some marked benefits of SMU, such as that of Wiederhold (2017) who found that lifespan increased for many users and that many health professions were able to increase healthy behaviors in populations through SM outreach. In another example Choi and Toma (2014) found that SM is typically used to share positive events and when this is the case, their research found it increases positive affect. When SM supports existing, offline relationships, there is evidence to suggest it may be beneficial, particularly in increasing social connectedness (Tzavela et al., 2015). Some studies even find SM use may lead to increased self-concept through reinforcing comments from friends, particularly among adolescents (Blumberg, Rice, & Dickmeis, 2016). A study of particular interest found that following a social isolation induction, the Facebook icon shown faster than participants could consciously register reduced their sense of isolation along with their intent to reach out to friends. This study highlights a phenomenon that could be beneficial

in the moment, but may or may not prove beneficial in the long run (Knausenberger, Hellmann, & Echterhoff, 2015).

With those benefits in mind, there is research that finds significant risks for some users. Those who attempt to avoid social isolation through SM use have experienced negative outcomes, including but not limited to increased relationship discord, increased social isolation, decreased well-being, and addiction or addiction-like issues (Ahn & Shin, 2013). Some articles conclude that when online relationships supplant face to face (FtF) interactions, the impact can be negative. For example, they assert that lacking social skills may predispose some individuals to feel more comfortable in online interactions, and therefore put these individuals at a higher risk of problematic use of SM (Caplan, 2006). As a result of the findings in this literature, there are studies devoted to trying to determine what predisposes some individuals to problems associated with usage of SM (Vogel, Rose, Okdie, Eckles & Franz, 2015).

Some studies have examined finite differences in risks and benefits or attempted to determine a resolution to the disparate findings. One such example by Tzavela et al. (2015) took a qualitative look at adolescents who scored high on the Internet Addiction Test (IAT; Young, 1998) and compared their usage. The findings suggested that using time online as one of the key points of determining problematic use can lead to misinterpretation of problematic use. Several of the youths were supporting offline relationships and activities with SM. These adolescents did not appear to suffer academically or socially. In contrast those that were motivated to spend increasing lengths of time online to avoid isolation, bullying, boredom, and other negative experiences offline were also experiencing negative outcomes of their online activities. These included increased discord with parents, loss of offline friendships, lower grades, and more. This study further supported the findings of Ahn and Shin (2013) noted above. Looking at the literature as a whole, it appears that SMU may function to enhance or

supplant authentic social connectedness, and that it is not simply the form that is indicative of its beneficial or detrimental nature.

Emotion Regulation

Social Media Use As an Emotion Regulation Strategy

Relatedly, understanding whether and how people use SM to regulate emotions may help us understand some of the context-specific mechanisms and consequences of usage. To define ER there first has to be a shared concept of emotion itself. There are differing definitions and models of emotion. This paper is written from the perspective of the Modal Model of Emotion (Gross, 2015), the most prominent model of affect and ER. This model asserts that emotion is an affective, “good for me, bad for me” valuation system that can be adaptive or maladaptive (Gross, 2015). Any attempt to increase or decrease an emotional response is an attempt to regulate emotion.

There are many strategies for controlling emotion; some of these are automatic responses (for example, even infants will turn away from something unpleasant) and others are more intentional. These collective methods of control are now commonly called ER, which has become a hot topic of study across research domains in psychology. When an ER strategy increases the duration or intensity of an emotion, it is said to up-regulate, and likewise, when a strategy reduces the intensity or duration of an emotion, it is said to down-regulate. When a behavior has the effect of down-regulating negative emotions or up-regulating positive emotions, it may trigger the brain’s reward system and learning through reinforcement that is then desired repetitively. Consequently, this coping strategy can become a behavioral addiction in some cases (Wakefield, 2017).

There is research that indicates ER and deficits therein are important to understanding addictions (Berking et al., 2011). In spite of knowing the importance of this learned hedonic behavioral pattern in addictions and compulsive behaviors, research into the relationship between SMU and ER remains very limited. In a January 2019 ProQuest search for compulsive use or addiction and SM, there were 917 results. When this same search was narrowed by ER to the search parameters, only three results were available.

