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## Increased Levels of Anxiety Revealing Characteristics of Social Phobia Elucidated by Smartphone Use

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INCREASED LEVELS OF ANXIETY REVEALING CHARACTERISTICS OF  
SOCIAL PHOBIA ELUCIDATED BY SMARTPHONE USE

by

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A thesis submitted in partial fulfillment of the requirements for  
the Honors in the Major Program in Psychology  
in the College of Sciences and in The Burnett  
Honors College at the University  
of Central Florida  
Orlando, Florida

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Thesis Chair: Dr. Deborah Beidel

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## **ABSTRACT**

Students at the University of Central Florida completed two self-report inventories: the SPAI-23, (Social Phobia and Anxiety Inventory - 23) and MPPUS (Mobile Phone Problem Use Scale) to determine if there is a relationship between social phobia and problematic mobile phone use. Fifty one students ( $N = 51$ ) completed both surveys and the results indicated that there was a small but positive relationship between problematic cell phone use and social phobia symptoms,  $r=.28, p=.05$ . The results are discussed in terms of how social phobia might increase problematic phone use.

## **DEDICATION**

To my wife and soul mate Tsering Grant-Richardson. She gives me the stability and strength to pursue my academic endeavors.

I also would like to dedicate this work to my father Theodore Richardson III Ed.D, who simply told me if I was going to read books in psychology, that I should get credit for it.

To my thesis chair Dr. Deborah Beidel who I consider a great mentor and friend. This would not have been possible without her commitment to my success.

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## **INTRODUCTION**

Laptops, e-readers, cellular phones, and smart phones now represent everyday devices used for communication and information access. Smart phones in particular, permeate every socioeconomic status, race, and gender in the United States (Reid, 2007). One can observe people using these devices in moving vehicles, in movie theatres, in classes during a professor's lecture, and a plethora of other circumstances. It is important to make a distinction between smart phones and regular cellular phones. The former is literally a portable computer and talking device. These devices are equipped with hundreds of individual applications just like a computer. They allow the user to not only talk but play games, surf the web, download e-books, download music, watch a movie, access a bank account, update social networking statuses, and reference check just about anything. With all of these capabilities, it is understandable that these devices are widely used. Smart phones allow instant communication like no other time in modern history (Reid, 2007). Texting has created a paradigm shift in how individuals communicate. Teenagers, for example, are often reported to send hundreds of text messages a day. Expanding the capability of these devices is now the norm and new phones with advanced capabilities are marketed constantly. Given the extent to which most individuals have come to rely on their smart phones, one must wonder if reliance on this form of communication may serve a function for people who are anxious in traditional social encounters. The purpose of this thesis is to determine if there is a relationship between problematic cell phone use and social phobia, a disorder characterized by anxiety in social interactions.



## **LITERATURE REVIEW**

The intent of smart phones was to enhance human experience and interactive communication. Aboujaoude (2011) discusses how dependence on the internet may lead to increased anxiety if the individual is unable to access these resources. He also discusses the very real and problematic restructuring of the psyche that is affecting everyone that is using the internet (Aboujaoude, 2011, pg. 16).

Schimmenti and Caretti (2010) note how technology allows people to dissociate and escape reality in what is known as psychic escapes. Smart phones feed into the capricious nature of man as one can easily talk to a friend and be connected to a digital application simultaneously. New social relationships can be made through virtual worlds such as Second Life, which has created a new term to operationally define this paradigm called psychotechnologies (Schimmenti & Caretti, 2010).

When a smart phone user logs into a digital world as suggested above, the anonymity, perception of omnipotence, and the lack of boundaries make it a very attractive escape from life's controlled and sometimes mundane tasks (Schimmenti & Caretti, 2010). The following are some of the findings of Schimmenti and Caretti (2010) in a meta-analysis of available literature regarding technology and altered states of mind. People can use these virtual worlds to hide certain aspects of self or to engage in unconscious conflicts through a virtual cathartic release (Schimmenti & Caretti, 2010). According to these authors, the downside is that sexual perversions of a deviant nature can be shared by online personalities as well as excessive escapes into virtual worlds. The subsequent effect is distortions of the psyche that in some cases causes a

total loss of reality (Schimmenti & Caretti, 2010). Smart phones can allow the student in a lecture that is perceived to be boring or monotonous to escape to virtual worlds that will allow time to pass by much quicker. The virtual control that a smart phone user has can indeed become a compulsion leading to ritualized behaviors that can lead to a dissociated self when not logged on (Schimmenti & Caretti, 2010). This is an extraordinarily dangerous shift in the paradigm of technological use, but also explains why some smart phone users are compelled to update their Facebook statuses or Tweet every five minutes. In addition to the aforementioned characteristics of use, there is also a social component involved in relation to how couples interact with cell phones. To illustrate the extent to which some individuals are dependent upon this technology, Weisskirch and Delevi (2011) conducted a study revealing attachment anxiety in adults using cell phones using a sample of 128 participants (Weisskirch & Delevi, 2011). To assess attachment style, the Experiences in Close Relationships-Revised (ECR-R; Fraley, Waller, & Brennan, 2000) scale was used. The construct of “sexting” was a variable in the study to indicate sexually explicit messages being sent between people. Even though a computer could be used for such purposes, it is important to note that only cell phones were used for analysis (Weisskirch, 2011). When multiple regression analyses were conducted on the constructs of attachment style and sexting attitude, those who scored high on anxious attachment style were significantly more likely to send text messages requesting a sexual encounter of a partner (Weisskirch, 2011). This line of thought is important because according to Bianchi and Phillips (2005), mobile phone use has the possibility of becoming addictive because people can avoid uncomfortable face-to-face social interactions. With this in mind, there may be a correlation with smart phone use and characteristics of social phobia.