Affect and Affect Regulation

Affect is an umbrella term for psychological states that quickly give good-for-me/bad-for-me valuations to situations and things individuals encounter (Gross, 2015, p.5). Stress responses, emotions, and moods are among these affective states (Gross, 2015, p.5). Stress responses generally occur in situations that are perceived to be beyond an individual's coping abilities (Gross, 2015, p.5). Affect regulation can involve emotions, moods, and emotion regulation.

Emotion

Across a great variety of conceptualizations three key points of agreement about emotion are found. First, subjective experience is central to emotion. Gross (2015) defines emotions as "loosely coupled changes in the domains of subjective experience, behavior, and peripheral physiology" (Gross, 2015, p.3). This subjective experience also involves changes in an individual's autonomic and neuroendocrine systems that increase tendencies to act in certain ways. As an example, when afraid to be asked a question in class a student may or may not be aware of sinking in the seat and the shoulders rising as they try to minimize themselves and not be noticed. They may or may not consciously register the sense of wanting to hide, but react anyway. Facial expressions and body responses may generally occur automatically in response to affective states.

Second, emotions occur over time, generally lasting from seconds to minutes. A situation arises which draws the individual's attention. The appraisal of this event induces a good-for-me/bad-for-me valuation of the event. This valuation induces a response in the individual, or an affective state. There are two modes of processing events in the brain, often called top down and bottom up processing (Gross, 2015).

Likely because emotion research began with animals, the research focus was external stimuli and what affective reactions they induced in animals. Lesions on specific regions such as the amygdala or hypothalamus produced predictable responses in various species. So emotion was generally thought of as a bottom-up event, in which the senses provided data to the lower regions of the brain, such as the amygdala. In previous centuries there was a negative connotation to emotions, as they were considered more basal. However, this simple concept of emotion is insufficient in neuroimaging studies on human subjects. Some stimuli do have fairly reliable affective responses, but not to the degree found in non-human subjects; additionally, in non-human subjects prefrontal activation typically appears insignificant, where several of the same stimuli do produce significant activation of the prefrontal cortex in human subjects.

To expand this idea, Darwin is reported to have been afraid of snakes and taken himself regularly to the zoo to test his own reactions to a snake. The snake could not reach him, and he was acutely aware of that, yet he could not prevent himself from flinching when it would lunge at him. This exemplified bottom-up processing, and has borne out some validity when neuroimaging studies began to test stimuli on human subjects. Putting your hand on something hot enough to burn causes an instinctive and nearly instantaneous reaction of drawing away from the object rapidly. Even underwater, the instinct to breathe can only be overcome for so long. The trouble with the bottom-up model, taken alone, is that it cannot account for things beyond the most basic survival instincts in human subjects.

Enter appraisal theory, in which cognitive processes (top-down) evaluate the salience of stimuli relative to an individual's history, goals, etc. and that affects how, or sometimes even if, specific stimuli are perceived. Someone untrustworthy, drawing a fist back with a look of anger or disgust, would likely cause a reaction of fear, anger, or derision in us. A friend, drawing back a fist, laughing, and punching us in the shoulder, would likely cause laughter. In part this is due to what is expected of those different individuals, in part due to the sense of their differing expressions, and they are appraised differently.

Building on this, for some who live in tropical or subtropical regions, where snakes are more common, where one quickly learns non-venomous snakes in a high enough concentration keep venomous snakes and vermin that carry disease away, individuals learn to recognize varieties and non-venomous snakes become welcome farm guests. An unexpected slither from the peripheral still causes them to freeze briefly, but once the color and shape are recognized as harmless one goes about their business with little concern of the snake. With enough experience, people who live in rural areas do not worry about the venomous varieties, because it becomes automatic to recognize the properties of snakes based on real knowledge. So with learning, the appraisal of a stimulus that typically activates the amygdala no longer does so in specific contexts. With that said, even with decades of experience, an unexpected slither commonly still makes it priority number one, for salient stimuli, for at least half an instant, when an individual first perceives it.

These two theories of emotion, bottom-up, top-down, have been integrated in ER theory, as well as more generally in psychology. The bottom-up can generate emotions such as prosocial behavior from the hypothalamus and fear from the amygdala. In human subjects the prefrontal cortex can prime for certain experiences though, attuning to stimuli expected to induce specific affective reactions. The top-down model can also induce emotions based on

goals or expectations. There is not a black and white line between the processes; rather, they operate on a continuum and are interconnected in many ways based on individual differences, goals, and values.

The bottom-up, top-down theory applies to sense and perception as well as emotion. These are tightly related, but not the same. They are analogous enough to be helpful though. In general we make our way about a room by sight. However, it's common for someone to walk around their own home after dark, often without bothering to turn on the lights. They can do this because it's a learned environment and they have a top-down perception of the area (colloquially, they've "mapped it"). If something is out of place however, stubbed toes, bruised shins, etc., may ensue; many a parent will describe in explicit detail the pain of legos left in an unexpected place. When going to the dentist many people anticipate some pain, yet manage it with the expectation that it will improve their dental health in the long run. In both situations, the simple example of perception and the case of the dentist, expectations (top-down), precede and play a role in behaviors. We would not typically think of people rummaging around in the dark, with no lights, in unfamiliar environments, nor do we typically think of people intentionally setting up appointments for pain. These are both top-down. In the case of emotions however, such as the fear someone might experience about the pain of dental work, expectations *and* values or goals play a role together. In both cases though, we can see how expectations play a crucial role.

The bottom up (in this case the amygdala response) causes a reaction prior to processing. Although not all emotion inducing stimuli cause such an extreme reaction as meeting a bear in the woods, our brain still uses the bottom up processing fastest, which primes the body's metabolism and physiology for behavioral responses. The slower, top down processing, occurs over a longer time as secondary judgements are made of the event or

stimulus. There's more automatic responding primed via bottom-up processing. The top-down processing produces more intentional responding.

Moods

Moods vary from emotions in a few ways. Emotions are generally elicited by specific external stimuli and last from seconds to minutes (Gross, 2015). Emotions also tend to induce specific behavioral responses. Moods can last hours, days, or even longer. Moods can increase approach or withdrawal behavior, but are more likely to color cognition at least as much as they affect behavior, if not more so. Emotions are often analogously described as weather, clouds in the sky that change from moment to moment. In the same analogy, moods are more akin to the specific climate or seasonal changes of an area.

Emotion Regulation

Gross (2015) defines affective regulation as another umbrella term that encompasses all of an individual's efforts to influence responses to stimuli. Broadly, this encompasses emotion regulation, mood regulation, and coping. Many emotion regulation strategies are moves people make without necessarily being aware that they are regulating. Someone may go to an interview and realize just a few minutes in that things are not going well. When they arrived they wanted the job, but as they become certain they will not get it they think, 'oh well, I'm doing fine at my current job', or, 'well, I got this interview. I'll get another'. In ER literature this is called reframing. There are five commonly recognized families of strategies discussed in the Handbook of Emotion Regulation, second edition: situation selection, situation modification, attentional deployment, cognitive change, and response modulation (Gross, 2013)

The various methods of ER all have an appropriate time, place, and degree of healthy use. For example if, after a loss at a track meet a runner decides one race does not make a season and gets back to running the following day, reframing has increased his or her

persistence and resilience. On the other hand, if someone chooses to avoid all future lectures in a course because the person next to them gave them a dirty look, situation selection is then interfering with goals.

The underlying concept central to all ER strategies is that someone does something that produces or is expected to produce a positive change in their affect and this behavior then reinforces another behavior. Numerous reinforcers are known or suspected to reduce negative affect. Many people report a bit of chocolate makes them smile. People who watch sad movies cry, while people who watch a stand-up comedian laugh. A neighbor's kind words, a friend's hug, or petting a dog all produce changes in affect. These external experiences, when specifically chosen to change effect, are usually called coping mechanisms or strategies.