Social phobia is a psychological condition characterized by feelings of social inadequacy in public settings, aversions to public social interactions, and excessive timidity (Beidel, Rao, Scharfstein, Wong, & Alfano, 2010). Cell phone use would allow such a personality to not feel the pressures or anxiety of a face-to-face social encounter due to the anonymity that cell phone use allows (Reid, 2007). The individual who is timid using a cell phone can create an artificial personality and not worry about the social ramifications of being judged or critiqued (Schimmenti & Caretti, 2010). This may be one of the many reasons why there is such an increase in the use of smart phone technology.

Smart phone users also use texting as a constant source of communication with others without using their cell phone minutes. Texting is very popular due to the absence of voice, dexterity focus, and subtle anonymity (Reid, 2007). At least one author hypothesizes that it is easier for an individual to express certain things to another person that they may not feel comfortable expressing in a voice conversation (Pierce, 2009). This may be one of the reasons why hundreds of thousands of text messages are sent per month and the psychological impact of this specific behavior is worth exploring.

Current research reveals that individuals suffering from anxiety prefer texting to talking, as they perceive it to be a more comfortable form of communication (Reid, 2007). According to this author, some people prefer to text because of a dissociated texting personality contrasted with the real personality. Using an internet questionnaire (N = 158) that examined anxiety and texting preference, the results indicated that when an individual is texting, he/she feels bolder, more confident, aggressive, or confrontational (Reid, 2007). Individuals who feel introverted,

lonely, and anxious prefer texting over talking as a primary way of communicating with others (Reid, 2007).

To examine the psychological ramifications of cell phone use, the Internet Over-Use scale (IOS) and the Cell-Phone Over-Use scale were used to gather data from college students (Jenaro, Flores, Gomez-Vela, Gonzalez-Gil, & Caballo, 2007). The results indicated that full time students are highly susceptible to internet addiction because of the free time between classes, flexible schedules, and availability of use. Using logistical regression analysis, this study found that heavy internet use was directly correlated with high anxiety (Jenaro et al. 2007). Although addiction is not the primary purpose of this investigation, these researchers also suggest that internet use may be impairing academic performance. Smart phones allow constant and immediate access to internet chat rooms, virtual worlds, texting, talking, and general web surfing. These constructs can lead to less time spent with family, social isolation, and decreased direct face-to-face contact with peers (Pierce, 2009). With the increased dependency on smart phones that are correlated with communication, entertainment, scheduling, and social networking the hypothesis of this experiment is that high/problematic cell phone use may be related to social phobia.

## **METHODS**

### **Participants**

Undergraduate students at the University of Central Florida (UCF) were recruited to take two surveys; the Mobile Phone Problematic Use Scale (MPPUS) and the Social Phobia and Anxiety Inventory-23 (SPAI-23). Fifty five participants (N = 55) took the MPPUS, 41 females and 14 males. Among those who completed the MPPUS, 70.9% of participants were Caucasian, 9.1% were African American, 7.3% were Hispanic/Latino, and 12.7% were from multiple races. The majority of participants were in their junior year of college, (54.5%) followed by seniors, (34.5%) and sophomores (10.9%). Fifty one participants (N = 51) completed the SPAI-23, including 39 females and 12 males; 72.5% of participants were Caucasian, 9.8% were African American, 5.9 % were Hispanic/Latino, and 11.8% were from multiple races. Consistent with the MPPUS, 52.9% of respondents who took the SPAI-23 were in their junior year of college, followed by 35.3% seniors, and 11.8% sophomores.

### **Measures**

The MPPUS is a measure of problematic mobile phone use. It consists of 27 questions, which are rated using a Likert scale, with possible responses 1 (not true at all) to 10 (extremely true). The scale has good internal consistency (Cronbach's alpha .93) and a validity coefficient of between .42 and .43 (Bianchi & Phillips, 2005) when correlated to other scales measuring mobile phone use. The SPAI-23 inventory has 23 items that assess severity of social phobia and agoraphobia. Items are rated using a Likert-type scale with possible responses between 1 (never) and 5 (always) and the SPAI-23 has good internal consistency (Cronbach's alpha .96; Nay et. al,

2007). Similarly, the SPAI-23 has a mean convergent validity coefficient of .76 when correlated with other measures of anxiety (Nay et. al, 2007).