While coping can be positive, it can also have its dark side. Drugs, sexual deviance, or gambling are all coping mechanisms that distinctly demonstrate the danger of maladaptive, excessive, coping strategies. When intrinsic, adaptive mechanisms of ER fail, any coping mechanism used to down-regulate or move out of contact with negative affect has a potential to become maladaptive. As an example a student stressing about an upcoming exam may avoid the feeling by playing Candy Crush for six hours. They effectively avoided the negative feeling, but in so doing lost sight of their larger goal and greater values. Rather than accepting a negative feeling in pursuit of a larger goal, in the moment this student has taken the immediate payoff, ignoring the long term consequences of avoiding this unpleasant feeling. This is what the emerging field of behavioral addiction is researching. While there's a great deal of research on process addictions, at this point the fields of ER research and addiction research are working more independently of each other than in union; the merging of these two fields offers a great deal of hope for strides in understanding and treatment. Understanding whether SMU changes affect will help increase awareness of the benefits and risks. Behavioral processes that produce

addiction or excessive behaviors have the potential to affect the general population. For example, drugs would produce similar results in many human subjects. Yet some will never try them, some will try them and never care to take them again, some will use them heavily and put them down without a second thought someday, and some will become indefinitely addicted.

Acceptance and Commitment Therapy

In recent decades psychology has begun to research interventions designed to help people regulate emotion and cognition differently. Third Wave cognitive-behavioral therapies include Acceptance and Commitment Therapy (ACT; Hayes, 2004). One of its main premises is that psychological flexibility allows someone to live in a way they find meaningful and fulfilling while handling the pains that inevitably challenge every life. Psychological flexibility, a core feature of ACT, is said to incorporate six key facets of healthy functioning: contact with the present moment, acceptance, defusion, self-as-context, values, and committed action. Each of these will be explored further below. ACT looks at healthy function from a far more holistic, person centered approach. One critical place in which it “jumps off” tradition, in the field of psychology, is that it does not look to reduce symptoms of disorders, but rather looks to help individuals commit to actions they value in the face of discomfort, which is inevitable. In spite of the fact that ACT often does reduce symptoms, ACT practitioners do not focus on this as a goal because, by helping people focus on committed actions toward values and goals that are meaningful to them in the presence of discomfort, and without changing the discomfort directly, they develop greater psychological flexibility. This flexibility is the goal of ACT.

To determine if ACT would be helpful in the treatment of SM related problems we need to first know if these problems are a good conceptual fit for the ACT model, similar to other possible behavioral addictions. It has been found that the unwillingness to stay in contact with uncomfortable thoughts and feelings frequently correlates with various negative outcomes due

to efforts to get rid of those feelings (Hayes et al. 1996). In studies finding that those who seek to avoid isolation or other negative emotions through SMU tend to experience negative outcomes with use (Ahn & Shin, 2013; Moretta & Bouda, 2018; Travela, et al., 2015), there is the indication that in this context the use of SM may be harmful and treatment may be warranted. The acceptance of negative emotions is one of the things that ACT works on extensively, making ACT a possible fit for treatment.

In the treatment of SPPPU, ACT has been successful at helping reduce use with a method of treatment patients expressed appreciation of (Crosby & Twohig, 2016). As another example of the success of treatment overlap in addiction, Naltrexone is primarily listed for the treatment of narcotic addiction, but has shown promise in the treatment of alcoholism, nicotine addiction, and has some support in the literature for use in SPPPU (Sniewski, Farvid, & Carte 2018). At face value these would seem very different behaviors and substances, yet all have at least published case studies reporting similar outcomes with Naltrexone treatment. This is just one example of the same treatments showing effectiveness with different but related problems. (Shaffer et al., 2018) found notable similarities in psychological traits among those diagnosed with various addictions, offering further conceptual support for this transdiagnostic approach. This theory also finds support in the work of Sniewski, Farvid, and Carter (2018) in the comparison of treatments of SPPPU.

ACT has shown great promise, as research has delved into its use and furthered its applications. It is a developing therapy, with a solid core, but one still being tailored to unique needs. In order to apply ACT to specific issues like excessive SMU to manage emotion and cognition, an understanding of the underlying causes of these behaviors are needed. What is needed to help people “use technology without it using them” is an understanding of what function a given behavior serves and under what circumstances. When stressed, does the use

of SM distract from stress? If so, is this via an increase in connectedness or via experiential avoidance? Understanding the underlying function of SM, with greater certainty and contextual discrimination, will help practitioners guide values-directed use of SM.

Other Considerations of SMU as an ER Strategy

Having stated some reasons to consider future research into ACT as a potential treatment, and research in context specific ER and its relationship to SM use, it is important not to forget the complexity of this topic. It may be helpful to consider what flexible, resilient, adaptive use of SM looks like. While adaptive uses of heroin are generally not considered due to the high level of potential for addiction and death, for SM there appear to be examples of healthy use. It is also important not to dismiss that a nuanced way in which SM will indisputably differ from other behaviors and substances one might become addicted to is the social element. We are social beings, and as Parker stated the concept of SM was to create a social validation feedback loop and exploit a core tenant of human psychology. Thus while there will likely be common transdiagnostic features of behavioral addictions, there may also be elements that are unique to the particular behavior in context.

Along these lines it is important to recognize that while it plays to a core human need, the experience of users differs with every visit to an SM site. Someone might go to Facebook expecting to catch up on what friends are up to and wind up in an argument. This means, unlike drugs which have fairly predictable effects, SM is more like a variable reinforcement schedule. This plays a role in emotional outcome as well as addictability.

Furthermore, knowing what traits, states, and skills build resilience and promote adaptive use is helpful to consider. A paper by Burrow and Rainone (2017) found that individuals with a higher sense of purpose in life were less affected by the number of likes received on SM. The

study first examined whether self-esteem was affected by the number of likes received on SM. The study bore out a positive correlation between likes on a personal picture posted on SM and self-esteem. They found, however, that those with a higher score on the six-item life engagement test were less affected by likes in general. This study also gives a positive lead to the consideration of ACT as a treatment, as self as context, values, and goals are all worked on in the ACT model, all of which support a stronger sense of individual purpose.

A study by Satici & Uysal (2015) found that well-being was negatively associated with problematic Facebook usage. This paper by Statici and Uysal uses stepwise regression, a statistical method that's goal is to produce a good predictive model of behavior with the fewest robust independent variables essential to prediction of a behavior. In this case, their goal was to root out determinants of problematic Facebook usage. They defined well-being as a complex construct (Ryan & Deci, 2001, p.141) incorporating multivariate functioning and experience in optimal ways. For this reason they chose measures for four subjective experiences meant to typify well-being: life satisfaction, subjective vitality, flourishing, and subjective happiness. They found that each was negatively correlated with problematic Facebook use.

There is research among teens to indicate that when SM is used to nurture existing, live interactions with friends, the net result is more social connectedness(Blumberg, Rice, & Dickmeis, 2016).

Unintended Consequences of Social Media use for Emotion Regulation

In the culmination of literature reviewed some themes recur as variables to be explored further. Particularly when people attempt to avoid some negative emotion, it appears that the loss of a sense of time spent may be an inadvertent negative consequences. Studies such as

Tzavela et. al (2015) highlight the inaccuracy of user's sense of time spent. This means costs to other productive, valued activities.

Additionally, because of the varying nature of content one will find from use to use on SM, sometimes someone may seek to avoid negative feelings but in fact be exposed to more negative stimuli. It's not uncommon, due to the anonymity and other unique characteristics of the online environment for arguments, trolling, and even cyber bullying to occur. This means that, if one is hoping to escape a negative feeling they may actually come away feeling worse, depending on what they encounter. Studies on how anxiety and depression relate to online content find that those with both conditions often inadvertently reinforce their anxiety or depression. Rumination (Tran, & Joormann, 2015), upward comparison (Vogel et al. 2015), and supplanting FtF interactions (Tzavela et al., 2015) are often found to be the suspected mediators of these negative outcomes. Sadly, social anxiety in particular, makes people more likely to feel confident with online interactions over offline, but is also more likely to result in negative online experiences (Caplan, 2005).

Finally, there are some specific SM groups that reinforce dangerous behaviors, such as groups that support the maintenance of anorexic behaviors. The power of such 'echo chambers' likely has deleterious effects against treatment of such disorders. There's not a lot of research on these specific effects or groups yet.