### **Procedure**

The research protocol for this study was approved by the IRB at the University of Central Florida. Informed consent was obtained by all participants by logging into Survey Monkey where they were able to take the MPPUS and the SPAI-23 inventories. Other than demographical data, no personal information was collected. All participants remained anonymous. A random number generator was used to compare scores on the SPAI-23 inventory to the MPPUS. Respondents were asked to pick a number between 1 and 100 with instructions to use the same number when taking the alternate survey. Participants were clearly asked to take both surveys to maintain the integrity of results. The IRB did not require a debriefing of individual scores or results, but contact numbers were included in the informed consent process that participants could call to ask questions about the study or seek help if wanted.

## RESULTS

Fifty one students ( $N = 51$ ) completed both surveys. Four students were omitted from final analysis because they did not complete the alternate survey as instructed. The SPAI-23 contains items indicating anxiety and characteristics of social phobia, but also has questions that would indicate characteristics of agoraphobia. The scale allows the calculation of a social phobia score and an agoraphobia score and both scores were calculated for the purpose of the investigation. Using the Pearson's correlation procedures, there was a small but significant relationship between scores on the MPPUS and the SPAI-23 SP score ( $r = .28, p = .05$ ), indicating that as social phobia symptoms increased, so did problematic cell phone use. In contrast, when the SPAI-23 AG (agoraphobia) was correlated with the MPPUS, the result was  $r = .21, p > .05$ . This indicates that problematic cell phone use is not significantly related to any type of anxiety but that there may be a specific relationship between social anxiety and problematic cell phone use. For females, the correlation between the SPAI-23 SP score and MPPUS was  $r = .30, p > .05$ , while correlation for male participants was  $r = .11, p > .05$  respectively. Perusal of these two coefficients suggests a much stronger relationship for females than males. It is possible that the smaller sample size for males (as opposed to the entire sample size) was responsible for the lack of statistical significance. Twenty seven ( $N = 27$ ) juniors and eighteen ( $N = 18$ ) seniors took the surveys. For juniors, the correlation between the SPAI-23 SP and MPPUS was  $r = .32, p > .05$  and for seniors the correlation was  $r = .26, p > .05$  respectively.

## **DISCUSSION**

The results of this study indicate a very modest, but significant correlation between problematic mobile phone use and degree of social phobia. Although the sample size is too small to draw definitive conclusions; the results suggest that problematic cell phone use may be specifically related to social phobia and was not just a result of any type of anxiety disorder. One could now draw this conclusion definitively without additional research studies but individuals with social phobia do have difficulty in social interactions and the more anonymous, isolated nature of cell phone use may decrease arousal regarding social interactions, thereby making it more likely that individuals with social fears would become dependent upon this form of communication.

Women had higher mean scores on both surveys than men, consistent with the general outcome that women are more likely to endorse symptoms of any type of anxiety disorder, including social phobia, than men. Furthermore, there was a stronger correlation between cell phone use and social phobia, again suggesting that individuals with more social distress are more likely to rely more on their cell phones as a means of communication.

Only five African Americans participated in the study, so results based on race were not taken into consideration. Future students should attempt to recruit sufficient samples of participants representing various races/ethnicities to determine whether this relationship is consistent across these demographic groups.

Cellular phones allow instant communication, access to the internet, and sociability. It may allow people who have difficulty in social interactions to communicate, but unfortunately



may also lead to a new form of avoidance to social stressors. Since social phobia is characterized with high levels of anxiety, timidity, and shyness in face-to-face social encounters (Beidel, Rao, Sharfstein, Wong, & Alfano, 2010), mobile phones can be used as an escape mechanism because of the anonymity to the user via texting, web surfing, and access to social networking sites. Treatments for social phobia will have to be sure to assess for problematic cell phone use and incorporate this into the overall treatment program. Mobile phones are now integrated into the fabric of society and helping individuals use their phones appropriately and not as a means of social avoidance is important.

Future research should replicate this study with a much larger sample size using a blind design to produce statistically stronger results. Bianchi and Phillips (2005) developed the MPPUS, but they did not establish cut-off scores to indicate problematic mobile phone use (Martinotti et al., 2011). Studies need to be conducted using the problematic cellular phone use questionnaire (PCPU-Q) developed by Yen et al. (2009), which items are in line with the DSM-IV-TR criteria for substance dependence (Martinotti et al., 2011). SPAI-23 SP scores can be compared to the PCPU-Q to possibly reveal an addictive component to mobile phone use which may explain the rationale behind people suffering from social phobia using cellular technology as a possible avoidance behavior. Ideally, a controlled trial might be conducted to determine if cell phone users exhibit withdrawal/heightened anxiety if they are separated from their mobile devices. This study could use a pre-test, post-test design and assess anxiety using the Spielberger State-Trait Anxiety inventory (STAI) (Hedberg, 1972). A time period would need to be established where the experimental group would be separated from their mobile phones.

There should be controls for race, gender, age, and IQ. The results from such a study would be more conclusive and statistically more relevant than self-report designs.

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