6. Discussion

Considering Shaffer et al's (2018) assertions that addictions have similar etiology and psychological predispositions of risk, looking at the successful treatment of other addictions by increasing ER skills and the successful use of ACT in the treatment of SPUPU, provides support for further exploration of how ER functions relate to problematic use of SM and whether ACT

would be a useful treatment for those experiencing negative consequences of use. It appears useful to experiment for a better understanding of the underlying functions of SM use generally and in particular, to explore ER among SM users who are experiencing negative consequences.

Existing research indicates many are considering the topic of the psychology around SM use thoughtfully. There is a fundamentally different way of looking at SM which may give rise to additional insights, which is to consider the underlying mechanisms of use. Rather than if, when, how, or to whom SM may be harmful or beneficial, a more useful question may be what function SM serves for individuals, and then under what conditions use is beneficial or harmful. There is evidence supporting beneficial effects for those using SM as a tool to accomplish specific goals. More experimental research, based on determining underlying mechanisms may allow for greater discrimination between beneficial and harmful SMU.

At present a great deal of the studies in publication focus on adolescents and young adults. The stated reasons for this interest are sound. Most researchers are curious about how the developmental tasks of adolescence such as identity formation, social development, and others interplay with the use of Social Media. However, as we know the hedonic curve varies by age group (Riediger, Schmiedek, Wagner, & Lindenberger 2009), it is possible that Social Media will serve different functions of use and have differing outcomes for different ages. As such, future research will benefit from repeating specific studies with new age cohorts for comparison and greater generalizability.

In regards to generalizability, several good studies have been done and even several promising measures have been created, but not tested outside single domains. The Problematic SM Use scale (van den Eijnden, Lemmens, & Valkenburg 2016) is one such example. This and other studies may not be generalizable to US populations both because of cultural variance and

because of the homogeneous age cohorts chosen for the original studies. It's important to note that while the total body of literature on SM use is large for such a young topic, a significant amount of it has occurred outside our borders and as SM is a social phenomenon, cultural variation cannot be put off as a potentially significant confound to generalizability.

There is also a need for greater consensus around terminology. Lexical clarity would be a good starting ground for more cohesive research, across domains, on the questions pertaining to SM use.

7. Future research

With the DSM-5 workgroup calling for further research into Internet Addiction (Block, 2008) and Sean Parker becoming a self-proclaimed, conscientious objector warning of the addictive potential and intention of SM (Allen, 2017), there is hope that researchers in the U.S. will begin to look more thoroughly into the topic. There is a great deal of literature and research already existing in the current archives. However, as stated above, one important step is to repeat some of those studies, from other countries, in the United States population. Also, a significant portion of older adults are regular Internet users and/or have active SM accounts. Casual observation seems to indicate that older adults are not as prone to hours of unintended computer time, but casual observation is hardly scientific. As the Internet is not limited to young users, it would be beneficial to see future studies extend out to older adults. It will also be helpful to know if PSMU meets the definition of a behavioral addiction and whether it deserves separate attention from, or is really a division of Internet Addiction. Obviously all SM activity is online, however, if a significant portion of the population develop SM specific addiction patterns then it needs to be looked at as its own construct. On the other hand, as many people are using

SM for gaming or sexual connections, it is important to delve deeper and determine if SM addiction is a part *of* or *apart from* these confounding, pre-existing addictions. Rather than simply asking how long individuals are online and their dependence and cravings for SM, research also needs to explore *what* those showing signs of addiction or experiencing negative outcomes of usage are using SM for. If SM addictive patterns simply represent a vehicle for gaming or sexual preoccupations the primary treatment would be for the gaming or sexual addictions.

Finally, it is certainly the hope of this paper to inspire a deeper look at the function SM use serves for ER and if ACT is a good treatment option for those experiencing negative outcomes. There are good arguments in research such as that of Shaffer et al. (2018), that addictions are similar enough to be considered together, and there is research with positive outcomes in the treatment of addiction through ACT that provides hope for this kind of research program (e.g., Bahrami, Bahrami, & Asghari 2017; Crosby & Twohig, 2016).

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